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Arizona State University

2006–2007 General Catalog

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Academic and Administrative Documents

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President Michael M. Crow

Dave Tevis photo

Dear ASU Students and Prospective Students:

Welcome to Arizona State University! I am pleased to introduce the 2006–2007 *General Catalog*. As evidenced in these pages, ASU offers a wide range of academic study, research opportunities, and resources, as well as a talented and enthusiastic faculty to provide you with a quality educational experience that is both challenging and rewarding.

The catalog is organized so that you can effectively find the information most applicable to your course of study. All of the information herein is intended to help guide you through your university experience. However, nothing can replace the guidance of a skilled academic advisor. I strongly encourage you to work closely with an advisor to plan your academic program and in turn, maximize your time at ASU.

I am tremendously excited to welcome you to ASU, and I wish you all the best for a productive and fulfilling collegiate experience.

Sincerely,

Michael Crow

Michael M. Crow
President

Contents

Course Prefixes

ASU course prefixes are preceded by a campus code to indicate the campus of the college or school that controls the course content: Downtown Phoenix (D), Polytechnic (E), Tempe (M), and West (W).

See the *Schedule of Classes*, available on the Web at www.asu.edu/registrar/schedule, to determine locations where classes are scheduled. A class may be scheduled on a campus that does not control the course.

See the "Course Prefixes" table below for the campus of the college or school responsible for the course and for the page in this catalog where the courses are listed. Courses numbered below 500 are listed in the *General Catalog*. Courses numbered 500 or higher are listed in the *Graduate Catalog*. For more information, see "Classification of Courses," page 62.

Information about all courses is available on the Web at www.asu.edu/aad/catalogs/courses; information on the Web is more current than in the printed catalogs. Access the Web site for lists of these newly approved prefixes: ALL, HIN, ICO, LAD, LAP, LDE, LNP, LTC, PLC, PRM, and TDM.

Course Prefixes

Prefix	Name	Downtown	Polytechnic	Tempe	West
AAD	Architectural Administration and Management	—	—	323	—
ABS	Applied Biological Sciences	—	222	—	—
ACC	Accountancy	—	—	298	674
ACO	Applied Computing	—	—	—	727
ADE	Architectural Design and Technology Studios	—	—	323	—
AES	Aerospace Studies	—	—	516	—
AET	Aeronautical Engineering Technology	—	262	—	—
AFH	African and African American Studies Humanities	—	—	519	—
AFR	African and African American Studies	—	—	520	—
AFS	African and African American Studies Social Science	—	—	521	—
AGB	Agribusiness	—	211	—	—
AIS	American Indian Studies	—	—	523	—
ALA	Architecture and Landscape Architecture	—	—	324	—
AME	Arts, Media, and Engineering	—	—	M*	—
AMS	American Studies	—	—	—	719
AMT	Aeronautical Management Technology	—	252	—	—
ANP	Environmental Analysis and Programming	—	—	324	—
ANT	Anthropology	—	216	—	—
APA	Asian Pacific American Studies	—	—	524	—
APH	Architectural Philosophy and History	—	—	324	—
APM	Applied Mathematics	—	216	—	—
ARA	Art Auxiliary	—	—	456	711
ARB	Arabic	—	—	586	—
ARD	Art	—	216	—	—
ARE	Art Education	—	—	457	—
ARP	Architecture Professional Studies	—	—	325	—
ARS	Art History	—	—	457	711
ART	Art	—	—	460	711
ASB	Anthropology (Social and Behavioral)	—	—	569	735
ASC	Applied Science Core	—	216	—	—

* See the *Graduate Catalog*.

Course Prefixes (continued)

Prefix	Name	Downtown	Polytechnic	Tempe	West
ASM	Anthropology (Science and Mathematics)	—	—	571	—
AST	Astronomy	—	—	626	707
ATE	Architectural Technology	—	—	325	—
AVC	Architectural Communication	—	—	325	—
BCH	Biochemistry	—	—	530	—
BCS	Serbo-Croatian	—	—	587	—
BIO	Biology	—	—	603	702
BIS	Bachelor of Interdisciplinary Studies	140	—	—	—
BLE	Bilingual Education	—	—	363	—
BLE	Bilingual/Bicultural Education	—	—	—	749
BME	Bioengineering	—	—	391	—
BUA	Business Administration	—	226	—	—
BUE	Business Education	—	—	364	—
BUS	Business	—	—	—	W*
CBS	Computational Biosciences	—	—	M*	—
CCS	Chicana and Chicano Studies	—	—	533	—
CDE	Child Development	—	—	544	—
CED	Counselor Education	—	—	369	—
CEE	Civil and Environmental Engineering	—	—	407	—
CET	Computer Engineering Technology	—	274	—	—
CFA	College of Fine Arts	—	—	442	—
CHE	Chemical Engineering	—	—	399	—
CHI	Chinese	—	—	587	—
CHM	Chemistry	—	—	530	702
CHP	Community Health Practice	D*	—	—	—
CIS	Computer Information Systems	—	—	303	676
CLS	Clinical Laboratory Sciences/Medical Technology	—	—	607	—
CMA	Communication	—	217	—	—
COE	College of Education	—	—	M*	—
COM	Communication Studies	—	—	—	681
COM	Hugh Downs School of Human Communication	—	—	565	—
CON	Construction	—	—	383	—
CPP	College of Public Programs	188	—	—	—
CPY	Counseling Psychology	—	—	M*	—
CRJ	Criminal Justice	—	—	—	684
CSE	Computer Science and Engineering	—	—	413	750
CSH	Chicana and Chicano Studies Humanities	—	—	534	—
CSS	Chicana and Chicano Studies Social Science	—	—	534	—
CST	Computing Studies	—	274	—	—
DAH	Dance History	—	—	467	—
DAN	Dance	—	—	467	—
DCI	Curriculum and Instruction	—	—	364	—
DNC	Dance	—	217	—	—
DSC	Design	—	—	318	—

* See the *Graduate Catalog*.

Course Prefixes (continued)

Prefix	Name	Downtown	Polytechnic	Tempe	West
EAC	Early Childhood East	—	230	—	—
ECD	Early Childhood Education	—	—	364	750
ECN	Economics	—	—	299	675
EDA	Educational Administration and Supervision	—	—	M*	W*
EDB	Elementary Education Program	—	—	64	—
EDC	Education East	—	230	—	—
EDP	Educational Psychology	—	—	370	750
EDT	Educational Technology	—	—	370	756
EED	Elementary Education	—	—	365	750
EEE	Electrical Engineering	—	—	419	—
EET	Electronics Engineering Technology	—	256	—	—
EGR	Engineering	—	259	—	—
ELL	English as a Second Language	—	232	—	—
ENG	English	—	—	539	721
ENH	English/Humanities	—	217	—	—
EPA	Education Policy Analysis	—	—	M*	—
EPD	Environmental Design and Planning	—	—	M*	—
ETC	Engineering Technology Core	—	248	—	—
ETH	Ethnic Studies	—	—	—	700
ETM	Environmental Technology Management	—	267	—	—
EXW	Exercise and Wellness	—	235	—	—
FAM	Family and Human Development	—	217	—	—
FAS	Family Studies	—	—	545	736
FIN	Finance	—	—	301	675
FLA	Foreign Languages	—	—	585	—
FMP	Film and Media Production	—	—	487	—
FMS	Film and Media Studies	—	—	546	—
FRE	French	—	—	587	—
FSA	Fire Service Administration	—	E*	—	—
FSE	Fulton School of Engineering	—	—	386	—
FSM	Fire Service Management	—	268	—	—
GCU	Cultural Geography	—	—	550	736
GER	German	—	—	589	—
GIT	Graphic Information Technology	—	269	—	—
GLB	Global Business	—	—	—	676
GLG	Geological Sciences	—	—	554	702
GPH	Physical Geography	—	—	551	—
GRA	Graphic Design	—	—	347	—
GRD	Division of Graduate Studies	—	—	M*	—
GRK	Ancient Greek	—	—	590	—
GRN	Gerontology	—	—	687	687
GTD	Global Technology and Development	—	E*	—	—
HCR	Health Care Related	182	—	—	—
HEB	Hebrew	—	—	590	—

* See the *Graduate Catalog*.

Course Prefixes (continued)

Prefix	Name	Downtown	Polytechnic	Tempe	West
HED	Higher and Postsecondary Education	—	—	M*	—
HES	Health Science	—	—	578	690
HHS	Human Health Studies	—	237	—	—
HIS	History	—	—	—	723
HON	Honors	—	—	148	664
HPS	History and Philosophy of Science	—	—	607	—
HSM	Health Sector Management	—	—	302	—
HST	History	—	—	559	—
HTY	History	—	217	—	—
HUD	Housing and Urban Development	—	—	341	—
HUM	Humanities	—	—	515	—
IAP	Interdisciplinary Arts and Performance	—	—	—	711
IAS	Integrative Studies	—	—	—	707
IBS	International Business Studies	—	—	305	—
IDN	Indonesian	—	—	590	—
IED	Indian Education	—	—	366	—
IEE	Industrial Engineering	—	—	424	—
IMD	Instructional Media	—	232	—	—
IND	Industrial Design	—	—	330	—
INT	Interior Design	—	—	335	—
IPO	International Programs	—	—	64	—
ITA	Italian	—	—	590	—
JAC	Joint Admission Continuous Enrollment	—	64	—	—
JMC	Journalism and Mass Communication	—	—	493	—
JPN	Japanese	—	—	591	—
JUS	Justice Studies	—	—	574	—
KIN	Kinesiology	—	—	578	—
KOR	Korean	—	—	592	—
LAT	Latin	—	—	592	—
LAW	Law	—	—	M*	—
LES	Legal and Ethical Studies	—	—	311	674
LIA	Liberal Arts and Sciences	—	—	515	—
LIN	Linguistics	—	—	M*	—
LIS	Library Science	—	—	M*	—
LSC	Life Sciences	—	—	—	702
LTE	Learning and Teaching Excellence	—	—	M*	—
MAE	Mechanical and Aerospace Engineering	—	—	431	—
MAK	Macedonian	—	—	592	—
MAS	Master of Arts in Interdisciplinary Studies	—	—	—	W*
MAT	Mathematics	—	—	616	727
MBB	Molecular Biosciences/Biotechnology	—	—	608	—
MCB	Molecular and Cellular Biology	—	—	M*	—
MCE	Multicultural Education	—	—	367	—
MCN	Mass Communication	—	217	—	—

* See the *Graduate Catalog*.

Course Prefixes (continued)

Prefix	Name	Downtown	Polytechnic	Tempe	West
MCO	Mass Communication	—	—	495	—
MET	Mechanical and Manufacturing Engineering Technology	—	262	—	—
MGT	Management	—	—	308	676
MHL	Music History/Literature	—	—	478	—
MIC	Microbiology	—	—	608	—
MIS	Military Science	—	—	621	—
MKT	Marketing	—	—	309	675
MLS	Master of Liberal Studies	—	—	M*	—
MSC	Music	—	217	—	—
MSE	Materials Science and Engineering	—	—	400	—
MTC	Music Theory and Composition	—	—	479	—
MTE	Mathematics Education	—	—	619	750
MUE	Music Education	—	—	479	751
MUP	Music Performance	—	—	480	—
MUS	Music	—	—	483	714
NLM	Nonprofit Leadership and Management	190	—	—	—
NOR	Norwegian	—	—	592	—
NTR	Nutrition	—	243	—	—
NUR	Nursing	182	—	—	—
OMT	Operations Management Technology	—	270	—	—
OPM	Operations and Production Management	—	—	—	676
PAF	Public Affairs	193	—	—	—
PGM	Professional Golf Management	—	213	—	—
PGS	Psychology (Social and Behavioral)	—	—	636	737
PHI	Philosophy	—	—	623	708
PHL	Philosophy	—	218	—	—
PHS	Physical Sciences	—	—	627	—
PHY	Physics	—	—	627	704
PLA	Landscape Architecture	—	—	325	—
PLB	Plant Biology	—	—	610	—
PLS	Political Science	—	218	—	—
POL	Political Science	—	—	—	738
POR	Portuguese	—	—	593	—
POS	Political Science	—	—	632	—
PPE	Physical Education East	—	232	—	—
PSY	Psychology (Science and Mathematics)	—	225	638	739
PUB	Scholarly Publishing	—	—	M*	—
PUP	Urban and Environmental Planning	—	—	341	—
QBA	Quantitative Business Analysis	—	—	300	675
RDG	Reading Education	—	—	367	751
REA	Real Estate	—	227	—	—
REA	Real Estate Studies	—	—	302	—
REC	Recreation Management and Tourism	191	—	—	—
REL	Religious Studies	—	—	640	729

* See the *Graduate Catalog*.

Course Prefixes (continued)

Prefix	Name	Downtown	Polytechnic	Tempe	West
ROM	Romanian	—	—	593	—
RTM	Recreation and Tourism Management	—	—	—	691
RUS	Russian	—	—	593	—
SBS	Social and Behavioral Sciences	—	—	—	740
SCA	Scandinavian	—	—	594	—
SCI	Science Education	—	233	—	—
SCL	Sociology	—	218	—	—
SCM	Supply Chain Management	—	—	312	—
SDE	Secondary Education East	—	233	—	—
SED	Secondary Education	—	—	367	753
SEM	Science and Engineering of Materials	—	—	M*	—
SET	Security Engineering Technology	—	E*	—	—
SGS	School of Global Studies	—	—	556	—
SHS	Speech and Hearing Science	—	—	646	—
SLV	Slavic	—	—	594	—
SOC	Sociology	—	—	643	741
SPA	Spanish	—	—	595	724
SPC	Special Education East	—	233	—	—
SPE	Special Education	—	—	367	754
SPF	Social and Philosophical Foundations	—	—	369	—
SPN	Spanish	—	218	—	—
STP	Statistics and Probability	—	—	619	728
SWE	Swedish	—	—	596	—
SWG	Social Work (Graduate Program)	D*	—	—	W*
SWU	Social Work (Undergraduate Program)	198	—	—	694
TEL	Teacher Education and Leadership	—	—	—	751
THA	Thai	—	—	596	—
THE	Theatre	—	—	487	714
THP	Theatre Performance and Production	—	—	488	714
THR	Theatre	—	218	—	—
TMC	Technology Management Core	—	270	—	—
TRC	Transportation Systems Certificate	—	—	M*	—
TWC	Multimedia Writing and Technical Communication	—	239	—	—
UET	Microelectronics Engineering Technology	—	257	—	—
UNI	Academic Success at the University	133	—	—	—
UNI	University Academic Success	—	—	—	665
VTN	Vietnamese	—	—	597	—
WAC	Writing Across the Curriculum	—	—	543	725
WNS	Women's Studies	—	218	—	—
WPC	School of Business	—	—	296	—
WSH	Women's Studies Humanities	—	—	649	—
WST	Women's Studies	—	—	650	744
X– –	Cohort Management	64	64	64	64

* See the *Graduate Catalog*.

ASU Baccalaureate Degrees

Baccalaureate degrees, majors, and concentrations offered by ASU colleges and schools are shown in the "ASU Baccalaureate Degrees" table below, organized by the name of the major. The table points to the primary page where more information can be found. The table shows only officially approved concentrations; other informal areas of study may also be available. The table shows the campus of the college or school offering the major: Downtown Phoenix, Polytechnic, Tempe, or West. For graduate degrees, see the "ASU Graduate Degrees" table, page 163.

ASU offers these baccalaureate degrees, abbreviated in the table below and elsewhere in the catalog:

Bachelor of Applied Science (BAS)
Bachelor of Arts (BA)
Bachelor of Arts in Education (BAE)
Bachelor of Fine Arts (BFA)
Bachelor of Interdisciplinary Studies (BIS)
Bachelor of Liberal Studies (BLS)
Bachelor of Music (BM)
Bachelor of Science (BS)
Bachelor of Science in Design (BSD)
Bachelor of Science in Engineering (BSE)
Bachelor of Science in Landscape Architecture (BSLA)
Bachelor of Science in Nursing (BSN)
Bachelor of Science in Planning (BSP)
Bachelor of Social Work (BSW)

ASU Baccalaureate Degrees

Major	Degree	Concentration[1]	Campus	Page
Accountancy	BS	— —	Tempe West	297 671
Aeronautical Management Technology[2]	BS	Air transportation management or professional flight	Polytechnic	249
Aerospace Engineering	BSE	—	Tempe	426
African and African American Studies	BA	Humanities/arts; politics and society; or social and behavioral sciences	Tempe	517
Agribusiness	BS	Agribusiness finance; food, agribusiness, and consumer products marketing; food science; general agribusiness; golf and facilities management; international agribusiness; management of agribusiness; preveterinary medicine; or professional golf management	Polytechnic	207
American Indian Studies	BS	—	Tempe	522
American Studies	BA	—	West	714
Anthropology	BA	—	Tempe	567
Applied Biological Sciences	BS	Applied biological sciences, applied biological sciences/secondary education, urban horticulture, or wildlife and restoration ecology	Polytechnic	219
Applied Computer Science	BS	—	Polytechnic	272
Applied Computing	BS	Database systems, network and distributed processing, or digital media and graphic design	West	725
Applied Psychology	BS	—	Polytechnic	224
Applied Science	BAS	Aviation maintenance management technology Aviation management technology Computer systems administration	Polytechnic Polytechnic Polytechnic	252 252 274

1 If a major offers concentrations, one must be selected unless noted as *optional*.
2 This major requires more than 120 semester hours to complete.
3 This program is also offered through the School of Extended Education.
4 Applications for this program are not being accepted at this time.
5 This program is administered by the Downtown Phoenix campus.

ASU Baccalaureate Degrees (continued)

Major	Degree	Concentration[1]	Campus	Page
Applied Science (continued)	BAS	Consumer products technology	Polytechnic	210
		Digital media management	Polytechnic	266
		Digital publishing	Polytechnic	266
		Emergency management[3]	Polytechnic	266
		Fire service management[3]	Polytechnic	267
		Food retail management	Polytechnic	210
		Food service management	Polytechnic	243
		Instrumentation	Polytechnic	256
		Internet and Web development	Polytechnic	267
		Law enforcement management	Polytechnic	267
		Manufacturing technology and management	Polytechnic	261
		Materials joining and manufacturing technology	Polytechnic	261
		Microcomputer systems	Polytechnic	274
		Multimedia writing and technical communication	Polytechnic	239
		Municipal operations management	Polytechnic	267
		Operations management technology	Polytechnic	266
		Semiconductor technology	Polytechnic	256
		Software technology applications	Polytechnic	274
		Technical graphics	Polytechnic	266
		Wellness	Polytechnic	234
		Any minor available at the West campus or an individualized concentration	West[3]	654
Architectural Studies	BSD	—	Tempe	320
Art	BA	Art history, digital art, museum studies, or studio art	Tempe	444
	BFA	Art education, ceramics, drawing, fibers, intermedia, metals, painting, photography, printmaking, or sculpture	Tempe	448
Asian Languages (Chinese/ Japanese)	BA	—	Tempe	580
Biochemistry	BA	—	Tempe	527
	BS	Optional: medicinal chemistry[1]	Tempe	528
Bioengineering	BSE	—	Tempe	386
Biology	BS	Optional: biology and society[1]	Tempe	597
Business Administration	BS	—	Polytechnic	225
Chemical Engineering	BSE	—	Tempe	393
Chemistry	BA	—	Tempe	525
	BS	Optional: environmental chemistry[1]	Tempe	526
Chicana and Chicano Studies	BA	Humanities/cultural sciences or social sciences/policy	Tempe	533
Civil Engineering	BSE	Optional: construction engineering or environmental engineering[1]	Tempe	403
Clinical Laboratory Sciences	BS	—	Tempe	598
Communication	BA, BS	—	Tempe[3]	564
Communication Studies	BA, BS	—	West	678
Computational Mathematical Sciences	BS	—	Tempe	613
Computer Information Systems	BS	—	Tempe	303
Computer Science	BS	Optional: software engineering[1]	Tempe	410

1 If a major offers concentrations, one must be selected unless noted as *optional*.

2 This major requires more than 120 semester hours to complete.

3 This program is also offered through the School of Extended Education.

4 Applications for this program are not being accepted at this time.

5 This program is administered by the Downtown Phoenix campus.

ASU Baccalaureate Degrees (continued)

Major	Degree	Concentration[1]	Campus	Page
Computer Systems[2]	BS	Computer hardware technology or embedded systems technology	Polytechnic	272
Computer Systems Engineering	BSE	—	Tempe	411
Conservation Biology	BS	—	Tempe	599
Construction	BS	General building construction, heavy construction, residential construction, or specialty construction	Tempe	380
Criminal Justice and Criminology	BS	—	West	683
Dance	BFA	Choreography, dance education, dance studies, or performance	Tempe	464
Design Science[4]	BSD	—	Tempe	314
Early Childhood Education	BAE	—	Tempe	356
Economics	BS	—	Tempe	298 535
Electrical Engineering	BSE	—	Tempe	416
Electronics Engineering Technology[2]	BS	Electronic systems, microelectronics, or telecommunications	Polytechnic	254
Elementary Education	BAE	— Optional: bilingual education/English as a second language or early childhood education[1] Optional: indigenous teacher preparation program or multilingual/multicultural education[1]	Polytechnic West Tempe[3]	227 746 359
Engineering	BSE	—	Polytechnic	258
Engineering Interdisciplinary Studies[4]	BS	—	Tempe	375
Engineering Special Studies	BSE	Premedical engineering	Tempe	434
English	BA	Creative writing, linguistics, or literature —	Tempe[3] West[3]	537 715
Environmental Technology Management	BS	—	Polytechnic	265
Ethnicity, Race, and First Nations Studies	BA	—	West	698
Exercise and Wellness	BS	Exercise and wellness or health promotion	Polytechnic	233
Family and Human Development	BS	Optional: family studies/child development[1]	Tempe	544
Film	BA	Film and media production Film and media studies	Tempe Tempe	485 545
Finance	BS	—	Tempe	301
French	BA	—	Tempe	581
Geography	BA, BS	Meteorology-climatology or urban studies	Tempe	547
Geological Sciences	BS	—	Tempe	553
German	BA	—	Tempe	581
Global Business	BS	Financial management, leadership and management, or marketing	West	669

[1] If a major offers concentrations, one must be selected unless noted as *optional*.

[2] This major requires more than 120 semester hours to complete.

[3] This program is also offered through the School of Extended Education.

[4] Applications for this program are not being accepted at this time.

[5] This program is administered by the Downtown Phoenix campus.

ASU Baccalaureate Degrees (continued)

Major	Degree	Concentration[1]	Campus	Page
Global Studies	BA	—	Tempe	556
Graphic Design	BSD	—	Tempe	346
Graphic Information Technology	BS	—	Polytechnic	265
History	BA	—	Tempe[3] West[3]	557 717
Housing and Urban Development	BSD	—	Tempe[3]	340
Human Health Studies	BA, BS	—	Polytechnic	237
Industrial Design	BSD	—	Tempe	326
Industrial Engineering	BSE	—	Tempe	421
Integrated Studies	BA, BS	—	Tempe	508
Integrative Studies	BA	Any minor available at the West campus or individualized concentration	West	706
Interdisciplinary Arts and Performance	BA	—	West	709
Interdisciplinary Studies	BIS	See the "BIS Concentrations" table, page 142.	Polytechnic[3] Downtown[3]	214 139
Interior Design	BSD	—	Tempe	331
Italian	BA	—	Tempe	581
Journalism and Mass Communication	BA	Journalism, media analysis and criticism, media management, media production, or strategic media and public relations	Tempe	492
Justice Studies	BS	—	Tempe	573
Kinesiology	BS	Exercise science, movement science, or teacher preparation[4]	Tempe	576
Landscape Architecture	BSLA	—	Tempe	321
Leadership in International Management	BS	—	West	670
Liberal Studies	BLS	—	Tempe	508
Life Sciences	BS	—	West	700
Management	BS	—	Tempe	306
Manufacturing Engineering Technology[2]	BS	Manufacturing engineering technology or mechanical engineering technology	Polytechnic	260
Marketing	BS	—	Tempe	309
Materials Science and Engineering	BSE	—	Tempe	396
Mathematics	BA BS	— Optional: statistics[1]	Tempe Tempe	612 612
Mechanical Engineering	BSE	—	Tempe	429
Mechanical Engineering Technology[2]	BS	Aeronautical engineering technology, automation engineering technology, or mechanical engineering technology	Polytechnic	260
Microbiology	BS	—	Tempe	599

[1] If a major offers concentrations, one must be selected unless noted as *optional*.

[2] This major requires more than 120 semester hours to complete.

[3] This program is also offered through the School of Extended Education.

[4] Applications for this program are not being accepted at this time.

[5] This program is administered by the Downtown Phoenix campus.

ASU Baccalaureate Degrees (continued)

Major	Degree	Concentration[1]	Campus	Page
Molecular Biosciences/ Biotechnology	BS	—	Tempe	600
Multimedia Writing and Technical Communication	BS	—	Polytechnic	238
Music	BA	—	Tempe	471
Music Education[2]	BM	Choral-general, instrumental, or string	Tempe	471
Music Therapy[2]	BM	—	Tempe	473
Nursing	BSN	—	Polytechnic[5] Downtown[3] West[3, 5]	215 176 687
Nutrition	BS	Dietetics, food and nutrition management, human nutrition, or nutrition communication	Polytechnic	240
Operations Management Technology	BS	—	Polytechnic	265
Performance	BM	Collaborative piano, guitar, jazz, keyboard, music theatre, orchestral instrument, or voice	Tempe	474
Philosophy	BA	—	Tempe	622
Physics	BS	—	Tempe	624
Plant Biology	BS	Environmental science and ecology or plant biochemistry and molecular biology	Tempe	600
Political Science	BA, BS	—	Tempe[3] West	629 731
Psychology	BA, BS	—	Tempe[3] West[3]	635 732
Real Estate	BS	—	Polytechnic	226
Recreation	BS	Recreation management or tourism management	Downtown	189
Recreation and Tourism Management	BS	—	West	688
Religious Studies	BA	—	Tempe[3]	639
Russian	BA	—	Tempe	582
Secondary Education	BAE	Academic specializations: biological sciences, business, chemistry, Chicana and Chicano studies,[4] economics, English, family and human development,[4] French, geography, German, history, Japanese, mathematics, physics, political science, social studies, or Spanish Academic specializations: English, history, mathematics, or social studies Academic specialization: physical education	Tempe West Polytechnic	359 752 228
Selected Studies in Education[4]	BAE	—	Tempe	360
Social and Behavioral Sciences	BA, BS	—	West	730
Social Work	BSW	—	Downtown[3] West[3]	195 692

[1] If a major offers concentrations, one must be selected unless noted as *optional*.

[2] This major requires more than 120 semester hours to complete.

[3] This program is also offered through the School of Extended Education.

[4] Applications for this program are not being accepted at this time.

[5] This program is administered by the Downtown Phoenix campus.

ASU Baccalaureate Degrees (continued)

Major	Degree	Concentration[1]	Campus	Page
Sociology	BA	—	Tempe[3]	642
			West[3]	733
	BS	—	West[3]	733
Spanish	BA	—	Tempe	582
			West	719
Special Education	BAE	—	Tempe	354
			West	753
Speech and Hearing Science	BS	—	Tempe	646
Supply Chain Management	BS	—	Tempe	311
Theatre	BA	Optional: acting or scenography[1]	Tempe	484
Theory and Composition	BM	Composition or theory	Tempe	477
Urban Planning	BSP	—	Tempe	337
Women and Gender Studies	BA	—	Tempe	649
Women's Studies	BA, BS	—	West	743

[1] If a major offers concentrations, one must be selected unless noted as *optional*.
[2] This major requires more than 120 semester hours to complete.
[3] This program is also offered through the School of Extended Education.
[4] Applications for this program are not being accepted at this time.
[5] This program is administered by the Downtown Phoenix campus.

Academic Organization

ASU is one university organized around colleges and schools rather than campuses. The units shown have faculty members who offer courses toward academic credit. To determine the campus where a college or school is located, refer to the "ASU Academic Organization" table below.

ASU Academic Organization

Unit	Campus	Page
Barrett Honors College	All	145
Barrett Honors College at the West Campus	West	663
College of Design	Tempe	313
Department of Industrial Design		326
Department of Interior Design		331
Department of Visual Communication Design		344
School of Architecture and Landscape Architecture		318
School of Planning		337
College of Education	Tempe	349
Division of Curriculum and Instruction		363
Division of Educational Leadership and Policy Studies		368
Division of Psychology in Education		369
College of Human Services	West	677
Department of Communication Studies		678
Department of Criminal Justice and Criminology		683
Department of Recreation and Tourism Management		688
Department of Social Work		692
Gerontology Program (university-wide program)		686
Nursing (Tempe campus program)		687
College of Law	Tempe	496
College of Liberal Arts and Sciences	Tempe	499
African and African American Studies Program		517
American Indian Studies Program		522
Asian Pacific American Studies Program		524
Department of Aerospace Studies		515
Department of Chemistry and Biochemistry		525
Department of Chicana and Chicano Studies		533
Department of English		537
Department of Family and Human Development		544
Department of Geography		547
Department of Geological Sciences		553
Department of History		557
Department of Kinesiology		576
Department of Languages and Literatures		580
Department of Mathematics and Statistics		612
Department of Military Science		620
Department of Philosophy		622
Department of Physics and Astronomy		624
Department of Political Science		629
Department of Psychology		635
Department of Religious Studies		639
Department of Sociology		642
Department of Speech and Hearing Science		646
Hugh Downs School of Human Communication		564

ASU Academic Organization (continued)

ASU Academic Organization (continued)

Unit	Campus	Page
New College of Interdisciplinary Arts and Sciences (continued)	West	696
Department of Language, Cultures, and History		714
Department of Mathematical Sciences and Applied Computing		725
Department of Social and Behavioral Sciences		730
Ethnic Studies Program		698
Interdisciplinary Studies Graduate Program		696
Religious Studies Program		729
Women's Studies Program		743
School of Global Management and Leadership	West	667
Department of Accounting		671
Department of Economics, Finance, Marketing, and Quantitative Business Analysis		675
Department of Management		676
University College	All	132
Academic Success at the University		133
School of Extended Education		134
School of Interdisciplinary Studies		139
University College at the Polytechnic Campus		—
University College at the West Campus		665
Writing Across the Curriculum		133
W. P. Carey School of Business	Tempe	288
Department of Economics		298
Department of Finance		301
Department of Information Systems		303
Department of Management		306
Department of Marketing		309
Department of Supply Chain Management		311
School of Accountancy		297
School of Health Management and Policy		302
Walter Cronkite School of Journalism and Mass Communication	Tempe	491

University Calendar

March 2006

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April 2006

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May 2006

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June 2006

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July 2006

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August 2006

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2006 Summer Sessions

Check the *Summer Sessions Bulletin* for details and to confirm these dates.

Mon., Mar. 20–Wed., May 31	Registration and drop/add for first five-week session and eight-week session
Mon., Mar. 20–Thurs., July 6	Registration and drop/add for second five-week session
Tues., May 2	Final tuition payment deadline for all summer sessions (For students who register on or after the deadline, fees are due daily.)
Mon., May 29	Memorial Day holiday
Tues., May 30	Instruction begins for first five-week session and eight-week session
Fri., June 16	Course withdrawal deadline for first five-week session and eight-week session
Mon., July 3	August graduation filing deadline
Fri., June 30	Complete withdrawal deadline for first five-week session
Fri., June 30	First five-week session ends
Wed., July 5	Instruction begins for second five-week session
Fri., July 21	Complete withdrawal deadline for eight-week session
Fri., July 21	Course withdrawal deadline for second five-week session
Fri., July 21	Eight-week session ends
Fri., Aug. 4	Complete withdrawal deadline for second five-week session
Fri., Aug. 4	Second five-week session ends

2006 Fall Semester

Check the fall *Schedule of Classes* for details and to confirm these dates.

Thurs., Mar. 23–Fri., Mar. 31	Preregistration
Mon., Apr. 17–Sun., Aug. 27	Drop/add
Wed., Apr. 19–Sun., Aug. 27	Registration
Tues., Aug. 1	Final tuition payment deadline for fall 2006 (For students who register on or after the deadline, fees are due daily.)
Tues., Aug. 15–Sat., Aug. 19	Residence halls open (Check-in date varies by community/last name. Refer to the schedule provided by Residential Life.)
Thurs., Aug. 17	New Faculty and Academic Professional Orientation and Reception
Thurs., Aug. 17–Sun., Aug. 20	ASU Sun Devil 101
Mon., Aug. 21	Instruction begins
Mon., Sept. 4	Classes are excused for Labor Day holiday
Mon., Oct. 16	December graduation filing deadline
Sun., Oct. 29	Course withdrawal deadline
Fri., Nov. 10	Classes are excused for Veterans Day holiday

September 2006

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October 2006

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November 2006

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December 2006

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January 2007

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February 2007

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March 2007

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Thurs., Nov. 23–Fri., Nov. 24	Classes are excused for Thanksgiving recess
Tues., Dec. 5	Complete withdrawal deadline
Tues., Dec. 5	Instruction ends
Wed., Dec. 6	Reading day
Thurs., Dec. 7–Wed., Dec. 13	Final examinations
Thurs., Dec. 14	Commencement
Fri., Dec. 15	Residence halls close for semester break
Sat., Dec. 16	Midyear recess begins

2006 Winter Session

Call 480/727-9900 to confirm dates for Winter Session.

Mon., Oct. 2	Winter Session registration begins
Wed., Dec. 27	Winter Session instruction begins
Mon., Jan. 1, 2007	Winter Session classes are excused for New Year's Day holiday
Fri., Jan. 12, 2007	Winter Session instruction ends

2007 Spring Semester

Check the spring *Schedule of Classes* for details and to confirm these dates.

Mon., Oct. 23–Tues., Oct. 31, 2006	Preregistration
Mon., Nov. 13, 2006–Sun., Jan. 21, 2007	Drop/add
Wed., Nov. 15, 2006–Sun., Jan. 21, 2007	Registration
Tues., Dec. 12, 2006	Final tuition payment deadline for spring 2007 (For students who register on or after the deadline, fees are due daily.)
Wed., Jan. 10	Residence halls open
Mon., Jan. 15	Classes are excused for Martin Luther King Jr. Day holiday
Tues., Jan. 16	Instruction begins
Sun., Mar. 11–Sun., Mar. 18	Classes are excused for spring recess; semester midpoint
Sun., Mar. 25	Course withdrawal deadline
Fri., Mar. 30	May graduation filing deadline
Tues., May 1	Complete withdrawal deadline
Tues., May 1	Instruction ends
Wed., May 2	Reading day
Thurs., May 3–Wed., May 9	Final examinations
Thurs., May 10	Commencement
Fri., May 11	Residence halls close

2007 Summer Sessions

Check the *Summer Sessions Bulletin* for details and to confirm these dates.

Mon., Mar. 19–Wed., May 30	Registration and drop/add for first five-week session and eight-week session
Mon., Mar. 19–Tues., July 3	Registration and drop/add for second five-week session

April 2007

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May 2007

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June 2007

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July 2007

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August 2007

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Tues., May 1	Final tuition payment deadline for all summer sessions (For students who register on or after the deadline, fees are due daily.)
Mon., May 28	Memorial Day holiday
Tues., May 29	Instruction begins for first five-week session and eight-week session
Fri., June 15	Course withdrawal deadline for first five-week session and eight-week session
Fri., June 29	Complete withdrawal deadline for first five-week session
Fri., June 29	First five-week session ends
Mon., July 2	August graduation filing deadline
Mon., July 2	Instruction begins for second five-week session
Wed., July 4	Classes are excused for Independence Day holiday
Fri., July 20	Complete withdrawal deadline for eight-week session
Fri., July 20	Course withdrawal deadline for second five-week session
Fri., July 20	Eight-week session ends
Fri., Aug. 3	Complete withdrawal deadline for second five-week session
Fri., Aug. 3	Second five-week session ends

Frequently Asked Questions

How do I apply to ASU? Complete an application at www.asu.edu/apply. Have all required transcripts and test scores sent directly to

UNDERGRADUATE ADMISSIONS
PO BOX 870112
TEMPE AZ 85287-0112

For more information, see "Undergraduate Admission," page 66; or call the Polytechnic campus at 480/727-3278, the Downtown Phoenix and Tempe campuses at 480/965-7788, or the West campus at 602/543-8203.

Can I transfer college credit? ASU accepts college-level (not remedial) course credit in which you have earned a grade of "C" (4.00=A) or higher from regionally accredited institutions. It is up to the ASU college or school of your major to determine how transferable courses fulfill degree requirements at ASU. You must be admitted to ASU before an academic advisor can evaluate your transcripts. You may transfer up to 64 credits from a two-year college. While there is no limit to the number of courses that you may transfer from a regionally accredited, four-year institution, you must earn a minimum of 30 semester hours at ASU to receive a degree from ASU.

What if I have a disability or am a veteran? If you have a disability and will be requesting academic accommodations, at the Tempe campus see "Disability Resource Center," page 282, at the West campus see "Margaret Francis Disability Resource Center (DRC)," page 658; see also "Applicants with Disabilities," page 73. If you're a student who is a veteran using GI benefits, see "Veterans Services," page 66.

How do I get financial aid? In addition to applying for admission, complete the *Free Application for Federal Student Aid* (FAFSA) by the March 1 ASU priority filing date. If you apply after this date, you are considered a late applicant and are less likely to receive some aid types, including grants, Federal Work-Study, and Federal Perkins loans. You may complete an electronic application at www.fafsa.ed.gov or obtain a paper FAFSA from any high school or college in your community, or from the ASU Student Financial Assistance office. See "Student Financial Assistance," page 66, and "Financial Aid," page 59.

How do I apply for campus housing? Once you have been admitted, you should apply for campus housing. The priority deadline of February 1 is important to keep in mind because campus housing is not guaranteed. For more information, at the Tempe campus see "Residential Life," page 279, call 480/965-3515, or access the Residential Life Web site at www.asu.edu/studentaffairs/reslife. For the West campus, see "West Campus Housing," page 662, call 602/543-CASA, or access the Web site at www.west.asu.edu/lascasas.

Where do I get information about meal plans? For more information, call 480/965-3464, or access the Campus Dining Web site at www.asucampusdining.com.

How do I sign up for orientation? Students are expected to complete orientation. The program provides answers to your questions about class registration, student IDs, on-campus housing, student activities, and more. Learn more and register at www.asu.edu/admissions/orientation. Tempe transfer students should complete orientation online at www.asu.edu/admissions/transferorientation.

How do I get an ID, and what about parking? See "Proof of Identification," page 81, about obtaining an ASU student ID card. If you are planning to park at any of the ASU campuses, you must purchase a parking decal. See "Parking Decals," page 54. Polytechnic campus students may obtain student ID cards in the Union and parking decals in the Student Affairs Complex, Bldg. 350.

What about placement examinations and university testing requirements? See "Placement Examinations," page 79, and "University Testing Requirements," page 75.

Before I register for classes, how do I get an advisor? Call the college of your major to schedule an appointment with an academic advisor. See "Academic Advising," page 79. Access ASU's Academic Advising Directory at uc.asu.edu/advising/directory.

When and how do I register? See the *Schedule of Classes* for registration procedures and dates, or access registration information online at www.asu.edu/registrar. Remember that you must first provide proof of measles immunity to the Campus Health Service before you can register for classes. See "Immunization Requirements," page 74.

Once I am registered, how can I ensure my success at ASU? Consider enrolling in UNI 100. See "University College," page 132.

What's left to do now that the business is taken care of? Become involved by getting to know professors, joining student organizations, and taking advantage of the many cultural, recreational, and social opportunities. For more information about the Polytechnic campus, see"Polytechnic Campus Student Services," page 204; for Tempe campus, see "Tempe Campus Student Services," page 279; for the West campus, see "West Campus and Student Services," page 657. Investigate the challenges and advantages of the Barrett Honors College. See "The Barrett Honors College," page 145.

Academic Definitions

Academic Renewal. Under certain circumstances an undergraduate who has been readmitted to the university after an absence of at least five years may have the former record treated in the same manner as transfer credits. See "Academic Renewal," page 81.

Advanced Placement. Students who have taken an advanced placement course of the College Entrance Examination Board (CEEB) in their secondary school and who have taken an Advanced Placement Examination of the CEEB may receive credit. See "Advanced Placement," page 74.

AECP. The American English and Culture Program features an intensive course of study designed for adult international students who desire to become proficient in English as a second language. See "American English and Culture Program," page 73.

Audit Enrollment. A student who audits a course pays tuition and attends regularly scheduled class sessions but earns no credit. See "Audit Enrollment," page 83.

Buckley Amendment. See "Family Educational Rights and Privacy Act" in this section and "Student Records," page 87.

CLEP. As part of the College-Level Examination Program (CLEP), students who have taken a College-Level Examination of the College Entrance Examination Board may receive credit. See "College-Level Examination Program (CLEP)," page 75.

Complete Withdrawal. Students may withdraw from all of their classes and receive a grade of "W" in each course through the semester transaction deadline.

Comprehensive Exam. A comprehensive examination is intended to permit a student to establish academic credit in a field in which the student has gained experience or competence equivalent to an established university course. See "Comprehensive Examinations," page 75.

Concentration. A concentration is a formalized selection of courses within a major.

Cooperative Education. Cooperative Education is any educational program that requires alternating classroom and work experience in government or industry. The work experience exists for its educational value. See "Cooperative Programs," page 82.

Corequisite. A requirement to be met *while* taking one course, such as taking another particular course, is a corequisite. See also "Prerequisite" in this section.

Course Prefix. A course prefix is a three-letter designation assigned to a group of courses. The "Course Prefixes" table, page 7, provides a comprehensive list. See also "Cross-Listing" in this section.

Course Withdrawal. During the second week through the 10th week of a fall or spring semester, or the third day through the third week of a summer session, or until the midpoint of the term for winter and flexibly scheduled sessions, a student may withdraw from any course with a mark of "W." See the *Schedule of Classes* or the *Summer Sessions Bulletin* for dates of the withdrawal period.

Credit Enrollment. One semester hour represents a minimum of one 50-minute class exercise per week per semester. A minimum of 120 semester hours is required for graduation with a baccalaureate degree. To obtain credit, a student must be properly registered and pay fees for the course.

Cross-Listing. One course may have more than one course prefix and may be offered by more than one instruction unit. Some units may require students to enroll in a course under a certain prefix to receive credit properly. Catalog course descriptions indicate courses that are cross-listed.

Cum Laude. An undergraduate student with a minimum of 50 or 56 semester hours of course work at ASU (depending on the campus) and a cumulative GPA of 3.40 to 3.59 graduates *cum laude*. See "Graduation with Academic Recognition," page 92. See also "Magna Cum Laude" and "Summa Cum Laude" in this section.

Declaration of Graduation. The Declaration of Graduation uses the Degree Audit Reporting System (DARS). DARS is an automated process that matches courses a student has completed with the requirements of a particular academic degree program, producing a report that shows the student which requirements are satisfied and which remain to be fulfilled. See "Declaration of Graduation," page 91.

Drop/Add. Drop/add is a process in which a student who has registered for courses for a semester or summer session may drop or add courses through the first week of classes in a semester or the first two days of a summer session. See "Drop/Add," page 84.

Family Educational Rights and Privacy Act. The federal Family Educational Rights and Privacy Act of 1974, also known as FERPA or the Buckley Amendment, sets forth the requirements governing the protection of the privacy of the education records of students who are or have been in attendance at ASU. See "Student Records," page 87.

Freshman. A student who has earned 24 or fewer semester hours is a freshman.

General Studies Requirement. This is a university requirement of all undergraduates. See "Meeting the General Studies Requirement," page 93.

GPA. The ASU grade point average (GPA) is obtained by dividing the total number of ASU honor points earned by the number of ASU semester hours graded. Grade point

averages are rounded to the nearest hundredth of a grade point. See "Grade Point Average," page 85.

Grade Points. For the purpose of computing the GPA, grade points are assigned to each of the grades for each semester hour. For example, three points are assigned for a "B." See "Grades and Marks," page 83.

Graduate Catalog. The *Graduate Catalog* describes the procedures and requirements for enrollment in the Division of Graduate Studies. See "Division of Graduate Studies," page 150.

Graduate-Level Courses. Courses numbered from 500 to 799 are designed for graduate students. See "Graduate-Level Courses," page 62.

Incomplete. A mark of "I" (incomplete) is given by the instructor only when a student who is otherwise doing acceptable work is unable to complete a course because of illness or other conditions beyond the student's control. See "Incomplete," page 83.

International Baccalaureate. Students who have taken a higher-level examination through the International Baccalaureate program may receive university credit. See "International Baccalaureate (IB) Diploma/Certificate," page 75.

Junior. A student who has earned from 56 to 86 semester hours is a junior.

Lower-Division Courses. Courses numbered from 100 to 299 are designed primarily for freshmen and sophomores. See "Lower-Division Courses," page 62.

Magna Cum Laude. A student with a minimum of 56 semester hours of course work at ASU and a cumulative GPA of 3.60 to 3.79 graduates *magna cum laude*. See "Graduation with Academic Recognition," page 92. See also "Cum Laude" and "Summa Cum Laude" in this section.

Major. A major is a formalized group of courses contained within the program of study. See "ASU Baccalaureate Degrees," page 13, and "ASU Graduate Degrees," page 163.

Minor. A minor is a formalized group of courses contained within the program of study available from some instruction units. See "Minors," page 126.

Omnibus Course. An omnibus course is offered on an experimental or tutorial basis when the course content is new or periodically changes. See "Omnibus Courses," page 63.

Pass/Fail Enrollment. A mark of "P" (pass) or "E" (0.00) (fail) may be assigned for this grading option. This grading method may be used at the option of individual colleges and schools within the university. See "Pass/Fail Enrollment," page 83.

Placement Examination. A proficiency examination is given to waive a course requirement, validate certain transfer credits in professional programs, or determine a student's ability in a field where competence is an important consideration. See "Placement Examinations," page 79.

Prerequisite. A requirement to be met *before* registering for one course, such as completing another particular course, is a prerequisite. See also "Corequisite" in this section.

Probation. A student's college assumes responsibility for enforcing academic standards and may place any student on probation who has failed to maintain good standing. A student on academic probation is required to observe any rules or limitations the college may impose as a condition for retention. See "Probation," page 87.

Senior. A student who has earned 87 or more semester hours is a senior.

Sophomore. A student who has earned from 25 to 55 semester hours is a sophomore.

Summa Cum Laude. A student with a minimum of 56 semester hours of course work at ASU and a cumulative GPA of 3.80–4.00 graduates *summa cum laude*. See "Graduation with Academic Recognition," page 92. See also "Cum Laude" and "Magna Cum Laude" in this section.

TOEFL. The Test of English as a Foreign Language (TOEFL) is taken by students whose native language is not English. See "TOEFL," page 73, and "AECP," in this section.

Transcript. An official transcript is a copy of the student's permanent academic record that lists in chronological order all courses taken at ASU. The official transcript includes all grades received, is signed and dated by the registrar, and displays the seal of the university. An unofficial transcript is an uncertified copy of the academic record. Unofficial transcripts include all information shown on the official transcript, plus information concerning changes, additions, etc., to the record. See "Transcripts," page 86.

Upper-Division Courses. Courses numbered from 300 to 499 are designed primarily for juniors and seniors. See "Upper-Division Courses," page 62.

General Information

Arizona State University has emerged as a leading national and international research and teaching institution. Located in the Phoenix metropolitan area, this rapidly growing, multicampus public research university offers programs from the baccalaureate through the doctorate for approximately 58,156 full-time and part-time students through ASU at the Tempe campus; the West campus in northwest Phoenix; a major educational center in downtown Phoenix; the Polytechnic campus, located at the Williams campus (formerly Williams Air Force Base) in southeast Mesa; and other instructional, research, and public service sites throughout Maricopa County. See the "Fall 2004 Enrollment" table below.

Fall 2004 Enrollment

Type	Students
Total	58,156
Polytechnic campus	3,983
Tempe campus	49,171
West campus	7,734
National Merit Scholars (incoming freshmen)	162

MISSION

Arizona State University's goal is to become a world-class university in a multicampus setting. Its mission is to provide outstanding programs in instruction, research, and creative activity, to promote and support economic development, and to provide service appropriate for the nation, the state of Arizona, and the state's major metropolitan area. To fulfill its mission, ASU places special emphasis on the core disciplines and offers a full range of degree programs—baccalaureate through doctorate, recognizing that it must offer quality programs at all degree levels in a broad range of fundamental fields of inquiry. ASU will continue to dedicate itself to superior instruction; to excellent student performance; to original research, creative endeavor, and scholarly achievement; and to outstanding public service and economic development activities. As a result of this dedication, ASU was named to Research Extensive (formerly Research I) status in 1994, recognizing ASU as a premier research institution.

ORGANIZATION

Arizona State University is part of a university system governed by the Arizona Board of Regents, a body with perpetual succession under the constitution and laws of Arizona. The board consists of eight citizens appointed by the governor of the state for terms of eight years, and two students; the elected governor and state superintendent of public instruction are members ex officio.

The regents select and appoint the president of the university, who is the liaison between the Arizona Board of Regents and the institution. The president is aided in the administrative work of the institution by the provosts, vice presidents, deans, directors, department chairs, faculty, and other officers. Refer to "Tempe Campus," page 850.

The academic units develop and implement the teaching, research, and service programs of the university, aided by the university libraries, museums, and other services.

The faculty and students of the university play an important role in educational policy, with an Academic Senate, joint university committees and boards, and the Associated Students serving the needs of a large institution.

ACADEMIC ACCREDITATION AND AFFILIATION

See "Accreditation and Affiliation," page 855.

EQUAL OPPORTUNITY AND AFFIRMATIVE ACTION

It is the policy of ASU to provide equal opportunity through affirmative action in employment and educational programs and activities. Discrimination is prohibited on the basis of race, color, religion, national origin, citizenship, sex, gender identity, sexual orientation, age, disability, special disabled veteran, other protected veteran, or Vietnam-era veteran status. Equal employment opportunity includes but is not limited to recruitment, hiring, promotion, termination, compensation, benefits, transfers, university-sponsored training, education, tuition assistance, and social and recreational programs. The director of Equal Opportunity/Affirmative Action is the Title IX coordinator.

ASU is committed to taking affirmative action in increasing opportunities at all levels of employment and to increasing participation in programs and activities by all faculty, staff, and students. Affirmative action is directed toward

minority persons, women, special disabled veterans, other protected veterans, Vietnam-era veterans, and persons with disabilities.

University Policy Prohibiting Discriminatory Harassment

Harassment Prohibited. Subject to the limiting provisions of "Freedom of Speech and Academic Freedom" specified below, it is a violation of university policy for any university employee or student to subject any person to harassment on university property or at a university-sponsored activity.

Harassment Defined. Actions constitute harassment if (1) they substantially interfere with another's educational or employment opportunities, peaceful enjoyment of residence, or physical security, and (2) they are taken with a general intent to engage in the actions and with the knowledge that the actions are likely to substantially interfere with a protected interest identified above. Such intent and knowledge may be inferred from all the circumstances.

Freedom of Speech and Academic Freedom. Neither this nor any other university policy is violated by actions that amount to expression protected by the state or federal constitutions or by related principles of academic freedom. This limitation is further described in the ASU First Amendment Guidelines, the current version of which supplements this policy and is available in the Office of General Counsel.

Relationship to the Work of the Campus Environment Team. If harassment is discriminatory, it falls within the education, monitoring, reporting, and referral functions of the Campus Environment Team. Harassment is discriminatory if taken with the purpose or effect of differentiating on the basis of another person's race, sex, gender identity, color, national origin, religion, age, sexual orientation, disability, or Vietnam-era veteran status.

Student Antiretaliation Statement

Students have the right to be free from retaliation. Threats or other forms of intimidation or retribution against a student who files a complaint or grievance, requests an administrative remedy, participates in an investigation, appears as a witness at an administrative hearing, or opposes an unlawful act, discriminatory practice or policy, are prohibited. Individuals making such threats are subject to university disciplinary procedures. Students with complaints of retaliation should utilize the procedures available under the *Arizona Board of Regents Student Code of Conduct*, the Graduate Student Grievance Procedure, the Student Employee Grievance Procedure, the Sexual Harassment Policy, nondiscrimination policies, or other available administrative procedures as appropriate. For assistance with procedures, students should contact the dean of the particular college if the circumstances relate to a course or academic evaluation, or the dean of students for all other circumstances.

INTERGROUP RELATIONS CENTER

The first-of-its-kind, student-founded Intergroup Relations Center (IRC) enhances the university's primary directives of teaching and learning through the application of social justice approaches to diversity, intergroup relations programming, and scholarship in partnership with campus and external communities.

Through structured interaction programs for faculty, staff, and students—including intergroup dialogues, retreats, institutes, and educational and training workshops—the center promotes diversity as one of the university's greatest assets. The educational work of the center encompasses race, gender identity, age, ethnicity, sexual orientation, disability status, nationality, adult re-entry, and other salient social identities found at ASU.

The center offers student programs that complement courses. For example, the Voices of Discovery intergroup dialogue program brings together small groups of students from different backgrounds for honest, reflective dialogue guided by trained facilitators. Additional programs include weekend retreats on diversity in the professions and on service leadership, and research and practicum internships on diversity and social justice issues.

For faculty and staff, the center offers initiatives addressing issues of diversity in the workplace and the classroom. These include Faculty Cross-Talks which connect faculty, instructors, and researchers across disciplines in developing research projects, and the Diversity Summit Series which provides opportunities to talk and work with nationally and internationally recognized scholars, master teachers, and policy experts.

IRC participates in and offers involvement opportunities with national research. These include program and publication initiatives on intergroup dialogues, anti-bias education, women of color in academia, and diverse democracy outcomes.

For more information regarding diversity resources and ways to get involved, visit the Intergroup Relations Center in SSV 278, call 480/965-1574, or access the IRC Web site at www.asu.edu/provost/intergroup.

HISTORY OF ARIZONA STATE UNIVERSITY

On February 26, 1885, House Bill 164, "An Act to Establish a Normal School in the Territory of Arizona," was introduced in the 13th Legislative Assembly of Arizona Territory by John Samuel Armstrong. The bill, strongly supported by Charles Trumbull Hayden of Tempe, passed the House on March 6 and the Council on March 11 and was signed by Governor F.A. Tritle on March 12, 1885, thereby founding the institution known today as Arizona State University. Under the supervision of Principal Hiram Bradford Farmer, instruction was instituted on February 8, 1886, when 33 students met in a single room on land donated by George and Martha Wilson of Tempe.

The institution began with the broad obligation to provide "instruction of persons…in the art of teaching and in all the various branches that pertain to good common school education; also, to give instruction in the mechanical arts and in husbandry and agricultural chemistry, the fundamental law of the United States, and in what regards the rights and duties of citizens."

With the growth of the state, especially the surrounding Phoenix metropolitan area, the school has carried forward this charter, accompanied by successive changes in scope, name, and governance.

The Early Years. For the first 14 years, the school was governed by six principals. At the turn of the century and with another new name, Normal School of Arizona, President Arthur John Matthews brought a 30-year tenure of progress to the school.

He assisted in changing the school to an all-college student status; the Normal School had enlisted high school students who had no other secondary educational facilities in Arizona. He embarked on a building schedule that included the state's first dormitories. Of the 18 buildings constructed while Matthews was president, six are still in use. His legacy of an "evergreen campus," with the importing of many shrubs and trees and the planting of Palm Walk, continues to this day; the Tempe campus is a nationally recognized arboretum.

Matthews also saw to it that the Normal School was accredited outside the state. His service on national education organization boards was conducive to this recognition. The school remained a teacher's college in fact and theory during Matthews' tenure, although the struggle to attain status as a university was ongoing.

An extraordinary event occurred March 20, 1911, when former President Theodore Roosevelt visited the Tempe school and spoke from the steps of Old Main. He had dedicated the Roosevelt Dam the day before and was impressed with Arizona. He noted that construction of the dam would benefit central Arizona's growth and that of the Normal School. It would be another year before the territory became a state.

During the Great Depression, Ralph W. Swetman was hired as president for a three-year term. This was a time of uncertainty for educational institutions. Although enrollment increased due to the depression, many faculty were terminated and faculty salaries were cut. The North Central Association became the accrediting agency for Arizona State Teachers College.

The Gammage Years. In 1933, Grady Gammage, then president of Arizona State Teachers College at Flagstaff, became president of Arizona State Teachers College at Tempe, a tenure that would last for nearly 28 years.

The Graduate Division was created in 1937, and the first master's program was established the same year.

On March 8, 1945, the three state institutions of higher learning came under the authority of one Arizona Board of Regents, which oversees ASU today.

The phenomenal growth of the college began after the end of World War II. Dr. Gammage had foreseen that the G.I. Bill of Rights would flood campuses everywhere with returning veterans. Many of the veterans who had received military training in Arizona had fallen in love with the state and vowed to return after the war. The numbers within one year were staggering: in the fall semester of 1945, 553 students were enrolled; over the weekend semester break in January 1946, enrollment increased 110 percent to 1,163 students. Successive semesters saw continuing increased enrollment.

Like his predecessor, Dr. Gammage oversaw the construction of a number of buildings. His greatest dream, that of a great auditorium, came to fruition after his death. He laid the groundwork for it with Frank Lloyd Wright, who designed what is now the university's hallmark building, Grady Gammage Memorial Auditorium, built in 1964.

Years of Growth and Stature. During the 1960s, with the presidency of Dr. G. Homer Durham, Arizona State University began its academic rise with the establishment of several new colleges (the College of Fine Arts, the College of Law, the College of Nursing, and the School of Social Work) and the reorganization of what became the College of Liberal Arts and Sciences and the College of Engineering and Applied Sciences. Perhaps most important, the university gained the authority to award the Doctor of Philosophy and other doctoral degrees.

The next three presidents—Harry K. Newburn, 1969–71, John W. Schwada, 1971–81, and J. Russell Nelson, 1981–89—and Interim President Richard Peck, 1989, led the university to increased academic stature, expansion of the campuses, and rising enrollment.

Under the leadership of Dr. Lattie F. Coor, from 1990 to June 2002, ASU grew to serve the Valley of the Sun through multiple campuses and extended education sites. His commitment to diversity, quality in undergraduate education, research, and economic development underscored the university's significant gains in each of these areas over his 12-year tenure. Part of Dr. Coor's legacy to the university was a successful fund-raising campaign. Through private donations, primarily from the local community, more than $500 million was invested in targeted areas that significantly impact the future of ASU. Among the campaign's achievements were the naming and endowing of the Barrett Honors College, the Katherine K. Herberger College of Fine Arts, and the Morrison School of Agribusiness and Resource Management at the Polytechnic campus; the creation of many new endowed faculty positions; and hundreds of new scholarships and fellowships.

A New Vision. ASU entered a new era on July 1, 2002, when Dr. Michael M. Crow joined the university as its 16th president. At his inauguration, President Crow highlighted his vision for transforming ASU into a model for the *New American University*—one that is open and inclusive; that embraces its cultural, socioeconomic, and physical setting; and that promotes entrepreneurship, use-inspired research, and global engagement. As the only research university serving the metropolitan Phoenix area, ASU is in a unique position to evolve in lockstep with its region to become one of the premier intellectual institutions in the world.

The university's vision and advancing commitment to enhanced accessibility and quality is evidenced by the admittance of its largest and most accomplished freshman class in fall 2005 and its numerous nationally recognized programs in various fields, including accounting, astrobiology, creative writing, design science, ecology and evolutionary biology, electron microscopy, music, nanotechnology, psychology, solid-state science, and supply chain management.

In addition, ASU continues its most aggressive capital building effort in more than a decade. With the fall 2005 opening of the second phase of the Biodesign Institute at Arizona State University, ASU advances its augmentation of more than 1,000,000 square feet of world-class research infrastructure. Recently completed projects, such as the

Decision Theater for the New Arizona, and ongoing projects, such as the McAllister Academic Village, further reinforce the university's leading-edge role in shaping higher education in the 21st century.

In addition, the university has undertaken a significant realignment initiative, "One University in Many Places," which applies a college/school-centric model to restructuring across four distinct, full-service campuses Valley-wide, including a new proposed Downtown Phoenix campus.

Research Extensive Status. ASU was named to Research Extensive (formerly Research I) status by the Carnegie Foundation for the Advancement of Teaching in early 1994. Nationally, 88 universities have been granted this status, indicating successful garnering of support for research projects and educating future scientists.

Athletics

The original nickname for the Normal School of Arizona athletic teams was the Owls. Athletics other than Sunday hikes and lawn tennis were not part of the early curriculum.

During President Matthews' tenure, some team competition began. The Tempe Bulldogs saw some interesting and rough competition with the University of Arizona Wildcats. In the 1940s, the college's teams became the Sun Devils.

In 1979, the university joined the Pacific-10 Conference. In 1987, ASU became the first Arizona football team to play in the Rose Bowl, defeating the University of Michigan Wolverines 22–15. ASU made its second appearance in 1997 against Ohio State.

In 2004–2005, ASU finished 11th nationally in the Sports Academy Directors' Cup, which recognizes the top athletic programs in the country. Thirteen teams finished in the top 20 nationally with four teams posting top 10 finishes. Men's and women's cross country both finished seventh; baseball, third; and women's golf, eighth.

UNIVERSITY CAMPUSES AND SITES

ASU comprises the Polytechnic campus, Tempe campus, West campus, Downtown Phoenix campus, the ASU Research Park, and various other entities and facilities. See the"ASU Campus Locations" map, on this page.

Downtown Phoenix. See "Downtown Phoenix Campus," page 173.

Polytechnic. The Polytechnic campus of the university opened in 1996 and serves approximately 5,000 undergraduate and graduate students. Located in the Southeast Valley, the 600-acre campus offers many of the features of a small residential college in a suburban area while providing access to the resources of the Tempe campus and the amenities of the metropolitan Phoenix area.

The Polytechnic campus offers a variety of undergraduate and graduate degrees and certificate programs. Sharing the campus with ASU are two community colleges, an elementary school, a regional airport, a golf course, and several corporate research facilities. A partnership with Chandler-Gilbert Community College provides lower-division general education, general interest, and major prerequisite courses

to Polytechnic campus students and transfers the credits seamlessly to ASU.

Fully mediated classrooms and specialized educational facilities such as the Microelectronics Teaching Factory, the Graphic Information Solutions facility, and the flight program's Altitude Chamber offer unique teaching-learning opportunities.

On-campus housing for married students and families in addition to traditional residence halls for single students are available. The Freshman Year Experience residence halls offer a specialized community that integrates a variety of academic resources into residential life.

A shuttle service provides transportation between the Polytechnic campus and the Tempe campus. The campus, located at Power and Williams Field Roads in Mesa, is easily accessible via major interstate routes. For more information, see "Polytechnic Campus," page 200.

Tempe. The Tempe campus is located near the heart of metropolitan Phoenix in the city of Tempe (population 161,624). Nearby are the municipalities that make up the fast-growing Valley of the Sun: Chandler, Gilbert, Glendale, Mesa, Scottsdale, and other communities.

The Tempe campus comprises more than 700 acres and offers outstanding physical facilities to support the university's educational programs. The campus is characterized by broad pedestrian malls laid out in an easy-to-follow grid plan, spacious lawns, and subtropical landscaping.

West. The West campus, located in northwest Phoenix, is a vital component of ASU. The campus serves nearly 8,000 students, offering a highly personalized, student-centered education. It offers an interdisciplinary education for undergraduates, as well as an array of professional programs grounded in the liberal arts. The West campus offers 32 bachelor's degree programs, nine master's degrees, one doctoral degree, and eight professional certificates.

West campus's colleges and schools are a force in the creation and communication of knowledge through its interdisciplinary teaching, research, and outreach programs. West campus faculty are active scholars engaged in a wide variety of research to enhance the community, build new knowledge, and expand the frontiers of science. Research activities are diverse, including quality-of-life issues in the metropolitan region, applied leadership challenges for public and private organizations, and enhanced teacher education. Students benefit from the unique blend of interactive, classroom-based learning communities, community-and field-based learning experiences, and faculty-student research partnerships that address important societal issues.

The West campus commitment to integrated learning extends to Las Casas, an apartment-style, living-learning–based housing facility. Las Casas features a community center, tutoring, and other academic support services.

As a full-service campus, West campus includes a child development center, student health center, bookstore, fitness center, credit union, computer center, food service facilities, theater, and meeting rooms. The campus offers valuable resources for the community, including fine arts and cultural programs, consulting for public and private organizations, workshops, and special events.

The campus is located in northwest Phoenix between 43rd and 51st Avenues on West Thunderbird Road, easily accessed from Interstate 17 and Loop 101.

For more information, see "Fletcher Library at the West Campus," page 33, and "West Campus," page 651.

Downtown Center at ASU. The Downtown Center at ASU is located in central Phoenix at 502 E. Monroe. The center offers a variety of daytime and evening courses and degree programs of interest to employees in private businesses and government agencies and to individuals seeking personal growth and enrichment. These offerings are scheduled at a variety of convenient times and offered through various modes of delivery. Professional continuing education, certificate programs, and lecture series are also available. Access to ASU library information and resources, ASU computing resources, and the Internet is available through the center's computer lab.

ASU Research Park. The mission of the ASU Research Park is to enhance Arizona's high-value research-based economic development and to build the university's capacity to educate and advance knowledge. To this end, the Research Park serves to attract new corporate and regional headquarters and research and development firms to Arizona—headquarters and firms that broaden the base for potential research, interact with graduate students, consult with university faculty, cosponsor seminars on research topics, and provide employment opportunities for ASU graduates.

The Research Park has numerous major tenants, including ASML, Avnet Technology Solutions, Bright Horizons Family Solutions, Edward Jones, Iridium Satellite, the ASU Macro Technology Works, Philips Semiconductors, the U.S. Army's Flexible Display Center, and many others. The Research Park contains more than 1.6 million square feet of developed space on 324 acres.

For more information, access the Web site at researchpark.asu.edu.

Camp Tontozona. Located in the famed Mogollon Rim country near Kohl's Ranch, northeast of Payson, this continuing education facility serves the needs of academic departments conducting teaching and research in mountain terrain. The camp is also available to faculty, staff, graduate students, and alumni for family use. For more information, call 480/965-6851.

Deer Valley Rock Art Center. Deer Valley Rock Art Center, located two miles west of the Black Canyon Freeway on Deer Valley Road, is operated by the ASU Department of Anthropology in consultation with the Hopi, Yavapai, and Gila River Indian tribes. It includes more than 1,500 petroglyphs that cover the eastern slope of Hedgpeth Hills. For more information, call 623/582-8007.

The Arboretum. The Arboretum at Arizona State University is the entire 722-acre Tempe campus. The Arboretum is home to a flourishing oasis of plants from around the world. This virtual outdoor classroom includes more than 300 species of trees and other woody ornamental and herbaceous plants from diverse geographic regions as well as the Sonoran Desert. The Arboretum contains one of the best collections of palms and conifers in the desert Southwest and a

growing collection of native Southwestern plants. The Arboretum's date palm collection has received international recognition by the American Association of Botanical Gardens and Arboreta North American Plant Collection Consortium.

The Arboretum's collection began with Arthur J. Matthews. By the time Matthews' 30-year presidency was finished, nearly 1,500 trees of 57 species and more than 5,700 feet of hedges were planted. One of his most enduring landscape projects was the planting of Mexican Fan Palms along Palm Walk in 1916, which extends from University Drive south to the Student Recreation Complex. Today the Arboretum has expanded its collection to include nearly 4,000 trees of 164 species/varieties.

The Arboretum is open to the public free of charge 365 days a year from dawn to dusk. Walking tours of the various collections and points of interest are designated by signage denoting those areas. Many of the plants in the collection throughout campus are marked with identification plaques.

U.S. Passport Acceptance Office. Located in the International Programs Office, TMPCT 198, this office serves the public Monday through Friday from 9 A.M. to 4 P.M. For more information, call 480/965-0877, or access the Department of State Web site at travel.state.gov.

UNIVERSITY LIBRARIES AND COLLECTIONS

Collectively, the ASU University Libraries is one of the premier research libraries in the country. The nationally ranked collections comprise nearly four million volumes, more than 34,000 periodical and serial subscriptions, thousands of sound recordings and videos, and hundreds of thousands of government documents and maps. ASU is a member of the Association of Research Libraries and the Center for Research Libraries.

The library's Web site (www.asu.edu/lib) serves as a gateway to the library's catalog, hundreds of scholarly databases, and thousands of electronic books and journals. Computing workstations with Internet access are available for use in all library facilities. Wireless networks in each library allow for laptop connectivity to library and campus resources. Borrowing privileges and access to collections vary from unit to unit. Orientation tours are scheduled throughout the year, and library staff are available for consultation on resources and services. In addition to in-house assistance, the ASU University Libraries provides students with 24/7 research assistance through an online "Ask a Librarian" live chat service (www.asu.edu/lib/help).

All the libraries promote academic success by connecting students and faculty to a wide range of information resources available in the library and/or accessible via the Internet.

Libraries at the Tempe Campus

Libraries at the Tempe Campus include the Charles Trumbull Hayden Library, the Architecture and Environmental Design Library, the Music Library, the Daniel E. Noble Science and Engineering Library, and the John J. Ross–William C. Blakley Law Library.

For telephone numbers, see "Libraries," page 904. For more information, access the Web site at www.asu.edu/lib.

Charles Trumbull Hayden Library. The Charles Trumbull Hayden Library houses the largest multidisciplinary collection at ASU. In addition to the open stack areas, separate collections and service areas include Access for Disability Accommodations; Circulation; Periodicals/Videos/Microforms; Government Documents Services; Interlibrary Loan and Document Delivery Services; Library Information, Systems, and Technology; Reference; Reserve; and archival repositories available at the Luhrs Reading Room; see "Archives and Special Collections," page 34. For more information about Hayden Library, access the Web site at www.asu.edu/lib/libraries/hayden.

Architecture and Environmental Design Library. Located on the first floor of the College of Design/North building, this library's main collection focuses on architecture, design, graphic design, interior design, landscape architecture, and planning. The library's Special Collections and Archives, Architectural Drawings Collection, and Materials Resource Center provide additional opportunities for specialized research. For more information, access the Web site at www.asu.edu/lib/libraries/architecture.

Music Library. A large collection of music scores, recordings, books, music reference materials, and listening facilities for individuals and groups is located on the third floor of the Music Building, West Wing. For more information, access the Web site at www.asu.edu/lib/libraries/music.

Daniel E. Noble Science and Engineering Library. The Daniel E. Noble Science and Engineering Library houses the Map Collection; and books, journals, and microforms in the sciences, engineering, and nursing. For more information, access the Web site at www.asu.edu/lib/libraries/science.

John J. Ross–William C. Blakley Law Library. The John J. Ross–William C. Blakley Law Library is located on McAllister Avenue. For more information, see "Law Building and Law Library," page 496, or access the Web site at www.law.asu.edu/library.

Library at the Polytechnic Campus

Located in the Academic Center Building, this library provides a full range of services to the Polytechnic campus and Chandler-Gilbert Community College. Numerous specialized online research databases and Internet services are available for student and faculty use. As a primarily electronic research library, it is designed to take maximum advantage of new technology. Electronic indexes, catalogs, and journals support study and research in many fields, with an emphasis on the majors offered at the Polytechnic campus. For more information, access the library's Web site at eastlib.poly.asu.edu.

Fletcher Library at the West Campus

Fletcher Library provides resources that support the curricula offered at the West campus. Liaison librarians are assigned to each academic program and provide course-related instruction, class Web pages, research support for faculty, and individual consultations with students. Assistance in the selection of resources and instruction in the use of electronic databases and other library materials is

provided at the Reference Desk. The Library Instruction Program provides an introduction to the research process and to the tools and resources available in an academic discipline, including Internet resources. For library hours and services, access the Web site at library.west.asu.edu, or call 602/543-8501.

University Collections

Arizona Historical Foundation. Under a cooperative agreement with ASU, the Arizona Historical Foundation houses a library of several thousand volumes, manuscript collections, maps, and photographs, and a large collection of audiovisual materials. Housed in the Charles Trumbull Hayden Library, the collection's focus is on the history of Arizona and the Southwest. For more information, access the Web site at www.ahfweb.org.

Archives and Special Collections. ASU Libraries offers eight archival repositories and collections of special published materials: Arizona Collection, University Archives, Special Collections, Child Drama Collection, Benedict Visual Literacy Collection, Labriola National American Data Center, Chicano Research Collection, and the Archives and Special Collections of the Architecture and Environmental Design Library. All of these repositories preserve and make accessible manuscript and archival collections, photographs, videotapes, books, periodicals, and other materials of rarity or special significance. Thousands of archival materials have been digitized and are accessible through the Web sites associated with each repository. The Luhrs Reading Room offers evening and weekend service hours during the fall and spring semesters. For more information, access the Web site at www.asu.edu/lib/archives.

PERFORMING AND FINE ARTS FACILITIES

ASU Art Museum. The ASU Art Museum, a cultural destination in the Phoenix metropolitan area, serves a diverse community of artists and audiences through innovative programming that is both interdisciplinary and educational. Exhibitions, education programs and publications, and events are designed to engage viewers with art that is relevant to their lives. New technologies in art and in approaches to reaching new audiences are eagerly and openly adopted. Areas of particular emphasis in curatorial research, collecting, and exhibiting include: contemporary art, new media, ceramics and other crafts, prints, art from Arizona and the Southwest, and the art of Latin America (modern, contemporary, and folk art).

The ASU Art Museum presents the museum and its functions to the public through open storage of art works and by encouraging viewer interaction with art and members of the museum staff. For an educational perspective, the museum offers a bridge that spans from the viewer to the work of art rather than merely explaining the artwork. Community outreach, a natural function of the overall museum orientation, is pursued in partnership with other cultural institutions and engages particular sectors of the population. It reaches new audiences through nontraditional methods, and often through activities in local schools and neighborhoods.

Founded in 1950 with an important gift of historic paintings by U.S. artists, the museum's collection features over 14,000 objects, including 4,000 prints and 4,000 ceramic artworks.

The Americas Gallery showcases artworks from the museum's collection and emphasizes a global orientation to art produced in the hemisphere. The Americas Gallery is semi-permanently installed in order to offer viewing opportunities of artworks by Gilbert Stuart, Winslow Homer, Georgia O'Keeffe, Thomas Hart Benton, Arthur Dove, Robert Motherwell, Diego Rivera, David Alfaro Siquerios, and Rufino Tamayo, and an outstanding selection of Mexican modern prints.

Contemporary art holdings include works by Deborah Butterfield, Enrique Chagoya, Sue Coe, Vernon Fisher, Lawrence Gipe, Luis Jimenez, Nam June Paik, and Lorna Simpson. The museum owns the largest collection of 1990s-generation Cuban art outside of the island and a growing collection of Latin American art, including works by Pedro Álvarez, Belkis Ayón, Franklin Cassaro, Kcho (Alexis Levya Machado), Jarbas Lopes, Los Carpinteros, Oscar Oiwa, Sandra Ramos José Angel Toirac, as well as nationally-acclaimed collections of ceramics housed in the Ceramics Research Center (including Robert Arneson, Rudy Autio, Viola Frey, Bernard Leach, Maria Martinez, Ken Price, Lucie Rie, Akio Takamori, Peter Voulkos, and Kurt Weiser) and turned wood objects (Efrain Almeida, David Ellsworth, Todd Hoyer, Mel Kendrick, Mark Lindquist, Ed Moulthrop, Philip Moulthrop, and Bob Stocksdale).

Exhibitions and collections are housed in galleries and study rooms within the international award-winning Nelson Fine Arts Center. The center was designed by Antoine Predock.

Educational programs include artist residencies, interaction with students and visitors, a student docent program, internships, research assistantships, lectures, symposia, in-gallery materials, school and public tours, and a museum travel program. For information on current and future exhibitions and programs at the ASU Art Museum, call 480/965-2785, or access the museum's Web site at asuartmuseum.asu.edu.

Computing Commons Gallery. Located on the ground floor of ASU's high-traffic, centrally located Computing Commons, the gallery extends the arts to a diverse community. This Arts, Media, and Engineering Program (AME) exhibition space has highly adaptable power and lighting options and more than 30 Ethernet connections to facilitate work with a focus on art and technology.

Dance Multimedia Learning Center. The Department of Dance Multimedia Learning Center is a facility designed to promote and encourage the use of media and computer technology in dance education and performance at ASU.

Dance Studio Theatre. The Dance Studio Theatre is a 300-seat facility that serves as the mainstage performance site for three to four professional concerts produced annually by the Department of Dance. It also is the primary venue for student concerts, senior capstone performances, and presentations as well as other special events and activities. The theatre is designed with both interactive and telematic capabilities. The facility uses video-based motion sensing and

enables dancers to interact with sound, lighting, images, and video in performance. High-speed Internet connectivity enables this space to connect with other telematic spaces for dual, multisite, and Web performances.

Digital Arts Ranch. The Digital Arts Ranch is a black box performance space with a flexible infrastructure for multiple types of sensing and audio and visual playback and presentation. Features include 5.1 surround audio, multiple projection surfaces, and reconfigurable audience arrangements. As the principal AME presentation venue, the ranch is also used on a daily basis for realization of research and class work and is home to the AME performance ensemble. The ranch and the Technology Development Studio share shop facilities for design and fabrication in a variety of scales and materials, with a standard suite of tools ranging from woodworking to light machining, with CAD and other 3-D design capabilities.

Galleria. The Galleria features work by ASU faculty, staff, and local artists. Exhibits rotate monthly. Located in downtown Phoenix in the Downtown Center at ASU, the Galleria participates in the monthly and annual art tours—First Friday and Art Detour—sponsored by a local arts group, ArtLink, Inc. For information on exhibitions, call 480/965-3046.

Gallery 100. Located across the street from the Tempe campus Bookstore, Gallery 100 features undergraduate and invitational exhibitions of fine arts.

Gallery of Design. Housed in the College of Design, the Gallery of Design is used to display student work, semester end final critiques, shows exhibiting faculty work, an annual alumni show, and special exhibits. Exhibits tend to focus on architecture, design, and planning and landscape design. It is open Monday through Friday from 8 A.M. to 5 P.M., except when the university is closed.

Paul V. Galvin Playhouse. Built to stage the largest productions of the ASU Mainstage Theatre, the Paul V. Galvin Playhouse is a 496-seat proscenium-stage theatre set at the east end of the Nelson Fine Arts Center. The School of Theatre and Film's annual season of six to eight plays also includes productions in the Lyceum theatre with additional productions in the Prism Theatre and the Nelson Fine Arts Center Studios. The Paul V. Gavin Playhouse also is a mainstage performance venue for three professional concerts produced annually by the Department of Dance.

Grady Gammage Memorial Auditorium. A versatile center for the performing arts designed by Frank Lloyd Wright and named for the late ASU President Grady Gammage, Grady Gammage Memorial Auditorium seats 3,000 and has won wide acclaim for its design and acoustics. In addition to the great hall and related facilities—including the Aeolian-Skinner organ contributed by Hugh W. and Barbara V. Long—the building contains classrooms and workshops for the Katherine K. Herberger College of Fine Arts.

Harry Wood Gallery. Located in the Art Building, the Harry Wood Gallery features graduate, juried, and invitational exhibitions of fine arts.

The Intelligent Stage. The Intelligent Stage is a research environment and performance space at the Arts, Media, and Engineering (AME) Program. It is dedicated to the expansion of studies in interactive performance technologies. Current research includes 3-D motion capturing and 2-D sensing technologies, body sensors for real-time control of digital media, and multisite performances through the use of shared data and streaming digital media. The Intelligent Stage serves as the Interdisciplinary Research Environment for Motion Analysis, which includes faculty from 12 departments across campus.

Katzin Concert Hall. Located in the west wing of the Music Building, the Katzin Concert Hall seats 350 people. Primarily used for solo and chamber music recitals, the hall houses a nine-foot Hamburg concert Steinway piano. The acoustics are enhanced by the maple-paneled stage and the multifaceted walls and ceiling.

Louise Lincoln Kerr Cultural Center. Located in Scottsdale, the Louise Lincoln Kerr Cultural Center offers cultural events, especially in the performing arts, to the community.

Lyceum Theatre. A 162-seat proscenium theatre, the Lyceum Theatre is a venue for ASU Mainstage Theatre productions as well as School of Theatre and Film colloquia and special events.

J. Russell and Bonita Nelson Fine Arts Center. Designed by Albuquerque architect Antoine Predock, the J. Russell and Bonita Nelson Fine Arts Center is a spectacular, 119,000-square-foot, village-like aggregate of buildings that includes five galleries of the ASU Art Museum, the Paul V. Galvin Playhouse, the University Dance Laboratory, seven specialized theatre and dance studios, a video studio, and a variety of scenic outdoor features, including courtyards, fountains, pools, and a 50-by-100-foot projection wall designed for outdoor video.

Northlight Gallery. The Northlight Gallery is dedicated to museum-quality exhibitions of historical and contemporary photography. Located in Matthews Hall, it is open during the academic year.

Organ Hall. Located in the Music Building, the Organ Hall houses the Fritts Organ. This tracker-action pipe organ is designed to capture the qualities of baroque European organs. The hall is designed to complement the organ with a barrel-vaulted ceiling and wooden benches to seat 166 persons.

Prism Theatre. The Prism Theatre is an alternative performance studio devoted to productions presented by the School of Theatre and Film Student Production Board.

Recital Hall. Located on the fifth floor of the Music Building, the Recital Hall is an intimate 125-seat facility that opens onto a rooftop courtyard.

Evelyn K. Smith Music Theatre. As part of the music complex, the Evelyn K. Smith Music Theatre, modeled after the Wagnerian Theatre in Bayreuth, Germany, rises five stories and seats an audience of 500. This theatre is the home of many operatic and musical productions.

Step Gallery. Located in the Tempe Center, the Step Gallery is dedicated to exhibitions by undergraduate students.

Sundome Center for the Performing Arts. As America's largest single-level theatre, the Sundome Center for the Performing Arts in Sun City West has 7,169 seats. The theatre is equipped with sophisticated, state-of-the-art lighting systems, and a single-span roof affords each seat a clear view. As one of Arizona's premier entertainment venues, the Sundome provides an array of top entertainment from Las Vegas-style concerts to classical ballets to celebrity lectures.

Television Station KAET. KAET, Channel 8, is the university's PBS station. Studios of the award-winning station are located in the Stauffer Communication Arts Building. To operate 24 hours a day, KAET employs more than 50 ASU students and interns. To learn more about KAET-TV, access its Web site at www.kaet.asu.edu, or call 480/965-8888.

University Dance Laboratory. A flexible performance space within the Nelson Fine Arts Center, the University Dance Laboratory is designed specifically for experimental dance productions. Along with the Dance Studio Theatre in the Physical Education Building East, the University Dance Laboratory is used by the Department of Dance for experimental performances.

COMPUTING FACILITIES AND SERVICES

Computers are fundamental tools for learning, instruction, and research in every college and department at ASU. The Information Technology (IT) department provides a variety of computing equipment and services available for use by students, faculty, and staff. IT also provides a wide variety of applications, including those required for development, research, and other learning needs. University-wide productivity software and knowledge-sharing resources are accessible through a high-speed campus network and from off campus via the Internet.

A wide range of university information is available online at www.asu.edu, the official ASU Web site. Prospective and current students can find details regarding undergraduate and graduate degree programs, financial assistance, housing, and student activities. The ASU Web site is also the gateway to many online services, including

1. finding and registering for classes;
2. viewing online grade reports;
3. checking e-mail, accessing courses online, utilizing Web-based university services, and reading customizable content via myASU (my.asu.edu);
4. creating personal and course Web pages;
5. viewing campus event calendars;
6. searching the ASU Online Directory;
7. browsing general and graduate catalogs; and
8. obtaining information about ASU athletics.

IT provides several service centers for the ASU academic community.

Computing Sites. The Computing Commons building (CPCOM) provides a "technology hub" that draws together students, faculty, and staff from all disciplines on campus in an environment conducive to maximum creative interaction. The building and its facilities have drawn national recognition and acclaim as a model for the support of instruction and research in a technology-based environment. The Computing Commons houses a 254-workstation computing site, seven computer classrooms, two instructor-mediated classrooms, two Classroom Support Centers, the Customer Assistance Center, the IT Help Desk, the ASU Computer Store, and the Computing Commons Gallery (see "Computing Commons Gallery," page 34).

There are four additional IT computing sites located on the Tempe campus, available for ASU faculty, staff, and students with an ASURITE UserID. Site configurations and hours of operation vary; current information is available on the Web at www.asu.edu/computingsites.

Digital Media and Instructional Technologies. Digital Media and Instructional Technologies (DMIT) is a development center for the effective use of technology in the design and delivery of instruction. Staffed with faculty, researchers, and students skilled in the areas of system design, graphics, interactive software, Web-based instructional design and delivery, and digital video production, this innovation-driven group enables faculty to maximize the impact of their instruction through the use of technology. From this perspective, DMIT fosters technological innovation by serving as a research and development unit, a production group, and a training facility.

DMIT collaborates with faculty in the coordination of cross-disciplinary research and production projects relating to the integration of technology with education. Through partnerships with ASU faculty and researchers, other educational institutions, as well as public and private community entities, grant-writing teams are assembled to leverage support not otherwise available to a single academic unit or faculty member. Central to effective support services is the establishment of a partnership among the various support units within the university. DMIT coordinates the efforts of these groups—which include the School of Extended Education, University Libraries, the Disability Resource Center for Academic Access and Achievement, and the Office for Research and Sponsored Projects Administration—to provide faculty with a wide array of instruction support services.

DMIT offers consultation and workshops tailored toward enhancing the instructional use of technology by the university teaching community. Sessions range from an introduction to technology in education through advanced and customized approaches for instructors in specific programs.

For more information about DMIT, access the Web site at dmit.asu.edu.

DMIT Instruction Support Lab. The Instruction Support (IS) Lab provides an environment in which faculty may seek and receive one-on-one, guided, or independent support for course development and delivery. Expert staff work closely with faculty to refine and develop their skills and confidence in the design and delivery of instruction through a variety of technology-supported means, both synchronous and asynchronous. Located in CPCOM 213, the IS Lab provides faculty, university professionals, and graduate students with a unique opportunity to integrate technology

with instruction. The IS Lab sponsors workshops and demonstrations and serves as a dynamic clearinghouse of information and referrals for effective integration of technology with education.

For more information, access the Web site at dmit.asu.edu/islab.

Help Desk/Consulting. The IT Help Desk provides ASU students, faculty, and staff with centralized systems information, first-level assistance in resolving computing problems with communication, e-mail, and virus protection software, and security concerns. The IT Help Desk also assists with account related services such as AFS filespace and permissions for Web sites; account access issues, including lost passwords; disk space quotas; and accounts for non-ASURITE services, including mainframe computer access. Most computing services are accessible through the standard ASURITE UserID and password, available online at www.asu.edu/asurite. The Help Desk distributes some site-licensed software, including computer security software. Help documents are available on the Web at www.asu.edu/itdocs.

For more information, access the Web site at www.asu.edu/helpdesk.

Office of Classroom Management. The mission of the Office of Classroom Management (OCM) is to provide outstanding support to the university community through the effective management and design of the university classrooms and computing sites. OCM works to enhance teaching and learning by improving the quality of services and facilities through design, operation, and maintenance of classrooms and sites; classroom scheduling and resource analysis; and development and support of computer networks and multimedia technology.

For more information, access the Web site at www.asu.edu/classrooms.

COMPUTING POLICIES

Computing Policies. Information Technology (IT) and ASU have policies and codes that define responsible use of computers and networks. There are also federal, state, and local laws governing many interactions that occur on the Internet. Users need to be aware of what their responsibilities are and what the process is for adjudicating violations. Users also need to know what rights they have and how they can get help if their rights are violated.

For information and policy documents, access the Web site at www.asu.edu/it/policies.

E-mail Policy. Students are required to obtain an ASU e-mail address once admitted to the university. This e-mail address is the official e-mail address to which the university sends e-mail communications and is recorded in the university's electronic directories. Students may suppress their e-mail address from appearing in these directories by completing forms available at www.asu.edu/registrar/forms/regforms.html. Students are expected to check their e-mail on a frequent and consistent basis to stay current with university-related communications. Faculty who choose to use e-mail in their classes expect students to use their ASU e-mail account for all class e-mail communication.

If an individual wishes to have e-mail redirected from an ASU e-mail account to another e-mail address (e.g., @hotmail.com, @aol.com, or an address on a departmental server), the individual may do so, but at his or her own risk. The university is not responsible for the handling of e-mail by outside vendors or by departmental servers. Having e-mail redirected does not change the individual's responsibility for reading and responding to official communications sent to the ASU e-mail account. Information and warnings about forwarding are available at www.asu.edu/mailbox.

All use of e-mail must be consistent with local, state, and federal law, including the federal Family Educational Rights and Privacy Act of 1974 (FERPA). Visit www.asu.edu/registrar/general/ferpa.html for additional information regarding FERPA. Student ASU e-mail addresses are included in the university's definition of directory information and may be released upon request.

It is a violation of university policies, including the Student Code of Conduct, for any user of official e-mail addresses to impersonate a university office, faculty or staff member, or student. To minimize this risk, some confidential information may be made available only through ASU Interactive (www.asu.edu/interactive) and/or myASU (my.asu.edu), which are both password protected. In these cases, students, faculty, and staff receive e-mail correspondence directing them to the appropriate password protected environment where they can access the confidential information only by supplying their ASURITE UserID and password.

ASU e-mail may be subject to disclosure under the Arizona Public Records law, or pursuant to a lawfully issued court order or subpoena.

ALUMNI ASSOCIATION

Founded in 1894, the Alumni Association is a volunteer-led organization committed to serve and unite alumni for the purpose of advancing the interests of ASU and its alumni. The association, located in MAIN 200, provides a variety of services for ASU alumni, as well as a series of events scheduled around the country.

With more than 250,000 alumni living in the United States and throughout the world, the association plays an important role as the university's primary support organization. Comprising more than 42 groups, the campus, college, club, and chapter organizations (4Cs) of the association provide opportunities for all alumni to stay involved with the part of ASU that interests them most.

Members of the Board of Directors are elected each spring. For more information about the association or its board of directors, call 1-800-ALUMNUS or 480/965-ALUM (2586), or access the Web site at www.asu.edu/alumni.

PROGRAM ASSESSMENT AND THE OFFICE OF UNIVERSITY EVALUATION

The Office of University Evaluation is a research and service facility that focuses on assessing and improving the effectiveness of the university's academic and support programs. The office conducts, coordinates, and manages research designed to measure the degree to which courses,

curricula, and academic programs impart knowledge and skills to students, as well as the quality of support provided to students. The results of these studies, or assessments, are used to enhance both the support provided to students and the intellectual integrity of an ASU education.

In order for the university to assess and improve its programs, periodic measurement of student experiences, perceptions, and intellectual growth must be obtained. When asked by the university, students are expected to participate in one or more evaluative procedures, such as the ASU Report Card. These evaluative procedures are designed to assess the efficacy of the total university experience, including teaching and learning and support programs and are not used in individual grading. The information obtained is one of the means used to improve the quality of the educational experience for this and future generations of ASU students.

For more information, call the office at 480/965-9291, or contact them via e-mail at oue@asu.edu. The Office of University Evaluation's Web site is www.asu.edu/oue.

LEARNING AND TEACHING EXCELLENCE

The Center for Learning and Teaching Excellence is dedicated to enhancing teaching and learning possibilities at ASU. To support this mission, the center provides a variety of training, support, and professional development programs for faculty, academic professionals, graduate students who have teaching responsibilities, and academic departments throughout the university. The center's resources and services specifically focus on advancing improvements in student learning, especially the manner in which teachers promote and foster that learning.

Some of the center's goals are

1. assisting faculty, programs, and departments to assess and develop instructional approaches;
2. providing workshops designed to enhance specific instructional practices for all who teach;
3. serving as a clearinghouse of information about activities, events, resources, and projects that may enhance teaching and learning;
4. developing synergistic relationships with existing campus units;
5. providing instructional assistance to new faculty on campus;
6. encouraging reflective use of instructional technologies; and
7. collaborating with other campus units to secure grant moneys for new course development, exploration of innovative teaching methods, and/or research in effective instruction.

For more information, call 480/965-9401.

Learning and Teaching Excellence Courses. Sections of LTE 598 are offered in the annual Summer Institute on College Teaching and Winter Institute on College Teaching, designed for faculty and teaching assistants who wish to develop diverse strategies for enhancing their students' learning.

LEARNING AND TEACHING EXCELLENCE (LTE)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

RESEARCH CENTERS, INSTITUTES, AND LABORATORIES

See "Research Centers," page 39.

ASU Cheerleaders teach incoming freshmen "Onward to Victory," the ASU fight song, during Spirit Night in Wells Fargo Arena.

Tim Trumble photo

Research Centers

Research centers, institutes, and laboratories serve the university's mission in research. They are overseen by eight of the colleges, the Office of the Vice President for Research and Economic Affairs, the Polytechnic campus provost, and the West campus provost.

Center for Research on Education in Science, Mathematics, Engineering, and Technology

The Center for Research on Education in Science, Mathematics, Engineering, and Technology (CRESMET)—an alliance of the ASU College of Education, the Ira A. Fulton School of Engineering, and the College of Liberal Arts and Sciences—was initiated in 1999, growing out of what was previously the Center for Innovation in Engineering Education. The mission of the center is to bring together individuals, programs, and organizations interested in improving K–20 science, mathematics, engineering, and technology education to research, develop, and assess educational theories, curricula, courses, and administrative policies that impact science, mathematics, engineering, and technology education. The center also encourages and supports wide-scale sharing and implementation of effective approaches to producing a more scientifically and technologically literate populace and more capable science, mathematics, engineering, and technology majors.

Research. CRESMET pursues research and development that demonstrates coherent, consistent, and conceptually powerful mathematics, science, engineering, and technology education from kindergarten through college (K–20).

Partnering. CRESMET supports collaborations across the traditional boundaries of university, community, business, and local education agencies.

Sharing. CRESMET establishes communication avenues for intellectual and material products proven effective in supporting powerful learning in science, mathematics, engineering, and technology fields.

For more information, visit CRESMET in ECG 303, call 480/727-8884, or access the CRESMET Web site at cresmet.asu.edu.

Institute for Studies in the Arts/Arts, Media, and Engineering

The Institute for Studies in the Arts (ISA) is an interdisciplinary research center within the Katherine K. Herberger College of Fine Arts (HCFA) at ASU. Its infrastructure has been developed especially to facilitate interdisciplinary digital arts. In 2003, the ISA initiated the Arts, Media, and Engineering (AME) program, a joint initiative of the Herberger College of Fine Arts and the Ira A. Fulton School of Engineering. The goal of AME is transdisciplinary research and education applied to the integrated development of experiential media. To achieve this complex goal, AME combines knowledge and resources from 14 disciplines across ASU and has established a shared curriculum among nine departments.

ISA facilities include Digital Arts Ranch—a black-box theater with a matrix of video, audio, and movement sensors; controllable projection screens; surround sound capabilities; shops for design and fabrication; a CAD unit; and the Intelligent Stage—a research environment and performance space dedicated to the expansion of studies in interactive performance technologies, including 3-D motion capturing and 2-D sensing technologies; a state-of-the-art Audio Lab and Digital Imaging Lab; the Technology Development Studio—dedicated to the development of software and hardware for experiential media and arts interfaces—and the Computing Commons Gallery, a highly adaptable exhibition space for works with a focus on art and technology.

For more information, call 480/965-9438, or access the Web sites at isa.asu.edu or herbergercollege.asu.edu/ame.

W. P. CAREY SCHOOL OF BUSINESS

Bank One Economic Outlook Center

The Bank One Economic Outlook Center (EOC), established in 1985, specializes in economic forecasts for Arizona and the Western states. The center publishes the *Bank One Arizona Blue Chip Economic Forecast* (monthly), *Greater Phoenix Blue Chip Economic Forecast* (quarterly), *Western Blue Chip Economic Forecast* (10 issues per year), and *Blue Chip Job Growth Update* (monthly), an update of current job growth in the United States. The center also publishes *Mexico Consensus Economic Forecast* (quarterly), which forecasts and provides historical data on the Mexican economy.

For more information, call 480/965-5543, access the EOC Web site at wpcarey.asu.edu/seid/eoc, or write

BANK ONE ECONOMIC OUTLOOK CENTER
PO BOX 874011
TEMPE AZ 85287-4011

Center for the Advancement of Small Business

The Center for the Advancement of Small Business (CASB) is a 21st-century leader in business education, practice, and research providing high-quality, relevant programs, and information services focused on small business since 1994. The center enables students and existing small and medium-size businesses to participate, contribute, and compete in the global economy.

The center provides students from all disciplines with programs and resources that prepare them for leadership positions in small and medium-size businesses, and aids small and medium-size businesses in the continuous improvement of human resources and business practices. CASB also engages in applied research on entrepreneurship and the emerging changes and trends in small business.

For more information, visit CASB in BAC 101, call 480/965-3962, access the CASB Web site at wpcarey.asu.edu/seid/casb, or write

CENTER FOR THE ADVANCEMENT
OF SMALL BUSINESS
PO BOX 874406
TEMPE AZ 85287-4406

Center for Advancing Business Through Information Technology

The Center for Advancing Business through Information Technology (CABIT) focuses on research and educational innovations in technology and business that have been accomplished since 2002. CABIT explores how technological innovations are transforming business operations and provides a forum for interactions between the academic and the practitioner communities. The aim is to leverage the internationally recognized expertise of the ASU faculty, to be in active partnership with industry, and to address current issues related to the technological impact on business.

One of the primary goals of CABIT is to encourage interdisciplinary research within the School of Business. Business faculty members then share their findings with colleagues throughout ASU who have a common interest regarding the impact of technology on business.

The creation of CABIT is an outgrowth of a decade of significant investment in the development of innovative business management programs and the recruitment of technology-savvy faculty. As a result, significant curriculum enhancements have been integrated into the MBA and undergraduate programs. For more information, call 480/965-2280, access the CABIT Web site at wpcarey.asu.edu/seid/cabit, or write

CENTER FOR ADVANCING BUSINESS THROUGH
INFORMATION TECHNOLOGY
PO BOX 873606
TEMPE AZ 85287-3606

CAPS Research

CAPS: Center for Strategic Supply Research was established in November 1986 by a national affiliation agreement between the ASU W. P. Carey School of Business and the Institute for Supply Management. It is the first and only program of its kind in the nation and is located in the ASU Research Park, about eight miles south of the Tempe campus. CAPS Research conducts in-depth research into the problems facing the purchasing profession today and, through its studies, seeks to improve purchasing effectiveness and efficiency and the overall state of purchasing readiness.

For more information, call 480/752-2277, access the Web site at www.capsresearch.org, or write

CAPS RESEARCH
ASU RESEARCH PARK
2055 E CENTENNIAL CIRCLE
PO BOX 22160
TEMPE AZ 85285-2160

Center for Business Research

The Center for Business Research (CBR) has been a source of information on the Arizona and metropolitan Phoenix economies since 1951. A public service research unit of the L. William Seidman Research Institute, the CBR specializes in applied economic and demographic research. The center works cooperatively with other ASU units, particularly the Morrison Institute for Public Policy. In addition, the CBR conducts special research projects of a public service nature under sponsorship of private business and/or government agencies. Recent examples include a study on job quality and work on the Statewide Economic Study for the Arizona Department of Commerce.

For more information, call 480/965-3961, access the CBR Web site at wpcarey.asu.edu/seid/cbr, or write

CENTER FOR BUSINESS RESEARCH
PO BOX 874011
TEMPE AZ 85287-4011

Center for Services Leadership

Since 1985 the Center for Services Leadership (CSL) has been a leading university-based hub devoted to the study of services marketing and management. The CSL addresses how any company can improve internal service processes and use service and customer satisfaction as a competitive advantage. The center encourages firms to share the best ideas and practices for adaptation across industries. Though grounded in marketing, the center's work is cross-functional, integrating concepts and techniques from marketing, operations, human resources, and management.

The center's areas of expertise include customer retention and loyalty; service quality; service delivery; professional services such as healthcare, accounting, and consulting; customer satisfaction; services strategy; service culture; and service recovery. A leader in the business and academic communities, the center's work advances the knowledge base in the field and provides applicable frameworks, concepts, and tools.

The center offers its partner firms topflight executive education in services through the annual "Activating Your

Firm's Service Culture" symposium, the annual "Services Marketing and Management" institute program, and the annual "Information Technology Services Marketing" course and provides customized executive education programs and research projects tailored to and conducted for charter member firms.

For more information, visit the CSL in BAC 440, call 480/965-6201, or write

CENTER FOR SERVICES LEADERSHIP
PO BOX 874106
TEMPE AZ 85287-4106

L. William Seidman Research Institute

The mission of the L. William Seidman Research Institute is to encourage and support applied business research by serving as a public access point to the W. P. Carey School of Business. Specific goals include transferring new knowledge to the public; supporting faculty and student research; encouraging the development of educational programs grounded in business research; and conducting high-quality, applied business research.

The institute encourages research activity by providing research support services to the faculty, staff, and students of the college. These services include facilitating grant preparation and assistance in grant administration. The institute's research centers act as the focal point for involving faculty and students in applied research on important issues identified by the business community.

The institute also serves an important role in the broader educational mission of the W. P. Carey School of Business by disseminating the findings of research conducted by the faculty, students, and research center staff, as well as the results of business research from other sources around the world. This is accomplished through a variety of mechanisms: newsletters and research reports; seminars and conferences; Internet Web pages; media interviews and press releases; and by responding to inquiries from businesses, public officials, and the community. For more information, call 480/965-5362, access the institute's Web site at wpcarey.asu.edu/seid, or write

L. WILLIAM SEIDMAN RESEARCH INSTITUTE
PO BOX 874011
TEMPE AZ 85287-4011

Institute for Manufacturing Enterprise Systems

See "Institute for Manufacturing Enterprise Systems," page 43, for information about this joint venture of the Ira A. Fulton School of Engineering and the W. P. Carey School of Business.

COLLEGE OF DESIGN

Herberger Center for Design Research

The Herberger Center for Design Research (HCDR) mission focuses on promoting and funding design research. To fulfill this mission, the center supports new enterprises, and seeks new partnerships in order to share resources and knowledge, within ASU and with the community at large. HCDR also works toward forming national and international initiatives with other universities and businesses to advance design research.

Among the new enterprises supported by the HCDR is InnovationSpace, a transdisciplinary laboratory where students and faculty work in partnership with inventors, researchers, and businesses to create consumer-driven product concepts that improve society and the environment. InnovationSpace is a joint venture among the College of Design, the Ira A. Fulton School of Engineering, and the W. P. Carey School of Business. For more information, call 480/965-6367, or access the Web site at innovationspace.asu.edu.

For more information about College of Design research centers, call 480/727-0478, or access the Web site at www.asu.edu/caed.

Phoenix Urban Research Lab

The Phoenix Urban Research Laboratory (PURL) is an information-rich environment for researchers, decision makers, industry professionals, and students to debate, collaborate, and seek new solutions to the most pressing design problems facing cities today. Finding options to urban issues through design helps communities make well-informed decisions about the physical form of their cities and can create a thriving, successful urban core that adds exuberance and quality to city life. Staffed by design professionals, PURL projects synthesize real-world situations to offer informed alternatives to actual problems. PURL is a conduit through which applied research, public policy, and scholarly investigation flow to create practical applications and implemented projects. Located in downtown Phoenix and using metropolitan Phoenix as a laboratory, PURL research addresses the heat island effect on cities, transportation and urban planning, and shade structures and water use, among other topics. Not only does PURL serve as a catalyst for progressive urbanism in this city, it is also a model for others to emulate. For more information, call 480/965-3249, or access the PURL Web site at www.asu.edu/caed/purl.

The Community Design Studio (CDS), previously affiliated with the Joint Urban Design Program, is based at PURL. The CDS is a community outreach program that facilitates interaction within the university and with the broader ASU community and promotes design as a way to further dialogues and to address urban issues. The CDS conducts intensive workshops (community-based charrettes) that help neighborhoods, groups, and other stakeholders focus on and respond to critical needs. For more information, call 480/965-1344 or access the Web site at www.asu.edu/caed.

EAST COLLEGE

Arizona Real Estate Center

The Arizona Real Estate Center (AREC), established in 1980, serves a multifunction research and educational role to foster better understanding of the real estate sector of the Arizona economy. Housing, commercial real estate, and construction activity data for Arizona and Maricopa County are collected by the center and are utilized for a variety of ongoing projects, including the calculation of affordability indexes and the computation of housing appreciation figures for the metropolitan Phoenix area.

For more information, call 480/727-1688, access the AREC Web site at www.poly.asu.edu/arec, or write

ARIZONA REAL ESTATE CENTER
7001 E WILLIAMS FIELD ROAD
SUTTON 301C
MESA AZ 85212-6032

Sustainable Technologies, Agribusiness, and Resources Center

The focus of the Sustainable Technologies, Agribusiness, and Resources (STAR) Center is to bring together multidisciplinary researchers whose mission is to study sustainable processes and systems, whether natural or human designed, that will be efficient and less consumptive and will promote conservation of the earth. For more information, call 480/727-1249, or access the STAR Center Web site at www.poly.asu.edu/star.

COLLEGE OF EDUCATION

Center for Indian Education

The Center for Indian Education is an interdisciplinary research and service center established in 1959. It promotes studies in American Indian policy and administration that contribute to scholarship and effective practices in education, professional training, and tribal capacity building. It is structured to foster relations between the university and sovereign tribes and to provide training and technical assistance for community programs. The center publishes the *Journal of American Indian Education* and sponsors workshops and colloquia that bring together scholars and tribal community leaders.

The center provides leadership through a group of American Indian faculty and is organized on the basis of scholarly expertise of the faculty. In addition to College of Education faculty, responsibilities are shared by faculty from the School of Social Work, the School of Justice and Social Inquiry, the College of Liberal Arts and Sciences, and the College of Law. Areas currently studied include administrative leadership, policy analysis, bilingual education, health and welfare policy, justice studies, and program development in professional studies.

For more information, visit the center in ED 402, call 480/965-6292, or access the center's Web site at coe.asu.edu/cie.

CRESMET

See "Center for Research on Education in Science, Mathematics, Engineering, and Technology," page 39.

Education Policy Studies Laboratory

Located within the College of Education, the Education Policy Studies Laboratory (EPSL) conducts and coordinates original research in areas such as student performance standards, assessment, commercialism in schools, curriculum, and language policy issues. EPSL disseminates its analyses and reports to policy makers, educators, media, and the public. It provides high-quality research through three specialized units—the Commercialism in Education Research Unit, the Education Policy Research Unit, and the Language Policy Research Unit, an initiative—the Arizona Education Policy Initiative; and an online peer-reviewed, academic journal—the Education Policy Analysis Archives.

For more information, visit EDB L1-01, call 480/965-1886, or access the laboratory's Web site at www.asu.edu/educ/epsl.

Southwest Center for Education Equity and Language Diversity

The Southwest Center for Education Equity and Language Diversity conducts, supports, and promotes research, scholarship, and innovative practice in language education designed for minority students in public schools. The center gives priority to scholarship and field-based work relating to educational equity and the systematic usage of heritage languages and cultures. The aim is to integrate these resources into the educational experience of all children and youth.

The center's scope of work is driven by a need to merge several related topics into one articulated conversation: biliteracy; promoting the role of public education to strengthen communities; and enabling binational collaboration among educators. The long-term vision is to help develop a new pedagogy tailored to the needs of the bicultural region the center serves. The integration of these themes shapes the scope of work for the center in the following areas:

1. Within the broad scope of educational policy research, the center focuses on scholarly inquiry that contributes to informed and enlightened discourse on language policy for schools and society, especially on the harmonious coexistence of English, the national language, and Spanish, the second most used language in our society.
2. Life in the American Southwest is bicultural and increasingly binational. In this Pan-American context, bilingualism will gain in importance. Equally important will be the collective ability of residents on both sides of the border to work harmoniously in pursuit of a common destiny that will be ever more intertwined. Schools must help children and youth develop skills and predispositions to face this challenge.
3. Mexico and the United States are becoming more interdependent. In this context, Mexican educators should have opportunities to contribute to improving education for Mexican immigrant children in U.S. schools. To enable this, schools must create pilot projects and an infrastructure for collaboration among institutions and individuals on both sides of the U.S.-Mexico border.

For more information, visit the center in ED 440, call 480/965-7134, or access the center's Web site at www.asu.edu/educ/sceed.

IRA A. FULTON SCHOOL OF ENGINEERING

Arts, Media, and Engineering

The Ira A. Fulton School of Engineering has a collaborative relationship with this program. For more information, see. "Institute for Studies in the Arts/Arts, Media, and Engineering," page 39.

Biodesign Institute at Arizona State University

This institute has a collaborative relationship with the Ira A. Fulton School of Engineering. For more information, see "Biodesign Institute at Arizona State University," page 50.

Center for Low Power Electronic Research

The Center for Low Power Electronic Research is a collaborative effort of the University of Arizona and ASU to address fundamental, industry-relevant research problems in the design of ultra-low power microelectronic systems. The center is formed under the State/Industry/University Cooperative Research initiative of the National Science Foundation (NSF). The NSF and the State of Arizona recognize that Arizona has the key ingredients to become a leader in this technology, such as the world's leading companies involved in the manufacture of portable computing and communication systems. The center technical areas of focus include

1. basic materials, alternative materials, and their fabrication;
2. device design optimization;
3. design of digital, analog, and hybrid low power circuits; and
4. power-based physical design for single- and multi-chip VLSI systems.

For more information, visit the center in ENGRC 115, call 480/965-8654, or access the Engineering Research Services Web site at fulton.asu.edu/fulton/research.

CRESMET

See "Center for Research on Education in Science, Mathematics, Engineering, and Technology," page 39.

Center for Solid State Electronics Research

The Center for Solid State Electronics Research (CSSER) focuses on research in the areas of epitaxial semiconductor crystal growth, device characterization and modeling, defect behavior in semiconductor material characterization, environmentally benign and other novel processing, fine line lithography, surface analysis, and transport. Major programs address semiconductor device modeling, transport theory, optoelectronics, feroelectrics, semiconductor processing, microwave devices, and ultra-submicron and nano-structured devices. New thrust areas include molecular electronics and MEMS.

For more information, visit CSSER in ENGRC 115, call 480/965-3708, or access the CSSER Web site at fulton.asu.edu/fulton/csser.

Institute for Manufacturing Enterprise Systems

The Institute for Manufacturing Enterprise Systems (IMES) is a joint venture of the W. P. Carey School of Business and the Ira A. Fulton School of Engineering, established to enhance manufacturing research and industrial collaboration at the interface between the two colleges. The institute's mission is to establish ASU as an international leader in the creation and dissemination of new knowledge in the area of global manufacturing for the new economy. It particularly focuses on how manufacturing impacts Arizona. Research thrust areas include virtual manufacturing, enterprise systems, knowledge management, and software in the system solution.

For more information, visit the institute in ECA 243, call 480/965-3709, or access the Engineering Research Services Web site at fulton.asu.edu/fulton/research.

Ira A. Fulton Research Institute

The Ira A. Fulton Research Institute serves as an umbrella organization for centers, institutes, and programs that are administered through the Fulton School of Engineering. The institute also houses research programs that are receiving seed funding from the Fulton School or the university and are identified through the Fulton School Research Themes and Clusters.

For information on this new institute, access the Ira A. Fulton School of Engineering Web site at fulton.asu.edu/fulton.

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

Arts, Media, and Engineering

The Katherine K. Herberger College of Fine Arts has a collaborative relationship with this program. For more information, see "Institute for Studies in the Arts/Arts, Media, and Engineering," page 39.

Ceramics Research Center

The ASU Art Museum's Ceramics Research Center is a national and international destination for the hands-on study and enjoyment of ceramics. It houses the ASU Art Museum's extensive and nationally recognized ceramics collection of more than 4,000 objects. The center, which opened in 2002, is an educational component of the Herberger College of Fine Arts, providing teaching and research capabilities. The collection showcases works that reflect global social, cultural, and historical activities that occur within the relationship between art and society. Its international holdings demonstrate the full range of techniques, aesthetic approaches, and possibilities within the medium. For more information, call 480/727-8173, or access the museum's Web site at asuartmuseum.asu.edu.

COLLEGE OF HUMAN SERVICES

Center for Violence Prevention and Community Safety

In response to the growing need of Arizona's communities to improve the public's safety and well being, ASU established the Center for Violence Prevention and Community Safety. Setting a course to address all forms of interpersonal violence, the center is forcefully committed to reducing violence and the resulting social and economic costs, while increasing public safety. In today's world, the spectrum of violence is sufficiently broad to attract a variety of high-caliber faculty researchers and students.

In a think-tank atmosphere, where creative processes are nurtured and breakthroughs are shared, the center brings together scholars and practitioners from social, behavioral, and humanistic backgrounds to confront the urgent problems of violence. Together, these researchers and leaders examine sources of crime, youth violence, and violence against women, children, and the elderly. The most significant outcome is the development of new violence prevention and community-safety models that reduce interpersonal

violence and strengthen society's quality of life. As a leading source of research-based knowledge and analysis about violence and its prevention, ASU's Center for Violence Prevention and Community Safety improves community safety through community-based solutions. The mission is to generate, share, and apply quality research and knowledge to create "best practice" standards. The center specifically:

1. evaluates policies and programs;
2. analyzes and evaluates patterns and causes of violence;
3. develops strategies and programs;
4. develops a clearinghouse of research reports and "best practice" models;
5. educates, trains, and provides technical assistance; and
6. facilitates the development of and construction of databases.

Currently, the center is engaged in several local, state, and international research projects aimed at reducing violence.

For more information, call 602/543-6618, or access the center's Web site at westcgi.west.asu.edu/cvpcs.

COLLEGE OF LAW

Center for the Study of Law, Science, and Technology

Located in the College of Law, the Center for the Study of Law, Science, and Technology conducts research, edits *Jurimetrics: The Journal of Law, Science and Technology* in cooperation with the American Bar Association Section on Science and Technology, and sponsors seminars, workshops, and conferences. Through these activities, the center seeks to contribute to the formulation and improvement of law and public policy affecting science and technology and to the wise application of science and technology in the legal system. Current areas of research include communications and telecommunications law, computer-related law, forensic science and statistics, legal issues and biotechnology, law and medicine, law and social science, genomics, privacy, intellectual property, and bioethics.

For more information, visit the center in LAW 229A, or call 480/965-6606.

COLLEGE OF LIBERAL ARTS AND SCIENCES

Arizona Center for Medieval and Renaissance Studies

The Arizona Center for Medieval and Renaissance Studies (ACMRS) is a research unit serving affiliate scholars from ASU, Northern Arizona University, and the University of Arizona. It represents a variety of disciplines, including history, literature, philosophy, religion, language, music, art, and science. ACMRS enriches academic offerings in medieval and renaissance studies by sponsoring one or two visiting professors each year. Graduate research assistantships are also available through the center.

Significant opportunities for the study of the Middle Ages and the Renaissance exist at ASU. Hayden Library has an extensive microfilm collection and many rare books in medieval and renaissance studies. ACMRS also sponsors a lecture series each semester covering a variety of topics.

Other programs include an annual conference, a public symposium, a summer study abroad program at the University of Cambridge (United Kingdom), and student exchange programs with the University of Copenhagen (Denmark) and the University of Kalmar (Sweden).

Since 1996, ACMRS has published Medieval and Renaissance Texts and Studies, a major series of editions, translations, and reference works. In collaboration with the University of Massachusetts at Dartmouth and the University of Kansas, ACMRS sponsors and coedits *Mediterranean Studies,* an annual interdisciplinary journal publishing articles on all aspects of the Mediterranean region. ACMRS also sponsors a book series titled *Arizona Studies in the Middle Ages and the Renaissance,* published by Brepols (Belgium).

ACMRS also partners with the Renaissance Society of America and the University of Toronto in *Iter*, a massive, retrospective, online medieval and renaissance bibliography covering all languages and disciplines, and is the official site of the Medieval Academy of America's online data project offering information on medieval centers, programs, committees, and regional associations in North America.

For more information, visit ACMRS in COOR 4429, call 480/965-5900, or access the ACMRS Web site at www.asu.edu/clas/acmrs.

Cancer Research Institute

Significant advances in the treatment of human cancer and other serious medical problems depend upon scientists well trained in organic chemistry, biochemistry, and biology. The Cancer Research Institute provides graduate students with the specialized training necessary for research in the discovery and development of effective anticancer drugs. Among various activities, laboratory personnel are pursuing a unique program concerned with isolation, structural identification, and synthesis of naturally occurring anticancer agents from marine animals, plants, and marine microorganisms.

For more information, visit the institute in CRI 209, or call 480/965-3351.

Center for Asian Studies

The mission of the Center for Asian Studies is to promote and support the study of Asia at ASU, in the Phoenix metropolitan area, and in the greater community through a wide variety of research, teaching, and outreach activities, including scholarly conferences, curriculum development, public symposia, film series, exhibitions, and teacher training.

The Program for Southeast Asian Studies is administered as a sister program to the Center for Asian Studies. Founded in 1966, the center today is the focal point of one of the most extensive Asian studies programs in the United States. The center encourages ASU faculty research by offering travel grants funded by an endowment from the late A. T. Steele. The center also arranges lectures by ASU graduate students, providing them a forum for sharing their research findings with the ASU community. In addition, the center helps bring guest lecturers to ASU from across the nation and around the world. Past speakers have included Oe Kenzaburo, winner of the 1994 Nobel Prize in Literature, astrophysicist Fang Lizhi of the University of Arizona,

Donald Gregg, former ambassador to Korea and current president of the Korea Society in New York, and John W. Dower, Pulitzer-prize winning historian and professor at MIT.

The center offers undergraduate and graduate students a variety of avenues to incorporate Asian studies into their major area of study and to earn official transcript recognition of an Asian studies specialization. The center's undergraduate certificate program is comprehensive and rigorous, requiring intermediate to advanced language skills in Chinese, Japanese, Hindi/Urdu, Indonesian, Korean, Lao, Thai, or Vietnamese. Undergraduate certificate students also gain area-specific knowledge of Asia by taking courses in at least three disciplines outside of languages and literatures. The center also offers an Asian concentration for BIS majors who must complete one year of language study and fulfill area studies requirements in two disciplines outside of languages and literatures. The center provides advising to students pursuing an Asian Track in the School of Global Studies. The Asian Studies Track degree program provides students with an opportunity to study Asia within a global context and equips them for careers in multinational corporations, international organizations, and the Foreign Service. Currently more than 200 undergraduate courses on China, Japan, Korea, South Asia, and Southeast Asia are taught each year in 12 separate departments in three colleges.

The Graduate Certificate in Asian Studies is offered in three tracks: East Asia (China, Japan, and Korea), South Asia, and Southeast Asia. This certificate is open to any student pursuing an MA or PhD degree in any school or division of the university.

The center and program publish two scholarly *Monograph Series*, one specializing in Southeast Asian Studies. The Program for Southeast Asian Studies also publishes the newsletter, *Suvannabhumi*, with an international readership.

The center's Study Abroad Committee works closely with the Tempe campus International Programs Office to advise and assist with study-abroad and exchange programs. Currently, ASU students have opportunities for studying in China, Hong Kong, India, Japan, Korea, Singapore, Taiwan, Thailand, and Vietnam.

The center has 70 affiliated ASU faculty members, all with expertise in Asia as a result of research, teaching, or other professional experiences related to the region, and with appointments in numerous departments and several colleges at ASU. The center maintains a directory of these affiliates, detailing teaching and research interests as well as publications.

For more information, call the center for Asian Studies at 480/965-7184, or access the Web site at www.asu.edu/asian.

For more information about the Program for Southeast Asian Studies, call 480/965-4232, or access the Web site at www.asu.edu/clas/pseas.

Center for Biology and Society

The Center for Biology and Society promotes research on the conceptual foundations of the biosciences and their interactions with society through the exploration of bioethics, biology and law, history and philosophy of science, sociology of science, and environmental history, ethics, and policy. The center brings together dispersed research and outreach activities relating to the interactions of the life sciences and society. Major sources of research funding come from the Greenwall Foundation and the National Science Foundation; and collaborators include the Flinn Foundation and Mayo Clinic in Scottsdale. Core faculty members hold many ASU and external awards and honors, including designation as regents' professor and other named, endowed professorships as well as MacArthur, Guggenheim, and National Humanities Center fellowships.

The center provides small grants to support independent student projects through the Biology and Society Unusual Student Project Award endowment and sponsors travel programs for students to attend national meetings. Students involved in the Biology and Society Program are among the top students at ASU. Graduates of the program have received Rhodes, Marshall, Truman, Goldwater, Udall, Fulbright, Flinn, and Soros national scholarships. Among the program's alumni are biologists, medical and law school students, a published poet, and others pursuing careers in health and environmental policy, ethics and academe.

Major research and outreach programs include

1. *History and Philosophy of Science*: Conceptual foundations of science; study of knowledge and evidence, including epistemology; decision theory; environmental history.
2. *Bioethics, Environmental Ethics, Values And Society*: Biotechnology and social values, professional conduct of science, intersections with law and justice.
3. *(Bio)policy and Law*: Biopolicy, politics and economics as they impact bioscience; ethical and legal implications of biosciences; social contexts of science, explored through the social sciences.
4. *Communicating Science*: staging illness and theater and science; science and medical journalism.

For more information, visit the center in LSC 284, call 480/965-8927, or access the Web site at sols.asu.edu/biosoc.

Center for Meteorite Studies

The nation's largest university collection of extraterrestrial materials is available for research in the Center for Meteorite Studies. Teaching and research on meteorites, meteorite craters, and related areas of space and planetary science are accomplished through the regular academic units in cooperation with the center.

For more information, visit the center in PS C151, or call 480/965-6511.

Center for Solid State Science

The Center for Solid State Science is a research unit within the College of Liberal Arts and Sciences.

The membership comprises faculty and academic professional researchers and research support personnel, most of whom hold simultaneous appointments in affiliated academic units. The Center for Solid State Science is the ASU focal point for interdisciplinary research on the properties and structure of condensed phases of matter at the interfaces between solid-state chemistry and physics, earth and planetary science, and materials science and engineering. It also supports interdisciplinary approaches to science and engineering educational outreach activities.

The center provides an administrative home for large, multidisciplinary, block-funded research projects. These include the NSF-supported Materials Research Science and Engineering Center (MRSEC) and the Interactive Nano-Visualization for Science and Engineering Education (IN-VSEE) project. To support these activities, members of the center operate modern and sophisticated research facilities and organize regular research colloquia and symposia.

Principal topical areas of research in the center include studies of structure and reactivity of surfaces and interfaces, electronic materials, advanced ceramics and glasses, synthesis of new materials, high-pressure research, development of techniques in high-resolution electron microscopy and micro-structural and chemical analysis, development of visualization techniques at different scales of magnification for science education, and community outreach.

The research facilities of the center include the Center for High Resolution Electron Microscopy (CHREM) and the Goldwater Materials Science Laboratories (GMSL).

CHREM. The center operates several ultra high-resolution and ultra high-vacuum electron microscopes and supports microscopy methods and instrumentation development, including holography, position- and time-resolved nano-spectroscopy, and energy-filtered imaging and diffraction. The center provides high-resolution capability for a large external group from other universities and industry. These facilities include

1. the Materials Facility (MF), which provides a wide range of synthesis and processing capabilities for preparation of specimen materials. MF also provides thermal analysis for study of solid-state reactions and Auger and x-ray photoelectron spectroscopy for analysis of surface compositions and electronic structure of surfaces;
2. the Materials Science Electron Microscopy Laboratory (MSEML), which provides state-of-the-art electron microscopes for analysis of microstructures, including imaging and diffraction, and high spatial resolution chemical analysis using energy dispersive x-ray and electron energy loss micro-spectroscopy;
3. the Ion Beam Analysis of Materials (IBeAM) facility, which provides compositional and structural determination of the surface and near-surface regions (0–2 mm) of solids by ion beam analysis where elemental composition and depth distribution information are needed. Channeling experiments are used to determine crystal perfection and site occupancy;
4. the Secondary Ion Mass Spectrometry (SIMS) laboratory, which provides depth profile and point composition analysis with very high chemical sensitivity, on the order of one part per billion, including isotopic analysis for many materials. SIMS is also used as a chemical microscope, to image elemental distributions on specimen surfaces;
5. the Scanning Probe Microscopy Laboratory (SPM), which provides facilities for nanoscale viewing of solid surfaces using scanning tunneling microscopy (STM), atomic force microscopy (AFM), and related techniques. The SPM laboratory serves as a focus for undergraduate research training programs and educational and outreach activities;
6. the Facility for High Pressure Research, which provides facilities for synthesis of new materials and for geochemistry/geophysics studies at up to 25 Gpa (250,000 atmospheres) and temperatures greater than 2000º C. These facilities are complemented by diamond anvil cells capable of in situ studies at up to one million atmospheres. This laboratory provides a focus for core research projects within the MRSEC;
7. the Goldwater Materials Visualization Facility (GMVF), which consists of a battery of linked workstations for remote operation of instruments and data collection, capture of images in real time, and advanced computing and simulation of materials. The GMVF is used in research and in undergraduate and graduate education, as well as in educational and community outreach; and
8. other specialized laboratories under development, which include high-resolution X-ray diffraction for thin film characterization, optical spectroscopy, and nuclear magnetic resonance spectroscopy for solid-state studies and research on materials under extreme conditions.

These facilities provide the primary teaching and research resources used by students in the Science and Engineering of Materials interdisciplinary PhD program and the undergraduate option for materials synthesis and processing. The facilities are also used extensively by students in disciplinary programs from affiliated departments.

For more information, visit the center in PS A213, call 480/965-4544, or access the Web site at www.asu.edu/clas/csss/csss.

Center for the Study of Early Events in Photosynthesis

The ASU Center for the Study of Early Events in Photosynthesis was established in 1988 as part of a joint grant program of the Department of Energy, the National Science Foundation, and the Department of Agriculture. Since 1995, it has been funded by the Office of the Vice President for Research and Economic Affairs and the College of Liberal Arts and Sciences. The center consists of about 90 students, postdoctoral associates, and research scientists led by 15 faculty members in the Department of Chemistry and Biochemistry and the School of Life Sciences. These research groups share a common goal: understanding the process of photosynthesis, which is responsible for producing all of our food and filling the vast majority of our energy and fiber needs. The impetus for development of the center was the premise that photosynthesis is a complex problem that will only yield to an investigation using a wide variety of approaches and techniques. Thus, the center serves as an infrastructure supporting individual ASU scientists and fostering multidisciplinary cooperative research projects.

The ultimate objective of the research is the elucidation of the basic principles governing the biochemical and biophysical processes of photosynthetic energy storage. This goal is being realized via investigation of the early events of photosynthesis, including light absorption and excitation

transfer in photosynthetic antennas; the mechanism of primary photochemistry in plant and bacterial systems; secondary electron transfer processes; structure and assembly of photosynthetic antennas, reaction centers, and electron transfer proteins; pigment-protein interactions; artificial and biomimetic photosynthetic solar energy conversion systems; and mechanisms of biological electron transfer reactions.

The center is equipped with state-of-the-art instrumentation that allows students to do frontier research in a broad range of disciplines. Equipment includes a variety of pulsed lasers for measurements with time resolution ranging from sub-picoseconds to seconds, a 500 MHz NMR instrument, an EPR spectrometer, a protein x-ray facility, spectrophotometers, fluorometer, a protein sequencer, and an amino acid analyzer.

The center sponsors a weekly Photosynthesis Seminar Series and brings in visiting scientists from around the world to carry out collaborative research. Undergraduate, graduate, and postdoctoral training programs in the Department of Chemistry and Biochemistry and within the Plant Biology curriculum are central components of the center's activities.

For more information, visit the center in PS D207, or call 480/965-1963.

Center for the Study of Religion and Conflict

The Center for the Study of Religion and Conflict promotes research and education on the nature, causes, and consequences of religious conflicts around the world with the goal of contributing imaginative strategies to their containment or resolution. Committed to a transdisciplinary, problem-solving approach, the center sponsors a broad range of programs and activities that stimulate inquiry and enhance knowledge among students, faculty, policy-makers, religious leaders, and the general public, locally, nationally, and internationally.

The center's signature programs include interdisciplinary faculty seminars and working groups, faculty and graduate student colloquia, research conferences and seed grants, undergraduate fellowships, and public lectures. Through these research and education initiatives, the center seeks to enhance empirical knowledge of particular cases, analytical and theoretical insights that contribute to broader, comparative understanding, and normative reflection that leads to wiser, more effective responses and interventions.

Major research interests include the following:

1. *Conflicts at the borders of religion and the secular.* Descriptive, analytic and normative investigations of the role of religion in public life in a global context; constructions of the religious-secular boundary as a focal point for comparative studies of conflicts within and among nation-states.
2. *Religion and conflict: disrupting violence*. Empirical and normative studies of the role of religion in fueling conflict, its potential to disrupt violence, and the applicability of group conflict and conflict resolution research to religious conflict.

For more information, visit the center in ECA 385, or call 480/965-7187, or access the center's Web site at www.asu.edu/csrc.

CRESMET

See "Center for Research on Education in Science, Mathematics, Engineering, and Technology," page 39.

Exercise and Sport Research Institute

The Exercise and Sport Research Institute (ESRI) is an interdisciplinary research unit located in the Department of Kinesiology and serves, in part, as a research facility for the interdisciplinary doctoral program in exercise science. Faculty and graduate students within ESRI investigate a wide range of topics concerning physical activity, including different age cohorts, levels of health, levels of ability and fitness, levels and types of training, and physical and emotional stresses, nutrition, and genetic backgrounds. Where applicable, these aspects are studied using an interdisciplinary approach. ESRI is affiliated with a number of clinical and research institutions in the Phoenix area.

ESRI houses numerous specialized research laboratories. *Biomechanics* applies the laws of mechanics to the study of human movement. Current research examines kinematic and kinetic determinants of locomotion patterns in walking, running, cycling, and swimming; neuromusculoskeletal modeling and computer simulation of locomotion in clinical and sport applications; ergonomics; and mechanisms underlying upper extremity repetitive strain injuries. *Exercise physiology* is the study of physiologic systems (cardiovascular, respiratory, muscular, endocrine, metabolic) under conditions of stress, particularly exercise stress. Both acute exercise responses and chronic adaptations resulting from exercise training are considered in relation to health and performance and are investigated in several specialized labs. The *Exercise Biochemistry Lab* examines subcellular systems involved in the provision and regulation of energy transfer during exercise. The *Exercise Endocrinology Lab* studies interrelationships of exercise and training with stress, hormones, neurotransmitters, and the immune system. Research in the *Motor Control Lab* investigates how movement is regulated and controlled via the nervous system in normal and pathological populations. Special emphases include motor deficits attributed to basal ganglia dysfunction and upper extremity coordination, particularly finger and hand posture, in reaching and prehensile movements. *Motor development* studies how human movement is generated and evolves throughout the lifespan. Current research focuses on learning and development of bimanual coordination. Timing and coordination of perceptual-motor skills are measured in normal developing children, persons with Down syndrome, and adults to investigate cerebral asymmetries and specificity of learning. The *Sport and Exercise Psychology Lab* examines the relationship between psychological constructs and physical activity and the influence of participation in physical activity on psychological phenomena. Current research is designed to examine the influence of physical activity, fitness, and particular sport practices on psychophysiological mechanisms and cognitive functioning; the effect of psychological skills for performance enhancement; motivational aspects of physical activity across the lifespan; and the effects of exercise on mental health.

For more information, visit ESRI in PEBE 110, or call 480/965-8279.

Hispanic Research Center

The Hispanic Research Center (HRC) is a university-wide interdisciplinary unit, dedicated to research and creative activities. Administered through the College of Liberal Arts and Sciences, the HRC performs basic and applied research on a broad range of topics related to Hispanic populations, disseminates research findings to the academic community and the public, engages in creative activities and makes them available generally, and provides public service in areas of importance to Hispanics.

Faculty, staff, and advanced graduate students organize into working groups to develop a broad range of specific projects and lines of inquiry within the general categories of Hispanic entrepreneurship, science and technology, information and data compilation and dissemination, the Hispanic polity, and the arts. Ongoing activities of the HRC, primarily funded by external grants, include the Arizona Hispanic Business Survey, the *Bilingual Review Press,* the Community Art and Research Outreach (CARO), Chicana and Chicano Space: Art Education Web site, Digital Divide Solutions Project, Project 1000, and the Western Alliance to Expand Student Opportunities.

CARO sponsors creative activities and research in collaboration with community-based organizations and ASU faculty.

For more information, visit the HRC in CFS 104, call 480/965-3990, or access the HRC Web site at www.asu.edu/clas/hrc.

Institute for Humanities Research

The Institute for Humanities Research is dedicated to promoting excellence and innovation in the humanities and engaging constituents in exploring the human dimensions of emerging and significant social, cultural, technological, and scientific issues.

The institute strives to create a dynamic environment for interdisciplinary and transdisciplinary research and facilitate collaboration among scholars in the humanities, social sciences, and sciences for the purpose of examining issues that confront individual and collective human experience across time.

The Institute for Humanities Research promotes scholarship and collaboration in the humanities, and with scholars outside the humanities, through four major programs:

1. IHR Competitive Seed Grant Program,
2. IHR Distinguished Lecture Series,
3. IHR Fellows Program, and
4. research workshops.

For more information, call 480/965-3000, or access the Web site at www.asu.edu/clas/ihr.

Institute for Social Science Research

The Institute for Social Science Research (ISSR) provides research development and data support services across the university. It is also the umbrella unit for transdisciplinary research centers that span the university's colleges, schools, and departments.

The institute's mission is

1. to encourage leading-edge thinking and help create innovative approaches to research initiatives;
2. to facilitate scholarship and transdisciplinary collaboration among university departments and schools and between university researchers and external agencies, companies, and nongovernmental organizations;
3. to ensure the success and excellence of the university and its faculty in meeting the research potential of a comprehensive metropolitan research university; and
4. to advance knowledge to better serve the needs of the community and humankind.

For more information, call 480/965-5009, or access the Web site at www.asu.edu/clas/issr.

Institute of Human Origins

The Institute of Human Origins (IHO), founded in 1981 by Donald Johanson, became part of the College of Liberal Arts and Sciences in 1997. IHO is a multidisciplinary research organization dedicated to the recovery and analysis of the fossil evidence for human evolution. IHO's scientists carry out field research at sites in Africa, the Middle East, and Asia. IHO houses the largest collection of *Australopithecus afarensis* casts (including "Lucy," a 3.2 million-year-old human ancestor) in the world as well as an extensive collection of other fossil hominid casts. IHO's library contains more than 3,000 volumes, numerous journals, videotapes, audiotapes, and slides related to human evolution and fossil sites. IHO produces periodic newsletters, offers lecture series, conducts tours and workshops, and supports numerous informal science education outreach projects.

For more information, visit IHO in SS 103, call 480/727-6580, or access the IHO Web site at www.asu.edu/clas/iho.

Joan and David Lincoln Center for Applied Ethics

The Joan and David Lincoln Center for Applied Ethics is a university-wide center for applied ethics that is administratively housed in the College of Liberal Arts and Sciences. Its mission is

1. to develop and coordinate a strong focus on theoretical and applied ethics across intellectual disciplines and professional programs within the university,
2. to support teaching and creative research and programming in ethics, especially as applied to a variety of professional fields and careers,
3. to foster collaborative ethics programming that involves the center and its Lincoln Professors and community organization in addressing major ethical challenges that confront individuals, public policy makers, and local, state, national, and international institutions.

For more information, visit the Center in AG 355, call 480/727-7691, or access the Web site at www.asu.edu/clas/lincolncenter.

Latin American Studies Center

Arizona maintains an ever-growing interest in Latin America that draws upon an extensive experience of historical and geographical ties. The Latin American Studies Center is the focal point for these interests at ASU. Through its program, the center serves the university community and maintains strong ties with various Latin American

organizations in the state and the nation. Principal activities are coordinating Latin American studies at the undergraduate and graduate levels; sponsoring student exchange programs; organizing events featuring Latin American arts and culture, numerous seminars, and research conferences; publishing a wide range of professional materials; and undertaking and facilitating research about the region.

The center administers student exchange programs with the Catholic University of Bolivia and three Mexican universities—the Autonomous University of Guadalajara, the Autonomous University of Nuevo Leon, and the University of Sonora. Each spring several ASU students are selected to attend courses at the Latin American universities while Bolivian and Mexican students attend ASU. The center also has an exchange agreement with the Pontific Catholic University of Ecuador for faculty and students as well as summer programs in Quito, Ecuador, and Ensenada, Mexico.

The center is a member of the American Modern Language Association, Consortium of U.S. Research Programs for Mexico, Consortium for Latin American Studies Association, Pacific Coast Council on Latin American Studies, Rocky Mountain Council for Latin American Studies, Consortium of Latin American Studies Programs, and Conference on Latin American History.

The center directly encourages research, not only through its research conferences, but also through close coordination with the Latin American collection of Hayden Library and networking with Latin American universities.

For more information, visit the center in COOR 4450, or call 480/965-5127.

Russian and East European Studies Center

The ASU Russian and East European Studies Center (REESC) functions within the College of Liberal Arts and Sciences. REESC administers research, training, and outreach programs involving the lands and people of Eastern Europe and Eurasia. More than two dozen ASU faculty from five colleges and University Libraries collaborate in center programming. REESC also works with other postsecondary educational institutions, government agencies, local high schools, and private corporations in coordinating programs of research, study, travel, and exchange relating to Russia, Eastern Europe, and Eurasia. The center is an institutional member of the American Association for the Advancement of Slavic Studies (AAASS). ASU is also a member of the International Research and Exchanges Board (IREX), which administers United States academic exchanges with Russia and Eastern Europe.

The Critical Languages Institute (CLI) offers intensive summer language instruction in the less commonly taught languages of Eastern Europe and Eurasia. Summer practicums and study abroad programs offer students opportunities to take classes and conduct research overseas. REESC/CLI faculty mentor students for competitive national fellowships, including Fulbright and the National Security Education Program.

For more information, call REESC at 480/965-4188 or CLI at 480/965-7706, or access their Web sites at www.asu.edu/clas/reesc and www.asu.edu/clas/reesc/cli.

Virginia G. Piper Center for Creative Writing

The Virginia G. Piper Center for Creative Writing at ASU was created in the fall of 2003. The center's goal is to elevate the university's creative writing program to international prominence while enriching the intellectual and artistic life of Arizona and the entire southwest.

The historic ASU President's House, located at Palm Walk and Tyler Mall on the Tempe campus, serves as the permanent campus home for the center.

Other programs funded by the center include

1. an international writer's exchange program;
2. funding of an endowed chair that will be used to attract high profile, distinguished authors to campus for extended residencies, authors who will work closely with ASU faculty and students; and
3. creation of the Piper Creative Scholars Program, designed to support ASU faculty and others in the pursuit of research, writing, and other creative activities.

For more information, access the center's Web site at www.asu.edu/pipercwcenter.

COLLEGE OF PUBLIC PROGRAMS

Center for Nonprofit Leadership and Management

The Center for Nonprofit Leadership and Management (CNLM) promotes the understanding of the nonprofit sector in community life and focuses on effective practices that help organizations meet their mission. The center coordinates a nonprofit sector research program, facilitates educational offerings in nonprofit studies, and serves as a convener on contemporary issues. CNLM provides information and selected technical assistance services pertaining to such topical concerns as philanthropy, effective board governance, and social enterprise. The center facilitates relationships among students, faculty, and community organizations across the range of its research and outreach activities. In addition, the center convenes leaders and managers from the nonprofit, business, and government sectors on issues pertinent to building nonprofit capacity in the region. CNLM is the leading nonprofit academic center in the region. It is nationally recognized for its knowledge and tools that support leader and manager effectiveness. The center supports the activities of three complementary nonprofit education programs at ASU; the American Humanics Program (undergraduate certificate), a postbaccalaureate program (graduate certificate program in Nonprofit Leadership and Management), and a professional development education program (through the Nonprofit Management Institute). For more information, call 480/965-0607, or access the Web site at nonprofit.asu.edu.

Center for Urban Inquiry

The mission of the Center for Urban Inquiry (CUI) is threefold: critical social science research, community engagement, and innovative education. The research agenda prioritizes the scrutiny of economic and social privilege and disadvantage. Specific research requests from policymakers, nonprofit and government agencies, and citizen groups are also considered. This includes a rapid response community research initiative established to provide intensive feedback

to community research requests that must be completed within a limited time frame, as well as long-term process and outcome evaluations of programs and policies in the private and public sectors. CUI also facilitates collaborative research efforts among faculty, research professionals, and students. Such research includes an examination of the individual and collective costs of poverty in the Southwest and the design of comprehensive research to explore the extent and nature of racial profiling among agents of social control.

CUI's direct community involvement ranges from the local to the global. This includes support of neighborhood groups advocating for homeowners and renters within the context of urban development and displacement, the creation of a hospital-based community partnership to combat youth violence, and participation in United Nations summits on sustainable development and indigenous peoples' rights. The center serves the university and community through innovative educational endeavors, including a distance-learning college program for incarcerated women, in-depth research training for graduate and undergraduate students, and courses in service learning, community action research, and international urban issues. CUI also serves as the administrative and programmatic home for the needs-based Nina Mason Pulliam Legacy Scholars Program for nontraditional students.

For more information, call 480/965-9216, access the center's Web site at www.asu.edu/copp/urban, or write

CENTER FOR URBAN INQUIRY
ARIZONA STATE UNIVERSITY
PO BOX 874603
TEMPE AZ 85287-4603

Morrison Institute for Public Policy

Morrison Institute for Public Policy conducts research which informs, advises, and assists Arizona's leaders and residents. As part of the School of Public Affairs (College of Public Programs), the institute serves as a bridge between the university and the community. Through a variety of publications and forums, Morrison Institute shares research results with, and provides services to, public officials, private sector leaders, and community members who shape public policy. A nonpartisan advisory board of leading Arizona business people, scholars, public officials, and public policy experts assist the institute with its work. Morrison Institute was established in 1982 through a grant from Marvin and June Morrison of Gilbert, Arizona and is supported by private and public funds and contract research. The institute conducts research on a broad range of topics, including education, urban growth, workforce development, economic development, arts and culture, quality of life, and science and technology.

For more information, call 480/965-4525, access the Morrison Institute's Web site at www.morrisoninstitute.org, or write

MORRISON INSTITUTE FOR PUBLIC POLICY
ARIZONA STATE UNIVERSITY
PO BOX 874405
TEMPE AZ 85287-4405

Southwest Interdisciplinary Research Center

The Southwest Interdisciplinary Research Center (SIRC) conducts multidisciplinary, community-based research on health disparities among the populations of the Southwest, concerning drug abuse, HIV/AIDS, and mental health. Research efforts focus on the needs and strengths of families and youth from diverse communities, and strive to foster a stronger link between practice and research in the social work and service delivery fields. The research center's goal is to develop a comprehensive interdisciplinary center for culturally oriented research on drug abuse and other health outcomes that will strengthen the university's capacity as a leader in the Southwest region, nationally, and internationally.

SIRC strengthens the institutional infrastructure of the School of Social Work, enhances the research capabilities of faculty and community social workers, and draws across many disciplines to create dynamic research partnerships. The center's research affiliates include faculty from nursing, psychology, social work, sociology, and other departments. SIRC is funded through competitive research grants and subcontracts awarded by the National Institute on Drug Abuse, the National Institutes of Health, the Centers for Disease Control and Prevention, and by ASU.

The mission of SIRC is to carry out interdisciplinary research in health disparities with populations of the Southwest, and increase the number and capacity of social work researchers working in the areas of substance abuse, HIV/AIDS, and mental health. The center's multidisciplinary and community-based research in these priority areas focuses on culturally-grounded prevention research, and culturally responsive and resiliency-focused services research.

SIRC studies the strengths, competencies, and other protective factors that buffer against drug use and risk behaviors of families and youth. Research focuses on the diverse cultural communities of the Southwest and the way that drug use, HIV/AIDS, and mental health are connected to ethnic, gender, developmental, geographic, and other social identity variables.

SIRC provides predoctoral applied research education to graduate students from social work, sociology, and other departments. In addition, SIRC provides continuing education and research dissemination activities in association with its community advisory board members and partners.

For more information, call 480/965-4699, access the center's Web site at sirc.asu.edu, or write

SOUTHWEST INTERDISCIPLINARY RESEARCH CENTER
ARIZONA STATE UNIVERSITY
PO BOX 873711
TEMPE AZ 85287-3711

VICE PRESIDENT FOR RESEARCH AND ECONOMIC AFFAIRS

Biodesign Institute at Arizona State University

The Biodesign Institute at ASU was established to provide an organizational, intellectual, and physical environment for large-scale interdisciplinary research. The institute is focused on improving human health and quality of life, sustaining the environment, and contributing to national

security. To meet these grand challenges, it fuses expertise in diverse disciplines, including biology, engineering, and information technology. As a catalyst for innovation, the institute seeks end-to-end solutions that address complex challenges threatening human health in the 21st century. The ambitious goal is use-inspired, translational research that is adopted rapidly by the private sector for societal benefit and commercial applications.

The Biodesign Institute represents Arizona's largest investment in research infrastructure. The Institute is master-planned as four interconnected buildings with 800,000 square feet of advanced research space. Flexibility is built into every aspect of the facilities, so they can rapidly be adapted to changes in technology. The research programs are clustered into four focus areas of increasing contemporary importance:

1. biological systems,
2. nanoscale systems,
3. cognitive systems, and
4. sustainable systems.

The institute's output is measurable in terms of increased grant funding being brought to the region, the development of highly trained research professionals who are prepared for employment in industry as well as academia, the recruitment of highly-educated newcomers to the community, pioneering discoveries and new technologies that benefit humanity, and generation of new businesses. These important outputs contribute significantly to statewide economic development. The institute is becoming a hub for bioscience research in central Arizona, building collaborative networks among scientists, health care providers, industry, and institutions. The Biodesign Institute is located on the Tempe campus.

For more information, access the institute's Web site at www.biodesign.asu.edu.

Institute for Computing and Information Science and Engineering

The Institute for Computing and Information Science and Engineering (InCISE) fosters interdisciplinary research, education, and entrepreneurship in computing. A collection of basic research activities within the Department of Computer Science and Engineering (CSE) forms the inner core of InCISE, while the activities to which CSE contributes form the outer core of the institute. The three core research groups of InCISE are the Center for Cognitive Ubiquitous Computing, the Intelligent Information Integration core area, and the Information Assurance core area. InCISE also collaborates with five affiliated research groups: the Consortium for Embedded Systems; the Partnership for Research in Spatial Modeling; the Arts, Media and Engineering Program; and the Center for Advancing Business through Information Technology.

In addition, InCISE serves as the focal point for a host of researchers from various disciplines who want to get connected to the computing and information community at ASU. These domains include cognitive sciences, health sciences, social sciences, earth sciences, space sciences, biosciences, disability studies, and linguistics.

For more information, access the institute's Web site at incise.asu.edu.

Global Institute of Sustainability

The newly established Global Institute of Sustainability brings together life, earth, and social scientists, engineers, and government and industry leaders to share knowledge and develop practical solutions to the environmental, economic, and social challenges of sustainable development, especially as it relates to urban areas. The institute also infuses sustainability into the fabric of the university's educational mission and lays the administrative footprint for the future School for Sustainability (which will open in 2007). For more information, access the institute's Web site at ces.asu.edu.

The institute is also home to the Central Arizona–Phoenix Long-Term Ecological Research (CAP LTER) project, one of only two urban sites in the NSF-funded LTER network. The CAP LTER project focuses on an arid-land ecosystem profoundly influenced, even defined, by the presence and activities of humans, and involves more than 50 associated faculty from biology, ecology, engineering, geography, geology, sociology, urban planning, and anthropology. For more information, access the CAP LTER Web site at caplter.asu.edu.

The institute administers an NSF-funded Integrative Graduate Education and Research Training (IGERT) grant to develop a multidisciplinary program in urban ecology. The program's research component engages students in wide-ranging and multidisciplinary investigations into the ecology of cities, with the CAP LTER project providing the research infrastructure. For more information, access the IGERT Web site at ces.asu.edu/igert.

The institute is also home to the Decision Center for a Desert City (DCDC), which analyzes the decision processes used to plan and manage water resources and growth, with the goal of advancing sound science as the basis for managing growth in arid regions. For more information, access the DCDC Web site at dcdc.asu.edu.

The institute also facilitates applied environmental research projects undertaken by the Southwest Center for Environmental Research and Policy (SCERP), a consortium of five U.S. and four Mexican universities. SCERP develops a research agenda for the study of air and water quality, hazardous waste problems, environmental health issues, and growth management questions in the border region. For more information, access the Web site at www.scerp.org.

For more information, visit the institute in TMPCT 151, call 480/965-2975, or access the institute's Web site at sustainability.asu.edu.

Stardust Center for Affordable Homes and the Family

The Stardust Center for Affordable Homes and the Family is a university-wide transdisciplinary center that assists the affordable housing development community of Arizona to produce and manage service-enriched housing in a manner that improves the social stability of neighborhoods, the economic productivity of families, and the educational performance of children, while enhancing the quality of the built and natural environments.

The center provides research, services, and education to increase the quantity and quality of affordable homes produced for Arizona's families. This is accomplished by the center's staff in collaboration with ASU faculty, visiting scholars, expert practitioners, members of the broader community, and contributors to the present system for producing and servicing affordable housing and residents in Arizona. The focus of the center's engagement is the affordable housing system, that is, the public and private individuals and groups who develop and manage affordable homes and communities and who provide services to the families who live in them.

For more information, call the center at 480/727-5456, or access the center's Web site at www.asu.edu/stardust.

Decision Theater at Arizona State University

The Decision Theater (DT) at ASU is a world-class facility for science-based, informed analysis positioned to connect science, community, and practice. The primary mission of the Decision Theater is to serve as a home for policy makers and the community to participate together in a collaborative process using advanced decision-making tools.

DT research focuses on incorporating group facilitation and mediation services with visual documentation tools to create an integrated framework for supporting and studying decision-making processes. Scientists incorporate and integrate complex, multidimensional data from a variety of public sources, such as numeric and spatial data into models and simulations for display in an immersive 3-D environment. Individuals and groups are able to interact with this information in a truly immersive manner, creating opportunities to make informed decisions about issues facing their environments and communities.

The theater itself consists of an interactive, 3-D environment with computational resources built using state-of-the-art graphics technologies. The core component, called the Drum, is a 260-degree, faceted screen with seven rear projection passive stereo sources that can display panoramic computer graphics or 3-D screen video content. The Drum accommodates 20 people and includes tools for collecting participant input and interaction inside the Drum. The advanced visualization environment enables policy makers and others to see in detailed, 3-D representation the consequences of behavior, decisions, and policy to examine potential scenarios.

The fusion and integration of decision-making tools at the Decision Theater coupled with the vast knowledge network of ASU researchers provides emerging science and social decision makers an unparalleled resource. Examples of projects for the DT include business forecasting; homeland security applications and simulations; tracking regional health issues; land use planning, transportation, and security analysis; food chain management; spatial analysis of service delivery; facility planning; environmental analysis; biomedical and bioengineering models; cognitive and behavioral outcomes.

The Decision Theater is located in the Orchid House in downtown Tempe. Public and group demonstrations can be scheduled by calling 480/965-4098 or 480/965-4808.

For more information, access the DT Web site at www.decisiontheater.org.

The Decision Theater features state-of-the-art graphics technologies.

James L. Christy photo

Fees, Deposits, and Other Charges

The Arizona Board of Regents reserves the right to change fees and charges without notice. The latest *Schedule of Classes* usually includes up-to-date amounts. The following fees apply to credit and noncredit (audit) registrations.

DEFINITIONS

Resident tuition refers to the charge assessed to all resident students who register for classes at ASU. *Nonresident tuition* refers to the charge assessed to nonresident students, as established in Arizona Board of Regents' Policy 4-102.

ACADEMIC YEAR TUITION

The resident and nonresident tuition for fall and spring semesters is shown in the "2005–2006 General University Per Semester Tuition" table, page 54. The amounts listed are per semester hour each academic term. For more information on classification for fee status, see "Residency Classification Policies and Procedures," page 57.

Resident students registered for seven or more hours or nonresident students registered for 12 or more hours are considered full-time for tuition payment purposes. See "Enrollment Verification Guidelines," page 82.

Note: The rate for one hour is charged if the student is registered for only a zero-hour class.

Program Fees. Certain graduate and undergraduate programs assess an additional program fee. These fees differ according to college and/or program. Contact the program advisor for details on these fees, or access tuition and fees schedules on the Web at www.asu.edu/sbs.

Summer Sessions Fees. For summer sessions fees information, see the *Summer Sessions Bulletin*. The fees are per credit hour for credit or audit. See also "Summer Sessions," page 172.

Tuition Installment Plan

The tuition installment plan offers students an option to divide fall and spring semester tuition payments over several months. Students may enroll in the tuition installment plan over the phone using SunDial, on the Internet through ASU Interactive, in person, and by mail. Students must reenroll in the plan each semester.

All students are eligible to enroll in the plan after they register for classes. If students receiving financial aid choose to enroll in the plan, all tuition charges are paid by financial aid and any remaining financial aid is refunded to the student. Students with financial aid continue to have the option to hold their classes at no extra cost rather than enrolling in the plan.

Upon enrollment in the plan, tuition is billed in three installments on the Student Account Receivable System. For example, for the fall semester, the first billing statement is mailed in early August, with tuition due on August 25, September 25, and October 25.

Students are charged a per semester administrative fee to cover costs associated with enrollment in the plan. The fee is billed on the Student Account Receivable System and is due at the same time as the first installment. The fee is nonrefundable, even if students withdraw from classes. The per semester enrollment fee is $75.

Once a student enrolls in the plan for a given semester, he or she is not withdrawn from classes during the current semester. Students must withdraw from classes if they decide not to attend. If students enrolled in the plan do not make scheduled payments, the students are prohibited from registering for classes in future semesters and are blocked from receiving university services, such as transcripts. Former students with outstanding tuition charges are referred to an outside collection agency.

OTHER FEES, DEPOSITS, AND CHARGES

Class Fees and Deposits. Certain university classes require payment of fees or deposits for materials, breakage, and rentals. These fees and deposits are listed in the *Schedule of Classes* for each semester.

Student Recreation Complex Fee. All students (except university employees) must pay a mandatory Student Recreation Complex fee. Students enrolled for seven or more hours are charged $25 per semester. Students registered for fewer than seven hours pay $12 per semester, and summer students pay $12 per session. See the latest *Schedule of Classes* for more information.

Financial Aid Trust Fee. All students must pay a financial aid trust fee. Students enrolled for seven or more hours are charged no more than 1 percent of the current tuition. The fee for students enrolled six or fewer hours is half that charged students enrolled for seven or more hours. The total summer sessions fee does not exceed the amount for a student enrolled for seven or more hours. Fees collected from students are matched by the State of Arizona and used to create the Arizona Student Financial Aid Trust Fund, from which Financial Aid Trust grants are awarded under the

2005–2006 General University Per Semester Tuition

Hours	General Undergraduate Tuition[1]				Postbaccalaureate and Graduate Tuition[1]		
	Resident[2]		Nonresident at Any Campus		Resident	Nonresident at Any Campus	
	Tempe Campus	Polytechnic or West Campus	Continuing Student	New or Readmitted Student	All Campuses	Continuing Student	New or Readmitted Student
1	$ 225	$ 221	$ 580	$ 625	$ 286	$ 610	$ 655
2	450	442	1,160	1,250	572	1,220	1,310
3	675	663	1,740	1,875	858	1,830	1,965
4	900	884	2,320	2,500	1,144	2,440	2,620
5	1,125	1,105	2,900	3,125	1,430	3,050	3,275
6	1,350	1,326	3,480	3,750	1,716	3,660	3,930
7	2,156	2,126	4,060	4,375	2,733	4,270	4,585
8	2,156	2,126	4,640	5,000	2,733	4,880	5,240
9	2,156	2,126	5,220	5,625	2,733	5,490	5,895
10	2,156	2,126	5,800	6,250	2,733	6,100	6,550
11	2,156	2,126	6,380	6,875	2,733	6,710	7,205
12 or more	2,156	2,126	6,959	7,500	2,733	7,324	7,865

[1] Tuition is subject to change. In addition to tuition, students are charged other fees (e.g., the Student Recreation Complex fee, financial aid trust fee, special class fees, and program fees). Access tuition and fee schedules on the Web at www.asu.edu/sbs.

[2] Full-time resident undergraduate tuition is $1 less in the spring semester.

established Student Financial Assistance office's aid eligibility criteria.

Arizona Students' Association (ASA) Fee. The ASA is a nonprofit lobbying organization that represents Arizona's public university students to the Arizona Board of Regents, State Legislature, and U.S. Congress. In 1997, students at the state universities voted to change the mechanism for funding the ASA. A $1 fee is charged to each student every semester. Any refunds for this fee are provided through the ASA Central Office.

Late Registration. The fee assessed for registrations on or after the first day of each session is $50.

Admission Application. The nonrefundable fee for undergraduate applications is $25 for residents and $50 for nonresidents.

Transcripts. The fee for an official transcript is $10 per copy. "Rush" transcripts (requested to be printed and picked up on the same day) will cost $10 in addition to the total cost of the transcripts ordered. Special delivery requests via Federal Express or U.S. Express Mail, instead of regular mail, will cost $19.50 per delivery address within the United States, in addition to the cost of the transcript(s). Special express deliveries to addresses outside the United States are available via international Federal Express or International Express Mail; these cost $38. Express costs are in addition to the cost of the transcripts. For delivery details, students should contact the Registrar's Office. Fees are subject to change without notice.

Unofficial transcripts may be requested in person at the University Registrar's Office, by mail, or by fax at 480/965-2295 if a signed release is provided. There is no charge for an unofficial transcript. Also, students may view and print their own unofficial transcripts via the Web using ASU Interactive at www.asu.edu/interactive.

For more information, see "Transcripts," page 86.

Copies of Education Records Other Than ASU Transcripts. For fewer than six pages, there is no charge. For six to 10 pages, the total charge is $2. For 11 to 15 pages, the total charge is $3. Copies of additional pages cost $1 for every five pages copied.

Comprehensive Examination. This fee is paid by all students seeking to establish credit by examination and is $50 per semester hour.

Private Music Instruction. Any applicable music instruction fees are billed with tuition and fees. Fees are listed in the *Schedule of Classes* for each semester.

Musical Instrument Rental Charge. The charge for use of university-owned musical instruments is $25 per semester. Consult the School of Music for specific information.

Binding and Microfilm Fees. The binding fee for a thesis or dissertation is $17 per copy. This fee is subject to change. Additional charges may be required depending on the size and nature of the document. The dissertation microfilming fee is $55 and is subject to change.

Sun Card/ID Card. The fee is $25.

Parking Decals. A parking decal must be purchased, in person or online at www.asu.edu/dps/pts, for motor vehicles parked on campus except in areas where metered parking or visitor lots are available. Decals are sold on a first-come, first-served basis. For more decal sales information, call 480/965-6124, or visit the Web site at www.asu.edu/dps/pts.

Each vehicle registered at ASU Parking and Transit Services must comply with Arizona emission standards (A.R.S.

§ 15-16276) during the entire registration period. For more information, access www.azdot.gov.

Everyone is encouraged to support travel reduction measures by carpooling, bicycling, walking, or using mass transit or the university shuttle bus whenever possible.

Parking Violations. Due to a high demand for parking, regulations are strictly enforced. Fines range from $25 to $250. Appeals to parking citations may be filed within 14 calendar days to Parking and Transit Services and, after payment, may be further appealed to the Parking Citation Appeals Board. Unpaid parking citations are delinquent financial obligations subject to certain provisions; see "Delinquent Financial Obligations," page 56. The vehicle of any person owing three or more unpaid parking citations or $100 in unpaid parking citations is subject to impoundment. For more information, call 480/965-4527 or access the Parking and Transit Services Web site at www.asu.edu/dps/pts.

Returned Checks. Checks and eChecks returned by a bank are assessed a $15 service charge with repayment needed within five business days of notification. A second $12 service charge is made if the returned check or eCheck is not repaid within this five-day period. Repayment of a returned check must typically be in cash.

ASU may have arrangements with its bank to redeposit automatically for a second time checks for which there are insufficient funds. No service charge is assessed by ASU until a check is returned to ASU; however, the payer may be assessed a service charge by the payer's financial institution.

Students with severely delinquent accounts are subject to involuntary withdrawal from the university if repayment is not made. All students involuntarily withdrawn are charged according to the standard refund schedule as of the involuntary withdrawal date, as determined by the university.

Campus Housing and Dining. The cost of Tempe campus housing and dining varies. Housing rates for 2005–2006 ranged from $3,481 to $4,887. Dining rates ranged from $2,165 to $3,250. Housing and dining rates for 2006–2007 will be announced in spring 2006. For more information, see "Residential Life," page 279, call 480/965-3515, or access the Residential Life Web site at www.asu.edu/studentaffairs/reslife.

TRANSPORTATION

To reduce air pollution and traffic congestion, students are encouraged to travel to and from campus by means other than automobile and to reduce transportation needs through careful class scheduling. Nearby on-campus parking is limited and tightly controlled.

Alternative transportation modes are used by thousands of ASU students. ASU is served by a regional transit service. In addition, an inexpensive express shuttle runs between the Tempe campus and the West campus in northwest Phoenix; another shuttle runs among the Tempe campus, Mesa Community College, and the Polytechnic campus in Mesa; and a Free Local Area Shuttle (FLASH) is available around the periphery of the Tempe campus. A free Neighborhood FLASH also is available for the Tempe campus community connecting the Escalante and University Heights neighborhoods with the Riverside/Sunset and Lindon Park neighborhoods through downtown Tempe and the Tempe campus.

Bicycle ridership at ASU is estimated to be more than 15,000 students daily. Ample racks in many locations enable the parking and securing of bicycles. Bicycle use is restricted only in those areas of campus where pedestrian traffic is sufficiently heavy to make such use a hazard. The Bike Co-op Repair Service provides assistance with bicycle maintenance.

For more information on commute alternatives, call the Travel Reduction Office at 480/965-1072 or access the Parking and Transit Services Web site at www.asu.edu/dps/pts.

PAYMENT METHODS AND DEADLINES

ASU Interactive. ASU Interactive, on the Web at www.asu.edu/interactive, is the preferred method for accessing tuition services. Students may enroll in the tuition installment plan and make fee payments via the Web. For more information, refer to the *Schedule of Classes* or the Student Business Services Web site at www.asu.edu/interactive.

Credit Cards. For tuition and student accounts receivable payments, Mastercard, Discover, and American Express are accepted through ASU Interactive only. A nonrefundable convenience fee is assessed by the processor.

eChecks. eChecks are the university's preferred payment method and are accepted at no cost to the student through ASU Interactive. For more information, access the Student Business Services Web site at www.asu.edu/sbs.

Checks. Checks payable for the exact amount of charges and without a restrictive endorsement are generally acceptable, except for students on check-use suspension due to a previously returned check.

Third-Party Sponsor Billing. ASU bills qualified third-party sponsors for tuition, books, and supplies upon submission of a guarantee of payment. Qualifying sponsors must have offices in the United States and can be, among others, approved corporations, vocational rehabilitation offices, government agencies, and international embassies. A per student sponsored tuition fee of $35 is assessed each semester. Students are responsible for all tuition, fees, and late charges not paid by the third-party sponsor.

Veterans Deferred Payment. The Veterans Readjustment Assistance Act allows veterans to apply for deferred payment of fees, books, materials, and supplies required for courses. To assist eligible students, a Veterans Deferment Request Form may be issued deferring payment during their first semester of benefits. Visit the Veterans Services section at SSV 140, or call 480/965-7723 for information on meeting the requirements. ASU may deny this privilege if the student has had previous delinquent obligations.

Payment Deadlines. Fees must be paid or financial aid awarded by the deadline dates and times indicated or the student is enrolled in the Tuition Installment plan and assessed the nonrefundable enrollment fee. A fee payment deadline is printed on all Schedule/Billing Statements,

which may be obtained at the University Registrar's Record Information counter at the Tempe campus, Records and Registration at the West campus, Registration Services at the Polytechnic campus, or via the Web at www.asu.edu/interactive, and in the *Schedule of Classes*.

REFUNDS

Academic Year Resident and Nonresident Tuition. Students withdrawing from school or individual classes receive a refund as described in the "Fall and Spring Withdrawal Refunds" table, on this page.

The university provides a prorated refund for first-time students receiving financial aid; therefore, the refund schedule is the minimum amount refundable to these students.

Withdrawal occurs on the calendar day that withdrawal is requested, either in person at a registrar site or by phone using SunDial. Students withdrawing for medical or other extenuating circumstances must contact their college for refunds that may be available under such circumstances.

Fall and Spring Withdrawal Refunds

Withdrawal Date	Refund
Before first day of the semester	100%*
One through seven calendar days	80%
Eight through 14 calendar days	60%
15 through 21 calendar days	40%
22 through 28 calendar days	20%
After the 28th calendar day	No refund

* A $35 processing fee is subtracted per session for refunds after the initial tuition payment deadline.

Summer Sessions Fees. Students withdrawing from any summer session or individual classes receive a refund as described in the "Summer Sessions Withdrawal Refunds" table below. *Refunds are based on the session days and not the class meeting dates for any particular class.*

Summer Sessions Withdrawal Refunds

Withdrawal Date	Refund
Before first day of session	100%*
First and second days of session	80%
Third day of session	60%
Fourth day of session	40%
Fifth day of session	20%
After fifth day of session	No refund

* A $35 processing fee is subtracted per session for refunds after the initial tuition payment deadline.

Class Fees and Deposits. After the first week of classes, refunds, if any, are determined only by the department or school offering the course. Refund determination is based on withdrawal date, type of activity, and costs already assessed by the department or school.

Private Music Instruction. If a student must drop a music course because of illness or other emergency beyond the student's control, not more than half of the instruction charge may be refunded, as determined by the School of Music.

Late Registration. This fee is not refundable.

Student Recreation Complex Fee. This fee is refundable only upon complete withdrawal, in percentage increments per the refund schedule. Upon withdrawal, access to the SRC is terminated.

Financial Aid Trust Fee. This fee is not refundable.

Official Transcripts. Overpayments by mail of $5 or less are refunded only by specific request.

Graduation Fee. Overpayments by mail of $5 or less are refunded only by specific request.

Residence Halls. Refunds to students departing from Tempe campus residence halls before the end of the academic year are computed as prescribed by the Residential Life License Agreement that students sign when they apply for residence hall accommodations. Students should refer to the Residential Life Schedule of Charges and Deadlines for specific information on refunds.

Other University Charges. Other university charges are normally not refundable, except for individual circumstances.

Payment of Refunds. Refunds require student identification and are made payable only to the student for the net amounts due the university. When the last day of a refund period falls on a weekend or holiday, a withdrawal form must be submitted to one of the registrar sites during operating hours on the workday preceding the weekend or holiday. Refunds are normally paid by check, payable to the student, and mailed to the student's local address, or by direct deposit to the student's bank account.

Parking Decal Refunds. Prorated refunds are available through the last business day in April.

Forfeiture of Refunds. Refunds are subject to forfeiture unless obtained within 90 days of the last class day of the semester for which the fees were originally paid.

DELINQUENT FINANCIAL OBLIGATIONS

Arizona Board of Regents' Policy 4-103B, which applies to ASU, states the following:

1. Each university shall establish procedures to collect outstanding obligations owed by students and former students.
2. Each university shall maintain a system to record all delinquent financial obligations owed to that university by students and former students.
3. Students with delinquent obligations shall not be allowed to register for classes, purchase parking decals, receive cash refunds, or obtain transcripts, diplomas, or certificates of program completion. The university may allow students to register for classes, obtain transcripts, diplomas, or certificates of program completion if the delinquent obligation is $25 or less.

4. Unpaid obligations shall remain a matter of record until students and former students satisfy their financial obligations or until satisfactory arrangements for repayment are made with the university.
5. The university may write off delinquent financial obligations of students according to accepted accounting principles and after appropriate collection efforts. No such write-off shall operate to relieve the student of liability for the obligation nor shall such write-off entitle the student to release of any transcripts, diplomas, certificates of program completion, or to register for further university classes until such obligation is actually paid.
6. Each university shall include this policy in its bulletin or catalog.

A late charge of $15 is assessed for balances due the university between $20 and $100 not paid within 30 days of the initial due date. Three additional $15 late charges are assessed at 60, 90, and 120 days past due. Following the same late charge assessment schedule (of 30, 60, 90, and 120 days past due), the fee for past due balances between $100 and $1,000 is $25 and for past due balances in excess of $1,000 is $50.

RESIDENCY CLASSIFICATION POLICIES AND PROCEDURES

The Arizona Board of Regents is required by law to establish uniform guidelines and criteria for classifying students' residency to determine those students who must pay nonresident tuition. The following is a summary of the general guidelines used to determine residency for tuition purposes. All of the evidence is weighed under the presumption that a nonresident student's presence in Arizona is primarily for the purpose of education and not to establish domicile and that decisions of an individual about the intent to establish domicile are generally made after the completion of an education and not before.

To obtain resident status for tuition purposes, independent students must establish their residence in Arizona at least one year before the last day of regular registration for the semester in which they propose to attend ASU. Arizona residence is generally established when individuals are physically present in the state with the intention of making Arizona their permanent home.

Mere physical presence in Arizona for one year does not automatically establish residency for tuition purposes. Adult students and emancipated minors must combine physical presence in Arizona for one year with objective evidence of their intent to make Arizona their permanent home. If these steps are delayed, the one-year period is extended until both presence and intent have been demonstrated for one full year. In addition to physical presence and intent, the student must demonstrate financial independence for the two tax years immediately preceding the request for resident classification. The student must demonstrate objective evidence of self-support and that he or she was not claimed as an income tax deduction by his or her parents or any other individual for two years. An adult student is defined as being at least 18 years of age at the beginning of the domicile year. For a complete definition of an emancipated minor, refer to the Arizona Board of Regents' residency classification policies, available in the Residency Classification section, SSV 140.

No person is considered to have gained or lost resident status merely by attending an out-of-state educational institution.

Aliens. Students who are aliens are subject to the same requirements for resident status as are U.S. citizens. In establishing domicile, aliens must not hold a visa that prohibits establishing domicile in Arizona.

Refugees. Refugees may qualify as resident students by virtue of having been granted refugee status in accordance with all applicable laws of the United States and having met all other requirements for residence in Arizona.

Exceptions to the General Residency Rule

Students may be eligible for resident status for tuition purposes if they can meet one of the following criteria on or before the last day of regular registration.

Legal Dependents. If a student and his or her parents are domiciled in Arizona and have not met the one-year residency requirement but the parents are entitled to claim the student as a dependent for federal and state tax purposes, the student may be eligible for resident status for tuition purposes.

Transferred Employees. If students are domiciled in Arizona and have not met the one-year residency requirement but are employees or spouses of employees who have been transferred to Arizona by their employers for employment purposes, the students may be eligible for resident status for tuition purposes.

Members of the Military. If students are not domiciled in Arizona but are members of the U.S. Armed Forces stationed in Arizona or are the spouses or dependent children of a member (as defined in A.R.S. § 43-1001), the students may be eligible for resident status for tuition purposes. If military service is concluded while enrolled, students do not lose resident status while they are continuously enrolled in a degree program. If individuals are domiciled in Arizona immediately before becoming members of the U.S. Armed Forces, they do not lose resident status because of their absence while on active duty with the military as long as they maintain Arizona affiliations and file Arizona state tax.

A student who is a member of an Arizona National Guard or Arizona Reserve unit may be eligible for resident status for tuition purposes. A student may also be eligible if he or she has been honorably discharged from the armed forces of the United States, has declared Arizona as his or her legal residence one year before discharge, and has taken the other appropriate actions, including filing an Arizona income tax return. A student who is the spouse or dependent of a member of the armed forces who has claimed Arizona as his or her legal residence and filed Arizona income tax for one year before enrollment may be eligible for resident status for tuition purposes.

Spouse of Arizona Resident. If the student's spouse has established domicile in this state for at least one year and has demonstrated intent and financial independence and is

entitled to claim the student as an exemption for state and federal tax purposes, or if the student's spouse was temporarily out of the state for educational purposes but maintained a domicile in this state, the student may be eligible for resident status for tuition purposes. Also, if the student is a noncitizen, the student must be in an eligible visa status pursuant to federal law to classify as an in-state student for tuition purposes.

Teachers and Classroom Aides. If a student is under contract to teach on a full-time basis or is employed as a full-time noncertified classroom aide at a school within an Arizona school district, the student is eligible to pay resident tuition only for courses necessary to complete the requirements for certification by the State Board of Education.

Native Americans. Students who are members of a Native American tribe whose reservation lies both in Arizona and an adjacent state and who are residents of that reservation may be eligible for resident status for tuition purposes.

Procedures for Establishing Resident Status

All students are responsible for obtaining residency classification for tuition purposes before registering and paying their fees. This procedure requires students to complete and file an Arizona residency information form. This form is required of all new and returning students as part of the admission or readmission process. Students classified as nonresidents who believe they may qualify for resident status must file a petition with the Residency Classification section. This petition must be filed by the last day of regular registration. A student seeking resident status must also file supporting documentation necessary to provide a basis for residency classification (source[s] of support, driver's license, voter's registration, vehicle registration, etc.). Students whose residency petitions are in process at the fee payment deadline are responsible for paying nonresident tuition. However, an appropriate refund is issued if resident status is later granted for that semester.

Any student found to have made a false or misleading statement concerning resident status is subject to dismissal from the university.

Failure to file a timely written petition for reclassification of resident status for tuition purposes constitutes a waiver of the student's right to apply for the given semester. Petition deadlines are published each semester in the *Schedule of Classes*. Extensions to the deadlines are not permitted.

Residency classification is an extremely complex issue. The information presented here is a summary and does not address each individual's situation; therefore, students are encouraged to make a personal visit to the Residency Classification section to discuss their individual circumstances as soon as possible. Guidelines for determination of residency for tuition purposes are subject to review and change without notice. For more information, call the Residency Classification section at 480/965-7712, or access the Web site at www.asu.edu/registrar/residency.

San Pablo residence hall on the Tempe campus

Tim Trumble photo

Financial Aid

The primary responsibility for financing a college education belongs to students and their families (see the "2005–2006 Estimated Budgets for New Full-Time Students" table, page 60). The Student Financial Assistance office helps students, within the limits of available funds, meet college costs. Financial assistance is available as scholarships, grants, loans, and employment. This aid has been made available collectively by the university, alumni, private foundations, civic groups, individuals, and state and federal governments.

To be considered for financial aid, all students must complete the Free Application for Federal Student Aid (FAFSA). This application should be completed in January or early February preceding the academic year the student anticipates attending ASU. The priority date for applying is March 1. Applications completed after this date are processed; however, they are considered late applications. Late applicants are less likely to receive Federal Work-Study, grants, and scholarships due to funding limitations.

Additional documentation may be requested to verify application data. Students receive an award notification once their file is complete. Applicants should carefully read all correspondence received, and if necessary, reply in a timely manner.

Students receiving aid are required to meet minimum standards of satisfactory academic progress. In addition to maintaining the minimum GPA defined for good academic standing, students must complete their degree within the maximum allowable hours and maintain a satisfactory completion rate. Failure to meet these standards results in the suspension of aid for subsequent semesters.

Students can access personal information regarding financial aid through the SunDial phone system at 480/350-1500 or by accessing ASU Interactive at www.asu.edu/interactive. Students can access the following information: (1) documents still needed to complete a financial aid file; and (2) award information.

Documents needed to complete the aid file can be printed from the Student Financial Assistance Web site at www.asu.edu/fa/forms.

TYPES OF FINANCIAL AID AND MAJOR PROGRAMS

In 2006–2007, ASU expects to award an estimated $340 million in all types of financial aid to more than 37,500 students. There are four categories of financial aid: scholarships, grants, loans, and employment.

Scholarships

Scholarships come from a variety of sources and have different awarding criteria. ASU offers numerous institutional scholarships for incoming freshmen as well as continuing students. In addition, ASU students benefit from a number of scholarships from private sources. Many scholarships are offered on the basis of academic merit. However, financial need criteria may also be included in the selection of recipients. Other considerations may include leadership qualities and community service.

High school students should contact their high school counselors or visit the scholarship Web site at www.asu.edu/fa/scholarships to determine the application process for scholarships available to entering freshmen. Other undergraduate students may contact the Scholarship Office or search the Web site for available scholarships. In addition, many academic units provide scholarship funding and select students based on a variety of criteria. Students seeking these scholarships should contact the department of their major for more information.

Private Donor Scholarships. Most of these scholarship funds are provided by employers, private individuals, organizations, and corporations. These scholarships are based on criteria established by the donor. The value of these awards varies as do the requirements for selection.

University Scholarships. ASU enrolls the best students from Arizona and the nation and awards scholarships to top students based on their high school performance. High school students are automatically considered for merit-based institutional recruitment scholarships upon their admission to ASU. Additionally, academic departments offer scholarships based on particular disciplines. Access www.asu.edu/fa/scholarships for a comprehensive search of scholarships for ASU students.

Grants

Grants are gift assistance from the federal government, the state, or the university that do not have to be repaid.

Federal Pell Grant. Funded by the federal government, the Pell Grant is awarded to students who demonstrate significant financial need. Pell Grant eligibility is determined by the U.S. Department of Education. All students are informed of their eligibility for the grant through the Student Aid Report. The maximum award for the 2005–2006 academic year was $4,050 per individual student.

Federal Supplemental Educational Opportunity Grant. The Federal Supplemental Educational Opportunity Grant (FSEOG) is a federally funded, campus-based program. A limited amount of funding is available through the program. The amount received will depend upon a student's financial need, the amount of other assistance awarded, and the availability of funds. Maximum grant awards for 2005–2006 were $1,000 per individual student.

Leveraging Educational Assistance Partnership (LEAP). This is a three-partner program of federal, state, and university funding. Students with high financial need may receive this particular form of funding. It is restricted to residents of Arizona. The maximum grant for 2005–2006 was $2,000 per individual student.

2005–2006 Estimated Budgets for New Full-Time Students

Item	Residents			Nonresidents	
	Dependent		Independent	Dependent	Independent
	At-Home	On/Off Campus			
Tuition and mandatory fees*	$ 4,396	$ 4,396	$ 4,396	$ 15,095	$ 15,095
Room and board	$ 2,429	$ 6,768	8,354	6,768	8,354
Books and supplies	948	948	948	948	948
Transportation	1,200	1,200	1,444	1,200	1,444
Personal	2,526	2,526	3,236	2,526	3,236
Total	$ 11,499	$ 15,838	$ 18,378	$ 26,537	$ 29,077

* Tuition and fees vary by campus. Actual amounts of tuition are shown in the "2005–2006 General University Per Semester Tuition" table, page 54. Amounts do not include continuing student tuition or additional class or program fees. Actual expenses may vary due to personal choices.

Student Financial Aid Trust Grant. Provided in partnership between ASU students and the state legislature, these funds are provided primarily to resident, undergraduate or underrepresented students with high financial need. The maximum grant for 2005–2006 was $2,000 per individual student.

University and ASU Grants. University grants are generally reserved as the last grant programs used to resolve a student's need. Funded by the university, these grants are available for both resident and nonresident students. The maximum grant awards for 2005–2006 were $2,500 per individual student.

Loans

Loans are forms of financial assistance available from sources such as the federal government and private lenders that must be repaid and will include any accrued interest.

Federal Direct Stafford Loans. The federal government loans money to students based on the university's determination of the student's financial need and cost of education. Repayment begins after the student graduates, leaves school, or drops below half-time enrollment. There are two Stafford Loan types: subsidized and unsubsidized. With a subsidized Stafford, the federal government pays the interest on the loan principal during the student's in-school status, grace, and other authorized periods of deferment.

The school may determine that the student is eligible for an unsubsidized Stafford Loan. In this program, the federal government does not pay the interest during the student's in-school status, grace, or other authorized periods of deferment. As the student proceeds through school, interest will accrue and will be added to the principal once the student enters repayment. Otherwise, conditions and terms for the two programs are the same.

The variable interest rate is adjusted every July 1. The rate cannot exceed 8.25 percent. In addition, there is a 3 percent loan origination fee deducted from each disbursement. The federal government provides several options for repayment once the student has left school. For students who are considered dependent based on their financial aid application, the following total annual loan limits for subsidized and unsubsidized loans apply: freshmen may borrow up to $2,625 per year; sophomores, up to $3,500 per year; and juniors and seniors, up to $5,500 per year. For students who are considered independent, the following annual loan limits apply: freshmen may borrow up to $6,625, of which only $2,625 can be subsidized; sophomores, up to $7,500, of which only $3,500 can be subsidized; and juniors and seniors, up to $10,500, of which only $5,500 can be subsidized.

Federal Perkins Loans. The Federal Perkins Loan program is funded by the federal government and is awarded based on financial need. The school is the actual lender, and repayments after graduation are made to the university at a 5 percent interest rate. Like the subsidized Stafford Loan, no interest accrues on the Perkins Loan during the student's in-school status, grace, or other authorized periods of deferment. If funding is available, deferment and cancellation provisions may apply to graduates working in community service, qualifying law enforcement, and teaching occupations. Maximum undergraduate awards for 2005–2006 were $3,000 per individual student.

Parent Loan for Undergraduate Students. Under the Parent Loan for Undergraduate Students (PLUS) Program, parents may borrow money from the federal government on behalf of their dependent students. With this loan, interest is not deferred and repayment begins within 60 days of the final disbursement for the enrollment period. The PLUS approval is based on the parents' credit history. There is a variable interest rate adjusted every July 1 that cannot exceed 9 percent. The maximum loan amount is determined by subtracting all other financial aid from the student's cost of education. If parents are determined ineligible for a PLUS and students need additional funds, they should contact the Student Financial Assistance office to determine their eligibility for an unsubsidized Stafford Loan.

Employment

The Student Employment Office provides employment opportunities to students who must work to meet educational expenses or who wish to work because they feel the experience can be a valuable part of their education. Federal Work-Study and hourly positions are available. For more information, access www.asu.edu/fa/studemp on the Web.

Federal Work-Study. The Federal Work-Study program encourages community service work and jobs that complement and reinforce educational or career goals. Funds for this program are provided on a matching basis by the federal government and ASU. Students employed under this program receive the same pay rates as other students employed on campus. In this program, students must demonstrate a financial need as established through completion of the Free Application for Federal Student Aid.

University Hourly. ASU, with its own resources, hires many students on a part-time basis. Although the jobs are similar to those under the Federal Work-Study Program, the university provides the entire amount of the student's wage.

Part-Time Off-Campus. The university receives requests for assistance from many agencies and companies throughout the area to help them recruit and hire students on a part-time basis. This job listing service provides opportunities for students not only to earn funds to support their education, but to gain experience in the areas of their majors or career interests.

Educational Tax Credits. Students may be eligible for either the Hope Scholarship Credit or the Lifetime Learning tax credit. Additional information about these tax credits is available on the Web at www.asu.edu/sbs.

Consult a personal tax advisor about qualifications for the Hope Scholarship Credit, and Lifetime Learning tax credit.

Taxability of Financial Aid Programs

Scholarships, grants, fellowships, and stipends (but not loan funds) are taxable income to the recipient, except for the portion of these funds used for tuition, registration, and other university fees, or books, supplies, and equipment required for the courses being taken. Special tax regulations also apply to nonresident alien students and may require withholding of taxes at the time of aid disbursements to these individuals. Information on the taxability of scholarships can be obtained from the following Internal Revenue Service (IRS) publications and forms: *Publication 4—Student's Guide to Federal Income Tax; Publication 519—U.S. Tax Guide for Aliens; Publication 520—Scholarships and Fellowships; Form 1040EZ and Instructions—Income Tax Return for Single and Joint Filers With No Dependents;* and *Form 1040NR and Instructions—U.S. Nonresident Alien Income Tax Return*.

These publications and forms can be obtained by calling the IRS at 1-800-829-FORM (3676) or by accessing the IRS Web site at www.irs.gov.

Old Main, the university's first classroom building, is now home to the ASU Alumni Association.

Tim Trumble photo

Classification of Courses

COURSE INFORMATION

Information about all lower- and upper-division courses offered at the Polytechnic and Tempe campuses appears in the *General Catalog,* available on the Web at www.asu.edu/aad/catalogs. Course information at this Web site is more current than in the printed catalog.

Graduate-level courses offered at all campuses are described in the *Graduate Catalog*.

Classes scheduled for the current or upcoming fall or spring semester are listed in the *Schedule of Classes*. Classes scheduled for the summer sessions are listed in the *Summer Sessions Bulletin*. Class schedules are available on the Web at www.asu.edu/registrar/schedule.

COURSE LISTINGS

See "Course Prefixes," page 7, for the location within the catalog of all ASU courses by prefix. See the "Key to Course Listing" diagram, on this page, for help in understanding listings.

Campus Code. Campus codes are used in the *General Catalog* only for course prefixes used by more than one campus. Campus codes are used for all courses offered at the Polytechnic campus (E), Tempe campus (M), and West campus (W) in the *Schedule of Classes* and the *Summer Sessions Bulletin*. (Tempe campus was formerly known as ASU Main.)

Semester Offered. In the *General Catalog* and *Graduate Catalog,* the semester offered shows when the academic unit *plans* to offer the course. Refer to the *Schedule of Classes* and the *Summer Sessions Bulletin* in print or on the Web for the actual course offerings.

Prerequisites and Corequisites. Some requirements, known as prerequisites, must be met *before* registering for a course. Other requirements, called corequisites, must be met *while* taking a course. A student registering for a course should be able to show that prerequisites have been met and that corequisites will be met as stated in the catalog or *Schedule of Classes* or must otherwise satisfy the instructor that equivalent preparation has been completed.

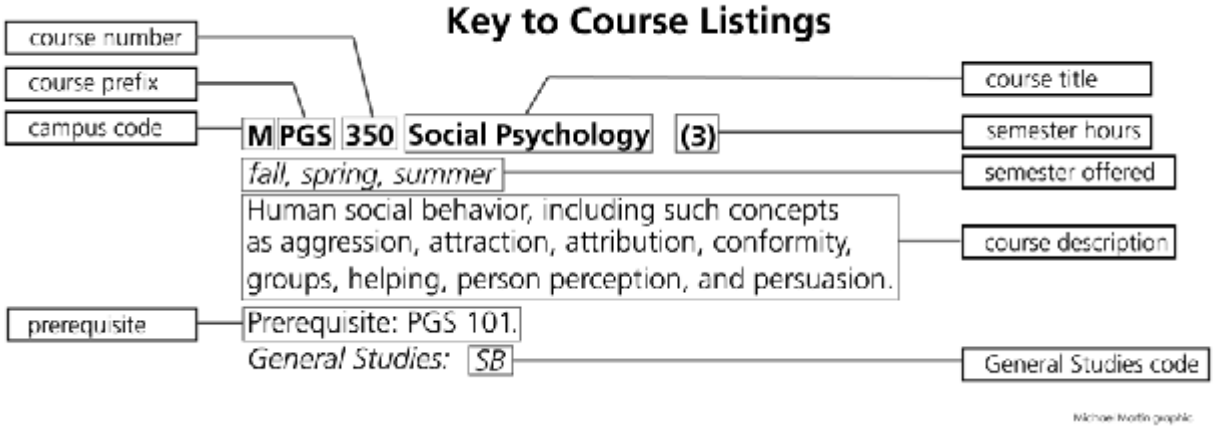
General Studies Code. See "General Studies," page 93, for an explanation of the General Studies requirement, which applies to students pursuing a bachelor's degree.

COURSE NUMBERING SYSTEM

Lower-Division Courses. Lower-division courses, numbered from 100 to 299, are designed primarily for freshmen and sophomores. Certain classes are closed to freshmen who lack the designated prerequisites or whose majors are outside the unit offering the course. This information is available in the *General Catalog,* in the *Schedule of Classes,* or from the student's academic advisor.

Upper-Division Courses. Upper-division courses, numbered from 300 to 499, are designed primarily for juniors and seniors. Prerequisites and other restrictions should be noted before registration. Courses at the 400 level apply to graduate degree requirements for some graduate programs when approved by the Division of Graduate Studies.

Graduate-Level Courses. Graduate-level courses, numbered from 500 to 799, are designed primarily for graduate students. However, an upper-division undergraduate student may enroll in these courses with the approval of the student's advisor, the course instructor, the department chair, and the dean of the college in which the course is offered. If the course does not meet an undergraduate graduation requirement, it may be eligible for use in a future graduate program on the same basis as work taken by a nondegree



graduate student. See "Reserving of Course Credit by Undergraduates," page 82.

Omnibus Courses

Omnibus numbers are used for courses offered on an experimental or tutorial basis or for courses in which the content is new or periodically changes. Academic units use their prefixes with omnibus course numbers. The general nature of the work required for a particular omnibus course is consistent from unit to unit, but subject matter varies. Omnibus courses are often offered for a variable number of semester hours. See the appropriate academic unit in the *General Catalog* or major in the *Graduate Catalog* for omnibus courses.

Within the catalogs and *Schedules of Classes,* abbreviations are frequently used with a colon to introduce specific omnibus course topics (e.g., IBS 494 ST: Regional Business Environment of Southeast Asia). See the "Omnibus Course Abbreviations" table below.

Omnibus Course Abbreviations

Abbreviation	Title	Number
AP	Applied Project	593, 693, 793
CW	Conference and Workshop	594
FW	Field Work	583, 683, 783
FYS	First-Year Seminar	191
HC	Honors Colloquium	497
P	Practicum	580, 680, 780
PS	Pro-Seminar	498
R	Research	592, 692, 792
RC	Reading and Conference	590, 690, 790
RM	Research Methods	500, 600, 700
S	Seminar	591, 691, 791
ST	Special Topics	194, 294, 394, 494, 598

OMNIBUS UNDERGRADUATE COURSES

191 First-Year Seminar. (1–3)
Small course emphasizing student-faculty discussion/interaction. Strongly recommended for first-year students. Must have taken 25 or fewer semester hours. Consulting an academic advisor before enrolling is recommended.

194, 294, 394, 494 Special Topics. (1–4)
Covers topics of immediate or special interest to a faculty member and students.

484 Internship. (1–12)
Structured practical experience following a contract or plan, supervised by faculty and practitioners.

498 Pro-Seminar. (1–7)
Small-group study and research for advanced students within their majors. Major status in the department or instructor approval is required.

499 Individualized Instruction. (1–3)
Provides an opportunity for original study or investigation in the major or field of specialization on an individual and more autonomous basis. Neither a substitute for a catalog course nor a means of taking a catalog course on an individual basis. Requires application well in advance of regular registration with the student's advisor, the advisor's signature, and approval by both the instructor with whom the student will work and the chair of the department offering the course. This course may be taken only by outstanding senior students who have completed at least one semester in residence and who have a cumulative GPA of 3.00 or higher in the major or field of specialization. A special class fee may be required.

First-Year Seminar. The First-Year Seminar series is specifically designed to meet the needs of the first-year student. Faculty members volunteer to direct the seminars and choose course topics according to their own interests and areas of specialization. Class size is restricted so that, early in their college careers, students may interact directly with some of the best faculty the university has to offer.

Honors Courses. The courses listed as 298 and 492 Honors Directed Study, 493 Honors Thesis, 497 Honors Colloquium, and all courses with the HON prefix are reserved for students in the Barrett Honors College. These courses range from one to six semester hours. Consulting with an honors advisor before enrolling is recommended.

OMNIBUS GRADUATE COURSES

500, 600, 700 Research Methods. (1–12)
Course on research methods in a specific discipline.

580, 680, 780 Practicum. (1–12)
Structured practical experience in a professional program, supervised by a practitioner and/or faculty member with whom the student works closely.

583, 683, 783 Field Work. (1–12)
Structured, supervised field experience in a field science or other discipline requiring experience in field techniques.

584, 684, 784 Internship. (1–12)
Structured practical experience following a contract or plan, supervised by faculty and practitioners.

590, 690, 790 Reading and Conference. (1–12)
Independent study in which a student meets regularly with a faculty member to discuss assignments. Course may include such assignments as intensive reading in a specialized area, writing a synthesis of literature on a specified topic, or writing a literature review of a topic.

591, 691, 791 Seminar. (1–12)
A small class emphasizing discussion, presentations by students, and written research papers.

592, 692, 792 Research. (1–12)
Independent study in which a student, under supervision of a faculty member, conducts research that is expected to lead to a specific project such as a thesis or dissertation, report, or publication. Assignments might include data collection, experimental work, data analysis, or preparation of a manuscript.

593, 693, 793 Applied Project. (1–12)
Preparation of a supervised applied project that is a graduation requirement in some professional majors.

594 Conference and Workshop. (1–12)
Topical instruction, usually in compressed format, leading to academic credit. Often offered off campus to groups of professionals.

595, 695, 795 Continuing Registration. (1)
Used in situations where registration is necessary but where credit is not needed. Replaces arbitrary enrollment in reading and conference, research, thesis, dissertation, etc. Used by students when taking comprehensive examinations, defending theses or dissertations, or fulfilling the continuous enrollment requirement in doctoral programs. Credit is not awarded, and no grade is assigned.

598 Special Topics. (1–4)
Topical courses not offered in regular course rotation—e.g., new courses not in the catalog, courses by visiting faculty, courses on timely topics, highly specialized courses responding to unique student demand.

599 Thesis. (1–12)
Supervised research focused on preparation of thesis, including literature review, research, data collection and analysis, and writing.

792 Research. (1–15)
Independent study in which a student, under the supervision of a faculty member, conducts research that is expected to lead to a specific project such as a dissertation, report, or publication. Assignments might include data collection, experimental work, data analysis, or preparation of a manuscript.

799 Dissertation. (1–15)
Supervised research focused on preparation of dissertation, including literature review, research, data collection and analysis, and writing.

The preceding courses are described in announcements of the Division of Graduate Studies and are also available in the respective departments. Under special circumstances, arrangements may be made at the dean's request, through the approval of the executive vice president and provost of the university, to increase the standard semester hours of credit.

Visiting Student Program. The numbers 597, 697, and 797 in the LAW prefix have been reserved for the Visiting Student Program in the College of Law.

SPECIALIZED PREFIXES

Cohort Management. Various prefixes that start with an "X" are used for registration purposes. These courses are used by Campus Match (see "Campus Match," page 133) in the University College; Learning Communities in the College of Liberal Arts and Sciences; EnGAGE in the Ira. A. Fulton School of Engineering; and other cohort management groups.

Elementary Education Program. Some elementary education methodology courses use the prefix EDB for purposes of registration. These courses are reserved for students admitted to professional programs. EDB courses are converted to permanent ASU education courses (with other prefixes) following the drop-add period, as determined by the registrar's calendar.

International Programs. Courses with the prefix IPO numbered 495 and 595 are reserved for International Programs study abroad and exchange programs. For most programs, participating students register for 12 semester hours. After completion, undergraduate students receive credit for the study completed, with a minimum of 12 semester hours and a maximum of 18 semester hours; graduate students receive credit with a minimum of six semester hours and a maximum of 12 semester hours.

IPO courses numbered 495 and 595 are converted to ASU credit for recording courses taken abroad.

For some special international programs, students register and receive credit for fewer semester hours.

Joint Admission Continuous Enrollment. Courses with the JAC prefix are used to track students admitted to ASU who are concurrently or solely enrolled in courses offered by a community college.

Sun Devil Stadium on a picture-perfect Saturday for football

Tim Trumble photo

Undergraduate Enrollment

Arizona State University shares with other colleges and universities a tradition of service and academic excellence that is hundreds of years old. Its purpose is the exchange of knowledge and the pursuit of wisdom. ASU is committed to providing a setting where faculty and students are challenged to exchange ideas and information within an atmosphere of intellectual honesty.

The university offers its students unique opportunities to enjoy both a rich cultural heritage and a diverse student population. Anyone giving evidence of suitable preparation, by way of acceptable academic credentials, is welcome to the university without regard to race, religious creed, or national origin.

Under the constitution and the laws of the State of Arizona, jurisdiction over ASU has been vested in the Arizona Board of Regents (ABOR). The regents, in turn, grant broad legal authority to the president, the administration, and the faculty to regulate student life within reasonable limits.

By enrolling, a student voluntarily assumes certain obligations of conduct and performance. These obligations include acting with honesty, integrity, and fairness in all campus and community activities. They also include avoiding certain behaviors, such as: the irresponsible use of alcohol; the use, possession, or distribution of illegal drugs; and verbal or physical assaults. Should a student intentionally or inadvertently become involved in questionable campus-related actions or activities, the university will investigate the circumstances and will enforce its standards of conduct through prescribed procedures contained in the ABOR *Student Code of Conduct*.

The primary purpose for the ABOR *Student Code of Conduct* is to set forth the standards of conduct expected of students who choose to join the university community. Students and student organizations are expected to become familiar with and adhere to this code. Violations of the ABOR *Student Code of Conduct* will result in university disciplinary action being taken and appropriate sanctions being imposed for the misconduct. Copies of the ABOR *Student Code of Conduct* are available in Student Life, SSV 263, or on the Web at www.asu.edu/studentlife/judicial.

The university further reserves the right to take necessary and appropriate action to protect the safety and welfare of the campus community and will cooperate with appropriate law enforcement agencies in their efforts to ensure a safe and secure environment.

ENROLLMENT SERVICES AT ASU

Arizona State University is a richly diverse academic setting with more than 60,000 students. The ASU student may be a traditional 18- to 24-year-old, a recent high school graduate, a community college transfer, someone returning to college to pursue a degree, or a professional studying for an advanced degree or career change. Each of the 50 states and more than 150 countries have students enrolled at ASU.

The university is organized into several distinct administrative areas. University Undergraduate Initiatives, one of these areas, is responsible for the delivery of a variety of services in support of students' educational experiences.

Special attention is given not only to the recruitment of a high-achieving, culturally diverse student body, but also to the creation of an energetic campus environment that both catalyzes the mature development and advances the academic endeavors of students.

Enrollment services to students begin with recruitment, admissions, student financial assistance, on-campus housing, and registration programs. ASU encourages students to explore the facilities, services, and human resources available.

OFFICE OF UNDERGRADUATE ADMISSIONS

A primary goal of Undergraduate Admissions is to identify, inform, recruit, admit, and enroll high quality, diverse undergraduate students through admission programs and services, including early outreach, high school and community college contacts, on- and off-campus programs, applicant services, orientation, and parent programs. Students are highly encouraged to apply online. For admission

requirements and application procedures, access the Web site at www.vpsa.asu.edu/uga/requirements, or call the Polytechnic campus at 480/727-3278, the Downtown Phoenix and Tempe campuses at 480/965-7788, or the West campus at 602/543-8203.

STUDENT FINANCIAL ASSISTANCE

Pursuing a college education is an important life decision as well as a major financial investment. The cost of a college education can be a major concern for many students and their families. The ASU Student Financial Assistance Office is committed to helping students, within the limits of available funds, meet college costs. Options range from scholarships to financial aid awards—grants, loans, and employment.

Approximately two-thirds of ASU students rely on some form of financial assistance to meet their educational expenses. For more information, call the Tempe campus at 480/965-3355, or the West campus at 602/543-8178, or access the Web site at www.asu.edu/fa.

UNIVERSITY REGISTRAR'S OFFICE

Management of the registration system and maintenance of academic records are the primary responsibilities of the University Registrar's Office. Registration is available through the ASU Interactive Web site at www.asu.edu/interactive; the SunDial telephone registration system at 480/350-1500; or in person at the Records Information counter at the Tempe campus, Registration Services at the West campus, or Registration Services at the Polytechnic campus. The Student Information System stores academic records and improves the quality of data used in academic advising. The University Registrar's Office coordinates applications for graduation; undergraduate readmission; course changes and scheduling; transcript services; applications for residency; verification of enrollment; and veteran's educational benefits. For more information call the Tempe campus at 480/965-4747, or the West campus at 602/543-8203, or access the Web site at www.asu.edu/registrar.

Veterans Services

This office offers complete educational services for U.S. veterans and their eligible dependents. Counseling about admissions, registration, and veterans benefits is available. Veterans programs provide service by advising all interested veterans and dependents about educational benefits and their optimum use. Students must apply each semester to receive veterans benefits. The program also assists students in obtaining suitable paid tutors, when needed, using their federal benefits. Students receiving veterans' educational benefits are not eligible to receive pay for audited courses. Veterans must achieve satisfactory GPAs and earn semester hours that progress toward their academic programs for continued educational benefits, as stated under "Satisfactory Academic Progress," page 87. The university must report this progress to the Department of Veterans Affairs each term. Failure to maintain the minimum GPA established by the university and/or the veteran's college may result in academic probation or disqualification. Although veterans may be eligible for educational benefits while on academic probation, benefits could be affected by a continuing probation status. The Veterans Services section is located in SSV 140. For more information, call 480/965-7723.

Full services for veterans are also available at the West campus in UCB 120. For more information, call 602/543-8220.

Undergraduate Admission

ASU welcomes an application for admission from any individual seeking to benefit from the university's broad spectrum of educational programs and services.

Prospective students may access information about admission requirements and procedures via the Web at www.asu.edu/admissions. Prospective students may call any campus about visits and tours or to request materials at the following numbers:

Downtown Phoenix and Tempe: 480/965-7788
Polytechnic: 480/727-1359
West: 602/543-8550

ADMISSION PROCEDURES FOR APPLICANTS

Individuals interested in admission to an undergraduate program at ASU must submit the following materials to Undergraduate Admissions: the required application, fee, official transcripts, and test scores. Non-U.S. citizens should see "International Student Admissions," page 72, for additional requirements.

Application for Admission. Prospective students must complete the Application for Undergraduate Admission. As with other state-supported colleges and universities, ASU distinguishes between resident and nonresident students with regard to tuition. Residents of Arizona are required to provide residency information, which is part of the admission application. Any student who does not provide residency information is classified as a nonresident for tuition purposes. For more information about residency, call Residency Classification at 480/965-7712.

Students who do not enroll for the semester in which they are admitted must submit a new application and application fee if they wish to apply for a subsequent semester. All documents are destroyed one year after the semester for which the student has applied if the student is not enrolled in a degree program.

Any misrepresentation or falsification on the admission application, including failure to report any college or university attendance, is cause for cancellation of admission and enrollment and/or any credits earned.

Application for admission may be made via the Web at www.asu.edu/apply.

Application Priority Dates and Fees. The nonrefundable application fee is $25 for Arizona residents and $50 for nonresidents. Applications for admission and application fees should arrive according to the appropriate priority date. However, applications for admission (other than for international admission) are accepted after the date.

See the "Priority Dates for Submitting Applications and Application Fees" table, page 67.

Freshman Students. Students who will be freshmen may apply beginning July 1 before their senior year of high

Priority Dates for Submitting Applications and Application Fees

Student Status	Definition	Spring*	Summer*	Fall*
Freshman	A student who is applying to ASU while enrolled in high school or a student who has not attended college since high school graduation	Dec. 1	May 1	Feb. 1
Transfer	A student who has graduated from high school and has attended college after graduation from high school	Dec. 1	May 1	June 1
Readmission	A student who has previously attended ASU	Dec. 1	May 1	June 1
Nondegree	A student who has not attended ASU as a degree-seeking student, who has not earned a bachelor's degree, and who is not, at this time, applying to a degree program	Dec. 1	May 1	June 1
International	A student who is not a citizen or permanent resident of the United States of America, nor is a refugee in the United States	Oct. 1	Must apply for spring or fall	May 1

* Domestic applications may be accepted after the priority dates. International applications are not accepted after the priority dates.

school. Priority dates for freshmen are December 1 for spring semester, May 1 for summer sessions, and February 1 for fall semester. If a student is currently a high school senior, his/her complete application for admission (application, transcripts, and test scores) must arrive before December 1 to be eligible for institutional scholarship consideration.

Transfer Students or Readmission Students. Students transferring to ASU may apply beginning in March for spring semester and July the year before a fall semester. Priority dates for transfer and readmission students are December 1 for spring semester, May 1 for summer sessions, and June 1 for fall semester. Professional programs are competitive and require a program application in addition to the application for admission to ASU. Professional programs also have specific prerequisite requirements and specific application deadlines.

International Students. International students must have all application materials on file by October 1 for spring semester and May 1 for fall semester. ASU does not accept applications from international students for summer sessions. International students should read the application procedures and admission requirements; see "International Student Admissions," page 72, or access the Web site at www.asu.edu/admissions/international.

Official Transcripts. Applicants are responsible for requesting transcripts from each educational institution attended. Official transcripts must be mailed or sent electronically directly to Undergraduate Admissions by the records office of the issuing institution(s). ASU does not accept transcripts sent or carried by hand by the applicants themselves or transmitted by fax. High school transcripts must show GPA and date of graduation. ASU requires an English translation of all foreign language transcripts.

Applicants who have completed an AGEC or an associate's or higher degree need not submit high school transcripts unless the application is being submitted to the Ira A. Fulton School of Engineering or the Walter Cronkite School of Journalism and Mass Communication.

ACT or SAT. A report of test scores should be sent to Undergraduate Admissions directly from ACT or The Educational Testing Services.

Scores may be used to meet university admission requirements and determine English placement. While an AGEC or an associate's degree is used to meet university admission requirements, test scores may be used to determine eligibility for admission to the Ira A. Fulton School of Engineering or the Walter Cronkite School of Journalism and Mass Communication. Students applying to the W. P. Carey School of Business are not considered for admission without ACT or SAT scores.

Undergraduate Admissions may investigate any test score that is inconsistent with a student's academic record or previous scores.

Mailing Address. The mailing address for applicants is

UNDERGRADUATE ADMISSIONS
ARIZONA STATE UNIVERSITY
PO BOX 870112
TEMPE AZ 85287-0112

Admission Before Receipt of Final Transcript. Admission may be granted to high school seniors who submit a six-semester or seven-semester transcript that shows academic quality or rank in class in keeping with admission standards and who complete the steps in the undergraduate admission procedures. Admission is official when verification of high school graduation showing the final GPA and the date of graduation has been received in the mail by Undergraduate Admissions directly from the high school. Final transcripts must be received a minimum of 45 days in advance of the start of the semester. An admission may be canceled if the final verification shows that the applicant has not met the university requirements for admission.

Applicants enrolled in other colleges and universities may be considered for admission on the basis of meeting all admission requirements, except for a final transcript of work in progress. This final transcript must be sent to Undergraduate Admissions directly from the issuing institution immediately after the work in progress has been completed. Transcripts carried by hand are not accepted. *Admission is*

Fall 2007–Spring 2008 Admission Requirements

	Applicants with No College Credit		Applicants with College Credit	
	Arizona Residents	Nonresidents	Arizona Residents	Nonresidents
Graduation requirement	Must be a high school graduate	Must be a high school graduate	Must be a high school graduate *or* Have completed an Arizona General Education Curriculum (AGEC) or an associate's or higher degree	Must be a high school graduate *or* Have completed an Arizona General Education Curriculum (AGEC) or an associate's or higher degree
High school aptitude requirement	Meet class rank *or* test score *or* GPA	Meet class rank *or* test score *or* GPA	Meet class rank *or* test score *or* GPA Applicants who have 24 or more transferable college semester credits and have graduated from high school in a calendar year before their planned year of enrollment at ASU do not need to meet high school aptitude requirements.	Meet class rank *or* test score *or* GPA Applicants who have 24 or more transferable college semester credits and have graduated from high school in a calendar year before their planned year of enrollment at ASU do not need to meet high school aptitude requirements.
	Class rank—top 25% of the high school graduating class Applicants in the top 26 to 50% of their graduating class may be admitted with conditions. *or* ACT Composite—22 *or* SAT Reasoning—1040 *or* GPA—3.00 (4.00 = A) in competency courses *Applicants with a 2.50 to 2.99 GPA in competency courses may be admitted with conditions.*	Class rank—top 25% of the high school graduating class Applicants in the top 26 to 50% of their graduating class may be admitted with conditions. *or* ACT Composite—24 *or* SAT Reasoning—1110 *or* GPA—3.00 (4.00 = A) in competency courses *Applicants with a 2.50 to 2.99 GPA in competency courses may be admitted with conditions.*	Class rank—top half of the high school graduating class Applicants in the top 26 to 50% of their graduating class may be admitted with conditions. *or* ACT Composite—22 *or* SAT Reasoning—1040 *or* GPA—2.50 (4.00 = A) in competency courses *Applicants with a 2.50 to 2.99 GPA in competency courses may be admitted with conditions.*	Class rank—top 25% of the high school graduating class Applicants in the top 26 to 50% of their graduating class may be admitted with conditions. *or* ACT Composite—24 *or* SAT Reasoning—1110 *or* GPA—3.00 (4.00 = A) in competency courses *Applicants with a 2.50 to 2.99 GPA in competency courses may be admitted with conditions.*
College aptitude requirement	Does not apply	Does not apply	2.00 cumulative GPA (4.00 = A) Many programs have higher GPA requirements for admission to their professional programs. See departments for details.	2.50 cumulative GPA (4.00 = A) *Applicants with a cumulative 2.00 to 2.49 GPA may be admitted with conditions.* Many programs have higher GPA requirements for admission to their professional programs. See departments for details.
Competency requirements	See the "Competency Requirements" table, page 69.	See the "Competency Requirements" table, page 69.	See the "Competency Requirements" table, page 69.	See the "Competency Requirements" table, page 69.

Competency Requirements

	High School Courses		Test Scores		College Courses
English	(minimum 2.00 GPA) Four years high school English composition/literature-based courses	*or*	ACT English—21 or higher SAT Reasoning Critical Reading—530 or higher	*or*	One transferable three-semester-hour college-level course in English composition
Mathematics	(minimum 2.00 GPA) Four years, including algebra I, one year of geometry, algebra II, and one year for which algebra II is a prerequisite	*or*	ACT Math—24 or higher SAT Reasoning Math—540 or higher	*or*	One transferable three-semester-hour college-level course in mathematics for which algebra II is a prerequisite
Laboratory science	(minimum 2.00 GPA) Three years high school courses, including three of the following: biology chemistry earth science integrated sciences physics An advanced-level course may be substituted for one subject area.	*or*	Two years of high school lab science (see subjects at left) plus minimum SAT II subject test score on one of the following: Biology Achievement—590 Chemistry Achievement—600 Physics Achievement—620 ACT Science Reasoning—20 The test score may not be from any subject from which high school credit is earned.	*or*	Three transferable four-semester-hour college-level laboratory science courses in different subject areas
Social science	(minimum 2.00 GPA) Complete A and B: A. One year high school American history B. One year high school social science (e.g., anthropology, European history, geography, government, world history)	*or*	Complete A and B: A. Minimum SAT Subject Test score on American History and Social Studies Achievement—560 B. Minimum SAT Subject Test score on World History Achievement—580	*or*	Complete A and B: A. One transferable three semester-hour college-level American history course B. One transferable three-semester-hour college-level social science course
Foreign language	(minimum 2.00 GPA) Two years of the same foreign language	*or*	not applicable	*or*	Two transferable three- or four-semester-hour college-level courses in the same foreign language
Fine arts	(minimum 2.00 GPA) One unit or a combination of two semesters of fine arts	*or*	not applicable	*or*	One transferable three-semester-hour college-level fine arts course

official only after the final transcript has been received showing that the applicant has met the university admission requirements. In the event the applicant does not qualify or has falsified application documents, admission and registration are canceled, and any registration fees paid are returned according to university refund policies.

Undergraduate Admission Requirements

The Arizona Board of Regents establishes undergraduate admission standards for the university. Colleges, schools, divisions, and departments within the university may establish stricter standards. For more information, access the Web site at www.asu.edu/admissions/howtoapply.

To be eligible for admission to ASU, applicants must meet the graduation, aptitude, and competency requirements as shown in the "Fall 2007–Spring 2008 Admission Requirements" table, page 68, and the "Competency Requirements" table, on this page.

For information about international student admission, see "International Students," page 67.

Competency Requirements

Competencies may be met with high school courses *or* acceptable test scores *or* transferable college courses. See the "Competency Requirements" table, on this page. Applicants with a maximum of one deficiency in no more than two competency areas, provided the areas are not both mathematics and laboratory science, will be considered for admission. Applicants who have completed an Arizona General Education Curriculum (AGEC) or an associate's or higher degree at the time of initial enrollment are not required to meet competency requirements for admission to the University, but will be required to meet competency requirements for some majors.

ASU College/School Admission Requirements for Freshman and Transfer Applicants

Some ASU colleges/schools have established admission requirements beyond ASU's undergraduate admission requirements and professional program admission standards.

This information is for domestic freshman and transfer applicants; international students should read requirements at www.asu.edu/admissions/international (choose *Admission and Application*).

Students who do not meet admission requirements for the chosen major(s) [students may select 3 majors from more than 140 undergraduate degree programs on their applications for admission] but who meet general university admission requirements will be admitted as Exploratory majors in ASU's University College.

IRA A. FULTON SCHOOL OF ENGINEERING

Freshman Admission Requirements

Professional Program Status. To qualify for the professional program, the student must

1. earn a SAT Reasoning score of 1400 or a 32 on the ACT,
2. have no math or science competency deficiencies, and
3. earn a 3.50 or higher GPA in college transfer courses taken before high school graduation.

Preprofessional Program Status. To qualify for the preprofessional program,´ the student must

1. have no math or science competency deficiencies,
2. earn a 1140 SAT Reasoning or 24 ACT score or 3.00 ABOR (competency courses) GPA or be in the top 25 percent of his or her high school class, and
3. earn a 3.00 GPA in college transfer courses taken before high school graduation.

To be admitted to the Professional Program from the Preprofessional program, freshman applicants must meet performance levels in a set of required skill courses as set by each department in the school.

Transfer Admission Requirements

Preprofessional Program Status. To qualify for the preprofessional program, the student must

1. have at least 24 transferable college credit hours taken after high school graduation,
2. earn a 3.00 cumulative transfer GPA, and
3. have no math or science competency deficiencies.

Students with fewer than 24 transferable college credit hours must also meet Freshman Admission Requirements for the Preprofessional Program listed above.

To be admitted to the Professional Program from the Preprofessional program, transfer applicants must meet performance levels in a set of required skill courses as set by each department in the school.

Transfer applicants will not be admitted directly into the Professional Program.

For more information, access the Web site at www.fulton.asu.edu/fulton/transfers.

W. P. CAREY SCHOOL OF BUSINESS

Freshmen Admission Requirements

Professional Program Status. To qualify for professional program status, the student must

1. earn a 3.6 ABOR (competency courses) GPA,
2. earn a 1250 SAT Reasoning or 28 ACT score,
3. have no English or math competency deficiencies, and
4. earn a 3.50 transfer GPA in college courses taken before high school graduation.

Preprofessional Program Status. To qualify for preprofessional program status, the student must

1. earn a 3.5 ABOR (competency courses) GPA or be in the top 25 percent of their high school class,
2. earn a 1200 SAT Reasoning or 25 ACT score,
3. have no math or science competency deficiencies, and
4. earn a 3.00 transfer GPA in college courses taken before high school graduation.

Students must apply to the Professional Program in the sophomore year for junior/senior-level courses. To be admitted to the major of first preference in the Professional Program, students must achieve a 3.50 cumulative ASU GPA and a 3.50 skill GPA.

Prebusiness Program Status. To qualify for the preprofessional program, the student must

1. meet the ASU general freshman Admission Requirements and
2. submit an SAT Reasoning or ACT score.

Students must apply to the Professional Program in the sophomore year for the junior/senior-level courses.

Transfer Admission Requirements

Prebusiness Program Status. With 30 or more transferable college credits earned after high school graduation the student must

1. have a 3.00 transfer GPA and
2. submit a 1040 SAT Reasoning or 22 ACT score.

With fewer than 30 transferable college credits earned after high school graduation the student must

1. have a 3.00 transfer GPA,
2. submit a 1040 SAT Reasoning or 22 ACT score, and
3. meet freshman admission requirements.

Transfer students must apply to the Professional Program for the junior/senior-level courses.

For more information, access the Web site at wpcarey.asu.edu.

WALTER CRONKITE SCHOOL OF JOURNALISM AND MASS COMMUNICATION

Freshman Admission Requirements

Preprofessional Program Status. To qualify for the professional program, the student must

1. earn a 3.00 ABOR GPA,
2. have no English competency deficiencies,
3. meet one of the following:
   (a) top 25 percent of the high school class or
   (b) 1040 SAT Reasoning or 22 ACT, and
4. earn a 2.50 or higher GPA in college transfer courses taken before high school graduation.

Freshman applicants must apply to the Professional Program (junior/senior level) when they have completed a minimum of 56 credit hours. The committee considers a variety of criteria, including major and cumulative GPA, media experience at the college level, writing ability, and commitment to the field.

Transfer Admission Requirements

Preprofessional Program Status. To qualify for the preprofessional program, the student must have 12 transferable college credit hours. Students with fewer than 12 transferable college credit hours must also meet Freshmen Admission Requirements above, and

1. earn a 2.50 cumulative transfer GPA and
2. have no English competency deficiencies.

Transfer applicants must apply to the Professional Program (junior/senior level) when they have completed a minimum of 56 credit hours. The committee considers a variety of criteria, including major and cumulative GPA, media experience at the college level, writing ability, and commitment to the field.

For more information, access the Web site at cronkite.asu.edu.

ADMISSION APPEAL PROCEDURE

An applicant who does not meet the specific admission requirements may file a letter of appeal and three letters of recommendation with the Undergraduate Admissions Board:

UNDERGRADUATE ADMISSIONS BOARD
ARIZONA STATE UNIVERSITY
PO BOX 870112
TEMPE AZ 85287-0112

Applicants to a degree program at the West campus may file their appeal letter and letters of recommendation with:

ADMISSIONS APPEALS COMMITTEE
ADMISSIONS SERVICES, MC 0250
PO BOX 37100
PHOENIX AZ 85069-7100

The decision of the board or committee is final, and any conditions set by the board or committee for future admission supersede all other admission criteria or exceptions.

The applicant must be able to meet at least one of the following criteria to be considered for appeal:

1. an upward grade trend during the high school career or an upward grade trend during the senior year;
2. positive recommendations from secondary school administrators, faculty, or counselors based on considerations such as academic potential, work experience, and leadership ability; or
3. completion of at least 12 semester hours of college-level academic studies with a minimum 2.00 GPA.

TRANSFER CREDIT

Credit is awarded for traditional course work successfully completed at institutions of higher learning as indicated by ASU and the Arizona Board of Regents. *Whether the specific credits can be applied toward a degree depends on the requirements of the department, division, school, or college in which the student is enrolled.* There are several qualifications:

1. Transfer credit is not given for courses in which the student has earned a grade below "C" (2.00).
2. While some courses successfully completed but evaluated on nontraditional grading systems (e.g., pass/fail) may be acceptable for transfer, colleges in the university may not accept such credits to fulfill graduation requirements.
3. Grades and honor points earned at other colleges and universities are considered for admission but are not included in computing the student's cumulative GPA at ASU.

The following types of credits cannot be transferred to ASU:

1. credits awarded by postsecondary institutions in the United States that lack candidate status or accreditation by a regional accrediting association;
2. credits awarded by postsecondary institutions for life experience;
3. credits awarded by postsecondary institutions for courses taken at noncollegiate institutions (e.g., governmental agencies, corporations, industrial firms); and
4. credits awarded by postsecondary institutions for noncredit courses, workshops, and seminars offered by other postsecondary institutions as part of continuing education programs.

Acceptable academic credits earned at other institutions that are based on a different unit of credit than the one prescribed by the Arizona Board of Regents are subject to conversion before being transferred to ASU. Once a transfer course equivalency is determined, it stands unless the student changes majors and the course is required by the new major.

Students who feel they have been unjustly denied credit for transfer courses they have taken may appeal to the standards committee of the college in which they have enrolled. This procedure does not apply to community college transfer of credit greater than the 64-semester-hour maximum. The decision of the committee is final.

Veterans Exception. By Arizona statute, no failing grades received by a veteran at an Arizona university or community college before military service may be considered when determining admissibility. This exception applies only to veterans who

1. are honorably discharged;
2. have served in the armed forces of the United States for a minimum of two years; and
3. have previously enrolled at a university or community college in Arizona.

Military service records must be submitted, including form DD 214.

Community Colleges. A maximum of 64 semester hours are accepted as lower-division credit when transferred from community, junior, or two-year colleges.

Students Attending Arizona Community Colleges. To determine the equivalency of courses offered by Arizona public community colleges and courses offered at ASU, a student should refer to the *Course Applicability System* in consultation with an academic advisor. For more information, access the Web site at az.transfer.org/cas/students.

The *Course Applicability System* addresses the acceptability of a course, not its applicability to any specific major. Community college students who plan to transfer to ASU at the end of their first or second years are strongly advised to follow the ASU transfer guides when taking courses to meet the requirements of the curriculum they select. ASU transfer guides are available on the Web at www.asu.edu/admissions/transfer. Provided college attendance has been continuous, students are permitted to follow the degree requirements specified in the ASU catalog in effect at the time they began Arizona community college work. See "Guidelines for Determination of Catalog Year," page 89.

Arizona General Education Curriculum (AGEC)

The Arizona public community colleges and universities have agreed upon a common structure for a general education core. This curriculum provides students attending any Arizona public community college with the opportunity to build a general education program that is transferable to any other state institution without loss of credit. This common agreement is called the Arizona General Education Curriculum (AGEC).

The AGEC is composed of 35 semester hours of lower-division general education course work in which a student may prepare for transfer.

The AGEC has three forms: AGEC-A, AGEC-B, and AGEC-S. Refer to www.az.transfer.org/cas/atass/student/agec.html for a detailed description of each AGEC.

Community colleges are responsible for certifying the date of completion of the AGEC on the official institutional transcripts.

Completion of the appropriate AGEC will fulfill university lower-division general education requirements of the baccalaureate degree with which the AGEC articulates but may not apply to degrees articulated with the Transfer Guide Pathway TG-XR. Students completing the AGEC will still be required to fulfill lower-division program requirements and prerequisites within their college and major/minor area of study. To complete a degree program most efficiently, students should select courses that concurrently satisfy AGEC and major requirements.

Completion of any AGEC guarantees admission to the university provided that a GPA of 2.00 (for Arizona residents) or 2.50 (for nonresidents) has been achieved. AGEC completion, however, does not guarantee admission to any specific university program. Many majors (e.g., architecture, engineering, business, fine/creative arts, or health professions) have significant prerequisites and/or program requirements that must be completed before a student may be admitted to upper-division course work. Community college students who are undecided about which of the universities they plan to attend or what program of study they intend to pursue are advised to explore educational options while they complete the AGEC. In all cases, students have the responsibility for selecting general education course work that is relevant to the requirements of their intended major and degree.

Students who complete both the AGEC and an approved associate's degree will be assigned junior-class standing by the state universities. Junior-class standing is based on the number of semester credits a student has earned and does not necessarily indicate the remaining number of semester credits needed to complete degree requirements. Course prerequisites, major requirements, and upper-division requirements continue to be specified by each university. Appropriate sequencing of courses and timely completion of course prerequisites are essential to ensure efficient progress toward a baccalaureate degree. Students who have identified the university they plan to attend and/or a major area of study are advised to fulfill requirements and prerequisites identified by these programs through transfer guides and/or curriculum check sheets provided by the state universities. The AGEC does not replace articulation agreements developed to enhance the transfer process between specific institutions, e.g., Associate Transfer Partnership Degrees (ATP). Nor does the AGEC eliminate the possibility that students who have identified the university they plan to attend and/or a major area of study will follow transfer guides provided by the state universities.

International Student Admissions

To comply with U.S. government regulations, any student who plans to attend ASU on an F-1 or J-1 visa must

1. have a minimum GPA of 3.00 (4.00 = A) from secondary school course work if a freshman applicant, or have a minimum GPA of 2.50 (4.00 = A) from college or university course work if a transfer applicant (although the Ira A. Fulton School of Engineering requires a minimum GPA of 3.00);
2. meet basic competency requirements if he or she attended four years of high school in the United States;
3. submit a financial statement not more than six months old from a financial institution assuring adequate resources to support himself or herself while in residence at the university;
4. have all required admissions materials and credentials reach Undergraduate Admissions by May 1 if

applying for the fall semester or October 1 if applying for the spring semester (an English translation of all foreign language documents is required);
5. pay a nonrefundable application fee of $50 in U.S. funds; and
6. meet all appropriate immigration standards and requirements.

Credit from a Foreign Institution. Transfer credits or advanced standing is granted for academic course work completed at foreign tertiary institutions that are either recognized by the home government/Ministry of Education as a degree-awarding institution or attached to a regionally accredited U.S. college or university as a Study Abroad Program. No credit is awarded for English composition courses completed at foreign institutions (credit may be awarded at the discretion of ASU when the credit was completed in a country whose native language is English). There are no advanced credits for the international affiliation programs overseas unless they comply with this general policy. For more information, call Undergraduate Admissions at 480/965-2688.

Nondegree International Applicants. All students with F-1 and J-1 visas must maintain full-time status while studying in the United States. Undergraduate full-time status is defined as a minimum of 12 semester hours. However, students with F-1 and J-1 visas may be permitted to take a maximum of eight semester hours at ASU as a nondegree student while maintaining full-time status at other higher education institutions or in the American English and Culture Program (AECP) at ASU. Approval by the responsible office at the other institution and/or AECP is required to ensure that the student maintains full-time status in compliance with applicable U.S. laws and regulations.

TOEFL. Applicants whose native language is not English (identified by the U.S. Department of State Bureau of Public Affairs) must provide evidence of English language proficiency as indicated by acceptable scores on the Test of English as a Foreign Language (TOEFL) as follows:

The TOEFL requirement for general admission (preprofessional) to the university is 500 (paper-based) or 173 (computer-based). The TOEFL requirement for admission to the preprofessional programs in the Ira A. Fulton School of Engineering and the College of Nursing is 550 (paper-based) or 213 (computer-based).

The following exceptions apply to the TOEFL requirement:

1. Applicants who have earned a bachelor's degree from a regionally accredited college or university in the United States are exempt from the TOEFL.
2. Applicants who have completed 48 transferable semester hours at a U.S. college or university—including two semesters (six semester hours) of freshman composition that satisfy the ASU First-Year Composition requirement—with a cumulative GPA of 2.50 or higher are exempt from the TOEFL requirement.
3. Applicants who have completed four years of high school in a U.S. high school may be admitted to ASU without a TOEFL score but are subject to competency and aptitude requirements.
4. Applicants who have completed their junior and senior years of high school in a U.S. high school may be admitted with a minimum SAT verbal score of 550 or an ACT English score of 23 in lieu of a TOEFL score.
5. Applicants who have completed Advanced 2 Level of the American English and Culture Program are exempt from the TOEFL requirement.

American English and Culture Program

The American English and Culture Program (AECP) features an intensive course of study designed for adult international students who desire to become proficient in English as a second language for academic, professional, or personal reasons. Inquiries about the curriculum, fee schedule, and other topics should be addressed to

AMERICAN ENGLISH AND CULTURE PROGRAM
ARIZONA STATE UNIVERSITY
PO BOX 873504
TEMPE AZ 85287-3504

Acceptance into the AECP is separate from admission to the university. For more information, see "English as a Second Language," page 137, call 480/965-2376, or access www.asu.edu/esl on the Web.

Applicants with Disabilities

Some classroom accommodations, such as Braille, audio tapes, interpreting services, enlarged print, and lab material conversions, may require an extended preparation time (i.e., one semester). For this reason, applicants with disabilities are encouraged to contact Disability Resource Center (DRC) upon application to the university to request information regarding disability documentation/eligibility requirements and deadlines to ensure accommodations for the beginning of the semester. (If students miss DRC deadlines, DRC attempts to provide, but cannot guarantee, requested accommodations. Effective alternatives may be necessary.) *Disability identification to DRC is confidential and cannot affect eligibility for admission.*

Students applying to the Downtown Phoenix, Tempe, or Polytechnic campuses should call 480/965-1234 (voice) or 480/965-9000 (TTY). For more information, access the Web site at www.asu.edu/drc, or write

DISABILITY RESOURCE CENTER
ARIZONA STATE UNIVERSITY
PO BOX 873202
TEMPE AZ 85287-3202

Students applying to West campus should call 602/543-8145 (voice) or 602/543-4327 (TDD). For more information, access the Web site at www.west.asu.edu/drc, or write

DISABILITY RESOURCE CENTER
ARIZONA STATE UNIVERSITY
PO BOX 37100, MC 1050
PHOENIX AZ 85069-7100

Admission of Undergraduate Nondegree Applicants

Any high school graduate is invited to enroll for eight or fewer semester hours per semester of undergraduate course work as a nondegree student. Students currently enrolled in high school and persons under the age of 18 may be admitted as nondegree students by submitting official ACT or SAT scores that meet the high school aptitude requirements of the university. Persons admitted as nondegree students for a specific year and term must remain nondegree until the next semester.

Nondegree applicants must complete an Undergraduate Admissions Application at www.asu.edu/apply. Arizona residents must submit a nonrefundable $25 application fee, and nonresidents must submit a nonrefundable $50 application fee. Applicants who are not high school graduates or who are younger than 18 years of age must also submit ACT or SAT scores.

No more than 15 hours of completed nondegree work may be applied to a degree program. A nondegree student who decides to work toward a bachelor's degree must *apply for admission to a degree program* with Undergraduate Admissions and meet normal admission requirements.

Once registered in a regular degree program, a student is not permitted to register again in a nondegree status. Nondegree students are not eligible to receive most types of financial aid, nor are they eligible to receive certain benefits, such as veteran benefits.

Steps from Admission to Registration

Certificate of Admission. After being admitted, students receive a Certificate of Admission, an Immunization Verification form, and information about orientation. International students additionally receive a Certificate of Eligibility (Form I-20 or DS-2019), which enables them to apply for the appropriate visa.

Upon receipt, students should check their admission information for accuracy and report any errors or changes. For Polytechnic and Tempe campuses, call 480/965-7788. For West campus, call 602/543-8203.

Freshman Orientation. University orientation programs for new students and their parents are provided at numerous times during the year, including the beginning of each semester. Most orientation programs include academic advising, campus tours, special events, and an introduction to university resources and procedures. Some programs offer sessions for parents. Newly admitted students are sent information preceding each orientation program. Students are expected to attend orientation activities. For more information, access the Web site at www.asu.edu/admissions/orientation.

Transfer Orientation. Transfer students receive information about orientation via mail.

Immunization Requirements. Every newly admitted student born after December 31, 1956, must provide proof of measles/rubella immunity to the Campus Health Service. *Students are not permitted to register or live in any ASU residence hall until proof of immunity to measles/rubella is on file with the Campus Health Service. Students who do not provide proof of immunity will not be permitted to live in any ASU residence hall, or attend classes on any ASU campus.*

The following proof of measles/rubella immunity is considered adequate: (1) two vaccinations of MMR (measles, mumps, rubella), at least one of which must have been given after December 31, 1979; or (2) a copy of laboratory test results that show immunity to both measles and rubella.

Measles/rubella immunity proof can be faxed to the Campus Health Service at 480/965-8914. Verification that the Campus Health Service received a student's proof of measles/rubella immunity can be confirmed by going to www.asu.edu/interactive on the Web two working days after the information has been faxed to the Campus Health Service.

In addition, it is recommended that students also be immunized against mumps, tetanus, hepatitis-B, diphtheria, and meningitis. Special populations may need other vaccines. For more information on measles requirements, visit the Campus Health Service's Web site at www.asu.edu/studentaffairs/health.

International Student Enrollment. International students must complete these additional steps.

Student Health Insurance. All F-1 or J-1 visa students must have health and accident insurance through ASU. The cost for insurance is automatically added to their registration bill. *No privately acquired insurance is accepted in place of the ASU insurance.* However, students who have health insurance through their government or sponsoring agency may qualify for an insurance waiver if that coverage has been preapproved by the university. No waivers may be granted after the first two weeks of classes. To find out if their sponsor is on the preapproved list, sponsored students and others who fall into this category are encouraged to contact the Campus Health Service at 480/965-2411 or visit the Campus Health Service Web site at www.asu.edu/studentaffairs/health.

All international students must report to the International Student Office in Student Life upon arrival on campus.

Credit by Examination

No more than 60 hours of credit are awarded for any or all programs, including ASU comprehensive and proficiency examinations. Credit will not be awarded for any course in which the student has been given credit from any educational institution. Credit will not be granted for a course taken at an educational institution after credit by examination has been awarded. Credit may not be received for a lower-level or prerequisite course when credit has already been received in a higher-level course within the same field. In these categories, only credit earned by comprehensive examination counts toward the resident credit requirement for graduation.

Advanced Placement. Students who have taken an advanced placement (AP) course of the College Entrance Examination Board (CEEB) in their secondary school *and* who have taken an AP Examination of the CEEB may receive university credit. No credit is given for any examination with a score of 2 or 1. There is no limit to the number

of AP credits that can be used to meet the General Studies requirement, including the requirements in natural sciences (SQ and SG), and literacy and critical inquiry (L).

When the scores are received by the university directly from the CEEB, credit is awarded as shown in the "Advanced Placement Credit" table, page 78.

College-Level Examination Program (CLEP). Students who have taken a College-Level Examination of the College Entrance Examination Board may receive university credit. The table of CLEP credit applies to all students enrolled in the university for the first time in August 1975 and any student enrolling thereafter; see the "CLEP Credit" table, page 76. CLEP examination credit is *not* given where it duplicates credit previously earned by the student at the university or accepted by the university for work done elsewhere. All examinations are given monthly by University Testing Services.

The General Studies requirement in natural science (SQ and SG) and literacy and critical inquiry (L) are not satisfied by CLEP. There is no limit to the number of CLEP credits that can be used to fulfill the other parts of the General Studies requirement. (See the "General Studies Courses" table, page 96.) A student who has received ASU credit for a course due to Special Programs credit may not duplicate the credit by enrolling in the same class for credit at ASU or transferring it to another institution.

Subject Examinations. To obtain credit or placement for all subject exams except English, French, German, and Spanish, a student must receive a score of 50 (Computer Based Training [CBT] scale) or higher. To obtain credit for English Composition with Essay, a student must receive a standard score of 610 (1978 scale), 500 (1986 scale), or 50 (CBT scale). For test scores for French, German, and Spanish, see the "CLEP Credit" table, page 76.

All equivalency is subject to future review and possible catalog change. For more information, call University Testing Services at 480/965-7146 or stop by EDB 301.

DSST. Students who have taken a DSST (DANTES [Defense Activity for Nontraditional Education Support] Subject Standardized Test) may receive university credit. Credit is awarded for score results at or above the American Council on Education's recommended score if the subject examination is applicable to a program of study at ASU or may be assigned elective credit. To receive credit, a transcript showing the DSST results must be received by ASU directly from the Educational Testing Service.

International Baccalaureate (IB) Diploma/Certificate. Students who present an International Baccalaureate Diploma/Certificate may qualify for university credit, depending on the level of the examination and the grade received. Arizona State University grants credit for higher-level courses only. A grade of 5 qualifies the student to receive credit for up to two introductory courses while a grade of 4 qualifies a student to receive credit for one introductory course. No credit is awarded for English as a Second Language (English B). Credit is awarded according to the "International Baccalaureate Diploma/Certificate Credit" table, page 77.

Comprehensive Examinations. A comprehensive examination is intended to permit a student to establish academic credit in a field in which the student has gained experience or competence equivalent to an established university course. Applications are given only for courses listed in the current catalog and only for courses in which a comprehensive examination can serve as a satisfactory measure of accomplishment.

A number of restrictions apply. The student must be enrolled at ASU with *no more than 100 semester hours of credit earned* (includes credits earned at ASU, credits transferred to ASU from another institution, and all credits earned by examination). The examinations must be taken during the first two semesters in residence in a degree program at the university.

The decision on the suitability of course material for a comprehensive examination, the development of a comprehensive examination, and the administration of an examination are strictly departmental functions. An application is for one course only. The student should complete an application form with the number, title, and number of semester hours for the course. When completed, the application must be approved by the student's advisor and the chair of the department responsible for offering the course.

The student must then pay the stated fee for such examinations at Cashiering Services. The receipt must be taken to the departmental office.

The examination is prepared by the instructor who normally conducts the course, and it is comprehensive in nature and scope. The instructor and other experts designated by the chair grade the examination, using letter grades "A+," "A," "A-," "B+," "B," "B-," "C+," "C," "D," or "E." If the grade is "C" or higher, a mark of "Y" is entered on the student's permanent record; otherwise, no entry is made. Credit by examination is indicated as such on the record. The student is notified by mail of the result of the examination. In cases of failure ("D" or "E"), the student is not given an opportunity to repeat the examination.

A student pursuing a second baccalaureate degree may not receive credit by comprehensive examination, but with prior approval of the college, the student may use the examination to waive a course requirement if a grade of "C" or higher is earned.

Proficiency Examinations. Proficiency examinations and auditions are given

1. to waive a course requirement;
2. to validate certain transfer credits in professional programs; and
3. to determine a student's ability in a field where competence is an important consideration.

Detailed information may be obtained from the dean's office of the college in which the student is registered.

UNIVERSITY TESTING REQUIREMENTS

All new, transfer, or readmitted undergraduate students who plan to enroll for seven or more semester hours must meet one of the following testing requirements. *Students who fail to meet at least one of these requirements are not allowed to register for any course the following semester:*

CLEP Credit

Examinations*	Semester Hours	Equivalency
American Government	3	POS 110
American Literature	3	Elective credit
Analyzing and Interpreting Literature	3	Elective credit
Biology	8	BIO 187, 188
Calculus	4	MAT 270
Chemistry	8	CHM 113, 116
College Algebra	3	MAT 117
College Mathematics	3	MAT 142
English Composition	0	No credit
English Composition with Essay	0	Qualifies for ENG 105
English Literature	3	Elective credit
French Language	4 8 12 16	FRE 101 (Students must score 50–54) FRE 101, 102 (Students must score 55–61) FRE 101, 102, 201 (Students must score 62–65) FRE 101, 102, 201, 202 (Students must score 66 or higher)
Freshman College Composition	0	No credit
German Language	4 8 12 16	GER 101 (Students must score 39–45) GER 101, 102 (Students must score 46–50) GER 101, 102, 201 (Students must score 51–59) GER 101, 102, 201, 202 (Students must score 60 or higher)
History of the United States I—Early Colonization to 1877	3	HST 109
History of the United States II—1865 to the Present	3	HST 110
Human Growth and Development	0	No credit
Humanities	0	No credit
Information Systems and Computer Applications	3	Elective credit
Introduction to Educational Psychology	0	No credit
Introductory Business Law	3	Elective credit
Introductory Psychology	3	PGS 101
Introductory Sociology	3	SOC 101
Natural Sciences	8	Elective credit
Precalculus (replaces College Algebra/Trigonometry)	3	MAT 170
Principles of Accounting	6	Elective credit
Principles of Macroeconomics	3	ECN 211
Principles of Management	0	No credit
Principles of Marketing	0	No credit
Principles of Microeconomics	3	ECN 212
Social Sciences and History	6	Elective credit
Spanish Language	4 8 12 16	SPA 101 (Students must score 50–54.) SPA 101, 102 (Students must score 55–65.) SPA 101, 102, 201 (Students must score 66–67.) SPA 101, 102, 201, 202 (Students must score 68 or higher.)
Western Civilization I—Ancient Near East to 1648	3	HST 102 or 103
Western Civilization II—1648 to the Present	3	HST 104

* All test scores are posted initially as Tempe campus course equivalents and will be honored at any ASU campus the student may attend.

International Baccalaureate Diploma/Certificate Credit

Examination	Score	Semester Hours	Equivalency
Art/Design	7, 6, or 5 4	6 3	ART 111, 112 ART 112
Biology	7, 6, or 5 4	8 4	BIO 187, 188 BIO 187
Chemistry	7, 6, or 5 4	9 4	CHM 113, 115 CHM 113
Economics	7, 6, or 5 4	6 3	ECN 211, 212 ECN 211
English A	7, 6, or 5 4	6 3	ENG 101, 114 ENG 114
English B	No credit	0	None
Foreign Language A or B*	7, 6, or 5 4	8 4	Foreign language 101, 102 Foreign language 101
Geography	7, 6, 5, or 4	3	GCU 102
History—American	7, 6, or 5 4	6 3	HST 109, 110 HST 109
History—East and Southeast and Oceania	7, 6, or 5 4	6 3	HST 107, 240 HST 107
History—European	7, 6, or 5 4	6 3	HST 103, 104 HST 103
Mathematics	7, 6, 5, or 4	4	MAT 270
Music	7, 6, 5, or 4	3	MTC 125
Physics	7, 6, or 5 4	8 4	PHY 111, 112, 113, 114 PHY 111, 113
Psychology	7, 6, 5, or 4	3	PGS 101
Social and Cultural Anthropology	7, 6, 5, or 4	3	ASB 102
Theatre—Introduction	7, 6, 5, or 4	3	THE 100
Visual Arts	7, 6, or 5 4	6 3	ART 111, 112 ART 112

* No credit is awarded if the language is the student's native language.

1. Take the ACT English or SAT verbal examination, and have scores submitted to ASU.
2. Receive a score of 4 or 5 for the advanced placement examination in English offered by the College Entrance Examination Board, and have scores submitted to ASU.
3. Take the CLEP general examination in English Composition with Essay, earning a score that qualifies for placement in ENG 105, and have scores submitted to ASU.
4. Have previously taken ENG 101, 102, 105, 107, or 108 at ASU; or have previously earned a grade of "Y"; or be currently enrolled in WAC 101 or 107 at ASU. If the course was taken before 1980, contact the Recording Section, in SSV 142, before registering for classes.
5. Transfer a course equivalent to ENG 101, 102, 105, 107, or 108 with a grade of "C" (2.00) or higher. An official transcript showing the grade must be received at ASU. If a student transfers an equivalent composition course from a public community college or university in Arizona, the equivalency is automatically posted, and the student need not take further action. A student transferring a composition course from any other college or university must have the course evaluated for equivalency. The student must take a copy of both the transfer transcript and the catalog description of the course to the Writing Programs Office, in LL 314 (480/965-3853). See "First-Year Composition Requirement," page 89, for more information.
6. International students from non-English-speaking countries must take ENG 107 (or WAC 107 followed by ENG 107 the second semester) in the first semester at ASU, unless they have taken and transferred an equivalent composition course from a college or university in the U.S. Such a course must be evaluated for equivalency by the Composition Office.

Advanced Placement Credit

Examination*	Score	Semester Hours	Equivalency
Art—History	5 or 4	6	ARS 101, 102
	3	3	ARS 101 or 102
Art—Studio—Drawing	5	6	ART 111, 112
	4	3	ART 111
Art—Studio—2-D	5	6	ART 112, 194 ST: 2-D Design
	4	3	ART 112
Art—Studio—3-D	5	6	ART 115, 194 ST: 3-D Design
	4	3	ART 115
Biology	5 or 4	8	BIO 187, 188
	3	4	BIO 100
Chemistry	5 or 4	9	CHM 113, 115
	3	4	CHM 113
Computer Science A	5 or 4	3	CSE 110
Computer Science AB	5 or 4	6	CSE 110, 205
Economics—Introductory Macroeconomics	5 or 4	3	ECN 211
Economics—Introductory Microeconomics	5 or 4	3	ECN 212
English—Language and Composition	5 or 4	6	ENG 101, 114
English—Literature and Composition	5 or 4	6	ENG 101, 204
Environmental Science	5 or 4	3	PLB 322
French—Language	5	14	FRE 201, 202, 311, 312
	4	11	FRE 201, 202, 311
	3	8	FRE 201, 202
French—Literature	5	18	FRE 111, 201, 202, 321, 322
	4	12	FRE 111, 201, 202
	3	8	FRE 201, 202
Geography—Human	5, 4, or 3	3	GCU 102
German—Language	5	14	GER 201, 202, 311, 312
	4	11	GER 201, 202, 311
	3	8	GER 201, 202
History—American	5 or 4	6	HST 109 and 110
History—European	5 or 4	6	HST 103 and 104
History—World	5 or 4	3	HST 101
Latin—Language	5	16	LAT 101, 102, 201, 202
	4	12	LAT 101, 102, 201
	3	8	LAT 101, 102
Latin—Literature	5	16	LAT 101, 102, 201, 202
	4	12	LAT 101, 102, 201
	3	8	LAT 101, 102
Mathematics—Calculus AB	5, 4, or 3	4	MAT 270
Mathematics—Calculus BC	5 or 4	8	MAT 270, 271
	3	4	MAT 270
Music	5 or 4	3	MTC 125
Political Science—American Government and Politics	5 or 4	3	POS 110
Political Science—Comparative Government and Politics	5 or 4	3	POS 150
Psychology	5 or 4	3	PGS 101

* All test scores are posted initially as Tempe campus course equivalents and will be honored at any ASU campus the student may attend.

Advanced Placement Credit (continued)

Examination*	Score	Semester Hours	Equivalency
Spanish—Language	5	14	SPA 201, 202, 311, 312
	4	11	SPA 201, 202, 311
	3	8	SPA 201, 202
Spanish—Literature	5	15	SPA 111, 201, 202, 325
	4	12	SPA 111, 201, 202
	3	8	SPA 201, 202
Statistics	5, 4, or 3	3	STP 226

* All test scores are posted initially as Tempe campus course equivalents and will be honored at any ASU campus the student may attend.

Placement Examinations

English. Students who have not taken any composition courses are placed in First-Year Composition courses according to their scores on the ACT English or SAT critical reading tests.

Students who score 18 or below on the ACT English test or 460 or below on the SAT critical reading test must enroll in WAC 101, a basic writing course (see "Writing Across the Curriculum (WAC)," page 543). Students who score between 19 and 25 on the ACT English test or between 470 and 610 on the SAT critical reading test are eligible to enroll in ENG 101. Students who score 26 or higher on the ACT English test or 620 or higher on the SAT critical reading test may take ENG 105 in place of ENG 101 and 102. Students may qualify for ENG 105 by achieving appropriate scores on the CLEP General Examination in English Composition with Essay. For more information, go to University Testing Services, in EDB 301, access the Web site at www.asu.edu/uts, or call 480/965-7146.

Foreign Language. For information regarding foreign language placement testing, see "Foreign Language Requirement," page 584 and "Foreign Language Placement," page 585, and "Credit by Examination," page 74.

Mathematics. Readiness examinations are required before registering for the following mathematics courses at ASU: MAT 106, 113, 117, 119, 142, 170, 210, and 270. For more information, visit the Department of Mathematics and Statistics undergraduate office in PS A211, or access the Web site at math.asu.edu/fym/placement.html.

Academic Advising

Effective academic advising of students is an essential aspect of the educational experience at ASU. The university is committed to providing quality advising to continuing, first-time, and transfer students. To achieve the highest-quality advising, students, faculty, and staff must work to form a partnership.

ASU academic advisors help students to

1. develop a suitable educational plan;
2. select appropriate courses;
3. interpret institutional requirements;
4. develop problem-solving and decision-making skills;
5. become independent learners; and
6. clarify career and life goals.

Advisors also

1. enhance student awareness of opportunities and services on campus;
2. assist students in evaluating their progress toward their educational goals;
3. refer students to institutional and community resources, including opportunities for research and internships;
4. promote and enhance the university's recruiting and retention efforts;
5. engage in activities to keep themselves informed on issues that impact student success; and
6. support cultural diversity at the university.

Each college has advisors to assist students in developing programs of study, assessing educational goals, and understanding rules, procedures, and curriculum requirements. In some colleges, these advisors are faculty members. In others, they are full-time, professional advisors. Students often may seek academic and career advice from both faculty members and full-time advisors. Students are encouraged to take advantage of the skill and knowledge of the advising professionals available to them. Most new students and many continuing students must meet with an advisor as a condition of registration.

University College Academic Advising serves as a central advising, referral, and information facility for students. Emphasis is place on advising first-time, prospective, transfer and visiting students, and students in transition, such as those changing majors and those who have not declared a major. For more information, visit University College Academic Advising in UASB 129, or call 480/965-4464.

Students are strongly encouraged to seek academic advising at the earliest possible time and to do so regularly throughout their academic careers, whether or not advising is mandatory in their particular programs. Access the online academic advising directory available on the Web at uc.asu.edu/advising/directory. For academic advising at the Polytechnic campus, see the "Academic Advising at the Polytechnic Campus" table, page 202. Tempe campus

Academic Advising at Tempe Campus

College	Location	Telephone	Days	Hours[1]	Web Address
All colleges and campuses	—	—	—	—	uc.asu.edu/advising/directory
Barrett Honors College	MB C100L1	480/965-4033	Mon.–Fri.	8 A.M.–5 P.M.[2]	honors.asu.edu
College of Design	ARCH 115	480/965-3584	Mon.–Fri.	8 A.M.–5 P.M.	www.asu.edu/caed
College of Education	EDB L1-13	480/965-5555	Mon.–Fri.	8 A.M.–5 P.M.	coe.asu.edu/oss
College of Law	LAW 120	480/965-6181	Mon.–Fri.	8 A.M.–5 P.M.[3]	www.law.asu.edu
College of Liberal Arts and Sciences	FOUND 110	480/965-6506	Mon.–Fri.	8 A.M.–5 P.M.	clas.asu.edu
College of Nursing	Downtown	TBA	Mon.–Fri.	8 A.M.–5 P.M.	nursing.asu.edu
College of Public Programs	WILSN 203	480/965-1034	Mon.–Fri.	8:30 A.M.–5 P.M.	asu.edu/copp
Ira A. Fulton School of Engineering	ECG 109	480/965-1726 or 965-1750	Mon.–Fri.	8:00 A.M.–5 P.M.[2, 4]	www.fulton.asu.edu
Katherine K. Herberger College of Fine Arts	GHALL 116	480/965-4495	Mon.–Fri.	8 A.M.–5 P.M.	herbergercollege.asu.edu
University College Academic Advising Services	UASB 129	480/965-4464	Mon.–Fri.	8 A.M.–5 P.M.	uc.asu.edu/advising/directory
W. P. Carey School of Business	BA 109	480/965-4227	Wed. Other weekdays	8 A.M.–6:30 P.M. 8 A.M.–5 P.M.	www.wpcarey.asu.edu/up
Walter Cronkite School of Journalism and Mass Communication	STAUF A207	480/965-5011	Mon.–Fri.	8 A.M.–5 P.M.	cronkite.asu.edu

1 Arizona is on mountain standard time all year and does not observe daylight saving time.

2 Walk-ins are welcome; appointments are recommended.

3 Call for additional hours.

4 The office is closed from noon to 1 P.M.

advisors may be contacted at the locations and times shown in the "Academic Advising at Tempe Campus" table, on this page. (See "Building Abbreviations," page 908, for a list of building abbreviations and names.)

Readmission to the University

Undergraduate students who have previously attended ASU but have not been enrolled at ASU for one semester or more are required to apply for readmission through the University Registrar's Office for the semester in which reenrollment is intended. For information and application materials, students requesting readmission may access the Web site at www.asu.edu/registrar/readmissions, call 480/965-7550, or write

ARIZONA STATE UNIVERSITY
UNIVERSITY REGISTRAR'S OFFICE
PO BOX 870312
TEMPE AZ 85287-0312

Previously enrolled students seeking to enroll in a degree program at the West campus should request information from Admission Services at 602/543-8203 or write

ARIZONA STATE UNIVERSITY
ADMISSION SERVICES, MC 0250
PO BOX 37100
PHOENIX AZ 85069-7100

To ensure timely review of applications, students should submit an application for readmission and appropriate fee by the priority date for the semester of application. See the "Priority Dates for Submitting Applications and Application Fees" table, page 67. Applicants classified as residents must submit a $25 nonrefundable application fee, and applicants classified as nonresidents must submit a $50 nonrefundable fee. If the student has attended another accredited college or university since attending ASU, it is necessary for the student to submit an official transcript of all academic work. Failure to report such attendance is considered misrepresentation and falsification of university records. In addition, it is considered cause for Records Hold action and withholding of further registration privileges. An applicant for readmission must have an ASU GPA of 2.00 or higher, depending on the college of the major. An applicant who does not meet this GPA requirement and is below good standing may need to undergo an appeal process. In these cases, the completed application for readmission may be subject to a deadline that is earlier than the readmissions priority date. Students whose GPA is below a 2.00 and who are applying to a college other than the one they had previously attended and

students who were disqualified must submit an application for reinstatement in addition to the application for readmission. Nondegree applicants for readmission must have a minimum GPA of 2.00. If not, the applicant may apply for readmission to summer or winter only to raise the ASU GPA.

Conditional Readmission. A student completing academic work in progress at another institution may be granted conditional readmission. This conditional status remains effective until a final official transcript is received. Additional registration privileges are withheld if this condition for readmission is not cleared.

Academic Renewal

Academic renewal is a university policy administered for the purpose of recalculating the ASU cumulative GPA of undergraduate students who have been readmitted to a degree program after an absence of at least five continuous calendar years, including summer sessions, and who have completed in good standing a minimum of 12 college-approved additional hours in residence within three semesters after reentry. Students may have the former academic record before the five-year absence (including transfer credits) accepted in the same manner as if the credits were transfer credits. That is, earned hours are carried forward for up to 60 hours of credit in which a grade of "C" (2.00) or higher was earned. The cumulative GPA is based only on credits earned subsequent to the student's reentry. All graduation residency, academic recognition residency, and GPA requirements must be fulfilled after academic renewal. A request for academic renewal follows this procedure:

1. Students interested in academic renewal must request the Application for Academic Renewal from the Readmission Section of the University Registrar's Office or the dean of the college offering the major.
2. The Application for Academic Renewal may be submitted immediately upon readmission but not later than the start of the third semester after readmission.
3. The Application for Academic Renewal is submitted by the student to the dean of the college offering the major.
4. The dean specifies in advance a minimum of 12 semester hours.
5. When the approved credits are completed with a cumulative GPA of 2.50 or higher, and no grade lower than "C" (2.00) in each course, the dean forwards the Application for Academic Renewal to the University Registrar's Office for processing.

Only students working toward their first undergraduate degree are eligible to apply for academic renewal, which may be effected only once during a student's academic career. Academic renewal is transferable among colleges. All students with ASU GPAs below 2.00 are eligible to petition for academic renewal. Individual colleges may elect to entertain petitions for academic renewal from students with ASU GPAs above 2.00. College standards committees have final authorization on academic renewal petitions. Eligibility for graduation is based on the ASU cumulative GPA after academic renewal. However, a student's complete record—before and after academic renewal—remains on the transcript and may be taken into consideration when a student applies for undergraduate professional or graduate programs.

Registration

All persons attending a class at ASU must be registered for that class. A student is considered to be registered when all registration fees have been paid in full.

Eligibility. Only eligible students may register for courses at ASU. An eligible student is either continuing from the previous semester or has been admitted or readmitted to the university. See "Undergraduate Admission," page 66, and "Readmission to the University," page 80.

Proof of Identification. To receive university services in person photo identification must be presented. Each admitted or readmitted student who completes the registration process for a regular semester needs to obtain a student identification card. This photo identification card is valid for the duration of the student's enrollment at ASU.

Photo IDs are issued throughout the semester at the Sun Card office located in the Memorial Union on Tempe campus; Student Services (QUAD 2) on Polytechnic campus; and through the bookstore, UCB 140, at West campus. See the *Schedule of Classes* or refer to "Sun Card/ID Card," page 54.

Registration Fees. Registration fees are due and must be paid in full before the deadline specified for each semester in the *Schedule of Classes*. If any payment tendered is unauthorized, incomplete, or received after the due date, registration fees are considered unpaid.

Schedule of Classes. The *Schedule of Classes,* published for the fall and spring semesters, and the *Summer Sessions Bulletin* are distributed without charge. These publications are also available online at www.asu.edu/registrar/schedule. They list course offerings, dates, times, places, and procedures for registration, along with other important information about the term.

Course Loads. A minimum full-time course load for an undergraduate student is 12 semester hours. The maximum course load for which a student may register is 18 semester hours (with the exception of a 19-hour maximum for students enrolled in the College of Design or Ira A. Fulton School of Engineering). A student wishing to register for more than the maximum must petition the standards committee of the college in which the student is enrolled and must obtain an approved overload before registration.

Summer Session Semester Hour Load. The summer session semester hour load limit is seven semester hours for each five-week session and nine semester hours for the eight-week session. The student may not exceed a total of 14 semester hours for any combination of sessions.

Enrollment Verification Guidelines

Term	Student	Full Time	Half Time	Less Than Half Time
Regular semester	Undergraduate	12 or more hours	6–11 hours	5 or fewer hours
	Graduate	9 or more hours	5–8 hours	4 or fewer hours
	Research/teaching assistant	6 or more hours	—	—
Five-week summer session	Undergraduate	4 or more hours	2 hours	1 hour
	Graduate	3 or more hours	2 hours	1 hour
	Research/teaching assistant	2 or more hours	1 hour	—
Eight-week summer session	Undergraduate	6 or more hours	3–5 hours	2 or fewer hours
	Graduate	5 or more hours	3–4 hours	2 or fewer hours

Reserving of Course Credit by Undergraduates. Seniors at ASU within 12 semester hours of graduation may enroll in a 400-level or graduate course and reserve the credit for possible use in a future graduate program. The course cannot be used to meet a baccalaureate graduation requirement. Before registration in the course, the student must submit a Division of Graduate Studies Petition form requesting credit reservation. The form must be signed by the student's advisor, the head of the academic unit offering the class, and the dean of graduate studies.

Permission to reserve a course does not guarantee admission to a graduate degree program or that the course may be used toward graduate degree requirements. A maximum of nine semester hours may be reserved, and only courses in which the student earned an "A" (4.00) or "B" (3.00) grade are applicable. Reserved credit earned before admission to a graduate degree program is classified as nondegree credit. The maximum course load for a student enrolled in a reserved course is 15 semester hours during a regular semester and six hours during a summer session.

Concurrent Enrollment. Provided that the other institution's regulations concerning enrollment, graduation requirements, and transfer of credits are not violated, a student may enroll in classes at other institutions or in independent learning courses while enrolled at ASU. However, the student is urged to seek advising before concurrent enrollment to assure orderly progress toward a degree. If total credits exceed the maximum course load, prior permission must be granted by the college standards committee. See "Course Loads," page 81.

Attendance. The instructor has full authority to decide whether class attendance is required.

Enrollment Verification Guidelines. The registrar is responsible for verifying enrollment according to the general guidelines in the "Enrollment Verification Guidelines" table, on this page. Independent learning courses are not considered for enrollment verification purposes.

Cooperative Programs

Cooperative Education. Cooperative education at ASU is any educational program that requires *alternating classroom and work experience* in government or industry. The work experience exists for its educational value.

Full-Time Status of Co-op Students. A co-op student, during a work semester, is identified as both co-op and full time by the university. To qualify, the student must have met prescribed hours and GPA requirements.

Rights and Privileges of Co-op Students. During their work semesters, co-op students have the rights, privileges, and protections—with regard to university matters—accorded to full-time students, except financial aid. They maintain catalog continuity and have student access to university facilities and events.

Financial Aid for Co-op Students. Co-op students are not identified to lenders (including ASU) as being in loan repayment status. They have an "in school" full-time enrollment status. Co-op students do not receive any financial aid disbursement during their co-op semesters, *nor are such awards transferred to another semester.* The student is responsible for notifying Student Financial Assistance as soon as plans for a co-op term are made but no later than 10 days before the co-op term begins. The department or school is responsible for notifying Student Financial Assistance of students approved for co-op terms

Traveling Scholar Program. The Traveling Scholar Program is a cooperative program among the state universities designed to enable students to take advantage of programs or special resources that are not available at their own institutions. Any undergraduate student with a GPA of at least 2.50 or any graduate student with a GPA of at least 3.00 enrolled at ASU, Northern Arizona University, or University of Arizona may be designated a Traveling Scholar by prior mutual agreement of the appropriate academic authorities at both the sponsoring and hosting institutions. For more information and the application form, call the University Registrar's Office Records Information section, or access the Web at www.asu.edu/registrar/forms.

Grading System

DEFINITIONS

Unit of Credit

The Arizona Board of Regents has defined (May 26, 1979) a unit of credit for the institutions under its jurisdiction. A minimum of 45 hours of work by each student is required for each unit of credit. An hour of work represents a minimum of 50 minutes of class time—often called a "contact hour"—or 60 minutes of independent study work.

For lecture-discussion courses, this requirement equates to at least 15 contact hours and a minimum of 30 hours of work outside the classroom for each unit of credit. Even though the values of 15 and 30 may vary for different modes of instruction, the minimum total of 45 hours of work for each unit of credit is a constant. Since the unit of credit as defined by the Arizona Board of Regents is the cornerstone of academic degree programs at ASU, degrees granted by other institutions that are recognized by ASU should be based on a similar unit of credit.

Grades and Marks

All grades and marks appear on the permanent record and/or unofficial transcript. They are indicated by the letters shown in the "Grades" table below.

Ordinarily the instructor of a course has full discretion in selecting which grades to use and report from the available grading options.

Grades

Grade	Definition	Grade Points
A+	—	4.333[1]
A	Excellent	4.000
A-	—	3.667
B+	—	3.333
B	Good	3.000
B-	—	2.667
C+	—	2.333
C	Average	2.000
D	Passing	1.000
E	Failure	0.000
I	Incomplete	—
NR	No report	—
P	Pass	—
W	Withdrawal	—
X	Audit	—
Y	Satisfactory	—
Z	Course in progress[2]	—

[1] Although the scale includes a grade of A+ with grade points of 4.333, the cumulative GPA is capped at 4.000.

[2] This grade is usually given pending completion of courses.

Grading Options

Ordinarily a grade of "A+," "A," "A-," "B+," "B," "B-," "C+," "C," "D," or "E" is given upon completion of a course, unless another grading option such as "audit" or "pass/fail" is indicated at the time of registration. *Grading options cannot be changed after the close of the drop/add period.*

Incomplete

A mark of "I" (incomplete) is given by the instructor only when a student who is otherwise doing acceptable work is unable to complete a course because of illness or other conditions beyond the student's control. The mark of "I" should be granted only when the student can complete the unfinished work with the same instructor. However, an incomplete ("I") may be completed with an instructor designated by the department chair if the original instructor later becomes incapacitated or is otherwise unavailable. The student is required to arrange with the instructor for the completion of the course requirements. The arrangement is recorded on the Incomplete Grade Request form. The student has one calendar year from the date the mark of "I" is recorded to complete the course. If the student completes the course within the calendar year, the instructor must submit an Authorization for Change of Grade form to the University Registrar's Office, whether the student passed or failed the course. Marks of "I" are changed to a grade of "E" for purposes of evaluating graduation requirements for undergraduate students. Marks of "I" received in the fall 1983 semester or thereafter for undergraduate courses that have been on a student's record for more than one calendar year are automatically changed to a grade of "E." An undergraduate student does not reregister or pay fees for a course for which an incomplete "I" has been received in order to complete the course.

Students who receive a mark of "I" in courses at the 500 level or above have one calendar year to complete the course for a grade. After one calendar year, the mark of "I" becomes a permanent part of the transcript. To repeat the course for credit, a student must reregister and pay fees. The grade for the repeated course appears on the transcript but does not replace the permanent "I."

Satisfactory

A mark of "Y" (satisfactory) may be used at the option of individual colleges and schools within the university and is appropriate for internships, projects, readings and conferences, research, seminars, theses, and workshops. The "Y" is included in earned hours but is not computed in the GPA.

Credit Enrollment

The semester hour is the unit on which credit is computed. It represents one 50-minute class exercise per week per semester. To obtain credit, a student must be properly registered and must pay fees for the course.

Audit Enrollment

A student may choose to audit a course, in which case the student attends regularly scheduled class sessions, but no credit is earned. The student should obtain the instructor's approval before registering and paying the fees for the course. Selected courses may not be audited. Veteran students using education benefits should see "Veterans Services," page 66.

The mark of "X" is recorded for completion of an audited course, unless the instructor determines that the student's participation or attendance has been inadequate, in which case the mark of "W" (withdrawal) may be recorded. This grading option may not be changed after the close of drop/add. The "X" is not included in earned hours and is not computed in the GPA.

Pass/Fail Enrollment

A mark of "P" (pass) or "E" (fail) may be assigned for this grading option. This grading method may be used at the

option of individual colleges and schools within the university. Consult the academic advisor for detailed information and restrictions. Approval of both the class instructor and the college of the student's major are required before registration. "P" is included in earned hours but is not computed in the GPA.

Remedial Enrollment

A mark of "RC" (remedial credit) or "RN" (remedial no credit) may be assigned for this grading option. The course appears on an unofficial ASU transcript but does not appear on the grade report or official ASU transcript and is not included in earned hours. Remedial hours are included in verification of enrollment for purposes of loan deferment and eligibility.

WITHDRAWALS

Instructor-Initiated Drop

An instructor may drop a student for nonattendance during the second week of classes in fall or spring semesters or the first four days of each summer session. Instructor-initiated drops for nonattendance are signed by the dean or dean's designee. The college notifies students by mail. It is recommended that the student contact the instructor before the end of the first week of classes if absences during that period cannot be avoided.

Drop/Add

Students registering for courses for a semester or summer session may drop or add courses through the first week of classes in a semester or the first two days of a summer session. See the *Schedule of Classes* or the *Summer Sessions Bulletin* for dates of drop/add periods. During this period, a student may drop one or more but not all scheduled courses without penalty. Courses that are dropped do not appear on the student's transcript and fees paid are refunded according to the refund schedule printed in the *Schedule of Classes*, depending on the student's remaining hours. A student who wishes to withdraw from all courses during the drop/add period must process a complete withdrawal from the university.

Course Withdrawal

During the second week through the 10th week of the Fall or Spring semester; the third day through the third week of a summer session; or until the midpoint of the term for winter and flexibly scheduled sessions, a student may withdraw from any course with a mark of "W." See the *Schedule of Classes* or the *Summer Sessions Bulletin* for dates of the withdrawal period. A student may not avoid any penalty for academic dishonesty by withdrawing from a course. A student may be reinstated to a course to receive a penalty of a reduced or failing grade, or XE.

Instructor-Initiated Withdrawal

An instructor may withdraw a student from a course with a mark of "W" or a grade of "E" only if the student's continued presence in the course is disruptive to the instructor's ability to conduct the course. A student may appeal an instructor-initiated withdrawal within 10 days of being withdrawn to the standards committee of the college in which offers the course. The committee's decision is final.

Withdrawal from the University

To withdraw from *all* classes, a student must submit a request to withdraw using ASU Interactive, SunDial, or submit a signed request in person to any registrar location. The ASU Interactive and SunDial complete withdrawal option is available through the semester transaction deadline. A student may withdraw from all courses with marks of "W" through the semester transaction deadline. See the *Schedule of Classes* or the *Summer Sessions Bulletin* for dates of the complete withdrawal periods. A student may not avoid any penalty for academic dishonesty by withdrawing from a course. A student may be reinstated to a course to receive a penalty of a reduced or failing grade, or XE.

Medical/Compassionate Withdrawal

A medical/compassionate withdrawal request may be made in extraordinary cases where serious illness or injury (medical) or another significant personal situation (compassionate) prevents a student from continuing in his or her classes, and where incompletes or other arrangements with the instructor are not possible. Usually, consideration is for complete withdrawal. All applications for withdrawal require thorough and credible documentation. Application for less than a complete withdrawal must be especially well documented to justify the selective nature of the medical/compassionate withdrawal request.

A student may request and be considered for a *medical* withdrawal when extraordinary circumstances, such as a serious illness or injury, prevent the student from continuing in classes. This policy covers both physical-health and mental-health difficulties.

A student may request and be considered for a *compassionate* withdrawal when extraordinary personal reasons, not related to the student's physical or mental health (for example, care of a seriously ill child or spouse, or a death in the student's immediate family), prevent the student from continuing in classes.

Each college has a dean's representative (medical/compassionate withdrawal designee) to review medical/compassionate withdrawal requests, according to that college's procedures. A student requesting a medical/compassionate withdrawal is referred to the dean's designee of the college of the student's major. A nondegree student is referred to the dean's designee of the college with which he or she is primarily affiliated. The dean's designee determines the appropriateness of the medical/compassionate withdrawal request and whether an administrative hold is indicated. Removal of the hold must be authorized by the designee before the student can register for a future semester or be readmitted to the university.

The medical/compassionate withdrawal procedure results in a special note line on the unofficial transcript. Refunds are not given beyond six months past the close of the semester. Only one Request for Documented Medical/Compassionate Withdrawal form needs to be filed with the college of the major, even if classes in more than one college are involved. Medical/compassionate withdrawal applications and supporting documents are retained and filed separately from the student's other records.

A student may not avoid any penalty for academic dishonesty by withdrawing from a course. A student may be

reinstated to a course to receive a penalty of a reduced or failing grade, or XE.

GRADE POINTS

For the purpose of calculating the grade point average (GPA), grade points are assigned to each of the grades for each semester hour as follows: "A+," 4.333 points; "A," 4.000 points; "A-," 3.667 points; "B+," 3.333 points; "B," 3.000 points; "B-," 2.667 points; "C+," 2.333 points; "C," 2.000 points; "D," 1.000 point; and "E," 0.000 points. GPAs are rounded to the nearest 100th of a grade point.

Grade Point Average

Grade points earned for a course are multiplied by the number of semester hours to produce honor points. For example, receiving an "A," which is assigned four grade points, in a three-semester-hour course would produce 12 honor points. The grade point average (GPA) is obtained by dividing the total number of honor points earned by the total number of semester hours graded "A+," "A," "A-," "B+," "B," "B-," "C+," "C," "D," or "E." Other grades do not carry grade points.

Semester GPA is based on *semester* net hours. *Cumulative* GPA is based on *total* net hours. Although the plus/minus scale includes a grade of A+ with grade points of 4.333, the cumulative GPA is capped at 4.000.

Change of Grade

Ordinarily the instructor of a course has the sole and final responsibility for any grade reported. Once the grade has been reported to the registrar, it may be changed upon the signed authorization of the faculty member who issued the original grade, the department chair, and the dean of the college concerned. This policy also applies to the grade of "I" (incomplete).

University Policy for Student Appeal Procedures on Grades

Informal. The steps outlined on this page, beginning with step A, must be followed by any student seeking to appeal a grade. Student grade appeals must be processed in the regular semester immediately following the issuance of the grade in dispute (by commencement for fall or spring), regardless of whether the student is enrolled at the university. It is university policy that students filing grievances and those who are witnesses are protected from retaliation. Students who believe they are victims of retaliation should immediately contact the dean of the college in which the course is offered.

A. The aggrieved student must first undergo the informal procedure of conferring with the instructor, stating the evidence, if any, and reasons for questioning that the grade received was not given in good faith. The instructor is obliged to review the matter, explain the grading procedure used, and show how the grade in question was determined. If the instructor is a graduate assistant and this interview does not resolve the difficulty, the student may then go to the faculty member in charge of the course (regular faculty member or director of the course sequence) with the problem.

B. If the grading dispute is not resolved in step A, the student may appeal to the department chair or other appropriate chair of the area within the department (if any). The department chair may confer with the instructor to handle the problem. Step B applies only in departmentalized colleges.

C. If these discussions are not adequate to settle the matter to the complainant's satisfaction, the student may then confer with the dean of the college concerned (or the dean-designate), who will review the case. If unresolved, the dean or designate may refer the case to the college academic grievance hearing committee to review the case formally. In most instances, however, the grievance procedure does not go beyond this level.

Formal. The following procedure takes place after steps A, B, and C (or A and C) have been completed.

D. Each college has on file in the office of the dean (and in each department of the college) the procedures and composition of the undergraduate or graduate academic grievance hearing committee for student grievances. Each college committee shall operate under grievance procedures as stated which satisfy due process requirements. The committee shall always meet with the student and the instructor in an attempt to resolve the differences. At the conclusion of the hearing, the committee shall send its recommendations to the dean.

E. Final action in each case will be taken by the dean after full consideration of the committee's recommendation. Grade changes, if any are recommended, may be made by the dean. The dean shall inform the student, instructor, department chair (if any), the registrar, and the grievance committee of any action taken.

Repeating Courses

An undergraduate course taken at ASU may be repeated for credit if the grade of "D," "E," or "W" or a mark of "X" is received. An undergraduate student may not repeat for credit an undergraduate course in which a grade of "C" or higher is earned. Undergraduate courses in which grades of "D" or "E" are received may be repeated only once. After an undergraduate student repeats 100- and 200-level courses, the student's transcript shows both grades, but the student's cumulative GPA reflects only the higher grade. After an undergraduate student repeats 300- or 400-level courses, the student's cumulative GPA and the transcript reflect both grades.

To be eligible for the deletion of "D" or "E" grades from calculations of the GPA, the course must be repeated at ASU. Independent Learning courses may not be used to repeat "D" or "E" grades. Students who have graduated are not eligible to delete the grade for a course taken before the award of the ASU bachelor's degree.

Students wishing to repeat a class for the third time with grades of "D" or "E" must petition the standards committee of the college in which they are enrolled. This policy does not apply to seminar and independent study courses with different content each semester. This policy affects only undergraduate students and undergraduate courses.

Demonstration of Mastery

An undergraduate student who receives a "D" in a course in which a "C" or higher is required may use the grade from an equivalent course taken elsewhere to demonstrate mastery at the "C" or higher level. However, the course may neither be transferred to ASU (since credit has already been given for the course) nor computed in the student's GPA.

Midterm Report

Instructors are strongly encouraged to evaluate students at midterm for academic progress. A student who has been evaluated for a "D" or "E" at midterm receives a midterm report. The midterm "D" and "E" grades are not recorded on the student's permanent record. Midterm reports are mailed to the student's local address of record.

Final Grades

Grades may be viewed on the ASU Interactive Web site at www.asu.edu/interactive or accessed through SunDial at 480/350-1500.

Records Hold

The University Registrar's Office enforces a financial records hold or administrative hold on the records of a student when an outstanding financial obligation or disciplinary action has been reported.

When a financial hold is placed on the record, the following results may occur:

1. No official transcript is issued.
2. Registration privileges are suspended.
3. Other student services may be revoked.

The second and third results may also occur when an *administrative* hold is placed on the record. The hold remains effective until removed by the initiating office. It is the student's responsibility to clear the conditions causing the hold.

Transcripts

Students may request official transcripts via ASU Interactive, in person, or by written letter. The request must include the following information about the student:

1. name;
2. former name(s);
3. ASU ID number (or Social Security Number [SSN]);
4. date of birth;
5. first and last dates of attendance;
6. current return address;
7. daytime phone number;
8. specific mailing address for each transcript ordered; and
9. student signature.

Students (except those who attended ASU before 1980) must also select one of the following options to be displayed on the transcript:

1. ASU ID only;
2. SSN only;
3. both ASU ID and SSN displayed; or
4. neither ASU ID or SSN displayed.

The University Registrar's Office does not issue a transcript if the student has a financial records hold. Official transcripts can be requested in person, by mail or via ASU Interactive. The fee for official transcripts is $10.00 per copy. "Rush" transcripts (requested to be printed and picked up the same day) cost $10.00 in addition to the total cost of the transcripts ordered. Special delivery processing, instead of regular mail, is available via FedEx or U.S. Express Mail at $19.50 per U.S. delivery address (with some exceptions). Express deliveries to addresses outside the U.S., is available via International FedEx Express or International Express Mail at $38.00. The express costs are in addition to the cost of the transcript(s). (Please note that FedEx Express will not deliver to a PO Box; an actual FedEx deliverable street address is required.) Fees are subject to change without notice. Unofficial transcripts may be requested in person at the University Registrar's Office, or by mail or fax (480/965-2295) if a signed release is enclosed. There is no charge for an unofficial transcript. Also, students may view and print their own unofficial transcripts via the Web using ASU Interactive at www.asu.edu/registrar.

Note: Pre-1980 records are not available via the Web.

All in-person transcript requests require presentation of photo identification. Requests are not accepted from third parties without a written release from the student. For information on parental access to records, see "Access to Records," page 88.

Retention and Academic Standards

Class Standing. A student's class standing is determined by the number of hours earned, as shown in the "Class Standing" table below.

Class Standing

Student	Hours Earned
Freshman	24 or fewer semester hours earned
Sophomore	25 to 55 semester hours earned
Junior	56 to 86 semester hours earned
Senior	87 or more semester hours earned
Graduate	Bachelor's degree from accredited institution

Academic Good Standing. For the purpose of retention, academic good standing for degree-seeking students is defined in the "Academic Good Standing" table below.

Academic Good Standing

Total Earned Hours	Minimum Cumulative GPA
24 or fewer	1.60
25 to 55	1.75
56 or more	2.00

A student who does not maintain the minimum GPA standard is placed on academic probation or is disqualified. A student on academic probation is in conditional good standing and is permitted to enroll. A student who has been

disqualified is not in academic good standing and is not permitted to enroll for fall or spring semesters.

To transfer from one college to another within the university or to be eligible for readmission, a student must have an ASU GPA of 2.00 or higher. The GPA determining good standing is computed on courses taken only at ASU.

For purposes of retention or transfer, an individual college may set higher GPA standards; otherwise, the university standards prevail. See the college sections of this catalog or contact the college deans' offices for statements regarding college retention standards.

Dean's List. Undergraduate students who earn 12 or more graded semester hours ("A+," "A," "A-," "B+," "B," "B-," "C+," "C," "D," or "E") during a semester in residence at ASU with a GPA of 3.50 or higher are eligible for the Dean's List. A notation regarding Dean's List achievement appears *only* on the final grade report available online at www.asu.edu/registrar.

Satisfactory Academic Progress. The university is required to publish and enforce standards of satisfactory academic progress for certain students (e.g., student athletes, students receiving financial aid, and students receiving veterans benefits).

Certification of satisfactory progress for student athletes is verified by the academic advisor and the dean's designee for certifying satisfactory progress. Certification of satisfactory progress for students receiving financial aid or veterans benefits is verified by Student Financial Assistance or the Veterans Services section, respectively. Students should contact their advisors or the appropriate office for additional information on satisfactory progress requirements.

Probation. A student's college assumes responsibility for enforcing academic standards and may place on probation any student who has failed to maintain good standing as previously defined. For purposes of probation and retention, an individual college may set higher GPA standards. A student on academic probation is required to observe any rules or limitations the college may impose as a condition for retention.

Disqualification. A student who is placed on probation at the end of a semester is subject to disqualification by the college at the end of the following semester if the conditions imposed for retention are not met.

Disqualification is exercised at the discretion of the college. *A disqualified student is notified by the dean of the college and is not allowed to register in a fall or spring semester at the university.* If the student has already registered for a future fall or spring semester, then the registration is cancelled. A student who has been disqualified may apply for reinstatement to the college standards committee. A student who is disqualified may not attend as a nondegree student.

Reinstatement. A student who has been disqualified and has skipped a fall or spring semester must follow the procedures for readmission. See "Readmission to the University," page 80.

A disqualified student who has not skipped a semester may submit an Application for Reinstatement to the college of his or her major. If the student wishes to transfer to a different college, he or she may submit an Application for Reinstatement to the college into which he or she wishes to transfer.

Academic Integrity. The highest standards of academic integrity are expected of all students. The failure of any student to meet these standards may result in suspension or expulsion from the university or other sanctions as specified in the University Student Academic Integrity Policy. Violations of academic integrity include, but are not limited to, cheating, fabrication, tampering, plagiarism, or facilitating such activities. The University Student Academic Integrity Policy is available from the Office of the Executive Vice President and Provost of the University and from the deans of the individual colleges.

Suspension or Expulsion for Academic Dishonesty. All decisions relating to expulsion or suspension that are concerned with academic dishonesty are the sole prerogative of the dean of the school or college in which the student has been admitted. These decisions of suspension or expulsion can be appealed in accordance with established university procedures. Application for reinstatement may be made to any of the academic units within the university after the specified period of suspension. Merely having remained in a suspended status for a period of time does not, in itself, constitute a basis for reinstatement.

Student Records

Family Educational Rights and Privacy Act of 1974

The federal Family Educational Rights and Privacy Act of 1974, also known as the Buckley Amendment or FERPA, sets forth the requirements governing the protection of the privacy of education records of students who are or have been in attendance at ASU.

Definitions

Eligible Student. For the purpose of this act, an *eligible student* is defined as any individual formally admitted to and enrolled at ASU.

Record. The term *record* includes any information or data recorded in any medium, including, but not limited to, handwriting, print, tapes, film, microfilm, microfiche, and electronic means.

Types of Information

Education Record. The term *education record* refers to those records directly related to a student and maintained by an educational institution. Two types of education records are subject to the provisions of this act: (1) directory information and (2) personally identifiable information. The term does not include those records specifically excluded by Section 99.3 of the privacy act.

Directory Information. The term *directory information* includes the following student information: name, local, permanent and ASU e-mail addresses (including directory number), local telephone number, date of birth, academic level, major field of study, college of enrollment, participation in officially recognized activities and sports, weight and

height of members of athletic teams, dates of attendance, degrees and awards received (including National Merit, National Achievement, and National Hispanic Scholars) and the most recent previous educational agency or institution attended by the student.

Personally Identifiable Information. The term *personally identifiable information* includes all information not defined as directory information. This includes, but is not limited to, the name of a student's parent or other family member(s), a personal identifier such as the student's ASU ID number or Social Security number, a list of personal characteristics, or other information that would make the student's identity easily traceable; and, any information, including directory information, that the student has indicated should not be released.

Access to Records

An eligible student may inspect and review his or her own education records. Some form of photo identification must be displayed before access to education records is allowed.

Directory information may be released to anyone without consent of the student unless the student has indicated otherwise. Students may request that this information not be released by completing a form in the University Registrar's Office. A request to withhold this information excludes the student from being listed in the annual directory only if the request is submitted to the University Registrar's Office before the end of the third week of the fall semester.

All other education records that contain personally identifiable information may not be released without the written consent of the student. A parent of a dependent student may challenge denial of such access by producing the most current copy of Internal Revenue Form 1040. If that form lists the student in question as a dependent, the parent is required to sign an affidavit that affirms that the student is his or her dependent. The affidavit is retained by the University Registrar's Office. Upon receipt of the affidavit, the university may make student records available to the parent for the rest of that calendar year as specified under the Buckley Amendment.

Students may grant access to individuals or agencies by completing a form in the University Registrar's Office.

Location of Policy and Records

The custodian of education records at ASU is the University Registrar's Office. A copy of this complete policy may be found at www.asu.edu/aad/manuals/ses. The University Registrar's Office also maintains a directory that lists all education records maintained on students by ASU.

The Memorial Union offers a variety of programs, services, and opportunities for student involvement, such as the Art Café, an eatery where students, faculty, and staff demonstrate their talents in the performing and visual arts. Tim Trumble photo

University Graduation Requirements

UNIVERSITY REQUIREMENTS

All students enrolled in a baccalaureate degree program must fulfill the following university requirements to graduate.

Credit Requirements

A minimum of 120 semester hours is required for graduation with a baccalaureate degree. A minimum of 45 semester hours in upper-division courses is required for graduation. Some programs may require more than 120 semester hours and 45 upper-division semester hours for graduation; refer to specific campus/college graduation requirements.

Not more than 60 semester hours in independent learning courses and/or earned by comprehensive examination (including Advanced Placement, College-Level Examination Program, DANTES Subject Standardized Test, and International Baccalaureate Diploma/Certificate exams) are accepted for credit toward the baccalaureate degree.

Grade Point Requirement

A minimum cumulative grade point average of 2.00 for all courses taken at ASU is required to graduate with a baccalaureate degree.

General Studies Requirement

All students enrolled in a baccalaureate degree program must satisfy a university requirement of a minimum of 35 semester hours of approved course work. See "General Studies," page 93.

Students transferring from Arizona community colleges with a certified completion of the appropriate Arizona General Education Curriculum (AGEC) will have satisfied all lower-division General Studies requirements of the baccalaureate degree with which the AGEC articulates. For more details regarding the different versions of AGEC, refer to az.transfer.org/cas/atass/student/agec.html.

Mathematics Requirement

All undergraduate degree-seeking students are expected to fulfill the university's mathematics requirement by the time they have accumulated 30 hours of credit in residence at ASU. Any student who has more than 30 hours of credit and has not fulfilled the mathematics requirement must enroll in a mathematics course or an appropriate prerequisite course and continue to do so every semester until the mathematics requirement is met. A waiver may be granted for continuous enrollment if there are scheduling conflicts detrimental to the student's academic progress.

First-Year Composition Requirement

Completion of both ENG 101 and 102 or ENG 105 with a grade of "C" (2.00) or higher is required for graduation from ASU in any baccalaureate program. International students from non-English-speaking countries may meet the First-Year Composition requirement by completing ENG 107 and 108 with a grade of "C" (2.00) or higher.

New or Transfer Students. Before new students or transfer students can register for the first time at ASU, they must determine what courses to take to complete the university First-Year Composition requirement; the students must then enroll immediately in composition courses and continue to do so every term until composition requirements are met. *Colleges may grant waivers to the immediate and continual enrollment requirement when there are scheduling conflicts detrimental to the student's academic progress*. Transfer students from public community Arizona colleges or universities can determine the acceptability of their composition courses by referring to the *Course Applicability System* in consultation with an academic advisor. Composition courses transferred from out-of-state institutions must be evaluated and approved by the Composition Office.

The transfer student must file an application in the student's college for Equivalency of First-Year Composition Requirements, along with a transcript and catalog descriptions of the composition courses to be transferred. The application, available in each college, should be filed immediately upon transfer of course work to ASU so that the student is able to enroll in an additional composition course, if required to do so.

For more information, visit LL 314 on Tempe campus or FAB N220 on West campus.

Resident Credit Requirement

Resident credit refers to a course that is offered in a regular semester, winter session, intersession, or summer session. Credit earned through comprehensive examinations is also included when calculating ASU resident hours. Credit earned through independent learning, advanced placement, the College-Level Examination Program, or an International Baccalaureate Diploma/Certificate are excluded when calculating ASU resident hours.

Campus Resident Credit Requirement. Every candidate for the baccalaureate degree is required to earn a minimum of 30 semester hours in resident credit courses at the ASU campus from which the student will graduate.

Guidelines for Determination of Catalog Year

The *General Catalog* is published annually. Department, school, division, college, and university requirements may change and are upgraded often. In determining graduation requirements, an undergraduate student may use only one edition of the *General Catalog* but may elect to follow any subsequent catalog. Students maintaining continuous enrollment at any public Arizona community college or university may graduate according to the requirements of the catalog in effect at the time of initial enrollment or according to the requirements of any single catalog in effect during subsequent terms of continuous enrollment. Students may maintain continuous enrollment whether attending a single public community college or university in Arizona or transferring among public institutions in Arizona while pursuing

Continuous Enrollment

Student's Activity	Semester/Year	Status
Example A		
Admitted and earned course credit at an Arizona community college	Fall 2001	Active
Continued at an Arizona community college	Spring 2002	Active
	Fall 2002	
Transferred to an Arizona university	Spring 2003	Student enrolled under 2001–2002 or any subsequent catalog
Example B		
Admitted and earned course credit at an Arizona community college	Fall 1997	Active
Enrolled but earned all "Ws" or "Es" (0.00)	Spring 1998	Inactive
Enrolled in audit courses only	Fall 1998	Inactive
Nonattendance	Spring 1999	Inactive
Transferred to an Arizona university	Fall 1999	Student enrolled under 1999–2000 or any subsequent catalog
Example C		
Admitted and earned course credit at an Arizona community college	Fall 1999	Active
Nonattendance	Spring 2000	Inactive
	Fall 2000	
	Spring 2001	
Readmitted and earned course credit at an Arizona community college	Fall 2001	Active
Transferred to an Arizona university	Spring 2002	Student enrolled under 2001–2002 or any subsequent catalog
Example D		
Admitted and earned course credit at an Arizona community college	Fall 2000	Active
Nonattendance	Spring 2001	Inactive
Readmitted and earned course credit at an Arizona community college	Summer 2001	Active
Nonattendance	Fall 2001	Inactive
	Spring 2002	
Transferred to an Arizona university	Fall 2002	Student enrolled under 2000–2001 or any subsequent catalog
Example E		
Admitted and earned course credit at an Arizona community college	Summer 2004	Active
Continued at an Arizona community college	Fall 2004	Active
	Spring 2005	
Nonattendance	Fall 2005	Inactive
Readmitted and earned course credit at an Arizona community college	Spring 2006	Active
Transferred to an Arizona university	Summer 2006	Student enrolled under 2004–2005 or any subsequent catalog
Example F		
Admitted and earned course credit at an Arizona university	Summer 2004	Active
Nonattendance	Fall 2004	Inactive
Nonattendance	Spring 2004	Inactive
Readmitted and earned course credit at an Arizona university	Fall 2005	Active
Continued at an Arizona community college	Spring 2006	Active
		Student enrolled under 2004–2005 or any subsequent catalog

their degrees. Students transferring among Arizona public higher education institutions must meet the admission, residency, and all curricular and academic requirements of the degree-granting institution.

1. A semester in which a student earns course credit is counted toward *continuous* enrollment. Noncredit courses, audited courses, failed courses, or courses from which the student withdraws do not count toward the determination of *continuous* enrollment for catalog purposes. See examples A and B in the "Continuous Enrollment" table, on this page.
2. Students who do not meet the minimum enrollment standard stipulated in number 1 during three consecutive semesters (fall/spring/fall or spring/fall/spring) and the intervening summer term at any public Arizona community college or university are no longer considered continuously enrolled. (Note that students are not obligated to enroll and earn course credit during summer terms, but summer enrollment may be used to maintain continuous enrollment status.) These students must meet requirements of the public Arizona community college or university

catalog in effect at the time they are readmitted or of any single catalog in effect during subsequent terms of *continuous* enrollment after readmission. See examples C and D in the "Continuous Enrollment" table, page 90.

3. Students admitted or readmitted to a public Arizona community college or university during a summer term must follow the requirements of the catalog in effect the following fall semester or of any single catalog in effect during subsequent terms of *continuous* enrollment. See example E in the "Continuous Enrollment" table, page 90.
4. In areas of study in which the subject matter changes rapidly, material in courses taken long before graduation may become obsolete or irrelevant.
5. Course work that is more than eight years old is applicable to completion of degree requirements at the discretion of the student's major department. Departments may accept such course work, reject it, or request that the student revalidate its substance. The eight-year limit on course work applies except when program accreditation agencies limit the life of course work to fewer than eight years. Departments may also require students to satisfy current major requirements rather than major requirements in earlier catalogs when completing earlier requirements is no longer possible or educationally sound.
6. Enrollment by Arizona community college students in nontransferable courses still constitutes enrollment for purposes of determining whether the student has been continuously enrolled. For example, if a student takes two semesters of cooperative education classes, which are not transferable to the university but constitute *continuous* enrollment at the community college, the university should consider it *continuous* enrollment.
7. Exceptions made by an institution apply only to the institution that made the exception. For example, if the community college departments accepted credit that was more than eight years old, the university department to which the student transfers has the right and the obligation to reevaluate any credit more than eight years old.

Inquiries about these guidelines may be directed to the student's academic advisor.

Declaration of Graduation

Students must file a Declaration of Graduation (DOG) using the Degree Audit Reporting System (DARS). DARS is an automated process that matches courses a student has completed with the requirements of a particular academic degree program, resulting in a report that shows the student which requirements are satisfied and which remain to be fulfilled, thus providing a guide for efficient selection of courses toward graduation. For example, a student majoring in Biology would request a Degree Audit Report that would show how his or her completed ASU and transfer course work would apply to the Biology degree program.

Each student must submit a DOG form no later than the semester in which he or she earns the 87th semester hour. The DOG process confirms the degree requirements under which the student is enrolled, as indicated on the degree audit report for that academic program and catalog year. The student should review his or her degree audit with an academic advisor to assure an accurate interpretation. Some departments may require the DOG earlier than the 87th hour. Students failing to submit the DOG are prevented from further registration.

Application for Graduation Requirements

The following steps are required to complete the graduation process:

1. Register for the final semester.
2. Pay the graduation fee at Cashiering Services. Note the deadlines in the "University Calendar," page 22.
3. Submit the fee receipt to the Graduation Section, SSV 144, and apply for graduation. The Degree Audit Report or Program of Study is reviewed at this time and the graduation date and eligibility to graduate are verified.
4. Complete all course work listed on the Degree Audit Report or Program of Study by the graduation date.

For more information about application for graduation procedures at West campus, visit Registration Services in UCB 120, or call 602/543-8203. For more information about application for graduation procedures at the Polytechnic campus, visit Registration Services in QUAD 2.

Students must comply with the above requirements to graduate.

Petition for Variance from Degree

Any student wishing to have a college or university degree requirement variance must petition the standards committee of the college in which the student is enrolled.

All petitions must originate with the student's advisor. Refer to the college sections of this catalog for college and division, school, or department requirements.

Tempe Campus Standards Committee. This committee advises the Office of the Executive Vice President and Provost regarding undergraduate student petitions that concern university-wide academic requirements. These requirements include but are not limited to requirements on the amount of transfer credit, graduation requirements, limits on credit by examination, and requirements for a second baccalaureate degree (see "Second Baccalaureate Degree," page 92). To petition for a variance from such university requirements, the normal department, division, school, and college forms and procedures are used. Petitions that have been denied at the college level are forwarded to the Tempe Campus Standards Committee.

OTHER REQUIREMENTS

The separate units of ASU—such as colleges, schools, and departments—have specific requirements for graduation that must be satisfied for a baccalaureate degree. For those requirements, see the appropriate *General Catalog* section. Students are encouraged to consult with an academic advisor in planning a program to ensure that it meets the various requirements. A well-planned program may enable a student to concurrently satisfy a

portion of the General Studies requirement together with a portion of a college or major requirement.

OVERVIEW OF GRADUATION REQUIREMENTS

At ASU, students take classes that fulfill four types of requirements. As illustrated in the "Graduation Requirements" diagram, on this page, some courses can fulfill two or more types of requirements, but other courses fulfill only one requirement. The total semester hours needed to graduate are represented by the largest circle. The university minimum is 120 semester hours. Some majors, however, require more than 120 semester hours.

Although the three shaded circles are equal in size and the white circle is larger than all three, the total number of semester hours for each type of requirement may vary.

University Requirements. The light gray circle represents university requirements. The General Studies requirement and the First-Year Composition requirement are among these requirements. For more information, see "General Studies," page 93.

College Requirements. The medium gray circle represents college requirements. Some colleges and schools have additional requirements, such as the College of Liberal Arts and Sciences.

Major. The dark gray circle represents the requirements of the major. The semester hours required for a major may be as low as 30 hours or as high as 63 hours.

Electives/Minor. The white circle represents electives and the requirements of a minor. A minor typically adds an additional 18 to 25 semester hours. Though every student must eventually declare a major, a minor is not required. For more information, see "Minors, Certificates, and Interdisciplinary Studies," page 126. Some courses, while providing semester hours toward graduation, fall outside the shaded circles and are not required in a program for graduation. These courses are electives. Some majors leave no room for electives within the minimum 120 semester hours required to graduate.

GRADUATION WITH ACADEMIC RECOGNITION

An undergraduate student must have completed at least 56 semester hours of resident credit at ASU to qualify for graduation with academic recognition for a baccalaureate degree. West campus requires a minimum of 50 semester hours of ASU resident credit to qualify for academic recognition.

The cumulative GPA determines the designation, as shown in the "Academic Recognition" table below.

Academic Recognition

Cumulative GPA	Designation
3.40–3.59	cum laude
3.60–3.79	magna cum laude
3.80–4.00	summa cum laude

The cumulative GPA for these designations is based on only ASU resident course work. For example, ASU independent learning course grades are not calculated in the honors GPA. All designations of graduation with academic recognition are indicated on the diploma and the ASU transcript. Graduation with academic recognition applies only to undergraduate degrees.

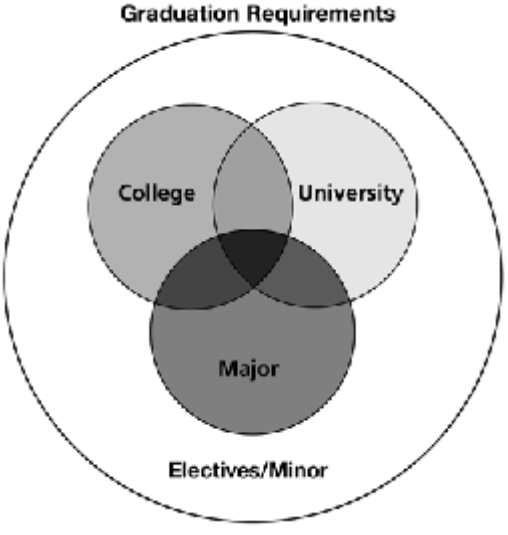
A student who has a baccalaureate degree from ASU and is pursuing a second baccalaureate degree at ASU (with a minimum of 30 hours of resident credit) is granted academic recognition on the second degree based on the semester hours earned subsequent to the posting of the first degree. If fewer than 56 semester hours are completed at ASU subsequent to completion of the first ASU degree, the level of academic recognition can be no higher than that obtained on the first degree. If 56 or more semester hours are completed at ASU after completion of the first ASU degree, the level of academic recognition is based on the GPA earned for the second ASU degree. Inquiries about graduation with academic recognition may be directed to the Graduation Section, 480/965-3256.

ADDITIONAL DEGREES

Second Baccalaureate Degree. The student seeking a second baccalaureate degree must meet admission criteria for that degree. After conferral of the first degree, a minimum of 30 semester hours in resident credit must be successfully completed at the ASU campus from which the second baccalaureate degree will be awarded. The student must meet all degree and university requirements of the second degree.

Concurrent Degrees. More than one baccalaureate degree may be pursued concurrently if prior approval is given by the standards committee(s) of the college(s) offering the degrees. Students may receive concurrent degrees if they meet the minimum requirements for both degrees.

Graduate Degrees. For more information, see "Division of Graduate Studies," page 150, and "College of Law," page 496.



General Studies

A baccalaureate education should not only prepare students for a particular profession or advanced study, but for constructive and satisfying personal, social, and civic lives as well. In addition to depth of knowledge in a particular academic or professional discipline, students should also be broadly educated and develop the general intellectual skills they need to continue learning throughout their lives. Thus, the General Studies requirement complements the undergraduate major by helping students gain mastery of critical learning skills, investigate the traditional branches of knowledge, and develop the broad perspective that frees one to appreciate diversity and change across time, culture, and national boundaries.

Critical learning skills include proficiency in the use of language, mathematics, and quantitative methods as tools for acquiring, renewing, creating, and communicating knowledge. A broad education includes an understanding of the methods and concerns of traditional branches of knowledge—the arts and humanities, the social sciences, and the natural sciences. Developing perspective requires historical, global, and cross-cultural examination of knowledge of all kinds.

To help students achieve these educational goals, the General Studies Program includes five *core areas* and three *awareness areas*. The five *core areas* help students acquire critical lifelong learning skills and guide their exploration of the traditional branches of knowledge:

1. literacy and critical inquiry;
2. mathematics studies;
3. humanities, fine arts, and design;
4. social and behavioral sciences; and
5. natural sciences.

The three *awareness areas* promote appreciation of cultural diversity within the contemporary United States, develop an international perspective, and foster an understanding of current human events through study of the past:

1. cultural diversity in the United States;
2. global awareness; and
3. historical awareness.

The courses approved by the General Studies Councils for meeting the General Studies requirement are noted in the "General Studies Courses" table, page 96; in the course descriptions; and in the *Schedule of Classes* each academic term.

Meeting the General Studies Requirement

All students enrolled in a baccalaureate degree program must successfully complete a minimum of 35 semester hours of approved General Studies courses. Many General Studies courses are approved as satisfying more than one requirement. The following conditions govern the application of courses toward the General Studies requirement:

1. A single course may be used to satisfy one core area and a maximum of two awareness area requirements.
2. A single course may be used to satisfy a maximum of two awareness area requirements.
3. A single course cannot be used to satisfy two core area requirements, even if it is approved for more than one core area.

There is no limit to the number of advanced placement (AP) or College-Level Examination Program (CLEP) credits that can be used to meet the General Studies requirement; see "Credit by Examination," page 74. However, the natural sciences (SQ and SG) and literacy and critical inquiry (L) portions of the General Studies requirement are not satisfied by CLEP.

FIVE CORE AREAS

Literacy and Critical Inquiry (L)

Literacy is competence in written and oral discourse; critical inquiry is the gathering, interpretation, and evaluation of evidence. The literacy and critical inquiry requirement helps students sustain and extend their ability to reason critically and communicate clearly through language.

L Requirement (Six Semester Hours). Students must complete six semester hours from courses designated as L, at least three semester hours of which must be chosen from approved upper-division courses, preferably in their major. Students must have completed ENG 101, 105, or 107 to take an L course.

Mathematical Studies (MA and CS)

This core area has two categories: (1) Mathematics (MA) is the acquisition of essential skill in basic mathematics and requires the student to complete a course in college mathematics or precalculus or to demonstrate a higher level of skill by completing a course for which college algebra is a prerequisite; and (2) computer/statistics/quantitative applications (CS) applies mathematical reasoning and requires students to complete a course in either the use of statistics/

quantitative analysis or the use of the computer to assist in serious analytical math work.

MA and CS Requirement (Six Semester Hours). This requirement has two parts: (1) at least three semester hours must be selected from courses designated MA, and at least three semester hours must be selected from courses designated CS; and (2) all students are expected to fulfill the MA requirement by the time they accumulate 30 hours of credit in residence at ASU. Any student who has more than 30 hours of resident ASU credit and has not fulfilled the mathematics (MA) requirement must enroll in an MA course or an appropriate prerequisite and continue to do so every semester until the mathematics requirement is met. College officers may grant waivers to the immediate and continual enrollment requirement only when there are scheduling conflicts detrimental to the student's academic progress.

Humanities, Fine Arts, and Design (HU)

The study of the humanities and the disciplines of art and design deepen awareness of the complexities of the human condition and its diverse histories and cultures. Courses in the humanities are devoted to the productions of human thought and imagination, particularly in philosophical, historical, religious, and artistic traditions. Courses with an emphasis in fine arts and design are devoted to the study of aesthetic experiences and the processes of artistic creation. They may also feature a design emphasis in which material culture is studied as a product of human thought and imagination.

HU Requirement. The requirements for humanities, fine arts, and design (HU) are combined with the requirements for social and behavioral sciences (SB). See "Combined HU and SB Requirement (15 Semester Hours)," on this page.

Social and Behavioral Sciences (SB)

The social and behavioral sciences provide scientific methods of inquiry and empirical knowledge about human behavior, within society and individually. The forms of study may be cultural, economic, geographic, historical, linguistic, political, psychological, or social. The courses in this area address the challenge of understanding the diverse natures of individuals and cultural groups who live together in a world of diminishing economic, linguistic, military, political, and social distance.

Combined HU and SB Requirement (15 Semester Hours). A total of 15 semester hours must be completed in the following two core areas: (1) humanities, fine arts, and design (HU) and (2) social and behavioral sciences (SB). Two conditions must be satisfied: (1) six semester hours must be taken in one of these two core areas and nine hours in the other core area; and (2) three of the 15 semester hours must be at the upper-division level.

Natural Sciences (SQ and SG)

The natural sciences help students appreciate the scope and limitations of science and its contributions to society. Natural science areas of study include anthropology, astronomy, biology, biochemistry, chemistry, experimental psychology, geology, microbiology, physical geography, physics, and plant biology. Knowledge of methods of scientific inquiry and mastery of basic scientific principles and concepts are stressed, specifically those that relate to matter and energy in living and nonliving systems. Firsthand exposure to scientific phenomena in the laboratory is important in developing and understanding the concepts, principles, and vocabulary of science.

General Studies courses that satisfy the natural science requirement are given one of two classifications: quantitative and general.

Natural Science-Quantitative (SQ). These laboratory courses include a substantial introduction to the fundamental behavior of matter and energy in physical and biological systems.

Natural Science-General (SG). These laboratory courses cover aspects of scientific inquiry that lend themselves to more qualitative or descriptive discussions of science.

SQ and SG Requirement (Eight Semester Hours). Eight semester hours of courses designated SQ or SG must be selected. Of these, at least four semester hours must be taken from the SQ category.

THREE AWARENESS AREAS

Students must complete courses that satisfy each of the three awareness areas. Courses that are listed for a core area and one or more awareness areas may satisfy each of these requirements concurrently, up to a maximum of two of the awareness areas listed for that course.

Cultural Diversity in the United States (C)

The objective of the cultural diversity requirement is to promote awareness and appreciation of cultural diversity within the contemporary United States. The objective is accomplished through the study of the cultural, social, or scientific contributions of women and minority groups, examination of their experiences in the United States, or exploration of successful or unsuccessful interactions between and among cultural groups. Awareness of cultural diversity and its multiple sources can illuminate the collective past, present, and future and also help students to achieve greater mutual understanding and respect.

Global Awareness (G)

The objective of the global awareness requirement is to help students recognize the need for an understanding of the values, elements, and social processes of cultures other than that of the United States. The global awareness area includes courses that recognize the nature of other contemporary cultures and the relationship of the American cultural system to generic human goals and welfare.

Historical Awareness (H)

The objective of the historical awareness requirement is to help students develop knowledge of the past that can be useful in shaping the present and future. History is present in languages, art, music, literature, philosophy, religion, and the natural sciences, as well as in the social science traditionally called history.

Transfer Credit

The Arizona General Education Curriculum (AGEC), offered by Arizona community colleges, is composed of 35 semester hours of lower-division general education course work. Students who complete the AGEC have fulfilled the ASU First-Year Composition requirement and all lower-division portions of the General Studies requirement. Students must still take six upper-division semester hours (three for L and three for SB or HU) to complete the ASU General Studies requirement. If students transfer from Arizona community colleges without completing AGEC or from other accredited postsecondary institutions, they receive credit for General Studies based on course-by-course equivalency. See "Arizona General Education Curriculum (AGEC)," page 72.

College or School, and Major Requirements

In addition to General Studies requirements, students must also complete college or school, and major requirements. Students are encouraged to work with their academic advisors to develop a program of study that efficiently meets all graduation requirements. A well-planned program should enable a student to concurrently satisfy requirements at the university, college, or school levels, and within their major.

GENERAL STUDIES COURSES

The courses in the "General Studies Courses" table, page 96, satisfy the requirements of the five core areas and three awareness areas. General Studies courses are regularly reviewed. Since courses are occasionally added to and deleted from the list, students should always consult the *Schedule of Classes* each semester to see which courses currently meet the General Studies requirement.

A student receives the General Studies credit a course carries in the semester in which the course is taken.

The "Key to General Studies Credit Abbreviations" table, on this page, defines the abbreviations used. General Studies courses are also identified following course descriptions.

The campus codes—such as "M" (for Tempe campus) and "W" (for West campus)—identify the campus that maintains academic control over the course (i.e., course content, registration restrictions, General Studies designations, and other curricular matters). The campus code appears in the *Schedule of Classes,* on transcripts, and other enrollment and registration records.

Key to General Studies Credit Abbreviations

Code	Description
L	Literacy and critical inquiry core courses
MA	Mathematics core courses
CS	Computer/statistics/quantitative applications core courses
HU	Humanities, fine arts, and design core courses
SB	Social and behavioral sciences core courses
SQ	Natural science—quantitative core courses
SG	Natural science—general core courses
C	Cultural diversity in the United States courses
G	Global awareness courses
H	Historical awareness courses
/	Or
,	And

Student Recreation Complex at dusk

Tim Trumble photo

General Studies Courses

				L	MA	CS	HU	SB	SQ	SG	C	G	H
	– – –	493	Honors Thesis (See "Honors Courses," page 63. Only three semester hours may fulfill L requirement.)	L									
D	BIS	301	Foundations of Interdisciplinary Studies	L									
		402	Senior Seminar	L									
D	HCR	210	Clinical Health Care Ethics				HU						
		220	Health Care Organizations (Cross-listed as HSM 220)										H
		230	Culture and Health								C	G	
D	NUR	362	Professional Development II: Nursing Research	L									
		391	Registered Nurse Mobility I: Professional Development	L									
		461	Professional Development III: The Art of Nursing				HU						
D	REC	120	Leisure and the Quality of Life					SB					
		160	Leisure and Society					SB					
		305	Introduction to Travel and Tourism									G	
		330	Programming of Recreation Services	L									
		380	Wilderness and Parks in America					SB					H
		458	International Tourism									G	
D	SWU	171	Introduction to Social Work					SB					H
		295	Foundations of Social Work Practice					SB			C		
		301	Human Behavior in the Social Environment I	L				SB					
		321	Statistics for Social Workers			CS							
		340	Human Behavior in the Social Environment II					SB					
		374	Diversity and Oppression in a Social Work Context								C		
		437	Infant Family Assessment and Observation (Cross-listed as CDE 437)	L				SB					
		493	Honors Thesis	L									
D	UNI	402	Service Learning								C		
E	ABS	130	Introduction to Environmental Science						SQ				
		225	Soils (if credit also earned in ABS 226)						SQ				
		226	Soils Laboratory (if credit also earned in ABS 225)						SQ				
		260	Fundamentals of Urban Horticulture							SG			
		350	Applied Statistics			CS							
		480	Ecosystem Management and Planning	L									
E	AGB	161	Computer Applications for Agribusiness Industries			CS							
		258	International Agribusiness									G	
		360	Agribusiness Statistics			CS							
		414	Agribusiness Analysis	L									
		450	International Agricultural Development									G	
		451	Management Science			CS							
		455	Resource Management					SB					
E	AMT	308	Air Transportation									G	
E	APM	301	Introductory Statistics			CS							
E	ASC	315	Numeracy in Technology		MA								
		325	Physical Sciences in Technology						SQ				
E	CST	150	Digital Systems I			CS							
E	EDC	340	Writing and the Professional Educator	L									
E	ETC	100	Languages of Technology			CS							
E	ETM	428	International Environmental Management									G	
E	EXW	100	Introduction to Health and Wellness (Cross-listed as HES 100/KIN 100)					SB					
		300	Foundations of Exercise and Wellness	L				SB					
		310	Computer Skills and Technology for Exercise and Wellness			CS							
		442	Physical Activity in Health and Disease	L									
		450	Cultural and Social Issues in Exercise and Wellness					SB			C		
E	GIT	212	Computer-Aided Design and Drafting (CADD)			CS							
		312	3-D Computer Graphics Modeling and Representation			CS							
E	MET	416	Applied Computer-Integrated Manufacturing			CS							
E	NTR	300	Computer Applications in Nutrition			CS							
		344	Nutrition Services Management	L									

General Studies Courses (continued)

				L	MA	CS	HU	SB	SQ	SG	C	G	H
		348	Cultural Aspects of Food					SB			C		
		350	Nutrition Counseling					SB					
		448	Community Nutrition	L									
		450	Nutrition in the Life Cycle I					SB					
E	OMT	440	Introduction to International Business									G	
E	TWC	200	Impact of Communications Technology on Society	L									
		301	General Principles of Multimedia Writing	L									
		400	Technical Communications	L									
		401	Principles of Technical Communication	L									
		411	Principles of Visual Communication	L									
		421	Principles of Writing with Technology	L									
		431	Principles of Technical Editing	L									
		446	Technical and Scientific Reports	L									
		447	Business Reports	L									
		454	Information Technology and Culture								C		
M	ACC	430	Taxes and Business Decisions	L									
M	AES	301	Air Force Leadership Studies I	L									
		303	Air Force Leadership Studies II	L									
		401	National Security Affairs	L									
M	AFH	202	Art of Africa, Oceania, and the Americas (Cross-listed as ARS 202)				HU					G	H
		333	American Ethnic Literature (Cross-listed as ENG 333)	L			HU				C		
		347	Jazz in America (Cross-listed as MUS 347)				HU				C		
		353	African American Literature: Beginnings Through the Harlem Renaissance (Cross-listed as ENG 353)	L			HU				C		
		354	African American Literature: Harlem Renaissance to the Present (Cross-listed as ENG 354)	L			HU				C		
		459	Studies in African American/Caribbean Literatures: African American Short Story (Cross-listed as ENG 459)	L									
M	AFR	210	Introduction to African American Studies								C		
		317	Genes, Race, and Society					SB			C		H
		375	Race, Gender, and Sport					SB			C		
		460	Race, Gender, and Media (Cross-listed as MCO 460)								C		
		493	Honors Thesis	L									
M	AFS	202	Ethnic Relations in the United States (Cross-listed as ASB 202)					SB			C		H
		210	Introduction to Ethnic Studies in the U.S. (Cross-listed as APA 210/CCS 210)								C		
		363	African American History to 1865 (Cross-listed as HST 333)					SB			C		H
		364	African American History Since 1865 (Cross-listed as HST 334)					SB			C		H
		366	African Archaeology: Precolonial Urban Culture (Cross-listed as ASB 366)					SB				G	H
		370	Family, Ethnic, and Cultural Diversity (Cross-listed as FAS 370)					SB			C		
		466	Peoples and Cultures of Africa (Cross-listed as ASB 466)					SB				G	H
M	AIS	180	Introduction to American Indian Studies								C		
		280	American Indian Sovereignty and the Courts								C		
		420	American Indian Studies Research Methods	L									
M	ALA	100	Introduction to Environmental Design (Cross-listed as PUP 100)				HU					G	H
		200	Introduction to Architecture				HU					G	
		236	Introduction to Computer Modeling			CS							
M	APA	200	Introduction to Asian Pacific American Studies				HU	SB			C		
		210	Introduction to Ethnic Studies in the U.S. (Cross-listed as AFS 210/CCS 210)								C		
		310	Asian Pacific American Arts and Cultures				HU				C		
		315	Asian Pacific American Literature				HU				C		
		330	Asian Pacific American Genders and Sexualities					SB			C		
		340	Asian Pacific Americans and Media				HU				C		
		345	Asian Pacific Americans and Film								C		H
		360	Asian Pacific American Experience				HU	SB			C		
		450	Asian Pacific American Contemporary Issues					SB			C		
M	APH	300	World Architecture I/Western Cultures				HU					G	
		305	Contemporary Architecture				HU						H

General Studies Courses (continued)

				L	MA	CS	HU	SB	SQ	SG	C	G	H
		313	History of Architecture I	L			HU					G	H
		314	History of Architecture II	L			HU					G	H
		411	History of Landscape Architecture (Cross-listed as PLA 310)										H
		414	History of the City (Cross-listed as PUP 412)										H
		444	Baroque Architecture				HU						
		446	20th-Century Architecture I				HU						
		447	20th-Century Architecture II				HU						
M	ARA	311	Art Appreciation and Human Development				HU						
		488	Understanding Art	L			HU						
M	ARB	201	Intermediate Arabic									G	
		202	Intermediate Arabic									G	
M	ARS	100	Introduction to Art				HU						
		101	Art from Prehistory Through Middle Ages				HU						H
		102	Art from Renaissance to Present				HU						H
		201	Art of Asia				HU					G	H
		202	Art of Africa, Oceania, and the Americas (Cross-listed as AFH 202)				HU					G	H
		250	History of Photography				HU						
		300	Introduction to Art				HU						
		302	Issues: Art of Africa, Oceania, and the Americas				HU					G	H
		340	Art in America				HU						H
		362	Pre-Columbian Art				HU						H
		400	History of Printmaking				HU						H
		402	Art of Ancient Egypt				HU						H
		404	Greek Art				HU						H
		406	Roman Art				HU						H
		410	Early Christian and Byzantine Art				HU						
		412	Early Medieval Art				HU						H
		414	Romanesque Art				HU						H
		416	Gothic Art				HU						
		418	Renaissance Art in Northern Europe				HU						
		420	Early Renaissance Art in Italy				HU						H
		422	Italian High Renaissance Art and Mannerism				HU						
		424	Italian Baroque Art				HU						
		426	Art of the 17th Century in Northern Europe				HU						H
		428	Art of the 18th Century				HU						H
		430	Art of Spain and Its Colonies				HU						H
		432	19th-Century French Art and Culture				HU						H
		434	Art and Visual Culture of 19th Century				HU						
		436	The Artist, War, and Revolution (Versailles to Vietnam)				HU						
		438	Art of the 20th Century I				HU						H
		439	Art of the 20th Century II				HU						H
		442	Critical Issues in American Painting				HU						
		458	Critical Theories in the Visual Arts				HU						
		465	Native North American Art				HU				C		H
		466	Native American Art of the Southwest				HU				C		H
		468	Art of the Arctic and Northwest Coast				HU				C		H
		469	Mexican Art				HU						H
		472	Art of China				HU						
		473	Art of Japan				HU						
		475	Chinese Painting				HU						
		480	Research Methods	L									
		485	Women in the Visual Arts	L									
M	ART	346	3-D Computer Imaging and Animation			CS							
		470	Computer Animation Portfolio			CS							
M	ASB	102	Introduction to Cultural and Social Anthropology					SB				G	
		202	Ethnic Relations in the United States (Cross-listed as AFS 202)					SB			C		H
		211	Women in Other Cultures				HU	SB				G	

General Studies Courses (continued)

				L	MA CS	HU	SB	SQ SG	C	G	H
		222	Buried Cities and Lost Tribes: Our Human Heritage			HU	SB			G	H
		223	Buried Civilizations of the Americas			HU	SB			G	H
		231	Archaeological Field Methods					SG			
		240	Introduction to Southeast Asia (Cross-listed as GCU 240/HST 240/POS 240/REL 240)			HU	SB			G	
		252	Anthropology of Sports				SB			G	
		302	Ethnographic Field Study in Mexico	L			SB			G	
		311	Principles of Social Anthropology				SB				
		321	Indians of the Southwest	L			SB		C		H
		322	Peoples of Mesoamerica				SB			G	
		323	Indians of Latin America				SB			G	
		324	Peoples of the Pacific							G	
		325	Peoples of Southeast Asia							G	
		326	Human Impacts on Ancient Environments				SB				H
		330	Principles of Archaeology				SB				
		335	Prehistory of the Southwest				SB		C		H
		337	Pre-Hispanic Civilization of Middle America			HU	SB			G	H
		338	Archaeology of North America				SB				H
		351	Psychological Anthropology				SB				
		353	Death and Dying in Cross-Cultural Perspective			HU	SB			G	
		355	Shamanism, Healing, and Consciousness			HU	SB				
		361	Pleistocene Archaeology								H
		362	The Neolithic Revolution and Its Consequences								H
		366	African Archaeology: Precolonial Urban Culture (Cross-listed as AFS 366)				SB			G	H
		400	Cultural Factors in International Business							G	
		412	History of Anthropology	L			SB				
		416	Economic Anthropology	L			SB				
		462	Medical Anthropology: Culture and Health						C		
		466	Peoples and Cultures of Africa (Cross-listed as AFS 466)				SB			G	H
		471	Introduction to Museums	L							
		480	Introduction to Linguistics				SB				
		481	Language and Culture				SB				
		483	Sociolinguistics and the Ethnography of Communication				SB				
		489	Doing Research in Anthropology				SB				
M	ASM	104	Bones, Stones, and Human Evolution				SB	SG			
		301	Peopling of the World				SB				
		342	Human Biological Variation					SG			
		344	Fossil Hominids								H
		348	Social Issues in Human Genetics				SB				
		452	Dental Anthropology					SG			
		455	Primate Behavior Laboratory	L							
M	AST	111	Introduction to Solar Systems Astronomy (if credit also earned in AST 113)					SQ			
		112	Introduction to Stars, Galaxies, and Cosmology (if credit also earned in AST 114)					SQ			
		113	Astronomy Laboratory I (if credit also earned in AST 111 or 321)					SQ			
		114	Astronomy Laboratory II (if credit also earned in AST 112 or 322)					SQ			
		321	Introduction to Planetary and Stellar Astrophysics (if credit also earned in AST 113)					SQ			
		322	Introduction to Galactic and Extragalactic Astrophysics (if credit also earned in AST 114)					SQ			
M	BCH	467	Analytical Biochemistry Laboratory	L							
M	BIO	100	The Living World					SQ			
		187	General Biology I					SG			
		188	General Biology II					SQ			
		193	The Nature of Biological Science					SQ			
		201	Human Anatomy and Physiology I					SG			
		302	Cancer and Heart Disease	L							

General Studies Courses (continued)

				L	MA	CS	HU	SB	SQ	SG	C	G	H
		303	Radiation and Life	L									
		304	Radiation Medicine and Biology	L									
		314	Research Colloquium in Biology and Society I (if credit also earned in BIO 414)	L									
		316	History of Biology: Conflicts and Controversies (Cross-listed as HPS 330)										H
		318	History of Medicine (Cross-listed as HPS 331)										H
		319	Environmental Science (Nonmajor) (Cross-listed as PLB 320)									G	
		321	Introductory Ecology Laboratory	L									
		343	Genetic Engineering and Society (Cross-listed as MBB 343)	L									
		406	Computer Applications in Biology (Cross-listed as PLB 432)			CS							
		410	Techniques in Wildlife Conservation Biology	L									
		414	Research Colloquium in Biology and Society II (if credit also earned in BIO 314)	L									
		415	Biometry			CS							
		416	Professional Values in Science (Cross-listed as HPS 410)	L									
		426	Limnology	L									
		428	Biogeography	L									
		446	Principles of Human Genetics	L									
		470	Systematic Zoology	L									
		493	Honors Thesis	L									
M	BME	100	Introduction to Bioengineering			CS							
		202	Global Awareness Within Biomedical Engineering Design	L			HU						
		413	Biomedical Instrumentation (if credit also earned in BME 423)	L									
		423	Biomedical Instrumentation Laboratory (if credit also earned in BME 413)	L									
M	CCS	101	Introduction to Chicana and Chicano Studies								C		
		111	Introduction to Chicana and Chicano Culture								C		
		210	Introduction to Ethnic Studies in the U.S. (Cross-listed as AFS 210/APA 210)								C		
		300	Chicana and Chicano Culture and Society								C		
M	CDE	232	Human Development					SB					
		430	Infant/Toddler Development in the Family					SB					
		437	Infant Family Assessment and Observation (Cross-listed as SWU 437)	L				SB					
M	CED	111	Exploration of Education					SB					
		250	Career Development	L									
M	CEE	100	Introduction to Civil and Environmental Engineering			CS							
		300	Engineering Business Practice	L									
		400	Earth Systems Engineering and Management										H
		486	Integrated Civil Engineering Design	L									
M	CHE	100	Introduction to Chemical Engineering			CS							
		461	Process Dynamic Control			CS							
		462	Process Design	L									
M	CHI	201	Second-Year Chinese I									G	
		202	Second-Year Chinese II									G	
		313	Third-Year Chinese I									G	
		314	Third-Year Chinese II									G	
		321	Chinese Literature				HU						
		322	Chinese Literature				HU					G	
		413	Introduction to Classical Chinese				HU						
		414	Introduction to Classical Chinese				HU						
M	CHM	101	Introductory Chemistry						SQ				
		107	Chemistry and Society						SQ			G	
		113	General Chemistry I						SQ				
		114	General Chemistry for Engineers						SQ				
		115	General Chemistry with Qualitative Analysis						SQ				
		116	General Chemistry II						SQ				
		117	General Chemistry for Majors I						SQ				
		118	General Chemistry for Majors II						SQ				
		231	Elementary Organic Chemistry (if credit also earned in CHM 235)						SQ				

General Studies Courses (continued)

				L	MA	CS	HU	SB	SQ	SG	C	G	H
		235	Elementary Organic Chemistry Laboratory (if credit also earned in CHM 231)						SQ				
		240	Introduction to Physical Chemistry			CS							
		303	Environmental Chemistry Laboratory (if credit also earned in CHM 348)	L									
		348	Physical Chemistry Laboratory I (if credit also earned in only CHM 303 or both CHM 349 and 452)	L									
		349	Physical Chemistry Laboratory II (if credit also earned in CHM 348 and 452)	L									
		452	Inorganic Chemistry Laboratory (if credit also earned in CHM 348 and 349)	L									
M	CIS	105	Computer Applications and Information Technology			CS							
		440	Systems Design and Electronic Commerce	L									
M	CLS	450	Principles of Clinical Laboratory Administration (if credit also earned in CLS 460)	L									
		460	Principles of Clinical Laboratory Education (if credit also earned in CLS 450)	L									
M	COM	100	Introduction to Human Communication					SB					
		110	Elements of Interpersonal Communication					SB					
		222	Argumentation	L									
		225	Public Speaking	L									
		230	Small Group Communication					SB					
		241	Introduction to Oral Interpretation	L			HU						
		250	Introduction to Organizational Communication					SB					
		263	Elements of Intercultural Communication					SB			C	G	
		308	Advanced Research Methods in Communication	L									
		316	Gender and Communication					SB			C		
		319	Persuasion and Social Influence					SB					
		320	Communication and Consumerism					SB					
		321	Rhetorical Theory and Research	L			HU						H
		323	Communication Approaches to Popular Culture								C		
		325	Advanced Public Speaking	L									
		344	Performance of Oral Traditions				HU				C		
		371	Language, Culture, and Communication					SB			C	G	
		400	CIP: Communication in Professions				HU				C		
		410	Interpersonal Communication Theory and Research					SB					
		411	Communication in the Family					SB					
		421	Rhetoric of Social Issues				HU						
		426	Political Communication					SB					
		441	Performance Studies				HU						
		445	Narrative Performance				HU						
		446	Performance of Literature Written by Women				HU				C		
		450	Theory and Research in Organizational Communication					SB					
		463	Intercultural Communication Theory and Research					SB				G	
M	CON	101	Construction and Culture: A Built Environment				HU					G	H
		389	Construction Cost Accounting and Control			CS							
		472	Development Feasibility Reports	L									
		495	Construction Planning and Scheduling			CS							
		496	Construction Contract Administration	L									
M	CSE	100	Principles of Programming with C++			CS							
		101	Introduction to Engineering Design (Cross-listed as EEE 101)			CS							
		110	Principles of Programming with Java			CS							
		180	Computer Literacy			CS							
		181	Applied Problem Solving with Visual BASIC			CS							
		200	Concepts of Computer Science			CS							
		205	Concepts of Computer Science and Data			CS							
		210	Object-Oriented Design and Data Structures			CS							
		423	Systems Capstone Project I	L									
		424	Systems Capstone Project II	L									
		438	Systems Programming	L									
		461	Software Engineering Project I	L									
		462	Software Engineering Project II	L									
		485	Computer Science Capstone Project I	L									

General Studies Courses (continued)

				L	MA CS	HU	SB	SQ SG	C	G	H
		486	Computer Science Capstone Project II	L							
M	CSH	270	Race and Etnicity in American Cinema (Cross-listed as FMS 270)			HU			C		
		310	Chicana and Chicano Folklore			HU			C		
		350	Mexican and Mexican American Artistic Production			HU			C	G	
		351	Contemporary Chicana and Chicano Art			HU			C		
		363	Chicana and Chicano Literature (Cross-listed as ENG 363)	L		HU			C		
		485	Chicana Writers			HU			C		
M	CSS	330	Chicana and Chicano Politics and Policy						C		
		331	Policy Issues in Chicana and Chicano Urban Settings						C		
		335	Latino Health Issues				SB		C		
		336	Issues in Immigration and Migration						C		H
		432	Issues in Chicana and Chicano Gender						C		
M	DAH	101	Introduction to Dance							G	
		201	Dance in World Cultures			HU				G	
		300	Focus on Dance			HU					
		301	Philosophy and Criticism of Dance	L		HU					
		302	Cross-Cultural Dance Studies	L		HU				G	
		401	Dance History			HU					
M	DAN	323	Dance, Computers, and Multimedia		CS						
M	DSC	100	Introduction to Environmental Design			HU				G	H
		101	Design Awareness			HU				G	
		236	Introduction to Computer Modeling		CS						
M	ECN	211	Macroeconomic Principles				SB				
		212	Microeconomic Principles				SB				
		213	Honors Macroeconomics				SB				
		214	Honors Microeconomics				SB				
		306	Survey of International Economics (Cross-listed as IBS 306)				SB			G	
		313	Intermediate Macroeconomic Theory				SB				
		314	Intermediate Microeconomic Theory				SB				
		331	Alternative Economic Systems				SB			G	
		360	Economic Development				SB			G	
		365	Economics of Russia and Eastern Europe				SB			G	
		384	Economics of Social Behavior				SB				
		404	History of Economic Thought				SB				
		421	Earnings and Employment				SB				
		425	Introduction to Econometrics		CS						
		436	International Trade Theory				SB			G	
		438	International Monetary Economics				SB			G	
		441	Public Finance				SB				
		475	Capstone in Economics	L							
		493	Honors Thesis	L							
M	EDP	303	Human Development	L			SB				
		310	Educational Psychology (Three hours must be taken to secure SB credit.)				SB				
		454	Statistical Data Analysis in Education		CS						
M	EDT	321	Computer Literacy		CS						
		323	Computer Applications		CS						
M	EED	498	PS: Language and Learning	L							
M	EEE	101	Introduction to Engineering Design (Cross-listed as CSE 101)		CS						
		488	Senior Design Laboratory I	L							
		489	Senior Design Laboratory II	L							
M	ENG	200	Critical Reading and Writing About Literature	L		HU					
		201	World Literature			HU				G	H
		202	World Literature			HU					H
		204	Introduction to Contemporary Literature			HU					
		212	English Prose Style	L							
		215	Strategies of Academic Writing	L							
		216	Persuasive Writing on Public Issues	L							

General Studies Courses (continued)

		L	MA CS	HU	SB	SQ SG	C	G	H
217	Writing Reflective Essays	L							
218	Writing About Literature	L		HU					
221	Survey of English Literature			HU					
222	Survey of English Literature			HU					H
241	Literatures of the United States to 1860			HU					
242	Literatures of the United States, 1860 to Present			HU					
245	Popular Culture Issues	L							
301	Writing for the Professions	L							
303	Classical Backgrounds of English Literature			HU					
312	English in Its Social Setting	L		HU	SB				
313	Phonology and Morphology	L							
321	Introduction to Shakespeare	L		HU					
326	English Drama 1660–1800			HU					
328	The Novel to Jane Austen			HU					H
329	19th-Century British Fiction	L		HU					
331	American Drama	L		HU					
333	American Ethnic Literature (Cross-listed as AFH 333)	L		HU			C		
337	Major American Novels	L		HU					
342	20th-Century British and Irish Literature			HU					
352	Short Story	L		HU					
353	African American Literature: Beginnings Through the Harlem Renaissance (Cross-listed as AFH 353)	L		HU			C		
354	African American Literature: Harlem Renaissance to the Present (Cross-listed as AFH 354)	L		HU			C		
355	European Dramatic Traditions	L		HU					
356	The Bible as Literature			HU					
359	American Indian Literatures	L		HU			C		
360	Western American Literature	L		HU					
363	Chicana and Chicano Literature (Cross-listed as CSH 363)	L		HU			C		
364	Women and Literature			HU					
365	History of Film			HU					
372	Document Production	L							
385	Career Development for English Majors	L							
400	History of Literary Criticism	L		HU					H
413	History of the English Language			HU					
415	Topics in Medieval Literature and Culture			HU					
416	Chaucer in Middle English			HU					
418	Renaissance Literature	L		HU					
419	English Literature in the Early 17th Century			HU					
421	Shakespeare			HU					
422	Studies in Shakespeare			HU					
423	Renaissance Drama	L		HU					
424	Milton			HU					
425	Studies in Romanticism			HU					
427	Studies in 18th-Century Literature and Culture			HU					
430	Studies in Victorian Literature and Culture	L		HU					
434	Studies in the Literature and Culture of the Americas			HU			C		
440	Studies in American Literature and Culture			HU					
444	Studies in American Romanticism			HU					
445	Studies in American Realism	L		HU					
448	Studies in Irish Literature and Culture			HU					
452	Studies in the Novel			HU					
453	Studies in the American Novel			HU					
457	Studies in American Poetry			HU					
459	Studies in African American/Caribbean Literatures: African American Short Story (Cross-listed as AFH 459)	L							
461	Studies in Women and Literature			HU					

General Studies Courses (continued)

				L	MA CS	HU	SB	SQ SG	C	G	H
		464	Studies in Drama	L		HU					
		469	Science and Literature	L		HU					
		470	Symbols and Archetypes in Children's Literature	L		HU					
		471	Literature for Adolescents			HU					
		472	Rhetorical Studies	L							
		476	Studies in Folklore			HU					
		478	Studies in Modernism			HU					
		480	Methods of Teaching English: Composition	L							
		482	Methods of Teaching English: Language	L							
		493	Honors Thesis	L							
M	FAS	330	Personal Growth in Human Relationships				SB				
		331	Marriage and Family Relationships				SB				
		332	Human Sexuality				SB				
		361	Introduction to Family/Child Research Methods	L							
		370	Family, Ethnic, and Cultural Diversity (Cross-listed as AFS 370)				SB		C		
		431	Parent-Adolescent Relationships				SB				
		435	Advanced Marriage and Family Relationships	L			SB				
M	FIN	456	International Financial Management							G	
		461	Financial Cases and Modeling	L							
M	FLA	150	Introduction to East Asian Culture			HU				G	
		323	Survey of Literature of the Soviet Era in Translation	L		HU				G	
		400	Linguistics				SB				
		420	Foreign Literature in Translation			HU				G	
		421	Japanese Literature in Translation	L		HU				G	
M	FMS	110	New Media and New Worlds	L		HU					
		200	Film History			HU					
		270	Race and Ethnicity in American Cinema (Cross-listed as CSH 270)			HU			C		
		300	Media and Cultural Studies			HU					
		340	Contemporary American Film and Popular Culture			HU					
		351	Digital, Cyberspace, and Information Cultures	L							
		440	Los Angeles: Movies and Culture (Cross-listed as HUM 440)			HU			C		
		441	Global Cinema			HU				G	
		450	Technology, Culture, and Media	L		HU					
		460	Masculinity and Film			HU					
		461	Film Theory and Criticism			HU					
		480	Globalization, Technology, and Culture			HU				G	
		490	Capstone Seminar			HU					
M	FRE	201	Intermediate French I							G	
		202	Intermediate French II							G	
		205	Readings in French Literature							G	
		207	French for Business							G	
		311	French Conversation							G	
		312	French Composition							G	
		319	Business French							G	
		321	French Literature	L		HU					H
		322	French Literature	L		HU					
		411	Advanced Spoken French							G	
		412	Advanced Written French							G	
		415	French Civilization I			HU					
		416	French Civilization II			HU				G	
		441	French Literature of the 17th Century			HU					
		442	French Literature of the 17th Century			HU					H
		445	French Literature of the 18th Century	L		HU					
		452	French Novel of the 19th Century			HU					
		453	Theater of the 19th Century	L		HU					
		461	Modern Narrative			HU					
		462	Modern Poetry			HU					

General Studies Courses (continued)

				L	MA	CS	HU	SB	SQ	SG	C	G	H
		471	The Literature of Francophone Africa and the Caribbean	L			HU						
M	FSE	200	Elements of Engineering Design			CS							
M	GCU	102	Introduction to Human Geography					SB					
		121	World Geography					SB				G	
		141	Introduction to Economic Geography					SB				G	
		240	Introduction to Southeast Asia (Cross-listed as ASB 240/HST 240/POS 240/REL 240)				HU	SB				G	
		253	Introduction to Cultural and Historical Geography					SB				G	
		322	Geography of U.S. and Canada					SB			C		
		323	Geography of Latin America					SB				G	
		325	Geography of Europe					SB				G	
		326	Geography of Asia					SB				G	
		327	Geography of Africa					SB				G	
		328	Geography of Middle East and North Africa					SB				G	
		332	Geography of Australia and Oceania					SB				G	
		344	Geography of Hispanic Americans					SB			C		
		350	The Geography of World Crises					SB				G	
		351	Population Geography					SB				G	
		352	Political Geography					SB				G	
		357	Social Geography					SB					
		359	Cities of the World I					SB				G	H
		360	Cities of the World II					SB				G	
		361	Urban Geography					SB					
		364	Energy in the Global Arena					SB				G	
		421	Geography of Arizona and Southwestern United States					SB			C		
		423	Geography of South America					SB				G	
		424	Geography of Mexico and Middle America					SB				G	
		425	Geography of the Mexican American Borderland	L				SB				G	
		426	Geography of Russia and Surroundings					SB				G	
		432	Geography of China					SB				G	
		441	Economic Geography					SB					
		442	Geographical Analysis of Transportation					SB					
		444	Geographic Studies in Urban Transportation					SB					
		455	Historical Geography of U.S. and Canada					SB					H
		474	Public Land Policy					SB					
		495	Quantitative Methods in Geography			CS							
		496	Geographic Research Methods	L									
M	GER	201	Intermediate German									G	
		202	Intermediate German									G	
		311	German Conversation									G	
		312	German Conversation									G	
		313	German Composition									G	
		319	Business Correspondence and Communication									G	
		411	Advanced Grammar and Conversation									G	
		412	Advanced Grammar and Composition									G	
		415	German Civilization				HU					G	H
		416	German Civilization				HU					G	H
		421	German Literature				HU						
		422	German Literature	L			HU						
		453	German Literary Masterpieces on Film				HU					G	
M	GLG	101	Introduction to Geology I (Physical) (for SQ credit, if credit also earned in GLG 103)						SQ			G	
		102	Introduction to Geology II (Historical) (for SG credit, if credit also earned in GLG 104)							SG			H
		103	Introduction to Geology I—Laboratory (if credit also earned in GLG 101)						SQ				
		104	Introduction to Geology II—Laboratory (if credit also earned in GLG 102)							SG			
		105	Introduction to Planetary Science							SG			

General Studies Courses (continued)

				L	MA	CS	HU	SB	SQ	SG	C	G	H
		110	Geologic Disasters and the Environment (for SG credit, if credit also earned in GLG 111)							SG		G	
		111	Geologic Disasters Laboratory (if credit also earned in GLG 110)							SG			
		402	Service Learning								C		
		410	Computers in Geology			CS							
		451	Field Geology I	L									
		452	Field Geology II	L									
M	GPH	111	Introduction to Physical Geography						SQ				
		210	Society and Environment									G	
		211	Landform Processes	L									
		212	Introduction to Meteorology (if credit also earned in GPH 214)						SQ				
		213	Introduction to Climatology (if credit also earned in GPH 215)							SG			
		214	Introduction to Meteorology Laboratory (if credit also earned in GPH 212)						SQ				
		215	Introduction to Climatology Laboratory (if credit also earned in GPH 213)							SG			
		314	Global Change				HU					G	
		370	Geographic Information Technologies			CS							
		371	Introduction to Cartography and Georepresentation			CS							
		373	Geographic Information Science I			CS							
		381	Geography of Natural Resources									G	
		402	Service Learning								C		
		414	Climate Change									G	
		418	Landforms of the Western United States	L									
		433	Alpine and Arctic Environments									G	
		471	Geographics: Interactive and Animated Cartography and Geovisualization			CS							
		473	Geographic Information Science II			CS							
M	GRA	111	Graphic Design History I				HU						
		345	Design Rhetoric	L									
M	GRK	301	Ancient Greek Literature I				HU						
		302	Ancient Greek Literature II				HU						
M	GRN	430	Multidisciplinary Approaches to Gerontology					SB					
M	HEB	201	Intermediate Modern Hebrew									G	
		202	Intermediate Modern Hebrew									G	
		375	Contemporary Culture of Israel				HU					G	
M	HES	100	Introduction to Health and Wellness (Cross-listed as EXW 100/KIN 100)					SB					
M	HON	171	The Human Event	L			HU						H
		172	The Human Event	L			HU						H
		371	Freedom and Authority	L			HU						
		372	French Cultural Influences	L			HU					G	
		373	Heroes, Heroines, and Villains	L			HU						
		374	Black and White Atlantic				HU					G	
		375	Science and the Modern Self	L			HU						
		376	Law, Literature, and Life	L			HU						
		377	Nature in Context (Cross-listed as HPS 377)	L			HU						
		378	Culture and Society in England, Ireland, and Scotland				HU					G	H
		379	Romantics, Victorians, and Moderns				HU					G	
		493	Honors Thesis	L									
M	HPS	314	Philosophy of Science (Cross-listed as PHI 314)				HU						
		322	History of Science				HU						H
		323	History of Science				HU						H
		325	Chinese Science and Medicine (Cross-listed as HST 385)				HU					G	H
		330	History of Biology: Conflicts and Controversies (Cross-listed as BIO 316)										H
		331	History of Medicine (Cross-listed as BIO 318)										H
		336	Exploration and Science					SB					H
		377	Nature in Context (Cross-listed as HON 377)	L			HU						
		410	Professional Values in Science (Cross-listed as BIO 416)	L									
M	HSM	220	Health Care Organizations (Cross-listed as HCR 220)										H
M	HST	101	Global History Since 1500				HU					G	H

General Studies Courses (continued)

		L	MA CS	HU	SB	SQ SG	C	G	H
102	Western Civilization				SB				H
103	Western Civilization			HU	SB				H
104	Western Civilization			HU	SB			G	H
105	Slavic Civilization			HU	SB				H
106	Asian Civilizations			HU	SB			G	H
107	Asian Civilizations				SB			G	H
108	Introduction to Japan				SB			G	H
109	The United States to 1865			HU	SB				H
110	The United States Since 1865				SB				H
200	Historical Themes				SB				H
201	Historical Themes in Asia				SB				H
202	Historical Themes in Europe			HU	SB				H
203	Historical Themes in Latin America				SB				H
204	Historical Themes in the United States				SB				H
210	American Social History	L			SB				H
211	American Jewish History				SB				H
240	Introduction to Southeast Asia (Cross-listed as ASB 240/GCU 240/POS 240/REL 240)			HU	SB			G	
300	Historical Inquiry	L		HU	SB				H
302	Studies in History			HU	SB				H
303	Studies in Asian History				SB				H
304	Studies in European History				SB				H
305	Studies in Latin American History			HU	SB				H
306	Studies in United States History			HU	SB				H
309	Exploration and Empire	L		HU					H
310	Film as History			HU					
313	American Cultural History to 1865				SB				H
314	American Cultural History Since 1865			HU	SB				H
315	Political History of the United States				SB				H
316	20th-Century U.S. Foreign Relations				SB			G	H
319	U.S. Urban History to 1850				SB				H
320	U.S. Urban History Since 1850				SB				H
321	Constitutional History of the United States to 1865				SB				H
322	Constitutional History of the United States Since 1865				SB				H
325	Immigration and Ethnicity in the United States				SB		C		H
327	Women in U.S. History, 1600–1880			HU	SB		C		H
328	Women in U.S. History, 1880–1980				SB		C		H
329	Women in 20th-Century U.S. West						C		H
330	Mexican Women in the United States: Conquests and Migrations	L			SB		C		H
331	Mexican American History to 1900				SB		C		H
332	Mexican American History Since 1900				SB		C		H
333	African American History to 1865 (Cross-listed as AFS 363)				SB		C		H
334	African American History Since 1865 (Cross-listed as AFS 364)				SB		C		H
337	American Indian History to 1900				SB		C		H
338	American Indian History Since 1900				SB		C		H
341	The U.S. West in the 19th Century				SB				H
342	The U.S. West in the 20th Century				SB				H
343	The American Southwest	L			SB				H
344	Arizona				SB				H
347	Ancient Greece				SB				H
348	Rome				SB				H
349	The Early Middle Ages			HU	SB				H
350	The Later Middle Ages			HU	SB				H
351	Renaissance Europe	L		HU	SB				H
352	Europe's Reformations	L		HU	SB				H
353	The Old Regime in Europe				SB				H
354	Revolutionary Europe				SB				H

General Studies Courses (continued)

		L	MA CS	HU	SB	SQ SG	C	G	H
355	Total War and the Crisis of Modernity				SB			G	H
356	Europe Since 1945				SB			G	H
358	Jewish History from the Bible to 1492				SB				H
359	Jewish History from 1492 to 1948				SB			G	H
361	Witchcraft and Heresy in Europe (Cross-listed as REL 374)	L		HU					H
362	Sex and Society in Classical and Medieval Europe				SB				H
363	Sex and Society in Early Modern Europe			HU	SB				H
364	Sex and Society in Modern Europe	L			SB				H
365	Women in Europe	L		HU	SB				H
366	England to 1689				SB				H
367	Modern Britain				SB				H
368	Culture and Imagination in European History			HU					H
370	Eastern Europe in Transition				SB			G	H
372	The Modern Middle East				SB			G	H
375	Colonial Latin America				SB				H
376	Modern Latin America				SB				H
377	Women in Colonial Latin America								H
378	Latin American Women: The National Period				SB			G	H
379	Rebellion and Revolution in South America				SB				H
380	Cultural History of Latin America				SB				H
383	China				SB				H
384	China				SB			G	H
385	Chinese Science and Medicine (Cross-listed as HPS 325)			HU				G	H
386	Interpreting China's Classics (Cross-listed as HUM 312)	L		HU					H
387	Japan	L			SB				H
388	Japan				SB			G	H
391	Modern Southeast Asia				SB			G	H
405	Colonial American History to 1763				SB				H
406	The American Revolution, 1763–1789				SB				H
407	The Early U.S. Republic, 1789–1850	L			SB				H
408	Civil War and Reconstruction	L			SB				H
409	The Emergence of the Modern United States, 1877 to 1918				SB				H
410	The Modern United States, 1918 to 1945				SB				H
411	The Postwar United States, 1945 to 1973				SB				H
412	The Contemporary United States, 1973 to the Present				SB				H
414	The Modern U.S. Economy				SB				H
415	Unequal Sisters: Women and Political and Cultural Change	L			SB		C		H
417	Topics in Mexican American History				SB		C		H
423	The Tudor Monarchy				SB				H
424	The Stuart Transformation of England				SB				H
426	The British Empire				SB				H
427	The French Revolution and the Napoleonic Era				SB				H
428	Modern France				SB			G	H
429	Modern Germany				SB			G	H
430	Hitler: Man and Legend				SB				H
431	Eastern Europe and the Balkans Before 1914				SB				H
432	Eastern Europe and the Balkans in the 20th Century				SB			G	H
435	The Russian Empire				SB				H
436	The Soviet Experiment				SB			G	H
437	Spain Through the Golden Age			HU	SB				H
438	Modern Spain			HU	SB			G	H
443	The United States and Latin America				SB			G	H
445	20th-Century Cuba				SB			G	H
446	Colonial Mexico				SB				H
447	Modern Mexico				SB				H
451	Chinese Cultural History			HU	SB				H
452	Chinese Cultural History				SB			G	H

General Studies Courses (continued)

				L	MA	CS	HU	SB	SQ	SG	C	G	H
		453	The People's Republic of China					SB				G	H
		455	The United States and Japan					SB				G	H
		456	The Vietnam War					SB				G	H
		493	Honors Thesis	L									
		498	PS: History Pro-Seminar	L									
M	HUM	110	Contemporary Issues in Humanities				HU						
		200	Encountering the Humanities				HU						
		310	Japanese Cities and Cultures to 1800 (Cross-listed as REL 355)	L			HU						H
		312	Interpreting China's Classics (Cross-listed as HST 386)	L			HU						H
		401	The Culture and Legacy of the European Enlightenment				HU						H
		420	Interpreting Latin America				HU					G	H
		440	Los Angeles: Movies and Culture (Cross-listed as FMS 440)				HU				C		
		462	Psychoanalysis and Culture	L			HU	SB					
		465	Narrative in the Human Sciences				HU						
		498	PS: Pro-Seminar in the Humanities: Theory and Culture	L			HU						
M	IBS	300	Principles of International Business									G	
		306	Survey of International Economics (Cross-listed as ECN 306)					SB				G	
		400	Cultural Factors in International Business (Cross-listed as MGT 400)								C	G	
		459	International Management (Cross-listed as MGT 459)									G	
		493	International Honors Thesis	L									
M	IDN	201	Intermediate Indonesian I									G	
		202	Intermediate Indonesian II									G	
M	IED	407	Diné Education Philosophy				HU				C		
		410	History of American Indian Education					SB			C		H
		422	Methods of Teaching Indian Students								C		
		430	Issues in Language and Literacy of Indigenous Peoples				HU	SB			C		
		444	The Role of Governments in Native Education Policy and Administration					SB					
		455	Social Studies Methods, Management, and Assessment for Indigenous Classrooms								C		
		460	Yaqui History and Culture				HU	SB			C		H
M	IEE	100	Introduction to Engineering Design for IE.			CS							
		280	Probability and Statistics for Engineering Problem Solving			CS							
		305	Information Systems Engineering			CS							
		368	Facilities Analysis and Design	L									
		369	Work Analysis and Design	L									
		376	Operations Research Deterministic Techniques/Applications			CS							
		385	Engineering Statistics with Probability			CS							
		463	Computer-Aided Manufacturing and Control (Cross-listed as MAE 453)			CS							
		474	Quality Control			CS							
		475	Simulating Stochastic Systems			CS							
		490	Project in Design and Development	L									
M	IND	316	20th-Century Design I				HU						H
		317	20th-Century Design II				HU						H
		470	Professional Practice for Industrial Design	L									
M	INT	111	Interior Design Issues and Theories				HU						
		121	Introduction to Computer Modeling for Interior Design			CS							
		131	Design and Human Behavior					SB					
		310	History of Interior Design I				HU						H
		311	History of Interior Design II				HU						H
		412	History of Decorative Arts in Interiors				HU						
M	ITA	201	Intermediate Italian									G	
		202	Intermediate Italian									G	
		311	Italian Composition and Conversation									G	
		312	Italian Composition and Conversation									G	
		314	Advanced Italian									G	
		325	Introduction to Italian Literature				HU						
		415	Italian Civilization				HU					G	

General Studies Courses (continued)

				L	MA	CS	HU	SB	SQ	SG	C	G	H
		425	Italian American Culture	L									
		430	Italian Literature of the Middle Ages				HU						
		441	Dante: *Divina Commedia*	L			HU						
		443	Italian Literature of the Renaissance				HU						H
		446	Italian Literature of the 18th and 19th Centuries				HU						
		449	20th-Century Italian Literature				HU					G	
M	JMC	201	Journalism Newswriting	L									
		202	Radio-Television Writing	L									
		301	Reporting	L									
		315	Broadcast News Reporting	L									
M	JPN	201	Second-Year Japanese I									G	
		202	Second-Year Japanese II									G	
		311	Japanese Conversation and Composition									G	
		312	Japanese Conversation and Composition									G	
		313	Third-Year Japanese I									G	
		314	Third-Year Japanese II									G	
		321	Japanese Literature	L			HU					G	
M	JUS	105	Introduction to Justice Studies					SB					
		200	Topics in Concepts and Issues of Justice					SB					
		301	Research in Justice Studies					SB					
		302	Basic Statistical Analysis in Justice Studies			CS							
		305	Principles of Justice Studies					SB					
		320	Community and Social Justice					SB			C		
		321	Wealth Distribution and Poverty					SB			C		
		329	Domestic Violence					SB					
		350	Immigration and Justice					SB			C		
		360	Law and Social Control					SB					
		375	Justice and the Mass Media					SB					
		385	Justice and Everyday Life					SB					
		404	Imperatives of Proof	L									
		405	Economic Justice	L				SB				G	
		415	Gender and International Development	L								G	
		420	Woman, Work, and Justice					SB			C		
		425	Race, Gender, and Crime	L				SB			C		
		430	Social Protest, Conflict, and Change	L				SB			C		
		440	Administration and Justice	L									
		444	Environment and Justice	L							C		
		450	Alternatives to Incarceration	L									
		460	Feminism and Justice								C		
		463	Discretionary Justice					SB					
		465	Death Penalty in the United States	L									
		469	Political Deviance and the Law	L				SB			C		
		470	Alternative Dispute Resolution	L				SB			C		
		474	Legislation of Morality	L				SB			C		
		477	Youth and Justice	L				SB					
		479	Law and Disputing	L				SB					
M	KIN	100	Introduction to Health and Wellness (Cross-listed as EXW 100/HES 100)					SB					
		348	Psychological Skills for Optimal Performance					SB					
		352	Psychosocial Aspects of Physical Activity					SB			C		
		414	Electromyographic Kinesiology	L									
		421	Human Motor Control	L									
		422	Motor Control in Special Populations (Cross-listed as PSY 422)	L									
		423	Motor Control and Aging	L									
		441	Physiology of Women in Sport	L									
		443	Exercise Endocrinology	L									
		448	Applied Sport Psychology	L									
		452	Exercise Psychology					SB					

General Studies Courses (continued)

				L	MA	CS	HU	SB	SQ	SG	C	G	H
		460	Theory of Strength Training	L									
M	KOR	201	Second-Year Korean I									G	
		202	Second-Year Korean II									G	
		250	Korean Culture and Society				HU					G	
		347	Korean Film and Literature				HU						
		350	Women of Korea										H
M	LAT	201	Intermediate Latin I				HU						
		202	Intermediate Latin II				HU						
		421	Roman Literature				HU						
		422	Roman Literature				HU						
M	MAE	100	Introduction to Mechanical and Aerospace Engineering			CS							
		453	Computer-Aided Manufacturing and Control (Cross-listed as IEE 463)			CS							
		468	Aerospace Systems Design	L									
		491	Experimental Mechanical Engineering	L									
M	MAT	119	Finite Mathematics		MA								
		142	College Mathematics		MA								
		170	Precalculus		MA								
		210	Brief Calculus		MA								
		251	Calculus for Life Sciences		MA								
		260	Technical Calculus I		MA								
		261	Technical Calculus II		MA								
		262	Technical Calculus III		MA								
		270	Calculus with Analytic Geometry I		MA								
		271	Calculus with Analytic Geometry II		MA								
		272	Calculus with Analytic Geometry III		MA								
		274	Elementary Differential Equations		MA								
		275	Modern Differential Equations		MA								
		290	Calculus I		MA								
		300	Mathematical Structures	L									
		351	Mathematical Methods for Genetic Analysis			CS							
		419	Introduction to Linear Programming			CS							
		421	Applied Computational Methods			CS							
		423	Numerical Analysis I			CS							
		425	Numerical Analysis II			CS							
		451	Mathematical Modeling			CS							
M	MBB	245	Cellular and Molecular Biology						SQ				
		343	Genetic Engineering and Society (Cross-listed as BIO 343)	L									
		490	Capstone: Issues in Biotechnology (must be taken twice to secure L credit)	L									
M	MCE	446	Understanding the Culturally Diverse Child								C		
M	MCO	110	Introduction to Mass Communication					SB					
		120	Media and Society					SB					
		402	Mass Communication Law	L									
		418	History of Mass Communication					SB					H
		430	International Mass Communication									G	
		450	Visual Communication				HU						
		456	Political Communication					SB					
		460	Race, Gender, and Media (Cross-listed as AFR 460)								C		
		473	Sex, Love, and Romance in the Mass Media					SB					
M	MGT	400	Cultural Factors in International Business (Cross-listed as IBS 400)								C	G	
		450	Changing Business Processes	L									
		459	International Management (Cross-listed as IBS 459)									G	
		460	Strategic Leadership	L									
M	MHL	201	MacLiteracy for Musicians			CS							
		344	Music in World Cultures				HU					G	
		352	The Evolution of Jazz										H
		363	Survey of Russian Music				HU						
		437	Topics in 17th-Century Music	L									

General Studies Courses (continued)

				L	MA	CS	HU	SB	SQ	SG	C	G	H
		438	Topics in 18th-Century Music										H
		439	Topics in 19th-Century Music	L									H
		440	Music Since 1900	L									
		466	North American Indian Music	L			HU				C		
M	MIC	205	Microbiology (if credit also earned in MIC 206)							SG			
		206	Microbiology Laboratory (if credit also earned in MIC 205)							SG			
		302	Advanced Bacteriology Laboratory (if credit also earned in MIC 401)	L									
		401	Research Paper (if credit also earned in MIC 302)	L									
		402	Service Learning								C		
M	MIS	410	American Defense Policy I					SB					
		412	American Defense Policy II					SB					
M	MKT	302	Fundamentals of Marketing Management	L									
		351	Marketing Research	L									
M	MSE	100	Introduction of Materials Engineering			CS							
		208	Patterns in Nature (Cross-listed as PHS 208)						SQ				
		482	Materials Engineering Design	L									
M	MTE	402	Service Learning								C		
M	MUE	381	Music Therapy Research	L									
M	MUS	340	Survey of Music History				HU						H
		347	Jazz in America (Cross-listed as AFH 347)				HU				C		
		354	Popular Music				HU						
		355	Survey of American Music				HU				C		H
		356	Survey of the Musical Theatre				HU						
		410	History of Women in Music				HU				C		H
M	PGS	101	Introduction to Psychology					SB					
		222	Human Sexual Behavior					SB					
		270	Psychology of Adjustment					SB					
		304	Effective Thinking	L									
		306	Environmental Psychology					SB					
		315	Personality Theory and Research					SB					
		341	Developmental Psychology					SB					
		350	Social Psychology					SB					
		351	Honors Social Psychology	L				SB					
		365	Community Psychology					SB					
		414	History of Psychology	L				SB					
		427	Psychology of Aging	L				SB					
		441	Cognitive Development	L				SB					
		443	Abnormal Child Psychology	L				SB					
		444	Adolescent Psychology and Psychopathology	L									
		445	Child Language and Drawing					SB					
		446	Social Development	L									
		451	Stereotyping, Prejudice, and Discrimination	L									
		452	Applied Social Psychology	L									
		461	Interpersonal Influence					SB					
		465	Psychology of Stress and Coping	L									
		466	Abnormal Psychology					SB					
		467	Psychology of Magical Beliefs	L									
M	PHI	101	Introduction to Philosophy				HU						
		103	Principles of Sound Reasoning	L			HU						
		105	Introduction to Ethics				HU						
		300	Philosophical Argument and Exposition	L									
		301	History of Ancient Philosophy				HU						H
		302	History of Modern Philosophy				HU						H
		304	Existentialism				HU						
		305	Ethical Theory				HU						
		306	Applied Ethics				HU						
		307	Philosophy of Law				HU						

General Studies Courses (continued)

				L	MA	CS	HU	SB	SQ	SG	C	G	H
		308	Philosophy of Art				HU						
		309	Social and Political Philosophy				HU						
		310	Environmental Ethics				HU						
		311	Philosophy in Literature				HU						
		312	Theory of Knowledge				HU						
		314	Philosophy of Science (Cross-listed as HPS 314)				HU						
		315	Philosophy of Language				HU						
		316	Metaphysics				HU						
		317	Philosophy of Mind				HU						
		318	Philosophy of Religion				HU						
		319	Philosophy of Computing			CS	HU						
		325	Philosophy of Social Science				HU	SB					
		335	History of Ethics				HU						
		402	Empiricism				HU						
		403	Contemporary Analytic Philosophy				HU						
M	PHS	110	Fundamentals of Physical Science						SQ				
		208	Patterns in Nature (Cross-listed as MSE 208)						SQ				
		402	Service Learning								C		
M	PHY	101	Introduction to Physics						SQ				
		111	General Physics (if credit also earned in PHY 113)						SQ				
		112	General Physics (if credit also earned in PHY 114)						SQ				
		113	General Physics Laboratory (if credit also earned in PHY 111)						SQ				
		114	General Physics Laboratory (if credit also earned in PHY 112)						SQ				
		121	University Physics I: Mechanics (if credit also earned in PHY 122)						SQ				
		122	University Physics Laboratory I (if credit also earned in PHY 121)						SQ				
		131	University Physics II: Electricity and Magnetism (if credit also earned in PHY 132)						SQ				
		132	University Physics Laboratory II (if credit also earned in PHY 131)						SQ				
		150	Physics I						SQ				
		151	Physics II						SQ				
		201	Mathematical Methods in Physics I			CS							
		252	Physics III						SQ				
		334	Advanced Laboratory I (if credit also earned in PHY 420)	L									
		420	Research Paper (if credit also earned in PHY 334)	L									
M	PLA	101	Landscape and Society									G	
		310	History of Landscape Architecture (Cross-listed as APH 411)										H
		311	Contemporary Landscape Architecture				HU						
		411	Landscape Architecture Theory and Criticism	L									
		420	Theory of Urban Design				HU						
		485	International Field Studies in Planning (Cross-listed as PUP 485) (Three hours must be taken to secure G credit.)									G	
M	PLB	108	Concepts in Plant Biology						SQ				
		200	Biology of Plants (if credit also earned in PLB 201)						SQ				
		201	Biology of Plants Laboratory (if credit also earned in PLB 200)						SQ				
		300	Comparative Plant Diversity	L						SG			
		320	Environmental Science (Nonmajor) (Cross-listed as BIO 319)									G	
		402	Service Learning								C		
		414	Plant Pathology	L									
		430	Statistical Analyses in Environmental Science			CS							
		432	Computer Applications in Biology (Cross-listed as BIO 406)			CS							
M	POR	201	Intermediate Portuguese									G	
		313	Portuguese Composition and Conversation									G	
		314	Portuguese Composition and Conversation									G	
		321	Luso-Brazilian Literature				HU						
		472	Luso-Brazilian Civilization				HU					G	
M	POS	101	Political Ideologies					SB					
		110	Government and Politics					SB					

General Studies Courses (continued)

		L	MA CS	HU	SB	SQ SG	C	G	H
150	Comparative Government				SB			G	
160	Global Politics				SB			G	
220	Political Issues and Public Policy				SB				
230	Current Issues in National Politics	L			SB				
240	Introduction to Southeast Asia (Cross-listed as ASB 240/GCU 240/HST 240/REL 240)			HU	SB			G	
260	Current Issues in International Politics	L			SB			G	
270	American Legal System				SB				
300	Contemporary Controversies in Global Politics				SB			G	
301	Empirical Political Inquiry				SB				
305	Politics and Film				SB				
310	American National Government				SB				
313	The Congress				SB				
314	The American Presidency				SB				
315	The Supreme Court				SB				
316	State and Local Government				SB				
320	Public Administration				SB				
325	Public Policy Development				SB				
330	Contemporary Controversies in Domestic Politics				SB				
331	Public Opinion				SB				
332	American Political Parties				SB				
333	Interest Groups				SB				
336	Voters in America				SB				
340	History of Political Philosophy I			HU					H
341	History of Political Philosophy II			HU					H
346	Problems of Democracy			HU					
350	Comparative Politics				SB			G	
351	Democratization				SB			G	
355	Russia and Successor States				SB			G	
356	European Union				SB			G	
357	South Asia Politics				SB			G	
358	Southeast Asia				SB			G	
359	African Politics and Society				SB			G	
360	World Politics				SB			G	
361	American Foreign Policy				SB			G	
364	National Security, Intelligence, and Terrorism				SB				
370	Law and Society				SB				
401	Political Statistics		CS						
410	Governing American Cities				SB				
417	The Arizona Political System				SB				
426	Elements of Public Policy				SB				
431	Campaigns and Elections				SB				
433	Money and Politics				SB				
434	Media and Politics				SB				
435	Women and Politics				SB		C		
439	Minority Group Politics in America				SB		C		
442	American Political Thought			HU					
443	Topics in Contemporary Political Theory			HU					
445	Asian Political Thought				SB			G	
451	China, Japan, and the Koreas				SB			G	
452	China				SB			G	
453	South America				SB			G	
454	Mexico				SB			G	
455	Central America and the Caribbean				SB			G	
459	South and Southern Africa				SB			G	
463	Inter-American Relations				SB			G	
465	International Organization and Law				SB			G	

General Studies Courses (continued)

				L	MA	CS	HU	SB	SQ	SG	C	G	H
		467	International Security					SB				G	
		468	Comparative Asian Foreign Policies					SB				G	
		471	Constitutional Law I					SB					
		472	Constitutional Law II					SB					
		485	Political Economy					SB					
		486	International Political Economy					SB				G	
		498	Pro-Seminar	L									
M	PSY	230	Introduction to Statistics			CS							
		290	Research Methods	L						SG			
		330	Statistical Methods			CS							
		390	Experimental Psychology	L									
		420	Analysis of Behavior	L									
		422	Motor Control in Special Populations (Cross-listed as KIN 422)	L									
		424	Genetic Psychology	L									
		425	Biological Bases of Behavior	L									
		434	Cognitive Psychology	L									
		437	Human Factors	L									
		498	PS: Behavioral Neuroscience Research	L									
M	PUP	100	Introduction to Environmental Design (Cross-listed as ALA 100)				HU					G	H
		190	Sustainable Cities				HU	SB				G	
		200	The Planned Environment				HU						H
		301	Introduction to Urban Planning	L									
		412	History of the City (Cross-listed as APH 414)										H
		420	Theory of Urban Design				HU						
		445	Women and Environments								C		
		452	Ethics and Theory in Planning	L									
		485	International Field Studies in Planning (Cross-listed as PLA 485) (Three hours must be taken to secure G credit.)									G	
M	QBA	221	Statistical Analysis			CS							
M	REL	100	Religions of the World				HU					G	
		200	The Study of Religious Traditions	L			HU					G	
		201	Religion and the Modern World	L			HU						
		202	Religion and Popular Culture				HU				C		
		203	Saints and Sinners: Explorations in Sacred Biography				HU						H
		210	Introduction to Judaism	L			HU						H
		225	African American Religion				HU				C		
		240	Introduction to Southeast Asia (Cross-listed as ASB 240/GCU 240/HST 240/POS 240)				HU	SB				G	
		260	Introduction to Islam				HU					G	
		270	Introduction to Christianity				HU						
		301	Comparative Mysticism				HU						
		305	Ritual, Symbol, and Myth	L			HU						
		310	Western Religious Traditions				HU						H
		315	Hebrew Bible (Old Testament)	L			HU						H
		317	Introduction to Rabbinic Judaism				HU						H
		318	Contemporary American Jewish Identities (Cross-listed as SOC 375)				HU	SB			C		
		320	American Religious Traditions				HU				C		H
		321	Religion in America				HU				C		H
		322	Malcolm and Martin				HU				C		
		323	Black Religion: A Biographical Approach				HU				C		
		326	U.S. Latino Religion and Culture				HU				C		
		330	Native American Religious Traditions				HU				C		
		331	History of Native American Religious Traditions	L			HU				C		H
		332	South American Indian Religions				HU					G	
		343	Taoism	L			HU					G	H
		344	Religion and Values in Japanese Life				HU					G	
		345	Asian Religious Traditions				HU					G	

General Studies Courses (continued)

				L	MA CS	HU	SB	SQ SG	C	G	H
		350	Hinduism	L		HU				G	
		351	Buddhism	L		HU				G	
		355	Japanese Cities and Cultures to 1800 (Cross-listed as HUM 310)	L		HU					H
		365	Islamic Civilization			HU					H
		366	Islam in the Modern World			HU				G	H
		371	New Testament			HU					
		372	Formation of the Christian Tradition			HU					H
		374	Witchcraft and Heresy in Europe (Cross-listed as HST 361)	L		HU					H
		377	Religion in Russia			HU					H
		379	Religion, Nationalism, and Ethnic Conflict			HU				G	
		381	Religion and Moral Issues	L		HU					
		382	Religion, Magic, and Science	L		HU					
		385	Contemporary Western Religious Thought			HU					
		386	America and the Holocaust			HU	SB				
		390	Women and Religion			HU				G	
		410	Judaism in Modern Times			HU					H
		420	Religion in American Life and Thought			HU					
		427	American Religious Thought			HU					H
		444	Religion in Japan			HU				G	H
		460	Studies in Islamic Religion			HU				G	
		470	Religion in the Middle Ages			HU					H
		471	Reformation and Modern Christianity			HU					H
		480	Religion and Global Politics							G	
M	RUS	201	Intermediate Russian							G	
		202	Intermediate Russian							G	
		211	Basic Russian Conversation							G	
		212	Basic Russian Conversation							G	
		311	Russian Composition and Conversation							G	
		312	Russian Composition and Conversation							G	
		321	Foundations of Russian Literature			HU					H
		322	Great Russian Writers of the 19th Century	L		HU					
		323	Modern Russian Literature and the Soviet Legacy	L		HU				G	
		411	Advanced Composition and Conversation I							G	
		412	Advanced Composition and Conversation II							G	
		420	Russian Poetry	L		HU					
		421	Pushkin	L		HU					
		423	Dostoyevsky	L		HU					
		424	Tolstoy	L		HU					
		425	Chekhov	L		HU					
		430	Russian Short Story	L		HU					
		441	Survey of Russian Culture	L		HU				G	H
M	SCA	250	Introduction to Scandinavian Culture			HU				G	H
		316	Scandinavian Cinema			HU				G	
		450	Masterpieces of Scandinavian Literature	L		HU					
M	SCM	432	Planning and Control Systems for Supply Chain Management	L							
M	SGS	103	Contemporary Global Trends				SB			G	
M	SHS	367	Language Science				SB				
		465	Speech and Language Acquisition				SB				
M	SLV	304	Computational Linguistics of Slavic Languages		CS						
		426	Contemporary East European and Eurasian Literatures	L		HU				G	
		440	History of Slavic Languages				SB				
M	SOC	101	Introductory Sociology				SB				
		220	Sport and Society				SB				
		270	Racial and Ethnic Relations				SB		C		
		301	Principles of Sociology				SB				
		312	Sociology of Adolescence				SB				
		315	Courtship and Marriage				SB				

General Studies Courses (continued)

				L	MA	CS	HU	SB	SQ	SG	C	G	H
		321	Sociology of Work					SB					
		331	Environmental Sociology					SB				G	
		332	Urban Sociology					SB				G	
		333	Population					SB				G	
		334	Technology and Society					SB					
		340	The Sociology of Deviance					SB					
		341	Modern Social Problems					SB					
		352	Social Change					SB				G	H
		360	Sociological Psychology					SB					
		363	Men and Masculinity					SB					
		365	Sociology of Mass Communication					SB					
		375	Contemporary American Jewish Identities (Cross-listed as REL 318)				HU	SB			C		
		390	Social Statistics I			CS							
		391	Sociological Research					SB					
		415	The Family					SB					
		416	Marriage Problems in Contemporary Society	L				SB					
		417	Family Violence					SB					
		418	Aging and the Life Course					SB					
		420	Sociology of Religion	L				SB					
		421	Education and Society					SB					
		423	Social Class and Stratification	L				SB					
		424	Women and Health					SB					
		427	Sociology of Health and Illness	L				SB					
		429	Sociology of Law					SB					
		433	Applied Demography					SB					
		446	Sociology of Crime					SB					
		448	Epidemics and Society					SB				G	
		451	Comparative Sociology					SB				G	
		464	Sociology of Women	L				SB			C		
		474	African Americans in Modern Society					SB			C		
		483	History of Social Thought					SB					
		486	Contemporary Theory					SB					
M	SPA	201	Intermediate Spanish									G	
		202	Intermediate Spanish									G	
		203	Intermediate Spanish for Bilinguals									G	
		204	Intermediate Spanish for Bilinguals									G	
		207	Spanish for International Professions II									G	
		313	Spanish Conversation and Composition									G	
		314	Spanish Conversation and Composition									G	
		319	Business Correspondence and Communication									G	
		325	Introduction to Hispanic Literature				HU						
		412	Advanced Conversation and Composition									G	
		413	Advanced Spanish Grammar									G	
		420	Applied Spanish Linguistics	L									
		421	Spanish in the Southwest	L				SB			C		
		425	Spanish Literature				HU						
		426	Spanish Literature				HU						
		427	Spanish American Literature	L									
		428	Spanish American Literature	L								G	
		464	Mexican American Literature				HU				C		
		471	Civilization of the Spanish Southwest				HU				C		
		472	Spanish American Civilization				HU					G	H
		473	Spanish Civilization				HU	SB				G	
		485	Mexican American Short Story	L									
M	SPE	311	Orientation to Education of Exceptional Children					SB			C		
M	SPF	301	Culture and Schooling	L									
M	STP	220	Conceptual Statistics			CS							

General Studies Courses (continued)

				L	MA	CS	HU	SB	SQ	SG	C	G	H
		226	Elements of Statistics			CS							
		326	Intermediate Probability			CS							
		420	Introductory Applied Statistics			CS							
		429	Experimental Statistics			CS							
M	THA	201	Intermediate Thai I									G	
		202	Intermediate Thai II									G	
M	THE	100	Introduction to Theatre				HU						
		201	Film: The Creative Process I				HU						
		220	Principles of Dramatic Analysis	L									
		301	Film: The Creative Process II				HU						
		320	History of the Theatre I				HU						H
		321	History of the Theatre II				HU						H
		322	Theatre History and Culture				HU						H
		403	Independent Film				HU						
		404	Foreign Films and Filmmakers									G	
		405	Film: Great Performers and Directors				HU						
		406	American Multicultural Film				HU				C		
		423	African American Theatre								C		
M	THP	482	Theatre for Social Change								C		
M	VTN	201	Intermediate Vietnamese I									G	
		202	Intermediate Vietnamese II									G	
M	WSH	413	Lesbian, Gay, and Gender Studies				HU				C		
		464	Voices and Visions				HU				C		
		470	Women and Popular Culture				HU				C		
M	WST	100	Women and Society					SB			C		
		300	Women in Contemporary Society					SB			C		
		313	Women and Sexuality					SB					
		360	Women as Healers					SB				G	
		373	Latina/Chicana Issues					SB			C		
		375	Women and Social Change					SB			C		
		377	History of American Feminist Thought	L							C		
		378	Global Feminist Theory	L							C	G	
		380	Gender, Race, and Class	L				SB			C		
		457	Gender, Culture, and Development	L				SB				G	
		460	Women and the Body					SB			C		
		477	Women and Violence					SB			C		
W	ACO	100	Overview of Applied Computing			CS							
		101	Introduction to Computer Science			CS							
		102	Principles of Computer Science			CS							
		201	Data Structures and Algorithms			CS							
		210	Introduction to Systems Programming			CS							
		220	Introduction to Database Systems			CS							
W	AMS	219	Newspaper Production (Cross-listed as ENG 219)	L									
		301	Introduction to American Studies	L									
		310	History of American Systems to 1865 (Cross-listed as HIS 305)	L							C		H
		311	History of American Systems Since 1865 (Cross-listed as HIS 306)										H
		320	American Cultural History I (Cross-listed as HIS 303)					SB					H
		321	American Cultural History II (Cross-listed as HIS 304)					SB					H
		330	Introduction to American Lives				HU						
		417	Religious Traditions of the American Southwest								C		
		422	Studies in American Literature	L			HU						
		428	Chicano Cultures in the Southwest					SB					
W	ARS	101	Art of the Western World I				HU						H
		102	Art of the Western World II				HU						H
		438	Art of the 20th Century I				HU						
		439	Art of the 20th Century II				HU						H
W	ASB	102	Introduction to Cultural and Social Anthropology					SB				G	
		211	Women in Other Cultures				HU	SB				G	

General Studies Courses (continued)

				L	MA	CS	HU	SB	SQ	SG	C	G	H
		311	Principles of Social Anthropology					SB				G	H
		340	Migration and Culture					SB				G	
		342	Mexico-U.S. Borderlands (Cross-listed as SBS 342/SOC 342)					SB			C		
		346	Marriage and Family Diversity					SB			C		
		350	Anthropology and Art				HU						
		353	Death and Dying in Cross-Cultural Perspective (Cross-listed as SOC 353)				HU	SB				G	
		440	Women in the Global Factory					SB				G	
		441	Sexuality and Culture					SB				G	
		442	Urban Anthropology					SB					
		445	Globalization, Development, and Resistance					SB				G	
		447	Citizenship, Nationalism, and Identity (Cross-listed as POL 447/SBS 447)					SB			C		
W	AST	111	Introduction to Solar Systems Astronomy (if credit also earned in AST 113)						SQ				
		112	Introduction to Stars, Galaxies, and Cosmology (if credit also earned in AST 114)						SQ				
		113	Astronomy Laboratory I (if credit also earned in AST 111)						SQ				
		114	Astronomy Laboratory II (if credit also earned in AST 112)						SQ				
W	BIO	100	The Living World						SQ				
		187	General Biology I							SG			
		188	General Biology II						SQ				
W	BLE	312	ESL, Diversity, and Culture in Education	L									
W	CHM	101	Introductory Chemistry						SQ				
		113	General Chemistry						SQ				
		115	General Chemistry with Qualitative Analysis						SQ				
W	CIS	200	Computer Applications and Technology			CS							
W	COM	100	Introduction to Human Communication					SB					
		124	Intercultural Issues in Mediated Communication								C		
		222	Argumentation	L									
		225	Public Speaking	L									
		230	Small Group Communication					SB					
		308	Empirical Research Methods in Communication	L									
		316	Gender and Communication								C		
		320	Communication and Consumerism					SB					
		321	Rhetorical Theory and Research	L			HU						
		371	Cross-Cultural Communication Perspectives									G	
		410	Interpersonal Communication Theory and Research					SB					
		411	Communication in the Family					SB					
		421	Rhetoric of Social Issues				HU						
		422	Argumentation, Critical Reasoning, and Public Communication	L									
		450	Theory and Research in Organizational Communication					SB					
		463	Cultural and Intercultural Communication Theory and Research					SB				G	
		471	International Communication									G	
W	CRJ	100	The Justice System					SB					
		200	Topics in Concepts and Issues of Justice					SB					
		303	Statistical Analysis			CS							
		305	Women, Crime, and Justice								C		
		306	Race, Ethnicity, and Justice								C		
		350	Law and Social Control					SB					
		470	Discretionary Justice	L				SB					
		490	Senior Seminar in Criminal Justice	L									
W	CSE	180	Computer Literacy			CS							
W	ECN	211	Macroeconomic Principles					SB					
		212	Microeconomic Principles					SB					
W	EDP	310	Educational Psychology					SB					
W	EDT	321	Computer Literacy			CS							
W	ENG	200	Critical Reading and Writing About Literature	L			HU						
		219	Newspaper Production (Cross-listed as AMS 219)	L									
		221	Survey of English Literature				HU						H

General Studies Courses (continued)

			L	MA CS	HU	SB	SQ SG	C	G	H
	222	Survey of English Literature			HU					H
	241	American Literature			HU					
	242	American Literature			HU					
	301	Writing for the Professions	L							
	305	Classical and Biblical Backgrounds to Literature			HU					
	311	Persuasive Writing	L							
	316	Writing and Arguing Politics	L							
	317	Cross Cultural Writing	L		HU				G	
	323	Rhetoric and Grammar	L							
	337	Major American Novels	L		HU					
	352	Short Story	L		HU					
	353	African American Literature: Beginnings through the Harlem Renaissance	L		HU			C		
	354	African American Literature: Harlem Renaissance to the Present	L		HU			C		
	359	American Indian Literature	L		HU			C		
	360	Western American Literature	L		HU					
	363	Chicano Literature			HU			C		
	365	History of Film			HU					
	369	Science Fiction and Fantasy			HU					
	386	American Gothic	L		HU					
	400	History of Literary Criticism	L		HU					H
	415	Medieval Literature			HU					
	418	European Renaissance Literature	L		HU					
	420	Multicultural Autobiographies (Cross-listed as IAS 420)	L		HU			C		
	431	Whitman and Dickinson			HU					
	432	The American Renaissance			HU					
	437	The American Novel, 1900–1960	L		HU					
	438	American Novel since 1960	L		HU					
	450	The British Novel			HU					
	454	Gender and Literature	L		HU					
	455	Contemporary Women Writers			HU					
	460	Ethnic Women Writers (Cross-listed as WST 467)	L		HU			C		
	462	Africana Literature			HU				G	
	463	African-American Literature			HU			C		
	465	History of Film			HU					
	476	Folklore in Everyday Life	L		HU	SB		C		
	477	World Literature (Cross-listed as IAS 477)	L		HU				G	
	478	Modernist Literature			HU					
	479	International Postmodern Literature			HU				G	
W ETH	100	Introduction to Ethnic Studies				SB		C		
	300	Principles of Ethnic Studies						C		
	310	Research Methods in Ethnic, Racial, and First Nations Populations				SB				
W FAS	301	Introduction to Parenting				SB				
	330	Personal Growth in Human Relationships				SB				
W GCU	102	Introduction to Human Geography				SB				
	121	World Geography				SB			G	
	253	Introduction to Cultural and Historical Geography				SB			G	
	351	Population Geography (Cross-listed as SBS 351)				SB			G	
	357	Social Geography				SB				
	361	Urban Geography				SB				
	373	Introduction to Geographic Information Science					SG			
W GLB	301	Business in the Global Environment							G	
	401	Global Business Integration	L							
W GLG	110	Geological Disasters and the Environment (if credit also earned in GLG 111)					SG		G	
	111	Geological Disasters and the Environment Laboratory (if credit also earned in GLG 110)					SG			
W GRN	400	Perspectives on Aging (Cross-listed as SOC 400)				SB				
	420	Health Aspects of Aging				SB				
W HIS	101	Western Civilization				SB				H

General Studies Courses (continued)

				L	MA	CS	HU	SB	SQ	SG	C	G	H
		102	Western Civilization					SB				G	H
		103	The United States					SB					H
		104	The United States					SB					H
		300	Historical Methods	L									H
		301	Writing in History	L									
		303	American Cultural History I (Cross-listed as AMS 320)					SB					H
		304	American Cultural History II (Cross-listed as AMS 321)					SB					H
		305	History of American Systems to 1865 (Cross-listed as AMS 310)	L							C		H
		306	History of American Systems Since 1865 (Cross-listed as AMS 311)										H
		320	19th-Century West					SB					H
		340	American Military History					SB					H
		355	World History to 1500									G	H
		356	World History since 1500									G	H
		377	Women in Europe, 1700–Present										H
		378	20th-Century Europe at War, 1900-1945										H
		406	Civil War and Reconstruction	L				SB					H
		411	Contemporary America	L				SB					H
		423	Mexico					SB					H
		424	The Hispanic Southwest					SB					
		431	Social History of American Women					SB			C		H
		443	Constitutional History of the United States					SB					H
		444	American Urban History					SB					H
		454	History of Genocide									G	H
		462	The African Diaspora									G	H
		465	Origins of Racism									G	H
		469	Modern Germany					SB				G	H
		498	Pro-Seminar	L									
W	HON	171	The Human Event	L			HU						H
		172	The Human Event	L			HU						H
W	IAP	101	Art, Artist, and Culture				HU						
		300	Introduction to Interdisciplinary Arts				HU						
		302	Cross-Cultural Perspectives on the Arts	L			HU						
		304	Traditions of the Avant-Garde and Experimental Art	L			HU						
		305	20th and 21st Century Art, Performance, and Media	L			HU						
		307	Art and War				HU					G	
		310	Women in Art (Cross-listed as IAS 310)				HU						
		361	Digital Editing and Media Literacy			CS							
		371	Verbal Art	L			HU						
		471	Language, Culture, and Performance	L			HU						
		473	Aesthetic Research	L			HU						
		474	Art and Film	L			HU						
W	IAS	220	Psychology, Multicultural Narratives, and Religion	L			HU				C		
		300	Adult Career Development	L				SB					
		305	Work and Identity					SB					
		310	Women in Art (Cross-listed as IAP 310)				HU						
		340	Bioethics (Cross-listed as PHI 340)				HU						
		406	Moral Dilemmas (Cross-listed as PHI 406)	L			HU						
		407	Environmental Philosophy and Policy (Cross-listed as PHI 407)	L			HU						
		408	Feminist Ethics				HU						
		410	Evolution of Ideas	L			HU						
		411	History and Philosophy of Mathematics (Cross-listed as MAT 411)				HU						H
		420	Multicultural Autobiographies (Cross-listed as ENG 420)	L			HU				C		
		430	Science and Religion	L			HU						
		477	World Literature (Cross-listed as ENG 477)	L			HU					G	
W	LSC	300	Modes of Biological Thought	L									
		301	Life Sciences: History and Method							SG			
		310	Natural History of Arizona (if credit also earned in LSC 311)							SG			

General Studies Courses (continued)

				L	MA	CS	HU	SB	SQ	SG	C	G	H
		311	Field Natural History (if credit also earned in LSC 310)							SG			
		330	Pollution vs. Protection: Counting the Cost									G	
		365	The Human Organism							SG			
		410	Techniques in Wildlife Conservation Biology	L									
		415	Biometry			CS							
		473	Ichthyology	L									
W	MAT	119	Finite Mathematics		MA								
		142	College Mathematics		MA								
		170	Precalculus		MA								
		210	Brief Calculus		MA								
		270	Calculus with Analytic Geometry I		MA								
		271	Calculus with Analytic Geometry II		MA								
		272	Calculus with Analytic Geometry III		MA								
		411	History and Philosophy of Mathematics (Cross-listed as IAS 411)				HU						H
W	MUE	464	Music of World Cultures in the Classroom				HU					G	
W	MUS	340	Listening to Music				HU						H
		349	Music in America				HU						H
		354	Popular Music				HU						
		356	Survey of the Musical Theatre				HU						
W	PGS	101	Introduction to Psychology					SB					
		250	Psychology and Society					SB					
		304	Effective Thinking	L									
		306	Environmental Psychology					SB					
		315	Personality Theory and Research					SB					
		341	Developmental Psychology					SB					
		344	Directed Child Study	L				SB					
		350	Social Psychology					SB					
		370	Interpersonal Relationships					SB					
		385	Psychology of Gender (Cross-listed as WST 385)					SB					
		427	Psychology of Aging					SB					
		442	Life Span Development					SB					
		443	Abnormal Child Psychology	L				SB					
		446	Social Development	L				SB					
		453	Organizational Behavior					SB					
		465	Psychology of Stress and Coping					SB					
		466	Abnormal Psychology					SB					
		473	Psychology and Politics of Child Maltreatment					SB					
		480	Cross-Cultural Social Psychology					SB				G	
		482	Social Influence and Consumer Behavior					SB					
W	PHI	101	Introduction to Philosophy				HU						
		103	Principles of Sound Reasoning	L			HU						
		306	Applied Ethics				HU						
		340	Bioethics (Cross-listed as IAS 340)				HU						
		360	Business and Professional Ethics				HU						
		406	Moral Dilemmas (Cross-listed as IAS 406)	L			HU						
		407	Environmental Philosophy and Policy (Cross-listed as IAS 407)	L			HU						
		408	Feminist Ethics				HU						
W	PHY	101	Introduction to Physics						SQ				
		111	General Physics (if credit also earned in PHY 113)						SQ				
		112	General Physics (if credit also earned in PHY114)						SQ				
		113	General Physics Laboratory (if credit also earned in PHY 111)						SQ				
		114	General Physics Laboratory (if credit also earned in PHY 112)						SQ				
		408	Feminist Ethics				HU						
W	POL	101	Political Ideologies					SB					
		110	Government and Politics					SB					
		160	Global Politics					SB				G	
		247	Introduction to Latin American Politics					SB				G	
		260	Current Issues in International Politics					SB				G	

General Studies Courses (continued)

				L	MA	CS	HU	SB	SQ	SG	C	G	H
		310	American National Government: Ideas and Institutions					SB					H
		313	The Congress					SB					
		314	The American Presidency					SB					
		320	Latino Politics					SB			C		
		331	Public Opinion					SB					
		336	Electoral Behavior					SB					
		340	Political Theory				HU	SB					
		350	Comparative Politics					SB				G	
		360	World Politics Theory					SB				G	
		361	American Foreign Policy					SB					
		430	Race and Politics in the Americas					SB			C		
		434	Media and Politics					SB					
		435	Women, Power, and Politics					SB			C		
		436	Gender, Sexuality, Nation-States					SB				G	
		440	Political Futures through Science Fiction	L			HU						
		446	Democracy				HU						
		447	Citizenship, Nationalism, and Identity (Cross-listed as ASB 447/SBS 447)					SB			C		
		453	Latin American Cities					SB				G	
		454	Mexico: Politics, Economy, Cultures					SB				G	
		460	Politics of Globalization					SB				G	
		464	Border Cities: Action Research on Globalization					SB				G	
		470	Law and the Political Order					SB					
		480	Global Justice (Cross-listed as SBS 480)									G	
		486	Global Political Economy					SB				G	
W	PSY	230	Introduction to Statistics			CS							
		290	Research Methods							SG			
		324	Memory and Cognition					SB					
		330	Statistical Methods			CS							
		425	Biological Bases of Behavior	L									
W	QBA	221	Statistical Analysis			CS							
W	REL	100	REL 100 Religions of the World				HU					G	
		200	The Study of Religious Traditions	L			HU					G	
		201	Religion and the Modern World	L			HU						
		202	Religion and Popular Culture				HU				C		
		203	Saints and Sinners: Explorations in Sacred Biography				HU						H
		320	Religion in America				HU						H
		321	Religion in America	L			HU						H
		390	Women and Religion	L				SB				G	
W	RTM	120	Leisure and Quality of Life					SB					
		302	Recreation and Tourism for Diverse Populations								C		
		304	Recreation and Tourism Areas and Facilities Management	L									
		373	Leisure Travel and Tourism					SB					
		458	International Tourism									G	
W	SBS	200	Introduction to Social and Behavioral Sciences					SB					
		205	Cybercultures					SB					
		300	Interdisciplinary Approaches to Social and Behavioral Sciences					SB					
		301	Cultural Diversity	L				SB			C		
		304	Social Statistics I			CS							
		342	Mexico-U.S. Borderlands (Cross-listed as ASB 342/SOC 342)					SB			C		
		351	Population Geography (Cross-listed as GCU 351)					SB				G	
		404	Social Statistics II: Multivariate Analysis			CS							
		430	Topics in Power/Knowledge					SB					
		440	Family Studies					SB					
		447	Citizenship, Nationalism, and Identity (Cross-listed as ASB 447/POL 447)					SB			C		
		450	Topics in Local/Global					SB				G	
		460	Urban Studies					SB					
		480	Global Justice (Cross-listed as POL480)									G	

General Studies Courses (continued)

				L	MA	CS	HU	SB	SQ	SG	C	G	H
W	SOC	101	Introductory Sociology					SB					
		210	Sociology of Murder					SB					
		301	Principles of Sociology					SB					
		315	Courtship and Marriage					SB					
		324	Work and the Workplace					SB					H
		328	Migration					SB				G	
		340	Sociology of Deviant Behavior					SB					
		341	Modern Social Problems	L				SB					
		342	Mexico-U.S. Borderlands (Cross-listed as ASB 342/SBS 342)					SB			C		
		352	Social Change					SB				G	H
		353	Death and Dying in Cross-Cultural Perspective (Cross-listed as ASB 353)				HU	SB				G	
		354	Popular Music and Society				HU						
		360	Sociological Psychology					SB					
		364	Popular Culture					SB					
		365	Sociology of Mass Communication					SB					
		366	Film and Society					SB					
		370	Racial and Ethnic Minorities					SB			C		
		400	Perspectives on Aging (Cross-listed as GRN 400)					SB					
		418	Aging and the Life Course					SB					H
		419	Organizations and Technological Change									G	
		426	Social Inequality					SB					
		443	Sociology of Corporations					SB				G	
		457	Social Movements and Social Change					SB				G	
		486	Contemporary Theory					SB					
W	SPA	313	Spanish Conversation and Composition									G	
		314	Spanish Conversation and Composition									G	
		412	Advanced Conversation and Composition									G	
		426	Spanish Literature				HU						
		464	Mexican American Literature				HU				C		
		472	Spanish-American Civilization				HU						
W	SPE	222	Orientation to Education of Exceptional Children					SB					
		310	Professional Practices in Special Education	L									
		320	Assessment and Evaluation in Special Education	L									
W	STP	220	Conceptual Statistics			CS							
		226	Elements of Statistics			CS							
		420	Introductory Applied Statistics			CS							
W	SWU	171	Introduction to Social Work: Social Problems and Social Justice					SB					H
		301	Human Behavior in the Social Environment I	L									
		331	Social Policy and Services I										H
		402	Human Behavior in the Social Environment II					SB					
		474	Ethnic/Cultural Variables in Social Work								C		
W	TEL	111	Exploration of Education					SB					
		212	Understanding the Culturally Diverse Child								C		
		315	Child and Adolescent Development					SB					
W	THE	100	Introduction to Theatre				HU						
		300	Film: The Creative Process				HU						
		320	History of the Theatre				HU						H
		321	History of Theatre				HU						H
W	WST	100	Women and Society					SB			C		
		276	Feminist Foundations: Going to the Sources										H
		300	Women in Contemporary Society					SB			C		
		320	Women in Popular Culture				HU				C		
		350	Race, Class, and Gender					SB			C		
		370	Chronicling Women's Lives				HU				C		
		376	Feminist Theory	L							C		
		378	Global Feminist Theory	L							C	G	
		385	Psychology of Gender (Cross-listed as PGS 385)					SB					

General Studies Courses (continued)

		L	MA CS	HU	SB	SQ SG	C	G	H
390	Women and World Religions	L			SB			G	
431	Women and Film	L						G	
457	Women, Cultures, and Societies				SB			G	
467	Ethnic Women Writers (Cross-listed as ENG 460)	L		HU			C		
473	Latina/Chicana Representation				SB		C		
475	Women of the Diaspora Across Cultures			HU				G	
483	Contemporary Women Writers			HU				G	
487	Gender and International Development				SB			G	
498	Pro-Seminar: Theory and Method in Women's Studies	L							

Minors, Certificates, and Interdisciplinary Studies

Interdisciplinary studies are available to students through an interdisciplinary degree, such as the Bachelor of Interdisciplinary Studies, or an extensive choice of minors or certificates that may be taken in conjunction with other majors. Since interdisciplinary studies provide skills that support employment in a rapidly changing workplace, students are encouraged to consider these options. Consult the academic advisor in the appropriate major about the impact of enrolling in a minor or certificate program.

MINORS

A minor is an approved, coherent concentration of academic study in a single discipline, involving substantially fewer hours of credit than a corresponding major. Most ASU colleges offer undergraduate minors in addition to majors; see the "ASU Minors" table, page 127.

Students in most majors may pursue one or more minors and, upon successful completion of the prescribed course work, have that accomplishment officially recognized on the ASU transcript at graduation if (1) the college and/or department of the minor officially certifies, through established verification procedures, that all requirements for the minor have been met and (2) the college (and, in certain colleges, the department) of the student's major allows the official recognition of the minor.

A student wishing to pursue a specific minor should consult an academic advisor in the unit offering that minor to ensure that an appropriate set of courses is taken. The student should also consult with an academic advisor in the college or department of his or her major to make sure the college or department of the major allows the recognition of the minor.

Note: Certain major and minor combinations may be deemed inappropriate either by the college or department of the major or minor. Inappropriate combinations include (but are not limited to) ones in which an excessive number of courses in the minor are simultaneously being used to fulfill requirements of the student's major.

CERTIFICATES

Students may pursue some certificate programs along with a major and other certificate programs independently. Graduate certificates and postbaccalaureate certificates are available to students who already hold a bachelor's degree. For more information, see the "ASU Undergraduate Certificates" table, page 129; "ASU Postbaccalaureate Certificates" table, page 131; and "ASU Graduate Certificates" table, page 131. Graduate certificates constitute graduate work; postbaccalaureate certificates are distinct from graduate certificates and are an extension of the undergraduate curriculum.

INTERDISCIPLINARY STUDIES

Bachelor of Interdisciplinary Studies. For information about the Bachelor of Interdisciplinary Studies, see "School of Interdisciplinary Studies," page 139, or "Interdisciplinary Studies—BIS," page 214.

Energy Studies. An opportunity for instructional and research involvement in energy matters exists through at least two curricular paths: (1) general studies, which emphasize energy as an elective beyond the scope of a chosen major (for more information, call the coordinator of interdisciplinary studies in energy, at 480/965-4548); and (2) specific studies in the College of Design, for those pursuing the Master of Architecture degree or the Master of Science degree in Building Design.

Environmental Studies. The Global Institute of Sustainability, established originally in 1974 as the Center for Environmental Studies, encourages and coordinates interdisciplinary environment-related activities in the natural and social sciences within the university. The institute sponsors special courses, conferences, and workshops on environmental topics. Drawing from faculty and students throughout the university, the center participates in research and community programs relating to environmental problem areas. It does not formally offer courses or a degree program. For more information, see "Global Institute of Sustainability," page 51.

Gerontology. The university-wide Gerontology Program brings together faculty from three campuses and several disciplines to teach courses related to adult development and aging, to collaborate on gerontological research, and to participate in projects of service to older adults. Courses related to aging are taught throughout the university by faculty who are active contributors to research, theory, and public policy and practice. For more information, see "Gerontology," page 686, call 602/543-6642, or access www.west.asu.edu/chs/grn on the Web.

A graduate certificate and an undergraduate minor are available in Gerontology. The certificate consists of 21 semester hours—nine hours of required course work and 12 hours of electives. The minor consists of 18 semester hours—six hours of required course work and 12 hours of electives. In addition, gerontology provides students with opportunities to gain practical experience in working with elderly people. The program helps students find rewarding internships in community programs for older adults.

BIS Concentration. A concentration in gerontology is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one

ASU Minors

Minor	Administered By	Campus	Page
African and African American Studies	African and African American Studies Program	Tempe	519
American Indian Studies	American Indian Studies Program	Tempe	523
American Studies	Department of Language, Cultures, and History	West	654
Anthropology	School of Human Evolution and Social Change	Tempe	569
Applied Biological Sciences	East College	Polytechnic	219
Applied Psychology	East College	Polytechnic	225
Architectural Studies	School of Architecture and Landscape Architecture	Tempe	322
Art History	School of Art	Tempe	444
Asian Languages (Chinese/Japanese)	Department of Languages and Literatures	Tempe	582
Astronomy	Department of Physics and Astronomy	Tempe	625
Biochemistry	Department of Chemistry and Biochemistry	Tempe	529
Biological Sciences	School of Life Sciences	Tempe	602
Business[1]	W. P. Carey School of Business	Tempe	289
Chemistry	Department of Chemistry and Biochemistry	Tempe	529
Chicana and Chicano Studies	Department of Chicana and Chicano Studies	Tempe	533
Communication	Hugh Downs School of Human Communication	Tempe	564
Communication Studies	Department of Communication Studies	West	654
Computational Mathematical Sciences	Department of Mathematics and Statistics	Tempe	615
Dance	Department of Dance	Tempe	466
Design Studies	College of Design	Tempe	327 332
Early Childhood Education	Division of Curriculum and Instruction	Tempe	363
Economics for Students Planning a Career in Law	Department of Economics	Tempe	536
English	Department of Language, Cultures, and History	West	654
English with a Concentration in Linguistics	Department of English	Tempe	538
English with a Concentration in Literature	Department of English	Tempe	538
Ethnic Studies	New College of Interdisciplinary Arts and Sciences	West	654
Family and Human Development	Department of Family and Human Development	Tempe	544
Film and Video Studies	Department of Interdisciplinary Arts and Performance	West	710
Food and Nutrition Management	Department of Nutrition	Polytechnic	242
French	Department of Languages and Literatures	Tempe	583
General Economics	Department of Economics	Tempe	535
Geography	Department of Geography	Tempe	549
Geological Sciences	Department of Geological Sciences	Tempe	554
German	Department of Languages and Literatures	Tempe	583
Gerontology[2]	Gerontology Program	West	654
History	Department of History Department of Language, Cultures, and History	Tempe West	558 654
Human Nutrition	Department of Nutrition	Polytechnic	242
Interdisciplinary Arts and Performance	Department of Interdisciplinary Arts and Performance	West	654
Interdisciplinary Organizational Studies	Department of Social and Behavioral Sciences	West	654
Interior Design History	Department of Interior Design	Tempe	332
Italian	Department of Languages and Literatures	Tempe	583
Justice Studies	School of Justice and Social Inquiry	Tempe	573

[1] This minor is for nonbusiness majors only.

[2] This university-wide minor is administered by West campus.

ASU Minors (continued)

Minor	Administered By	Campus	Page
Kinesiology	Department of Kinesiology	Tempe	578
Landscape Studies	School of Architecture and Landscape Architecture	Tempe	322
Life Sciences	Department of Integrated Natural Sciences	West	654
Mass Communication	Walter Cronkite School of Journalism and Mass Communication	Tempe	493
Mathematics	Department of Integrative Studies Department of Mathematics and Statistics	West Tempe	654 615
Music	School of Music	Tempe	478
Philosophy	Department of Integrative Studies Department of Philosophy	West Tempe	654 622
Physics	Department of Physics and Astronomy	Tempe	625
Political Science	Department of Political Science Department of Social and Behavioral Sciences	Tempe West	630 654
Prelaw	College of Human Services	West	654
Psychology	Department of Psychology Department of Social and Behavioral Sciences	Tempe West	636 654
Public Relations and Strategic Communications	Department of Communication Studies	West	654
Recreation Management	Department of Recreation and Tourism Management School of Community Resources and Development	West Downtown	689 190
Religious Studies	Department of Religious Studies New College of Interdisciplinary Arts and Sciences	Tempe West	639 654
Russian	Department of Languages and Literatures	Tempe	583
Small Business	East College	Polytechnic	226
Social and Behavioral Sciences	Department of Social and Behavioral Sciences	West	654
Social Welfare	School of Social Work	Downtown	196
Sociocultural Anthropology	Department of Social and Behavioral Sciences	West	654
Sociology	Department of Social and Behavioral Sciences Department of Sociology	West Tempe	654 643
Spanish	Department of Language, Cultures, and History Department of Languages and Literatures	West Tempe	654 583
Special Events Management	Department of Recreation and Tourism Management	West	654
Speech and Hearing Science	Department of Speech and Hearing Science	Tempe	646
Statistics	Department of Mathematics and Statistics	Tempe	615
Theatre	School of Theatre and Film	Tempe	486
Tourism	School of Community Resources and Development	Downtown	190
Tourism Management	Department of Recreation and Tourism Management	West	654
Urban Planning	School of Planning	Tempe	337
Wellness Foundations	Department of Exercise and Wellness	Polytechnic	234
Women and Gender Studies	Women and Gender Studies Program	Tempe	649
Women's Studies	Women's Studies Program	West	654
Youth Services Leadership	Department of Recreation and Tourism Management	West	690

[1] This minor is for nonbusiness majors only.

[2] This university-wide minor is administered by West campus.

ASU Undergraduate Certificates

Certificate	Administered By	Campus	Page
Accelerated Financial Planner[1]	School of Extended Education	—	136
African and African American Studies Certificate	African and African American Studies Program	Tempe	519
American Indian Studies Certificate	American Indian Studies Program	Tempe	523
Asian Pacific American Studies Certificate	Asian Pacific American Studies Program	Tempe	524
Asian Studies Certificate	Center for Asian Studies	Tempe	509
ASU Skill Certificate	School of Extended Education	—	136
Automotive Entrepreneurs and Leaders, Certificate for[2]	W. P. Carey School of Business	Tempe	294
Business English Certificate[1]	School of Extended Education	—	136
Certified Management Accountant[1]	School of Extended Education	—	137
Civic Education Certificate	Department of Political Science	Tempe	629
Classical Studies Certificate	Department of Languages and Literatures	Tempe	509
College of Liberal Arts and Sciences Enriched Certificate	College of Liberal Arts and Sciences	Tempe	509
Early Intervention Certificate	Department of Family and Human Development and School of Social Work	Tempe	196
East Asian Studies Certificate	Center for Asian Studies	Tempe	509
Ethics Certificate	Department of Philosophy	Tempe	622
Ethnic Studies, Certificate in	New College of Interdisciplinary Arts and Sciences	West	698
Film and Video Studies, Certificate in	Department of Interdisciplinary Arts and Performance	West	711
Fire Service Management Certificate[3]	Department of Technology Management	Polytechnic	267
Geographic Information Science Certificate	Department of Geography	Tempe	511
Hazardous Materials and Waste Management Certificate	Department of Information and Management Technology	Polytechnic	265
Healthcare Organizations and Society, Certificate in	School of Life Sciences and the W. P. Carey School of Business	Tempe	511 295
History and Philosophy of Science Certificate	School of Life Sciences	Tempe	512
International Business Studies, Certificate in	W. P. Carey School of Business	Tempe	299
International Studies Certificate	Department of Political Science	Tempe	630
Islamic Studies Certificate	Department of Religious Studies	Tempe	512
Jewish Studies Certificate	Jewish Studies Committee	Tempe	512
Latin American Studies Certificate	Latin American Studies Center	Tempe	512
Leadership and Ethics	School of Public Affairs	Downtown	192
Lesbian, Gay, Bisexual, and Transgender Studies	College of Public Programs	Downtown	187
Medieval and Renaissance Studies Certificate	Arizona Center for Medieval and Renaissance Studies	Tempe	513
Multimedia Writing and Technical Communication Certificate	East College	Polytechnic	239
Nonprofit Youth and Human Service Leadership and Management: American Humanics Certificate	School of Community Resources and Development	Downtown	190
Public Administration and Public Management Certificate	School of Public Affairs	Downtown	192
Quality Analysis Certificate	W. P. Carey School of Business	Tempe	294
Russian and East European Studies Certificate	Russian and East European Studies Center	Tempe	513
Scandinavian Studies Certificate	Department of Languages and Literatures	Tempe	513

[1] This certificate is not for academic credit.

[2] This certificate is only for students in the W. P. Carey School of Business.

[3] This program is also offered through the School of Extended Education.

ASU Undergraduate Certificates (continued)

Certificate	Administered By	Campus	Page
Small Business and Entrepreneurship Certificate[2]	W. P. Carey School of Business	Tempe	294
Southeast Asian Studies Certificate	Program for Southeast Asian Studies	Tempe	514
Spa Management	Department of Exercise and Wellness	Polytechnic	235
Supervisory and Management Skills Certificate[1]	School of Extended Education	—	137
Symbolic Systems, Certificate in	Department of Philosophy	Tempe	514
Technology Entrepreneurship	Ira A. Fulton School of Engineering	Tempe	378
Translation Certificate	Department of Languages and Literatures	Tempe	583
Women and Gender Studies, Certificate in	Women and Gender Studies Program	Tempe	649
Women's Studies, Certificate in	Women's Studies Program	West	655
Writing, Certificate in	Department of Language, Cultures, and History Department of English	West Tempe	655 538

[1] This certificate is not for academic credit.

[2] This certificate is only for students in the W. P. Carey School of Business.

[3] This program is also offered through the School of Extended Education.

double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

MILITARY OFFICER TRAINING

U.S. Air Force and U.S. Army ROTC units are active on the ASU campus. See "Department of Aerospace Studies," page 515, and "Department of Military Science," page 620, for more information.

Defense Activity for Nontraditional Education Support. ASU is a participating institution with Defense Activity for Nontraditional Education Support (DANTES) and is listed in the DANTES Directory of Independent Study. DANTES is an executive agency of the Department of Defense that provides educational support for the voluntary education programs of all services. The primary missions of DANTES are (1) to provide nationally recognized examination and certification programs as part of the voluntary education programs of the military services and (2) to facilitate the accessibility of high-quality independent institutions to service men and women.

WESTERN INTERSTATE COMMISSION FOR HIGHER EDUCATION

Professional Student Exchange Program. Arizona residents who wish to attend professional schools of dentistry, occupational therapy, optometry, osteopathy, physician assistance, and veterinary medicine may enroll in professional programs in other states or at in-state private institutions since these programs are not available at Arizona's public universities. Through the exchange, the student receives preference in admission and pays only the resident tuition fee at a public institution, or the difference between the Western Interstate Commission for Higher Education (WICHE) support fee and standard tuition at a private school. Applicants must be legal residents of Arizona for a minimum of five years before the commencement of training, and be U.S. citizens, and must have maintained at least average grades to be eligible to be certified for support through the WICHE program. Recipients are required to practice in Arizona one year for each year of support or repay 50 percent of the funds expended on their behalf plus interest.

For an application and more information, call the Arizona Board of Regents at 602/229-2500, or access the WICHE Web site at www.wiche.edu.

Western Undergraduate Exchange. Arizona residents may enroll in designated two-year and four-year public institutions and programs in other participating states at a reduced tuition level. Tuition for Western Undergraduate Exchange (WUE) studies is the regular in-state tuition plus 50 percent of that amount.

In all programs, the cost to WUE students is substantially less than nonresident tuition. Students do not need to demonstrate financial need to receive the WUE tuition benefit. WUE participating states are Alaska, Arizona, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming.

Check the WICHE Web site at www.wiche.edu for a list of participating institutions and programs.

Concurrent and Dual Degrees. Graduate students have the opportunity to pursue more than one degree at the same time as part of an organized program. For more information, see the "Concurrent and Dual Degrees" table, page 169, and the *Graduate Catalog*.

ASU Postbaccalaureate Certificates

Certificate	Administered By	Campus	Page
Accountancy, Postbaccalaureate Certificate in	Department of Accounting	West	655
Communication and Human Relations, Postbaccalaureate Certificate in	Department of Communication Studies	West	655
Multimedia Writing and Technical Communication, Postbaccalaureate Certificate in*	East College	Polytechnic	239
Professional Accountancy, Postbaccalaureate Certificate in	Department of Accounting	West	655

* This program is also offered through the School of Extended Education.

ASU Graduate Certificates

Certificate	Administered By	Campus	Page
African and African Diaspora Studies, Graduate Certificate in[1]	African and African American Studies Program	Tempe	—
Asian Studies, Graduate Certificate in[1, 2]	Center for Asian Studies	Tempe	—
Atmospheric Science, Graduate Certificate in[1]	College of Liberal Arts and Sciences and Ira A. Fulton School of Engineering	Tempe	—
Epidemiology and Biostatistics, Graduate Certificate in[1]	School of Health Management and Policy	Tempe	—
Evidence-Based Practice in Nursing and Healthcare, Graduate Certificate in	College of Nursing	Downtown	178
Geographic Information Science, Interdisciplinary Certificate in[1]	College of Liberal Arts and Sciences and the Division of Graduate Studies	Tempe	—
Gerontology, Certificate in[2, 3]	Gerontology Program	West	686
Health Industry Leadership Graduate Certificate[1]	W. P. Carey School of Business	Tempe	—
Indian Law Certificate[1]	College of Law	Tempe	—
Institutional Research, Graduate Certificate in[1, 4]	College of Education	Tempe	—
Law, Science, and Technology, Certificate in[1]	College of Law	Tempe	—
Linguistics, Graduate Certificate in[1]	Committee on Linguistics	Tempe	—
Medieval Studies Certificate[1]	Arizona Center for Medieval and Renaissance Studies (ACMRS)	Tempe	—
Museum Studies Certificate[1]	School of Human Evolution and Social Change	Tempe	—
Nonprofit Leadership and Management Certificate	College of Public Programs	Downtown	187
Nurse Education in Academic and Practice Settings, Graduate Certificate in	College of Nursing	Downtown	178
Post-Bachelor's Artist Diploma[1]	School of Music	Tempe	—
Public Art, Graduate Certificate in[1]	Katherine K. Herberger College of Fine Arts	Tempe	—
Renaissance Studies Certificate[1]	ACMRS	Tempe	—
Scholarly Publishing Certificate[1]	Department of History	Tempe	—
Statistics, Certificate in[1]	Committee on Statistics and the Division of Graduate Studies	Tempe	—
Transportation Systems, Interdisciplinary Graduate Certificate in[2]	Committee on the Interdisciplinary Graduate Certificate in Transportation Systems and the Division of Graduate Studies	Tempe	162

[1] For more information, see the *Graduate Catalog*.

[2] This program is also offered through the School of Extended Education.

[3] This university-wide certificate program is administered by the West campus.

[4] Applications for this program are not being accepted at this time.

University College

uc.asu.edu **Gail Hackett, PhD, Vice Provost and Dean**

OVERVIEW

University College is a university-wide enterprise committed to innovative, rigorous scholarship. The college offers each student the opportunity for success through integrated advising services, interdisciplinary studies, extended education, academic achievement programs, community engagement, and student-centered delivery models.

The college provides an exceptional education for students who are exploring and expanding their academic and career options. Individualized assistance, educational flexibility, and access to higher education are core values, and the graduates of the college are innovative, intellectually agile, and prepared to respond to the needs of a rapidly changing world.

University College is designed to respond to the needs of students throughout ASU. Initiatives that encourage discovery, inclusion, and engagement are found on each campus and beyond the physical boundaries of ASU. Programs on the Tempe campus focus on advising for exploratory students, the Bachelor of Interdisciplinary Studies degree program, and academic success and engagement programs. On the Polytechnic and West campuses, University College offers advising for exploratory students and academic success programs. The Downtown Phoenix campus is the administrative home of University College and, at this location, the college offers a wide range of courses across many disciplines, incubates new degree programs, develops and manages integrated student services, and advises students who want to explore majors and career paths. Through the School of Extended Education, all students are provided access to continuing education and high-quality degree completion opportunities.

ACADEMIC SUCCESS AND ENGAGEMENT PROGRAMS

The mission of the Academic Success and Engagement Programs (ASEP) is to provide all ASU students avenues for increasing their level of academic performance and to enrich their university experience. Through its two components of Academic Success Programs and Academic Community Engagement Services, ASEP provides academic support and tutoring, numerous opportunities for community building, and various venues for experiential learning.

Academic Community Engagement Services

Academic Community Engagement Services (ACES) supports community-based learning activities appropriate for and beneficial to any ASU student and provides opportunities specifically for service learning and work-study eligible students. ACES programs offer an avenue for ASU students to enrich their education as they positively impact Phoenix-area communities. For more information, call 480/727-6382.

Service Learning Program. Students who enroll in the Service Learning Program credit-bearing internships participate in academically based service activities that

1. integrate and enhance academic curriculum and community experiences;
2. meet community-identified needs;
3. foster civic responsibility;
4. support reciprocal learning; and
5. include structured reflection time.

The Service Learning Program and associated departments offer all ASU students the opportunity to develop a sense of shared mission and community with their classmates as they provide educational support and enrichment to diverse groups of Phoenix-area children and adults in structured, supervised environments. These service internships can be "linked" to many different discipline areas. Most service learning students provide after-school tutoring or lead children in hands-on science and math activities. Footnote 34 denotes service learning sections in the *Schedule of Classes*.

America Reads and America Counts. Through the America Reads program, Federal Work-Study students are paid to work one-on-one with academically at-risk children in the community. The term *at-risk* describes children in grades 1 through 9 who live in low-income areas and are likely later to drop out of high school. The goal of the America Reads

tutoring program is to increase each child's literacy skills to grade level. In the after-school programs, tutors assist children with homework as well as create fun, hands-on activities to exercise academic skills. Tutors also assist preschool children in developing early literacy skills.

Through the America Counts program, Federal Work-Study students are paid to work with academically at-risk children (grades 1 through 3) in the community to increase math scores and comprehension. In these after-school programs, tutors assist children with homework and create hands-on activities to teach math concepts in fun ways.

Academic Success Programs

The Academic Success Programs are designed to help students succeed and excel in their course work and to assist them in developing the skills that will lead to their graduation from ASU.

Campus Match. Campus Match is a first-semester fall program that gives freshmen the opportunity to attend classes in small learning communities according to their academic interests. Students choose a cluster of classes from a wide variety of offerings. Each cluster is limited to 19 students who enroll in and attend classes together. All students attend a weekly seminar that facilitates their social and academic adjustment to the university.

Academic Success at the University Courses. The purpose of the UNI courses is to assist first-year, transfer, and reentry students in making a successful transition to the university. In these courses, students learn about university resources, policies and procedures, study skills, values and goal setting, human diversity, academic and career planning, and other skills.

UNI 100 is a comprehensive student success course designed to assist in the development of effective academic strategies and to promote an understanding of human diversity, values, and perspectives as they relate to overall student success at ASU. The course creates opportunities for students to understand themselves and others and become a successful part of the campus community.

ACADEMIC SUCCESS AT THE UNIVERSITY (UNI)

For more UNI courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

D UNI 100 Academic Success at the University. (3)
fall, spring, summer
Orientation to campus resources, study skills, and other academic and social issues for college students. Introduces an understanding of human diversity, values, and perspectives as they relate to student success. Lecture, seminar, discussion. Prerequisite: freshman or sophomore or transfer student.

D UNI 101 Student Success Seminar. (1)
fall and summer
Understanding human diversity, perspectives, and values as they relate to student success. Orientation to ASU resources, study skills, and academic and social issues for students. Seminar, discussion.

D UNI 402 Service Learning. (3)
fall and spring
K–12 tutoring and mentoring internship related to academic course work in multiple discipline areas. Requires weekly reflective reading and writing. May be repeated for credit. Internship. Fee.
General Studies: C

D UNI 484 Internship. (1–12)
fall, spring, summer
Topics may include the following:
- Service Learning Internship. (1–3)

1st–8th grade mentoring and academic enrichment related to academic course work in various discipline areas. Science Demos section involves presenting science demonstrations to 1st–8th grade children at their schools. No specialized knowledge required. Training provided. May be repeated for credit. Internship. Fee.

D UNI 494 Special Topics. (1–4)
fall and spring
Students chosen from among former Service Learning Program interns serve in leadership positions in various academic Community Engagement Services programs. May be repeated for credit. Internship.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Summer Bridge. Summer Bridge is a program designed to assist first-semester freshmen in making the transition from high school to university life. Summer Bridge is a five-week program that provides a full academic curriculum in conjunction with a rich student development experience. The program assists participants in acclimating to campus, accessing student support programs and services, and enhancing classroom and personal skills.

Writing Across the Curriculum. Writing Across the Curriculum (WAC) is designed to enhance the quality of writing and critical thinking skills of university students. WAC specialists consult with faculty on methods of developing and integrating writing assignments into course content. The specialists also provide customized, in-class writing workshops designed to assist students in researching and responding to writing assignments.

Writing Center. The Writing Center provides students with one-on-one and group tutoring in writing skills. Rather than proofreading or editing students' writing, the Writing Center teaches students the skills they need to improve their writing processes and products.

UNIVERSITY COLLEGE CENTER FOR ACADEMIC ADVISING

The mission of the University College Center for Academic Advising is to promote student development and success by helping students identify, clarify, and achieve their academic goals. Through individualized professional advising and teaching practices, University College academic advisors challenge and support students in their process of becoming self-directed, life-long learners.

The center provides advising for a diverse group of students, with a primary focus on all exploratory/undeclared students, and students who may be changing majors or transferring to ASU.

Academic advising is a partnership between the student and the advisor. Each has a mutual investment in the advis-

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

University College Center for Academic Advising

Campus	Location	Telephone	Fax	Web Address
Downtown Phoenix	TBD	TBD	TBD	uc.asu.edu/advising
Polytechnic	CNTR Lower Level	480/727-1452	480/727-1714	www.poly.asu.edu/learningcenter
Tempe	UASB 129	480/965-4464	480/727-6156	uc.asu.edu/advising
Transfer Center and Alliance Advising	UASB 129	480/965-4464	480/727-6156	uc.asu.edu/advising
West	UCB 201	602/543-9222	602/543-4221	www.west.asu.edu/uc/advising.htm

ing and its outcome. Good academic advising is the foundation for successfully completing a bachelor's degree.

Academic advisors assist students in selecting a major by suggesting complementary choices among the offerings in the ASU General Studies curriculum. Advisors also encourage students to explore and identify majors consistent with the students' interests, values, and goals. Advisors help students understand university academic requirements, and policies and procedures.

See the "University College Center for Academic Advising" table, on this page.

ACADEMIC GOOD STANDING

For purposes of retention, academic good standing for exploratory/undeclared majors is defined in the "Academic Good Standing" table below.

Academic Good Standing

Total Hours Earned	Minimum Cumulative GPA
24 or fewer	1.60
25–55	1.75
56 or more	2.00

A student who does not maintain the minimum GPA standard after each fall or spring semester is placed on academic probation. A student placed on academic probation or continuing probation must meet with an academic advisor before registration for the subsequent semester. A student placed on academic probation has one semester to raise his or her cumulative or semester GPA to meet the academic good standing criteria; otherwise, the student is disqualified. A student who has been disqualified is not permitted to enroll for the fall or spring semester.

Students who wish to choose exploratory/undeclared major status must be in good academic standing as defined above. Students may remain designated as exploratory/undeclared major status until they complete 87 semester hours. Students who have not declared a major by the time they have completed 87 semester hours are placed on hold, which prevents registration for future ASU semesters, until the student has declared a major.

School of Extended Education

www.asu.edu/xed.htm
480/965-3986
ASUDC C319

Patricia A. Feldman, PhD, Interim Executive Director

The need for higher education is growing every day, and yet balancing work, family, and learning can be challenging. To help students fit higher education into their busy schedules, the School of Extended Education provides flexible scheduling, innovative technologies, and a vast network of off-campus sites. Programming includes credit classes, degree programs, certificates, and continuing education.

For more information, access the Web site at www.asu.edu/xed, or call 480/965-3986.

Credits, Tuitions, and Fees

Academic credits earned off-campus are equivalent in all considerations to those credits earned on-campus, and the credits are recorded on students' permanent records. Courses are published each fall and spring semester in the ASU *Schedule of Classes* and on the Web at www.asu.edu/xed and asuonline.asu.edu.

Tuition and fees for off-campus credit courses are the same as those offered on a campus. (See resident and nonresident rates in the latest *Schedule of Classes*.) Before the 21st calendar day of the each semester, any combination of on-campus and off-campus resident credit courses resulting in a combined registration of seven or more semester hours requires that the student pay full-time tuition. Off-campus credit courses and programs that commence on or after the 21st calendar day of each semester require full-time and part-time students to pay tuition separate from (but in addition to) those courses starting before the 21st calendar day of the semester.

As a convenience to students, courses are conducted off campus in locations throughout the state, on campus in the evening, via the Internet and television, and during Winter Session. Academic credits earned off campus are equivalent in all considerations with credits earned on campus, and the credits are recorded on students' permanent records. Courses are published each fall and spring semester in the

ASU *Schedule of Classes* and on the Web at www.asu.edu/xed and asuonline.asu.edu.

For more information, access the Web site at www.asu.edu/xed, or call 480/965-3986.

Evening Classes

Evening study is perfect for students with busy schedules. The School of Extended Education offers several program options.

Evening classes in English as a second language are offered at night at the Tempe campus. For details, see "English as a Second Language," page 137.

The Undergraduate Evening Degree Completion Programs are designed for the working student seeking a bachelor's degree. Students enrolled in these programs typically have completed 60 lower-division semester hours. For more information about these credit programs, see an advisor.

The Bachelor of Interdisciplinary Studies is offered at the Downtown Center at ASU. Students may earn their entire degree in downtown Phoenix. For more information, see an advisor.

The W. P. Carey MBA Evening Program offers working professionals a solid managerial degree at two locations: the Downtown Center and at the Tempe campus. For more information, see an advisor.

The Master of Public Administration offers several interdisciplinary courses during the evening at various locations, and the full program is available at the Downtown Center. For more information, see an advisor.

Weekend Courses

Each semester, ASU offers weekend courses that often are in a compressed format and involve meeting for several hours on select weekends. Some course work may be required outside of the regular course sessions. For a list of current courses, refer to the searchable online course schedule at www.asu.edu/xed. A student wishing to enroll in a weekend course should contact the appropriate department for details, including specific dates and requirements.

Winter Session

This is an intensive, condensed session offered between the fall and spring semesters. Students may enroll in one course and earn up to three semester hours of credit, which are recorded on fall transcripts. Courses are offered at the Tempe campus. Registration begins October 1 and courses start in late December. The School of Extended Education schedules the Winter Session courses in collaboration with the university's academic departments.

For more information, call 480/727-9900.

DISTANCE LEARNING

ASU offers more than 200 courses each semester through the Internet and television. Distance learning students complete the course work and exams for the same academic credit as students on campuses. However, they experience the added value and flexibility of earning credit at home or work. Distance learning students keep in touch with instructors and classmates through teleconferencing, e-mail, and discussion boards.

Internet

Online courses offer students a great deal of scheduling flexibility. Various university departments offer Internet classes. Through the Web, students can access lectures, participate in class assignments, interact with the instructor, collaborate with other students, and earn ASU credit at convenient times and locations. A computer, Internet access, e-mail, and a Web browser are necessary to participate in Web-based courses; however, specific equipment and software requirements may vary by course. Students register for Internet courses through the normal university admissions and registration process.

For more information, visit ASUonline, the university's gateway to the "online campus," at asuonline.asu.edu. Interested individuals may also write to distance@asu.edu, or call 480/965-9797.

Television

Televised courses make it possible for students to earn course credits by viewing class sessions and completing work assignments at home or work. Courses are available throughout the Phoenix area via public and cable television providers. Televised courses are also available in university residence halls at the Polytechnic and Tempe campuses. Most televised courses are available for viewing through University Libraries. Televised courses are listed each fall and spring in the ASU *Schedule of Classes* and online at asutv.asu.edu.

For more information about televised courses, send e-mail to asutv@asu.edu, or call 480/965-6738.

Public Sites. Certain sites provide the public with access to interactive television courses. Students can participate in most televised courses at locations such as the Downtown Center, the Polytechnic and West campuses, Cactus Shadows High School, and the Gila River Indian Community.

OFF-CAMPUS LOCATIONS

ASU classes are held at more than 200 off-campus sites throughout metropolitan Phoenix, the state, and beyond. Many neighborhood sites, such as community colleges, schools, churches, and businesses, serve as hosts to university courses. In addition, various technologies are used to deliver degree programs and credit courses to the workplace and home.

The anchor off-campus site is the Downtown Center, located in downtown Phoenix. The center is the educational hub for downtown workers, organizations, and residents, and serves as a meeting site for conferences and seminars.

For more information about off-campus sites, call 480/965-9797. For information about Internet, televised, and independent learning courses, call 480/965-6738.

DEGREE PROGRAMS

The School of Extended Education works in partnership with the colleges and schools of ASU to deliver a number of degrees and certificates. These programs are available to all

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

ASU Certificates Offered Through or by the School of Extended Education

Certificate Program	Administered By
Accelerated Financial Planner*	School of Extended Education
ASU Skill Certification*	School of Extended Education
Business English Certificate*	School of Extended Education
Certified Management Accountant*	School of Extended Education
Evidence-Based Practice in Nursing and Healthcare, Graduate Certificate in	College of Nursing
Fire Service Management, Certificate in	Department of Technology Management
Nurse Education in Academic and Practice Settings, Graduate Certificate in	College of Nursing
Supervisory and Management Skills Certificate*	School of Extended Education

* This certificate is not for academic credit.

students, and are particularly desirable to students who are unable to attend classes during regular school hours or at one of the four ASU campuses.

CERTIFICATES

Undergraduate Certificates

All certificates offered by the School of Extended Education or in collaboration with the other ASU colleges are shown in the "ASU Certificates Offered Through or by the School of Extended Education" table, on this page.

Fire Service Management Certificate. This online certificate program provides a robust educational experience that builds critical thinking, management, leadership, and communication skills.

The Fire Service Management Certificate is a one-year cohort-based program consisting of 18 semester hours of upper-division credit that can be transferred to an associate or bachelor degree. The program's core requirements focus on management, organization, professional communication, statistics, and computer competency.

Program faculty include highly respected fire service professionals and academics who have the appropriate credentials to teach at a Research Extensive university.

For complete program details, access the Web site at www.poly.asu.edu/ctas/imt/fire, or call 480/727-1321.

Graduate Certificates

Evidence-Based Practice in Nursing and Healthcare. This certificate program is designed to prepare nurse clinicians and educators as experts in evidence-based practice (EBP) as system-wide change agents for the advancement and sustainability of EBP. This 17-semester-hour, 12-month program is user-friendly and constructed in a distance-learning, online format to facilitate involvement of the participants, regardless of where they live. Admission is once per year in January, and the program is designed to provide a cohort experience.

For more information, call 480/965-3244.

Nurse Education in Academic and Practice Settings. This certificate program is designed to meet the growing challenges of a shortage of qualified nursing educators. Graduates will use theories of teaching and learning in academic and practice settings, with emphasis on nursing education.

For more information, call 480/727-6930, or access the program's Web site at www.nursing.asu.edu/ned.

Professional Development Certificates

All certificates offered by or in collaboration with the School of Extended Education are shown in the "ASU Certificates Offered Through or by the School of Extended Education" table, on this page.

Certificate programs provide opportunities to those seeking to advance their careers, begin a new career, reenter the workplace, or develop new knowledge. Certificates are a practical choice for career development; in addition, employers recognize them as evidence of professional skill or accomplishment. Some programs may offer academic credit and others may offer continuing education units through professional associations.

Accelerated Financial Planning Program. The Accelerated Financial Planning Program is designed to impart the education necessary to prepare students for the Certified Financial Planner (CFP) certification examination and to prepare them for a successful career in financial planning. This program consists of six courses and is specifically designed as an alternative distribution channel for financial services professionals seeking to attain the CFP designation in an accelerated format of seven to eight months.

For more information, call 480/965-9200.

ASU Skill Certification. Test skill levels online for dozens of job roles with targeted learning recommendations from ASU. Certification offers the potential for individuals to earn multiple job skill certifications online. Businesses may also utilize ASU Skill Certification to improve the skills of existing and potential employees.

For more information, call 480/965-9200.

Business English. This certificate program is designed to help professionals who speak English as a second language to succeed in business. It offers courses that use reading, writing, and discussion and presentation exercises designed to offer practical knowledge and confidence in American and international business practices. Once students successfully complete certificate courses, they earn a business

English certificate. Most classes are ongoing and meet three hours a week for eight weeks.

For more information, call 480/965-2376, or access the Web site at www.asu.edu/xed.

Certified Management Accountant. This program consists of three 24-hour courses and one 12-hour course, and is designed to prepare students for the Certified Management Accountant (CMA) examination. The CMA designation provides corporate management and individual members with an objective measure of knowledge and competence in the field of management accounting. The CMA is an invaluable credential for professional advancement and for broadening professional skills and perspective.

For more information, call 480/965-9200.

Supervisory and Management Skills. The Supervisory and Management Skills Certificate provides skill competency–based learning that is designed to develop the qualities of first-time and experienced supervisors and managers. This program is fully customizeable and can be delivered live, online, or in a hybrid format.

For more information, call 480/965-9200.

PROFESSIONAL AND PERSONAL DEVELOPMENT

Ongoing continuing education programs address current issues and trends and are intended to increase competence in the topics. These programs are offered throughout the metropolitan Phoenix area.

English as a Second Language

This program offers specially designed intensive English language programs for international students and local residents who wish to improve their English proficiency. The TOEFL is not required for ASU graduate or undergraduate admission if international students successfully complete this program.

The intensive noncredit course of study is designed to help students become proficient in English as a second language. Beginning, intermediate, and advanced courses, divided into six language levels, provide instruction in listening, speaking, reading, and writing. Language-related computer skills, academic advising, and orientation to ASU, Arizona, and the United States are also integral elements of the program.

Most of the classes are offered during the day, but several evening classes also are available; these include American pronunciation, accent reduction, guided conversation, and business writing.

Some courses are offered that are specifically targeted to business professionals who speak English as a second language. These courses may lead to a certificate.

The fall and spring semesters are divided into two eight-week cycles. Students may enroll for one or more cycles. An eight-week summer session also is offered. Four-week sessions are also offered throughout the year.

While in the program, students have access to master's-level teachers, a student advisor, social and cultural activities, campus clubs, recreation facilities, credit classes, a graduate program, TOEFL and TOEIC testing, e-mail and the Internet, ASU facilities, and university housing and meals. Admission to the program does not constitute admission to ASU. Advanced-level students may be permitted to enroll concurrently in up to two ASU credit classes with the approval of the director. Several special classes are offered through the program: business English, pronunciation, conversation, TOEFL and TOEIC preparation, grammar, and idioms.

For more information, call 480/965-2376, or access the Web site at www.asu.edu/esl.

Hispanic Leadership Institute

This institute's goal is to promote the participation of Hispanics in leadership roles. It serves as a resource for expertise and advocacy on leadership issues affecting the Latino community. It is a 17-week program with evening sessions once a week. The program format is a combination of lectures, panel discussions, and individual and group discussions. Leadership topics include cultural identity, communication skills, activism, ethics, diversity and multicultural issues, resource development, research and development, and public administration and policy.

To apply or request more information, access the Web site at www.asu.edu/xed/hli, or call 480/965-9200.

Income Tax Practitioners' Workshop

Each January, the School of Extended Education offers a two-day workshop for tax preparers, CPAs, and other income tax professionals. These professionals learn the latest information about federal tax legislation and new tax provisions, tax credits, capital gains, and technology changes that affect business and profitability. Participants also may be eligible for 15 CPE hours from the Arizona Board of Accountancy. This program is presented by the three state universities in cooperation with the U.S. Internal Revenue Service and the Arizona Department of Revenue.

For more information, call 480/965-9200, or access the Web site at www.asu.edu/xed/tax.

Real Estate Continuing Education

Arizona real estate agents and brokers, even in the most rural communities of the state, can obtain the 24 hours of continuing education credits they need for license renewal through a series of Web-based, continuing education courses. Courses are offered in the following categories: commissioner's standards, contract law, agency law, fair housing, real estate legal issues, and disclosure.

For more information and to register online, access the Web site at www.asu.edu/xed/renewal.

Wealth Management

This program is a series of six evening classes that help personal investors manage their investments like a business. The program offers a comprehensive study of the major advancements and practical application in portfolio theory and provides proven strategies in issues such as asset allocation, risk management, international markets, taxation, estate planning, and performance measurement. Classes are held throughout the valley and at other locations in the state.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

For more information, call 480/965-9200, or access the Web site at www.asu.edu/xed/wealth.

LECTURES

A variety of special programs of academic and cultural interest as well as personal enrichment are provided to the general community. These lectures cover an array of topics and are offered in central Phoenix at the Downtown Center.

For more information about these programs, access the Web site at www.asu.edu/xed/lectures, or call 480/965-3046.

ASU Community Fellows Lecture Program

This program, offered each spring, is a catalyst in fostering partnerships among neighborhood, university, and business interests seeking to improve the quality of life valleywide. It also facilitates mutual learning experiences.

Brown Bag Lunch Lectures

These lectures feature topics of interest to the general public and cover areas such as fine arts, urban issues, history, and culture. While many are stand-alone lectures, some are part of a series of topics in a particular interest area. Examples of topics include Analyze This…, Matters of the Mind, Health Matters, Here's to Your Job, Hispanic Heritage Month, Native American Recognition Month, Meet the Authors, Out to Lunch and Into the Arts, Substance Abuse Awareness, and You and Your Money.

Downtown and Gown

These lectures are designed to give central Phoenix residents and the business community a greater awareness of the rich array of talent and resources available at the university. ASU faculty and deans from each of the campuses present the lectures each fall and spring semester.

John F. Roatch Global Lectures in Social Policy and Practice

This lecture series is an annual event that brings an internationally known scholar to Arizona to lecture on a topic of global reach and social significance to the community. The John F. and Mary Roatch Endowment supports the lectures and occasionally sponsors additional events. A publication of each lecture is disseminated by the School of Extended Education and is deposited at University Libraries.

Linda Haskell Memorial Master Class on Current Social Events

This annual event invites an internationally known expert to lead an interactive forum to discuss current topics of concern to human services practitioners in Arizona.

Urban Issues Lecture Series

These lectures encourage discussions of national public policy and its impact on local policy and economic development. The series is offered in partnership with the Phoenix Community Alliance, the ASU College of Public Programs, and the Morrison Institute for Public Policy.

ASU AT THE DOWNTOWN CENTER

The center is an educational, applied research, and community service facility in downtown Phoenix. It is host to traditional and interdisciplinary undergraduate and graduate credit classes, professional and continuing education programs, and lectures and community forums. It is an educational hub for downtown workers, organizations, and residents, and serves as a meeting site for conferences and seminars.

Each classroom is equipped with a sound and video projection system, Ethernet connections, and the ability to receive satellite downlinks. Three rooms are equipped with receiving sites to interact with instructors during televised class sessions. ASU students, faculty, and staff may take advantage of wireless networks, two state-of-the-art computer labs, and Web stations throughout the facility. A lab assistant is available during posted hours. Students, faculty, and staff may also access the ASU University Libraries' online catalog, information, and resources. Students may order and return library books and order copied materials. Textbooks for all courses held at the center are available during the first week of classes each semester.

The center provides attractive accommodations for meetings and conferences. Room rentals may include advice in logistics planning, professional equipment, technical support (including two computer classrooms), and food and beverage service. Break-out areas are conveniently located throughout the facility. Rooms are also available to non-ASU organizations, in accordance with university policies and procedures.

The center's art gallery, the Galleria, features works by ASU faculty, staff, students, and local artists. Exhibits rotate monthly. The Galleria participates in monthly and annual art tours, including First Friday and Art Detour, sponsored by ArtLink, a local artists' group.

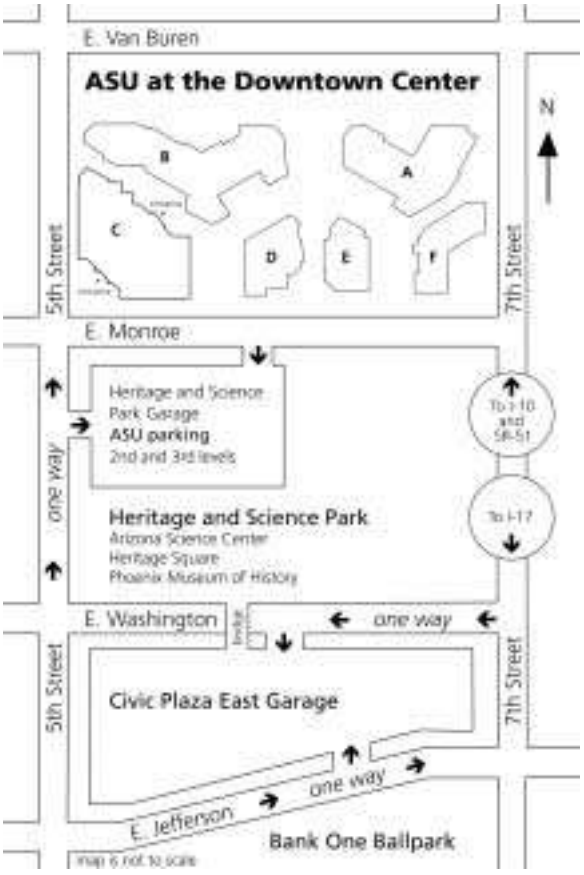
Convenient parking is available in the Heritage and Science Park garage on the corner of Fifth and Monroe Streets.

For more information about the programs and services provided at the center, call 480/965-3046, or write

ASU AT THE DOWNTOWN CENTER
502 E MONROE ST
PHOENIX AZ 85004-4442

Several ASU programs and partnerships are located at the center, including several University College administrative offices:

1. *Advanced Public Executive Program*, providing quality professional development and interventions tailored to the specific needs of public organizations;
2. *Arizona Prevention Resource Center*, a statewide resource on best practices for prevention providing assistance, training, grant writing, and evaluation services;



3. *Building Great Communities,* a liaison to targeted communities throughout the state, creating alliances to improve the quality of life in Arizona, addressing specific issues through long- and short-term projects;
4. *Center for the Future of Arizona*, working with civic and political leaders to develop a statewide agenda to expand educational opportunities, encourage strategic investments, and achieve a sustainable quality of life for residents;
5. *Joint Urgan Design Studio*, located at the Downtown Center;
6. *Office of Youth Preparation*, a nationally recognized program committed to increasing the flow of college-eligible minority students into higher education;
7. *Stardust Center for Affordable Homes and the Family*, conducting research on social and economic foundations for permanent affordable homes for working families and studying the impacts of family services on family and neighborhood stability; and
8. *Urban Data Center*, a resource for analysis and implementation of public policy in metropolitan Phoenix.

School of Interdisciplinary Studies

uc.asu.edu/sis
480/965-1970
UASB 203

Frederick C. Corey, Director

Senior Lecturers: Augsburg, McCormack, Nelson, Thomas, Wells

Lecturers: DeLusé, Ellsworth, Gneiting, Hirshorn, Krinsky, Lattouf, Lindquist

The School of Interdisciplinary Studies in University College advances intellectual fusion through innovative curricular developments and degree offerings. Objectives of the school are to offer a Bachelor of Interdisciplinary Studies degree that is innovative and rigorous, to provide course offerings for degree programs and exploratory students on the Downtown Phoenix campus, to incubate new degree programs on the Downtown Phoenix campus, to develop new degree programs in interdisciplinary and individualized studies, and to partner with the School of Extended Education to offer a range of degree completion programs.

The school is changing rapidly to respond to the needs of students on the Downtown Phoenix campus and, throughout the period of growth, the faculty and staff are keeping in the foreground core values of respect for the individual, integration of ideas, experiential education, and a commitment to community.

BACHELOR OF INTERDISCIPLINARY STUDIES

The Bachelor of Interdisciplinary Studies (BIS), the largest and one of the best recognized interdisciplinary studies degree programs in the nation, offers an innovative and rigorous degree to students whose academic and career interests are not satisfied by traditional majors. It provides students a remarkable freedom to choose from a rich menu of more than 100 disciplinary concentrations and to integrate multiple academic interests into a degree with interdisciplinary breadth and intellectual cohesion. An Interdisciplinary Studies student could, for example, choose to integrate biochemistry and psychology, small business and social welfare, communication and urban planning, international business and Chinese, or many other unique combinations.

Interdisciplinary studies is an approach to answering questions, solving problems, and addressing contemporary social issues from multiple perspectives. Students develop the intellectual tools needed to build bridges between academic disciplines and to apply their skills, innovations, and knowledge in various academic and practical settings.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Students take an active role in creating their educational plans and defining their career goals. The degree emphasizes written communication, versatility, self-assessment, and critical thinking.

By engaging a breadth of knowledge and experience, and by acquiring the skills to integrate various domains of knowledge, students prepare themselves for a vast variety of careers. One student combined biology and chemistry in preparation for pharmacy school, and another prepared to own a small business by studying communication and small business. One integrated sociology and family studies to further his career as a police officer. Another studied philosophy and economics to prepare for law school.

Interdisciplinary Studies students apply the skills and knowledge they acquire in class through community engagement. As part of their applied experiences, students collectively spend more than 75,000 hours each year with local business, government, and nonprofit organizations. The faculty are actively engaged in the academic community. They hold doctoral degrees in anthropology, communication, comparative culture, educational psychology, English, interdisciplinary studies, Middle East history, political economy and public policy, political science, and psychology. They have authored academic books, the first interdisciplinary studies textbook, and academic articles in disciplinary and interdisciplinary journals.

Degree Requirements

To graduate with a BIS degree, a student must successfully complete all university and General Studies requirements (see "General Studies," page 93), the four BIS core courses, and the requirements for two concentrations of their choice.

Admission. Students declare either premajor status or major status. Students seeking either status must be in academic good standing and must complete the Cyber Workshop (found on the Web at universitycollege.asu.edu/sis) before meeting with an advisor to declare major or premajor status. Students who do not satisfy the requirements for major status outlined below should instead declare premajor status while working to become eligible for major status.

To be eligible for major status, a student must meet all of the following requirements:

1. have completed at least 56 hours of university credit;
2. be in academic good standing;
3. have completed two courses in each concentration with a "C" or higher; and
4. have completed General Studies requirements for mathematics and English composition.

Core Courses. Students complete a series of four core courses that provide the knowledge and skills necessary to integrate their two concentrations into a cohesive and coherent degree. Throughout the core courses, the student assembles a portfolio, including self-assessment of progress toward career goals and an evaluation of key educational and cocurricular activities.

These core classes consist of BIS 301 (an introduction to concepts and theories of interdisciplinarity), BIS 302 (an exploration of interdisciplinary approaches to human inquiry), BIS 401 (an applied study, in which students bridge their academic work and an applied learning site), and BIS 402 (a capstone seminar).

BIS 301 is taken first and is the prerequisite to BIS 302. BIS 301 and BIS 302 are prerequisites to BIS 401 and BIS 402, which may be taken concurrently or in sequence. To enroll in BIS 401, a student must apply online. Access universitycollege.asu.edu/sis for application deadlines. Each core course must be completed with a grade of "C" or higher.

BIS	301	Foundations of Interdisciplinary Studies *L*	3
BIS	302	Interdisciplinary Inquiry	3
BIS	401	Applied Interdisciplinary Studies	3
BIS	402	Senior Seminar *L*	3
Total			12

Concentrations. Students complete requirements for two single concentrations or one double concentration. Students select their subject-area concentrations with consideration given to their academic interests and educational goals. To ensure interdisciplinarity, students may not use concentrations rooted in the same discipline. For concentrations, see the "BIS Concentrations" table, page 142. Each concentration requires a minimum of 18 semester hours with grades of "C" or higher. At least 12 of those 18 hours must be in upper-division courses. Some concentrations have additional GPA and/or admission requirements.

Advising

With this degree comes the promise of outstanding academic advising. Each of the professional advisors in the School of Interdisciplinary Studies is committed to providing every student with the support needed to reach his or her academic goals. Early and periodic advising is recommended to facilitate selecting courses that best meet the graduation requirements.

For more information, visit UASB 203, or call 480/965-1970. For information about the program at the Polytechnic campus, see "Interdisciplinary Studies—BIS," page 214.

BACHELOR OF INTERDISCIPLINARY STUDIES (BIS)

D BIS 301 Foundations of Interdisciplinary Studies. (3)
fall and spring
Introduces concepts and methods of interdisciplinary study by critically examining anticipated 21st-century workplace and civic trends. Lecture, seminar, discussion. Prerequisites: BIS major; 2.00 GPA.
General Studies: L

D BIS 302 Interdisciplinary Inquiry. (3)
fall and spring
Explores interdisciplinarity and integration as applied to various approaches of human inquiry. Lecture, seminar, discussion. Prerequisite: BIS 301.

D BIS 401 Applied Interdisciplinary Studies. (3)
fall and spring
Applies interdisciplinary problem-solving skills in internships, service-learning, or research; may involve individual or group projects combining both concentrations. Prerequisites: BIS 301, 302; prior application.

D BIS 402 Senior Seminar. (3)
fall and spring
Capstone course helps integrate classroom and experiential learning. Students choose among course topics that address their interests. Lecture, seminar, discussion. Prerequisites: BIS 301, 302. Pre- or corequisite: BIS 401.
General Studies: L

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

UNIVERSITY SUPPORT SERVICES

Alliance Program with the Maricopa Community Colleges. The Alliance Program is a unique partnership between the Maricopa Community Colleges and ASU designed to increase the number of students who graduate with associate and bachelor's degrees. The Alliance Program strives toward collaboration in degree planning, seamless transitions for students throughout their academic careers, joint programs and services that are student-centered, and increased access to affordable and flexible education. The Alliance Program director has a dual reporting line to ASU and the Maricopa Community Colleges.

Academic Transfer Articulation Office. ATAO facilitates curriculum information related to the transfer of course work to ASU, articulation task forces in the state of Arizona, course equivalency guides, and Associate in Transfer Partnership degree articulations with the Maricopa Community Colleges. ATAO strives to provide timely, relevant information to students, advisors, and faculty on matters related to the transfer and articulation of course work.

Degree Audit Reporting System. DARS is an online tool that provides students with current information regarding their degree requirements. Through this system, a degree audit is produced that matches a student's completed courses against degree program requirements. The audit allows students to assess their progress toward their degree or determine how their earned credits would apply to another degree program.

General Studies Curriculum Support. University College offers curriculum support services for processing General Studies designations. For a complete description of the General Studies Program, see "General Studies," page 93.

Downtown Phoenix

Tim Trumble photo

BIS Concentrations

Concentration	College	Campus	Page
African and African American studies	College of Liberal Arts and Sciences	Tempe	519
American Indian studies	College of Liberal Arts and Sciences	Tempe	523
American studies	New College of Interdisciplinary Arts and Sciences	West	715
Anthropology	College of Liberal Arts and Sciences	Tempe	569
Applied biological sciences	East College	Polytechnic	221
Architectural studies	College of Design	Tempe	322
Art history	Katherine K. Herberger College of Fine Arts	Tempe	445
Asian Pacific American studies	College of Liberal Arts and Sciences	Tempe	524
Asian studies	College of Liberal Arts and Sciences	Tempe	509
Astronomy	College of Liberal Arts and Sciences	Tempe	626
Biology[1]	College of Liberal Arts and Sciences	Tempe	602
Business	W. P. Carey School of Business	Tempe	289
Chemistry	College of Liberal Arts and Sciences	Tempe	529
Chicana and Chicano studies	College of Liberal Arts and Sciences	Tempe	533
Chinese	College of Liberal Arts and Sciences	Tempe	584
Classical studies—Greek	College of Liberal Arts and Sciences	Tempe	511
Classical studies—Latin	College of Liberal Arts and Sciences	Tempe	511
Communication	College of Liberal Arts and Sciences	Tempe	565
Communication studies	College of Human Services	West	—
Computational mathematical sciences	College of Liberal Arts and Sciences	Tempe	615
Dance	Katherine K. Herberger College of Fine Arts	Tempe	467
Design studies	College of Design	Tempe	327
Economics	College of Liberal Arts and Sciences	Tempe	536
Economics for students planning a career in law	College of Liberal Arts and Sciences	Tempe	536
Education	College of Education	Tempe	361
English—creative writing[2]	College of Liberal Arts and Sciences	Tempe	538
English—linguistics concentration[2]	College of Liberal Arts and Sciences	Tempe	538
English—literature concentration[2]	College of Liberal Arts and Sciences	Tempe	538
English—writing certificate[2]	College of Liberal Arts and Sciences	Tempe	538
English—writing certificate	New College of Interdisciplinary Arts and Sciences	West	—
Environmental science[3, 4]	—	—	—
Ethics	College of Liberal Arts and Sciences	Tempe	511
Ethnic studies	New College of Interdisciplinary Arts and Sciences	West	—
Exercise and wellness	East College	Polytechnic	234
Family studies/child development	College of Liberal Arts and Sciences	Tempe	544
Film and video studies: film studies	New College of Interdisciplinary Arts and Sciences	West	—
Film and video studies: media and video studies	New College of Interdisciplinary Arts and Sciences	West	—
Fire service management	East College	Polytechnic	267
French	College of Liberal Arts and Sciences	Tempe	584
Geography[5]	College of Liberal Arts and Sciences	Tempe	549
Geography—environmental geography[5]	College of Liberal Arts and Sciences	Tempe	549

[1] Students may not use more than one concentration in the life sciences: biology, microbiology, and plant biology.

[2] Students may not use more than one English concentration.

[3] The program may award a certificate upon completion.

[4] This is a double concentration.

[5] Students may not use more than one geography concentration.

BIS Concentrations (continued)

Concentration	College	Campus	Page
Geography—geographical information science[5]	College of Liberal Arts and Sciences	Tempe	549
Geography—geography for business[5]	College of Liberal Arts and Sciences	Tempe	549
Geography—international geography[5]	College of Liberal Arts and Sciences	Tempe	549
Geological sciences	College of Liberal Arts and Sciences	Tempe	554
German	College of Liberal Arts and Sciences	Tempe	584
Gerontology	College of Human Services	West	687
Global family[3, 4]	—	—	—
Hazardous materials and waste management	College of Technology and Applied Sciences	Polytechnic	265
Healthcare organizations and society	W. P. Carey School of Business and School of Life Sciences	Tempe	—
History	College of Liberal Arts and Sciences	Tempe	558
History	New College of Interdisciplinary Arts and Sciences	West	—
Interdisciplinary arts and performance	New College of Interdisciplinary Arts and Sciences	West	—
Interior design history	College of Design	Tempe	332
International business studies[3]	W. P. Carey School of Business	Tempe	305
Islamic Studies	College of Liberal Arts and Sciences	Tempe	512
Italian	College of Liberal Arts and Sciences	Tempe	584
Japanese	College of Liberal Arts and Sciences	Tempe	584
Jewish studies	College of Liberal Arts and Sciences	Tempe	512
Justice studies	College of Liberal Arts and Sciences	Tempe	573
Kinesiology	College of Liberal Arts and Sciences	Tempe	578
Landscape studies	College of Design	Tempe	322
Latin American studies	College of Liberal Arts and Sciences	Tempe	513
Lesbian, gay, bisexual, and transgender studies	College of Public Programs	Tempe	—
Life sciences	New College of Interdisciplinary Arts and Sciences	West	—
Mass communication	Walter Cronkite School of Journalism and Mass Communication	Tempe	493
Mathematics	College of Liberal Arts and Sciences	Tempe	615
Mathematics	New College of Interdisciplinary Arts and Sciences	West	—
Medieval and Renaissance studies[3]	College of Liberal Arts and Sciences	Tempe	513
Microbiology[1]	College of Liberal Arts and Sciences	Tempe	602
Multimedia writing and technical communication	East College	Polytechnic	239
Music	Katherine K. Herberger College of Fine Arts	Tempe	478
Nonprofit/youth agency administration	College of Public Programs	Tempe	190
Nutrition—food and nutrition management	East College	Polytechnic	243
Nutrition—human nutrition	East College	Polytechnic	243
Organizational studies[4]	—	—	—
Philosophy	College of Liberal Arts and Sciences	Tempe	622
Philosophy	New College of Interdisciplinary Arts and Sciences	West	—
Philosophy—history and philosophy of science	College of Liberal Arts and Sciences	Tempe	622
Philosophy—symbolic systems	College of Liberal Arts and Sciences	Tempe	622

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[3] The program may award a certificate upon completion.

[4] This is a double concentration.

[5] Students may not use more than one geography concentration.

BIS Concentrations (continued)

Concentration	College	Campus	Page
Physics	College of Liberal Arts and Sciences	Tempe	626
Plant biology[1]	College of Liberal Arts and Sciences	Tempe	602
Plant biology—environmental science and ecology[1]	College of Liberal Arts and Sciences	Tempe	602
Plant biology—molecular biosciences/ biotechnology[1]	College of Liberal Arts and Sciences	Tempe	602
Political science	College of Liberal Arts and Sciences	Tempe	631
Political science	New College of Interdisciplinary Arts and Sciences	West	—
Political science—international studies	College of Liberal Arts and Sciences	Tempe	631
Psychology	College of Liberal Arts and Sciences	Tempe	636
Psychology	New College of Interdisciplinary Arts and Sciences	West	—
Public administration	College of Public Programs	Tempe	193
Public relations and strategic communications	College of Human Services	West	—
Quality analysis	W. P. Carey School of Business	Tempe	294
Recreation management	College of Public Programs	Tempe	190
Religious studies	College of Liberal Arts and Sciences	Tempe	639
Religious studies	New College of Interdisciplinary Arts and Sciences	West	—
Russian	College of Liberal Arts and Sciences	Tempe	584
Russian and East European studies	College of Liberal Arts and Sciences	Tempe	513
Scandinavian studies	College of Liberal Arts and Sciences	Tempe	514
Small business	East College	Polytechnic	226
Social and behavioral sciences	New College of Interdisciplinary Arts and Sciences	West	—
Social welfare	College of Public Programs	Tempe	196
Sociocultural anthropology	New College of Interdisciplinary Arts and Sciences	West	—
Sociology	College of Liberal Arts and Sciences	Tempe	643
Southeast Asian studies—area studies option	College of Liberal Arts and Sciences	Tempe	514
Southeast Asian studies—language option	College of Liberal Arts and Sciences	Tempe	514
Spanish	College of Liberal Arts and Sciences	Tempe	584
Spanish	New College of Interdisciplinary Arts and Sciences	West	—
Special events management	College of Human Services	West	—
Speech and hearing science	College of Liberal Arts and Sciences	Tempe	646
Statistics	College of Liberal Arts and Sciences	Tempe	615
Theatre	Katherine K. Herberger College of Fine Arts	Tempe	487
Tourism	College of Public Programs	Tempe	190
Tourism management	College of Human Services	West	—
Translation (Spanish/English)	College of Liberal Arts and Sciences	Tempe	584
Urban planning	College of Design	Tempe	338
Women and gender studies	College of Liberal Arts and Sciences	Tempe	649
Women's studies	New College of Interdisciplinary Arts and Sciences	West	—

[1] Students may not use more than one concentration in the life sciences: biology, microbiology, and plant biology.
[2] Students may not use more than one English concentration.
[3] The program may award a certificate upon completion.
[4] This is a double concentration.
[5] Students may not use more than one geography concentration.

The Barrett Honors College

honors.asu.edu

Mark Jacobs, PhD, Dean

MISSION

The Barrett Honors College is home to many of ASU's nationally ranked scholars. It is a living and learning community of scholars, caring advisors, and enthusiastic faculty. The Barrett Honors College is unique in the nation as an excellent residential liberal arts college with the vast program choices and resources of a vibrant Research Extensive institution. This powerful combination promotes and enables the best education possible for intellectually engaged students from Arizona, from America, and from the world.

The college offers talented, motivated students educational opportunities designed to enrich and further their personal academic and career goals. It is a portal through which academically talented students gain unique access to the university's human and physical resources. Transdisciplinary in nature, the college develops curricular and other learning opportunities to meet general and disciplinary undergraduate educational objectives. The college supports undergraduate research, encourages study abroad, guides students to relevant internships, and mentors applicants for fellowships and scholarships.

The Barrett Honors College serves students seeking degrees at the Downtown Phoenix campus, the Polytechnic campus, in southeast Mesa, the Tempe campus, and the West campus, in northwest Phoenix. For more information see "The Barrett Honors College," page 663. Students across the university take advantage of the university's full resources with the assurance of consistently distinguished teaching and research and with commensurately rigorous expectations for performance.

Students planning to seek any academic major may apply to the Barrett Honors College. Admission is by separate application directly to the Honors College.

CURRICULUM

Students planning to graduate from the Barrett Honors College must also graduate from a disciplinary college. The ASU honors curriculum normally allows students to finish all requirements within the 120 semester hours of credit usually required for graduation. Thirty six of those credits are honors courses—with a minimum of 18 upper division credits.

SPECIAL PROGRAMS

Lorraine W. Frank Office of National Scholarship Advisement

The Lorraine W. Frank Office of National Scholarship Advisement assists students by identifying nationally competitive programs appropriate to each person's intellectual and career goals, nurturing these prospective applicants, and advancing their candidacy. This office, administered by the college, serves the entire ASU community. ASU students regularly earn distinction in the most rigorous and prestigious scholarship competitions. Many pursue enhanced degree programs and research projects under the auspices of Goldwater or Truman Scholarships. Other students undertake postgraduate study in the United States and abroad as Rhodes, Marshall, Fulbright, Udall, National Science Foundation, or Mellon Scholars. Many others have been recognized by a range of postgraduate awards, fellowships, and assistantships. *This office does not administer any need- or merit-based student financial assistance.* For more information, call 480/965-5894.

Undergraduate Research Opportunities

Undergraduate research and creative opportunities are available across many disciplinary programs, centers, and institutes at ASU. The Barrett Honors College maintains lists of current opportunities, available by accessing the college's Web site at honors.asu.edu. In addition, the college actively seeks new opportunities matching student training with emerging research on campus

Study Abroad

Students in the Barrett Honors College (BHC) have exclusive access to study abroad programs that significantly enhance their educational experience. Directed and taught by BHC faculty, these programs usually occur during the first summer session and last between five and six and a half weeks and allow students to earn honors credit while overseas. The three current programs offer students the privilege

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

of studying in several of the most significant and dynamic cities in Europe and Latin America. The London, Dublin, and Edinburgh program has been offered since 1995, the Paris and Loire Valley program since 1998, and the Latin American program since 2002. The International Programs Office offers semester- and year-long programs abroad for students who desire a fuller experience. Often, students who have participated in one of the BHC summer programs realize the major benefits of studying abroad and choose to continue through extended programs.

Internships/Mentorships/Opportunities

Students in the Barrett Honors College may participate in special internship opportunities—in government, industry, and the private sector—throughout metropolitan Phoenix. The college maintains a database of special opportunities, including community service and international and cultural events. For more information, call 480/727-6993.

Events/Programming

Students enrolled in the Barrett Honors College are given special access when important contributors to contemporary thought in society visit ASU. Each year the college hosts the university's premier scholar-in-residence program, the Centennial Lecture. Past guests include novelist Carlos Fuentes, paleontologist Steven Jay Gould, psychiatrist Robert Coles, microbiologist Lynn Margulis, essayist Susan Sontag, paleoanthropologist Meave Leakey, American Indian author N. Scott Momaday, Pulitzer Prize winning author David Halberstam, prolific and wide-ranging African American author and National Book Award recipient Charles Johnson, playwright Edward Albee, a prominent innovator in modern American drama, and Kathleen Sullivan, a renowned constitutional law scholar.

The college is also home to the John J. Rhodes Chair, designed to bring to the college persons who have significantly contributed to civic life and distinguished themselves as public service leaders. Students have unique opportunities to engage intellectually with these outstanding visiting lecturers. In 1998, the college was honored to have Dr. Henry A. Kissinger serve as the inaugural chair. American Indian scholar Donald Lee Fixico was the 2002 Rhodes Lecturer, followed by Jean Strause, notable biographer of J. P. Morgan in 2003, world-renowned astronomer David Levy in 2004, and leading alternate energy expert Hal Harvey in 2005.

ADDITIONAL BENEFITS

The Barrett Honors College and all its facilities and services are fully available to every student, regardless of where he or she lives. The Honors Halls of Residence offer students an integrated living-learning environment. The Barrett Honors College has its own faculty and academic advisors to serve all honors students. Classrooms, recreational and study lounges, and a state-of-the-art computing lab make up the principal facilities of the college.

Students enrolled in the Barrett Honors College receive priority at preregistration and have extended checkout privileges in the campus libraries. Honors courses in disciplinary departments are typically limited to 25 students. Honors courses (with the prefix HON) are usually limited to 19.

Students who meet all requirements of both their disciplinary college and the Barrett Honors College receive transcript recognition of that accomplishment, as well as special acknowledgment during graduation ceremonies and collegiate honors convocations.

Participants in the honors college have diverse interests and strong records of success. Many are accepted into the nation's finest graduate and professional programs, including Chicago, Cornell, Harvard, Michigan, MIT, Northwestern, Stanford, UC-Berkeley, Virginia, Wisconsin, and Yale. Many students have published portions of their honors theses and have presented their work at national and regional meetings of scientific and honors societies.

ADMISSION

Students who have demonstrated high levels of academic achievement in high school or college may apply for admission to the Barrett Honors College. All candidates for admission must file an application to the college separate from their ASU application.

Applicants are evaluated on the basis of their high school GPA (Arizona Board of Regents GPA based on 16 competency courses), high school class rank, and performance on the SAT or ACT; as well as talents that contribute to leadership and community service. Continuing ASU or transfer students are evaluated on their college GPA.

Application forms and additional information about the college and its activities are available by calling 480/965-2359 or by accessing the Web site at honors.asu.edu.

RETENTION

Honors students must maintain high standards of academic performance and show progress toward completion of graduation requirements in their disciplinary majors and in the Barrett Honors College. In order to graduate from the Barrett Honors College, students must complete the following (which includes a total of 36 semester hours of honors course work):

1. HON 171 and 172 The Human Event must be completed by the time a student has earned 45 semester hours at ASU. Students are placed on inactive status if this requirement is not met.
2. Thirty additional semester hours of honors course work must be earned with a letter grade of "C" or higher. This may include HON prefix classes, honors sections of classes, honors contracts, or any automatic honors course such as ENG 105, CHM 117, CHM 118, or PHY 333, or any 500-level course.
3. Included in the 30 semester hours of honors course work are 18 hours of upper-division or graduate-level honors credits for an earned letter grade of "C" or higher, including six semester hours of honors course work outside the academic major. Students should investigate specialized honors upper-division tracks within their majors.
4. Transfer students (defined as 45 or more university credits completed at the time of BHC application) must complete a 300-level upper-division HON special topics course in addition to the 18 required

hours of upper-division honors course work. A total of 21 hours of upper-division honors course work are required for transfers because transfers do not have time to complete all 36 honors hours.

5. Students are required to complete an honors thesis/creative project for at least three semester hours though students are encouraged to complete six thesis semester hours. The thesis semester hours may be included in the 18 required hours of upper-division honors course work. The thesis is launched with a prospectus form due one academic year before the defense. The final copy must be filed by the last week of classes during the student's graduation semester.
6. ASU graduation requirements in an academic major must be met.
7. The student must maintain a cumulative ASU GPA of 3.25 or higher.

BHC students are expected to meet regularly with honors advisors. Two sessions are mandatory: one during the first semester in the BHC and another during the first semester of upper-division status. To make an appointment with an honors advisor, call 480/965-9155. Peer advisors are available on a walk-in basis. Office hours are Monday through Friday 8 A.M. to 5 P.M., in MB C100-L1.

COURSE REQUIREMENTS

Honors College course requirements may be met in a variety of ways. There are two specific required courses for first year students. Only courses in which a student receives a grade of "C" (2.00) or higher may be used to meet the Barrett Honors College requirements.

Those entering the college as lower-division students must take 18 lower-division honors credits, which include HON 171 and 172, The Human Event. This cross-disciplinary seminar acquaints them with ideas that form the foundation of a university education and emphasizes critical thinking, discussion, and writing. Barrett Honors College students complete HON 171 and 172 during their first 45 units at ASU.

Those who enter as upper-division students must take 21 honors credits, including a required 300-level honors course. Junior-level seminar courses introduce them to critical thinking, discussion, and writing in a topical area chosen by the instructor. It is expected that all students complete this course no later than the first or second semester after transferring.

Departmental courses carrying footnote number 19 in the *Schedule of Classes* are limited to honors students and others who receive special permission from the instructor to enroll. Enrollment in these courses is limited. Compared to their nonhonors equivalents, these courses are designed to offer a richer, more complex intellectual experience appropriate to the discipline and the level of the course for all students enrolled. Other disciplinary honors courses group honors students in small cohorts to work on research projects of common interest.

Departmental courses carrying footnote number 18 in the *Schedule of Classes* allow honors students to contract with the instructor of designated nonhonors courses to earn honors credit by pursuing enrichment activities, which may include supplemental sessions with the instructor. Footnote 18 contracts must be filed during the first four weeks of class and completed during the semester in which the course is offered. Each contract form offers guidelines to aid students and faculty in developing appropriate contracts.

Course numbers listed in the *Schedule of Classes* as 298, 492 Honors Directed Study, 493 Honors Thesis, 497 Honors Colloquium, and all classes with the HON prefix are reserved for students in the Barrett Honors College and always carry footnote 19. Students may receive credit for more than one of each of these courses in a given department.

Departmental courses with the number 493 are reserved for honors students completing their honors theses and creative projects. A student may enroll for these courses only with the approval of the sponsoring academic department and of the faculty member who serves as the student's thesis director. Course numbers listed in the *Schedule of Classes* as 493 fulfill the student's upper-division literacy and critical inquiry (L) General Studies requirement.

There are certain courses that carry automatic honors credit. These include ENG 105 (any section) and CHM 117 and 118. MAT 300, PHY 201, and PHY 333, when taken by students with 45 or fewer semester hours also carry automatic honors credit, as long as the student receives a grade "A" (4.00) or "B" (3.00). Graduate level courses automatically earn honors credit, but credit toward graduation must be approved by the department and dean of the college in which the student majors.

HONORS TRANSCRIPT RECOGNITION

All courses used to fulfill graduation requirements for the Barrett Honors College must carry earned letter grades of at least "C" (2.00). A "Y" grade meets college requirements only for HON 492 Honors Directed Study and HON 493 Honors Thesis.

Graduation Requirements

To graduate through the Barrett Honors College, students must

1. complete all honors course requirements;
2. complete all required semester hours of honors course work with a grade of "C" (2.00) or higher (a "Y" grade is allowed for HON 492 and HON 493) unless otherwise provided for by the Barrett Honors College and the college of the student's major;
3. complete ASU graduation requirements in an academic major; and
4. earn a cumulative ASU GPA greater than or equal to 3.25 (4.00 = A).

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

CERTIFICATE PROGRAM IN PHILOSOPHY, POLITICS, AND LAW

Students enrolled in Barrett Honors College may pursue the certificate in Philosophy, Politics, and Law (PPL). This interdisciplinary program affords an opportunity to engage in a focused program of study that brings analytical rigor to bear on the philosophical issues involved in law and politics. The concentration comprises six courses (18 semester hours), two of which are offered through Barrett Honors College. One of these courses, normally taken in the student's second year at ASU, is a seminar on law, justice, and morality (HON 310); the second is a junior-senior seminar on theories of justice, or a related topic in philosophy, politics, and law, that entails an extended paper (HON 410). The remaining four courses must be approved by the PPL Council and selected from courses regularly offered in philosophy, political science, and other areas.

The PPL Council consists of the PPL director and several members of the ASU faculty whose research and teaching focus on political, legal, and moral philosophy. ASU has exceptional resources in this area, with more than a dozen faculty members—in the Department of Philosophy, the Department of Political Science, Barrett Honors College, the College of Law, and other departments—working in this field. Among them are several professors who have won teaching awards and national or international honors for their scholarship.

The PPL Program aims to sharpen the critical, conceptual, and analytical skills that law schools and graduate programs in philosophy, political science, and other fields require. By engaging students in the analysis of classical and contemporary political, legal, and moral concerns, moreover, PPL hopes to prepare them for public service, whether it be as lawyers or scholars, in government or in watchdog groups, or simply as active and responsible citizens.

Certificate Requirements

Required courses

HON 310 Justice and Law 3
HON 410 Philosophy, Politics, and Law 3
Choose four of the following elective courses 12
- HON 376 Law, Literature, and Life *L*/*HU* (3)
- JUS 303 Justice Theory (3)
- PHI 305 Ethical Theory *HU* (3)
- PHI 307 Philosophy of Law *HU* (3)
- PHI 309 Social and Political Philosophy *HU* (3)
- PHI 310 Environmental Ethics *HU* (3)
- PHI 335 History of Ethics *HU* (3)
- POS 340 History of Political Philosophy I *HU*/*H* (3)
- POS 341 History of Political Philosophy II *HU*/*H* (3)
- POS 346 Problems of Democracy *HU* (3)
- POS 442 American Political Thought *HU* (3)
- POS 445 Asian Political Thought *SB*, *G* (3)
- POS 471 Constitutional Law I *SB* (3)
- POS 472 Constitutional Law II *SB* (3)

Total 18

In keeping with the interdisciplinary nature of the program, students may count no more than three courses from any one department toward the PPL certificate. The PPL director maintains a list of approved courses, and students may petition the council to add a course to that list. PPL students are encouraged but not required to write their honors thesis in the field and under the supervision of a PPL faculty member.

The Barrett Honors College

honors.asu.edu
480/965-4033
IRISH A121

Mark Jacobs, Dean

Professors: Humphrey, Jacobs, Nelson

Assistant Administrative Professional: Burke

Senior Lecturers: Bruhn, Dalton, Facinelli, Stanford, Susser

Lecturers: Beggs, Herrmann, J. Lynch, J. M. Lynch, Martin, McManus, Pickus

HONORS (HON)

For more HON courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M HON 171 The Human Event. (3)
fall and spring
Landmarks in the social and intellectual development of the human race, with emphasis on Western civilization. Enrollment restricted to members of the Barrett Honors College. Consult the college for applicability to disciplinary college distribution requirements.
General Studies: L/HU, H

M HON 172 The Human Event. (3)
fall and spring
Continuation of HON 171, with emphasis on the Renaissance through the modern period. Prerequisite: HON 171.
General Studies: L/HU, H

M HON 310 Justice and Law. (3)
spring
Philosophical study of theories of justice in relation to law and morality. Required for Certificate in Philosophy, Politics, and Law. Seminar. Prerequisites: HON 171 and 172 recommended.

M HON 371 Freedom and Authority. (3)
fall and spring
Historical overview of concepts of liberty, responsibility, and power in Western societies, emphasizing 18th- to 20th-century developments. Seminar.
General Studies: L/HU

M HON 372 French Cultural Influences. (3)
summer session 1
Explores textual and cultural artifacts formative of French culture as a series of contacts and conflicts with other peoples and lifeways. Seminar.
General Studies: L/HU, G

M HON 373 Heroes, Heroines, and Villains. (3)
fall and spring
Examines concepts of heroic and villainous characteristics as expressed in the literature and visual arts of various cultures throughout history. Seminar.
General Studies: L/HU

M HON 374 Black and White Atlantic. (3)
fall and spring
Examines development (18th- to 20th-century) and cultural manifestations of Black/White race relations within the U.S. and between the U.S. and other nations. Seminar.
General Studies: HU, G

M HON 375 Science and the Modern Self. (3)
fall and spring
Concentrates on texts of the 19th and 20th centuries; explores how scientific discourse determines our notions of self. Lecture, discussion, seminar.
General Studies: L/HU

M HON 376 Law, Literature, and Life. (3)
fall and spring
Multidisciplinary approach to the subject of law, examining it through literature, history, and legal philosophy. Seminar.
General Studies: L/HU

M HON 377 Nature in Context. (3)
fall
Explores perspectives on the nature of nature, the history of ecology, and the rise of environmentalism. Seminar. Cross-listed as HPS 377. Credit is allowed for only HON 377 or HPS 377.
General Studies: L/HU

M HON 378 Culture and Society in England, Ireland, and Scotland. (3)
summer
Chronologically explores texts, events, and sites for historical and cultural impact on development of England, Ireland, Scotland, and their countries' relationships with each other. Seminar.
General Studies: HU, G, H

M HON 379 Romantics, Victorians, and Moderns. (3)
summer
Examines the development and impact of various literatures, arts, and ideas in England, Ireland, and Scotland from the Romantic through the Modern period. Seminar.
General Studies: HU, G

M HON 394 Special Topics. (3)
fall, spring, summer

M HON 410 Philosophy, Politics, and Law. (3)
spring
Topics in political and legal philosophy, including political authority, obligation and disobedience, the nature of crime and punishment. Required for Certificate in Philosophy, Politics, and Law. Seminar.
Prerequisite: HON 310 or instructor approval.

M HON 484 Internship. (1–6)
selected semesters

M HON 485 Biosphere 2—Study Opportunity. (1–18)
fall and spring
For students participating in the ASU-sponsored program at Biosphere 2.

M HON 492 Honors Directed Study. (1–12)
selected semesters
Research and preparation for HON 493.

M HON 493 Honors Thesis. (1–6)
selected semesters
General Studies: L

M HON 498 Pro-Seminar. (1–7)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

The atrium area in the Biodesign Institute Building fosters the open exchange of ideas among researchers working on collaborative projects.

Barb Backes photo

Division of Graduate Studies

www.asu.edu/graduate **Maria T. Allison, PhD, Vice Provost and Dean of Graduate Studies**

PURPOSE

The ASU Division of Graduate Studies offers programs to meet the educational needs of those who already hold baccalaureate and master's degrees. While many students prepare for careers in research, the professions, and the arts, others study for personal enrichment. Both part-time and full-time students are enrolled in a wide range of master's and doctoral degree programs encompassing hundreds of concentrations and specialties. Other students explore new areas of interest or prepare for career advancements apart from formal degree programs.

The size, strength, and diversity of the graduate community reflect the university's commitment to high-quality education. As a major center for graduate education, ASU supports cultural and intellectual activity as well as research in a broad range of arts, sciences, and professional disciplines; in addition, the university conducts research addressing the social, cultural, and economic growth and development of Arizona and the Southwest.

One distinctive project that magnifies the Division of Graduate Studies' dedication to graduate students is the Preparing Future Faculty program, which is designed to educate students about faculty roles and prepare doctoral students specifically for faculty positions in colleges and universities across the nation.

Typically a large number of ASU graduate students are awarded prestigious fellowships and scholarships funded by the National Science Foundation, NASA, the Ford Foundation, the Fulbright program, and other public agencies and private foundations.

Funded programs, together with more than 30 research centers and institutes, provide assistantships and training for many graduate students; further, the centers coordinate conferences, colloquia, and special seminars to heighten the learning experience. The Office of the Vice President for Research and Economic Affairs provides seed money to enable ASU faculty and students to work at the frontiers of knowledge. Such activities continually encourage the creative embrace of change and experimentation.

ASU provides numerous choices in student life, for personal enrichment as well as cultural interaction. Many internationally known speakers present lectures here, bringing together faculty, graduate students, and the community to engage in stimulating dialogue.

Intellectual Environment. More than 11,000 students from all 50 states and more than 100 nations are enrolled in graduate study at the university. Such size and diversity contribute to a cosmopolitan setting that is ideal for intellectual discourse and stimulation. As a balance to this large grouping of students, individual graduate programs conduct small colloquia and seminars where students and faculty discuss their work in an intimate, intellectual environment supportive of student development. The result is a spirited, lively atmosphere in which students and faculty members get to know each other through collaborative research and intellectual exchange.

GRADUATE PROGRAMS

Degree Programs

Although graduate degree programs differ in many ways, they all share two important characteristics. First, in comparison to baccalaureate programs, they demand a deeper and broader understanding of a body of knowledge in a recognized discipline or profession. Second, especially in doctoral programs, graduate students prepare to make original contributions to their fields through research and other creative activities of a high order. ASU offers several types and levels of postbaccalaureate degrees. For admission information and procedures, access the Web site at www.asu.edu/graduate/admissions.

Master's and Doctoral Work. Many students pursue a master's degree to satisfy their own quest for learning. In some disciplines, such as dance or architecture, the master's degree is frequently the terminal or final degree. In other fields, students enter master's programs as a step toward more advanced work, such as doctoral studies, that prepares students for a lifetime of intellectual inquiry and creativity or for the application of knowledge to professional practice.

Research Degrees. Students at ASU may pursue research-oriented or practice-oriented degrees. Research-oriented degree programs—including the Master of Arts (MA), Master of Science (MS), and Doctor of Philosophy (PhD)—prepare students for careers in research and scholarship in

governmental, business, and industrial organizations or in university or college teaching. Students in these programs develop the ability to evaluate existing knowledge critically and to extend it into fresh areas of inquiry and scholarship.

Professional Degrees. The professional or practice-oriented degree programs have slightly different names and distinct academic missions. The names of the degrees are commonly tied to the academic unit offering the program, for example, Master of Business Administration (MBA), Master of Music (MM), Master of Social Work (MSW), and Doctor of Education (EdD). With the objective of preparing students for professional practice, such programs require rigorous preparation in the fundamental literature and scholarship of the field. Some degrees require demonstrated expertise through an internship, an exhibition (art), a performance, or a recital (music). Examples of ASU fields in which academic units offer professional programs include architecture and design, business, education, engineering, health services administration, law, nursing, public administration, and social work.

Nondegree Postbaccalaureate Study

Many students enter postbaccalaureate studies without intending to obtain a new degree but rather to enhance personal or professional knowledge. These students may want to advance in their present career, acquire the background to make a career change, or make up academic deficiencies before entering a degree program. All postbaccalaureate students, degree or nondegree, enjoy the benefits of cultural and intellectual activities at the university, such as colloquia, seminars, and conferences focusing on the latest scholarship in the field. By consulting with appropriate academic units, students can learn which courses are suitable to their needs.

For admission information and procedures, access the Web site at www.asu.edu/graduate/admissions.

Graduate Studies and the University Environment

The Division of Graduate Studies spans the university in supervising graduate studies. Since more than 1,600 ASU faculty members teach graduate students in more than 100 instructional units, the Division of Graduate Studies works closely with the university's colleges and academic units. In most cases, graduate instruction is offered by units that also provide related undergraduate programs.

Interdisciplinary Study

Although most graduate programs are offered by academic units, diverse interdisciplinary programs cross academic disciplines. Many majors are in fields that are still emerging as recognized academic disciplines and, therefore, do not customarily form the academic basis for departments. Other fields of study are inherently interdisciplinary and do not fit well with conventional disciplines around which departments are formed. Curricula reflect intrinsically broad disciplinary affinities, and faculty are drawn from more than one academic unit.

Examples of interdisciplinary programs include

1. Atmospheric Science (certificate);
2. Business Administration (PhD);
3. Creative Writing (MFA);
4. Exercise Science (PhD);
5. Geographic Information Science (certificate);
6. Gerontology (certificate);
7. Materials Science (MS);
8. Science and Engineering of Materials (PhD);
9. Statistics (MS and certificate); and
10. Transportation Systems (certificate).

Each of these programs uses resources and faculty from several disciplines. The programs promote cooperative research and instruction among faculty who share common interests but are housed in different academic units and allow students to pursue degrees that are intellectually coherent but bring together diverse strengths of the university.

RESEARCH

ASU continues to advance as a major research institution. The Office of the Vice President for Research and Economic Affairs provides leadership in obtaining external funding and in coordinating and administering sponsored projects. Many graduate students receive financial support and gain first-hand experience as they participate with faculty members in carrying out these research projects.

Much of this work is associated with campus research centers that help to develop proposals, coordinate activities, and bring together in colloquia and conferences students and faculty with common intellectual interests. Such centers include the Center for Solid State Science, the Institute for Manufacturing Enterprise Systems, the Institute of Human Origins, the Hispanic Research Center, the Joan and David Lincoln Center for Applied Ethics, and the Prevention Intervention Research Center. For more information, see "Research Centers," page 39.

Research Facilities

ASU lends support to research in diverse ways, including providing extensive facilities for research and instructional programs. State-of-the-art facilities include an architecture building, a fine arts complex, the Goldwater Center for Science and Engineering, an addition to the Life Sciences Center, and the Computing Commons. The Engineering Research Center, built as part of the Engineering Excellence Program, houses advanced facilities such as the Molecular Beam Epitaxy laboratory and a clean room for microelectronic device fabrication. Among other facilities supporting research on campus are the Institute for Studies in the Arts, in the Katherine K. Herberger College of Fine Arts; the Facility for High Resolution Electron Microscopy, in the College of Liberal Arts and Sciences; and the Southwest Archaeological Collection, in the School of Human Evolution and Social Change.

Library System. The ASU library system is a major research facility (see "University Libraries and Collections," page 33). It contains more than 3 million volumes of books and approximately 6.6 million pieces of microforms and subscribes to more than 36,000 serials. Among the nation's research libraries, it is in the top quarter in annual volume acquisition. It is especially strong in amassing current monographs and serials to support graduate programs.

Some of the most important research collections include manuscripts and rare photographs on Arizona and Southwest topics and an excellent collection of social science materials on Southwestern and border studies topics, including materials on northwestern Mexico. In the humanities, the Hayden Library has an outstanding collection of literary works and literary criticism from small and major presses in American and English literature. The Child Drama Collection is also outstanding. A growing rare book and manuscript collection supports the research interests of academic units. The Arthur Young Tax Library emphasizes accounting and law. The Noble Science and Engineering Library is a designated U.S. Patent Depository and, as such, is one of fewer than 30 U.S. academic libraries to receive copies of all new patents. The entire collection of U.S. patents in microfilm is housed in the Noble Library.

The libraries contain extensive U.S. and Arizona government documents and selected international documents.

The Music Library contains scores and sound recordings.

The Architecture and Environmental Design Library houses a nationally recognized set of materials on solar energy and research collections on the work of Frank Lloyd Wright and Paolo Soleri as well as other Arizona architects.

The libraries offer excellent support to researchers interested in electronic information sources. The online library system incorporates the usual catalog to ASU library holdings as well as several other important electronic reference databases and gateways. Bibliographic information on the library holdings can be accessed from any location in the world via a modem-equipped microcomputer.

The library system belongs to the Center for Research Libraries, permitting access to the center's vast collections of materials for extended loan periods.

GRADUATE STUDENT SUPPORT SERVICES

Providing academic and professional development support to graduate students is an important part of the Division of Graduate Studies mission. Services include referral, financial assistance, orientation sessions, workshops, career seminars, and research conferences. The Division of Graduate Studies maintains a variety of programs specifically for graduate students (degree and nondegree). For more information, access the Division of Graduate Studies Web site at www.asu.edu/graduate.

Division of Graduate Studies Financial Support Office. The Division of Graduate Studies Financial Support Office assists graduate students applying for external fellowships. The office processes tuition waivers/remission and health insurance benefits for research and teaching assistants, tuition fellowships for students who are not research or teaching assistants, travel grants, and other financial support in partnership with academic units.

For assistance with loans, access the Web site at www.asu.edu/fa, or visit Student Financial Assistance in SSV 216A.

Advising and Career/Professional Development. Many graduate students have questions and concerns about which degree to pursue; how to combine their student roles with parenting, partnering, and worker roles; and what to do with their degrees upon graduation. The Division of Graduate Studies provides the following resources.

Preparing Future Faculty. Preparing Future Faculty (PFF) is a program coordinated by the Division of Graduate Studies for doctoral students who are seeking careers in the professorate. Originally a national initiative under the Council of Graduate Schools and the Association of American Colleges and Universities, PFF encourages fresh thinking and planning in faculty preparation, identifies strategies to improve the quality of teaching and learning, and orients doctoral students to different types of higher education institutions.

Preparing Future Professionals. The Preparing Future Professionals (PFP) program, administered by the Division of Graduate Studies, assists doctoral students interested in pursuing nonacademic professions. PFP parallels the well-established and successful PFF program. Through a series of activities, PFP familiarizes doctoral students with various nonacademic career tracks to develop skills to successfully pursue a wide range of career opportunities.

Strategies for Success. The Strategies for Success series of professional development workshops is broken into three categories: teaching and instruction, career development, and enriching the graduate experience. These workshops are open to all registered graduate students.

Division of Graduate Studies. Courses with the prefix GRD numbered 791 are reserved for doctoral students participating in the PFF program. PFF students are required to take one semester hour for each of the semesters they are enrolled in the program. Students enroll for the first-year exploratory phase. Those accepted into the second-year participatory phase enroll for one semester hour each semester.

DIVISION OF GRADUATE STUDIES (GRD)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Diversity Programs. Diversity Programs are designed to increase the number of graduate students from groups underrepresented in certain professions and fields of study.

UGEM. The Division of Graduate Studies UGEM (Underrepresented Graduate Enrichment Match) program is designed to assist academic units in the recruitment and retention of excellent first-year graduate students from underrepresented groups. UGEM provides academic and financial support through assistantships. For more information, contact specific academic units.

The Social and Academic Mentor (SAM) Program. The SAM program is designed to recruit top graduate students from domestic, international, and underrepresented populations. Academic units submit nominations to the Division of Graduate Studies for a first-year student (mentee) and peer mentor match. The mentor, two or more years advanced in the program, promotes the mentee's social and academic integration into graduate school by using a structured approach. The mentor receives hourly compensation.

Orientations. Before each fall semester, the Division of Graduate Studies hosts an orientation/reception for new graduate students. An online orientation is available on the Division of Graduate Studies' Web site at www.asu.edu/graduate/orientation.

All new teaching assistants (TAs) are required by the university and the Arizona Board of Regents to attend the TA Orientation conducted by the Division of Graduate Studies. Additional professional development forums are held during the academic year and TAs are encouraged to participate.

Workshops for Undergraduate Students Considering Graduate Education. The Division of Graduate Studies holds workshops to address issues that students contemplating graduate study should consider. The purpose of graduate study, the choices among research and professional degrees, the selection of schools to apply to, and the types and sources of financial support are among the topics discussed.

Student Organizations. The Graduate and Professional Student Association (GPSA) is part of the Associated Students of Arizona State University (ASASU), the student government for the university. The GPSA represents graduate student interests within ASASU and the Office of Student Life. It assists the Division of Graduate Studies in planning orientations, the Graduate and Professional Student Appreciation Week, and other student-related activities. This office, with the Division of Graduate Studies, also funds small research grants to support graduate students' thesis and dissertation projects. In addition to the GPSA, many other special interest organizations are available for graduate students, such as the Latino(a) Graduate Student Association, American Indian Graduate Student Association, Black Graduate Student Association, and Graduate Women's Association.

Student Academic Services. The Division of Graduate Studies provides assistance to graduate students through its Student Academic Services (SAS) department in accordance with the policies and procedures set forth in the Graduate Catalog. SAS offers services such as the processing of the graduate program of study, petitions, comprehensive exam results, foreign language exam results, candidacy letters, and committee changes and approvals. This office also prepares and sends defense paperwork, announces doctoral defenses in *Insight*, and works closely with the Office of University Ceremonies to coordinate commencement for doctoral students. SAS sponsors workshops for graduate students on graduate policies, deadlines, and an introduction to the thesis and dissertation review process. For more information, see "Format Advising," on this page. Graduate students may meet with a SAS specialist by appointment or on a walk-in basis.

For answers to questions regarding the program of study, graduate policies and procedures, or graduation deadlines, visit SAS in ADMN B 170, or access the Web site at www.asu.edu/graduate/current/sas.htm.

Format Advising. The thesis, dissertation, or equivalent is the culmination of an important stage of graduate studies. By researching and writing this final work, graduate students are able to demonstrate acquired skills essential to a discipline. The Division of Graduate Studies publishes a *Format Manual* as a guide in preparing the master's or doctoral document. The *Format Manual* and forms pertaining to procedures for completing all graduation requirements are available in the Division of Graduate Studies lobby in Wilson Hall or on the Web at www.asu.edu/graduate/format.

Publications Program. The Division of Graduate Studies publishes a number of brochures, fliers, and other items pertaining to academic program offerings, procedures, student financial assistance, and related topics and events in graduate education. For more information, call 480/965-3521.

ASU Graduate Councils

The mission of the Division of Graduate Studies is to promote and support—in partnership with schools, departments, colleges, and campuses—the integrity, quality, and vitality of ASU graduate programs, including graduate certificates, master's degrees, and doctoral degrees. The Graduate Councils (Polytechnic, Tempe, and West campus councils) consist of faculty from each campus who review and make recommendations regarding the quality and nature of programs, policies, and standards related to graduate education. The councils serve in an advisory capacity to the vice provost and dean of Graduate Studies. In addition to the faculty leadership of each campus, the dean and associate deans of the Division of Graduate Studies serve in ex-officio capacities to enhance and foster cross-campus collaboration and communication. For more information, access the Web site at www.asu.edu/graduate/gapd/gradcouncil.

Offices of the Division of Graduate Studies

The general offices of the division, including those of the dean, admissions, advising, financial assistance, and graduate academic services and programs, are located on the first and second floors of ADMN B. Division offices are open Monday through Friday, from 8 A.M. to 5 P.M. For more information, call the Division of Graduate Studies at 480/965-3521, or access the Web site at www.asu.edu/graduate.

ADMISSION TO THE DIVISION OF GRADUATE STUDIES

Eligibility

Anyone who holds a bachelor's (or equivalent) or graduate degree from a regionally-accredited college or university of recognized standing is eligible to apply for admission to the Division of Graduate Studies. Remedies for undergraduate deficiencies may be assigned by academic units if the undergraduate degree is based on credits not accepted by ASU, such as life experience or noncredit workshops and seminars.

Division of Graduate Studies Requirements

Generally, an applicant must have a GPA of 3.00 (scale is 4.00 = A), or the equivalent, in the last two years of work leading to the bachelor's degree. A student who enters a graduate degree program is expected to have undergraduate educational experiences, including general education studies, that are similar to those required for the baccalaureate degree at ASU.

Requirements of the Academic Unit

Academic units, departments, or colleges, may have admission requirements in addition to those of the Division of Graduate Studies. Many graduate programs require scores from a national admissions test such as the Graduate Record Examination, Graduate Management Admission Test, or the Miller Analogies Test. Some programs require a portfolio, letters of recommendation, or a statement of goals. Applicants should contact the academic unit regarding specific requirements.

Submission of an Application

For admission information and procedures, access the Web site at www.asu.edu/graduate/admissions. Students are encouraged to apply via the Web. If students cannot access the Internet, they may call the Division of Graduate Studies at 480/965-6113.

Application Fee

Each application for entry to ASU graduate programs must be accompanied by a nonrefundable application fee. The fee is $50 to apply for admission to a degree program or for undeclared postbaccalaureate status. For admission information and procedures, access the Web site at www.asu.edu/graduate/admissions.

International Applicants

Applicants who will attend the university while holding F-1 or J-1 visas must meet the requirements of U.S. immigration regulations in addition to the requirements of the Division of Graduate Studies and the academic units to which they apply.

Applicants from outside the United States are also required to submit additional materials and should follow the procedures described in the *Application for Graduate Admission* booklet or on the Web at www.asu.edu/graduate/admissions. International applicants should read this information carefully to become familiar with all the requirements, consulting it often for instructions to follow regarding the submission of materials. the *Graduate Catalog* provides essential information about ASU and its graduate programs.

As required by the U.S. government, international applicants must also verify that they have the financial resources to cover their expenses during graduate study at ASU. The Financial Guarantee form is available through the Division of Graduate Studies Web site at www.asu.edu/graduate/admissions. The I-20 or the DS-2019 (documents needed to obtain a student visa) are issued only after the completed, properly verified Financial Guarantee form and supporting documents have arrived. International students may enroll at ASU only if they have been admitted to a degree program, a certificate program, or the postbaccalaureate teacher education program. They must meet all appropriate immigration standards and requirements.

Applications are processed when they are received. However, international applicants should submit all materials in December or January in order to begin study the following fall semester and in August or September in order to begin study the following spring semester. An application fee of $50 (in U.S. funds) must accompany each application.

All F-1 or J-1 visa students must have insurance coverage against illness and accident before being permitted to register. Insurance must be maintained throughout the student's enrollment in the university and may be obtained at the time of registration.

Upon arrival on campus, students must report to an advisor in the International Student Office.

English Language Requirement. Applicants who are from a country whose native language is not English must provide evidence of English proficiency as indicated by acceptable scores on the Test of English as a Foreign Language (TOEFL), or the International English Language Testing System (IELTS), as follows:

1. The minimum TOEFL requirement for entry into any graduate program is 550 (paper-based) or 213 (computer-based).
2. The minimum IELTS requirement for entry into any graduate program is an overall band score of 6.5 with no individual band score below 6.0.
3. Individual academic units may have higher TOEFL or IELTS requirements for their various programs. Consult the department Web sites and this catalog for more information.

The following exceptions apply to the English proficiency requirement:

1. Applicants who have earned a bachelor's degree or higher from a regionally accredited university in the United States are exempt from the English proficiency requirement. This study must have been done within the United States.
2. Applicants who have completed a minimum of 12 semester hours of graduate level study at a regionally accredited college or university in the United States with a GPA of 3.00 or higher are exempt from the English proficiency requirement.
3. Applicants who have completed at least 90 semester credit hours (or equivalent) with a cumulative grade point average of 3.00 or higher (on a 4.00 scale) at a regionally accredited institution in the United States are exempt from the English proficiency requirement.
4. Applicants who have completed the American English and Culture Program Advanced 2 Level are exempt from the English proficiency requirement.

All international applicants who are from a country whose native language is not English and who wish to apply for teaching assistantships must pass an examination that certifies their skill in speaking English—either the Test of Spoken English (TSE), which may be taken in the student's home country, or the Speaking Proficiency English Assessment Kit (SPEAK) test, which is administered at ASU. Some degree programs also require TSE or SPEAK scores of applicants whose native language is not English. For specific information about TSE requirements, contact the head of the academic unit.

Additional Information

The Division of Graduate Studies does not have deadlines. Applications are processed as they are received. However, many academic units have specific and early deadlines; many units review applications only once a year, usually in January or February for fall admission. Applicants are urged to contact the academic units regarding deadlines.

Academic units, which must indicate their willingness to admit applicants, frequently set higher standards than those established by the Division of Graduate Studies. Many qualified applicants are denied because of limits on the number of students admitted each year.

Notice of Admission Decisions

Only the dean of graduate studies can make formal offers of admission. The Division of Graduate Studies notifies all applicants in writing of the admission decision.

All academic credentials and supporting materials received by the university in connection with an application for admission become the property of ASU. If the applicant does not enroll in the university within one year, the admission documents may be destroyed.

Applicants are admitted into the university for the semester indicated on their admission letter and initiate their program by registering for courses. Courses taken before the semester of admission are considered credit completed before enrollment in the degree program. These courses are subject to restrictions, see the *Graduate Catalog* for more information.

Admission Classifications

Regular Admission. Applicants who fulfill all requirements for admission and are academically acceptable to both the academic unit and the Division of Graduate Studies are granted regular admission.

Regular Admission with Deficiencies. A student whose grades and test scores are at an acceptable level but who does not have the undergraduate background expected by the academic unit and the university may be required to complete courses to remedy deficiencies. Deficiency courses must be completed before the student is awarded a graduate degree. Deficiency courses may not be applied toward the minimum hours required for the degree program.

Provisional Admission. A student who does not meet minimum academic standards but has counterbalancing evidence to suggest the potential for success may be admitted on a provisional basis. Provisional admission provides an academic unit with more evidence on which to base its decision. Normally the academic unit reviews the student's status following completion of 12 semester hours of approved graduate study. At that time, the academic unit recommends to the Division of Graduate Studies a change in status to either regular admission or withdrawal from the program. When students have completed their provisional requirements, they should check with their advisors to make sure that the change of status has been recommended. A provisional student may also be assigned deficiencies.

Postbaccalaureate Nondegree Admission. A student not immediately intending to earn a degree may enroll as a postbaccalaureate nondegree student. The application process is streamlined and does not require submission of transcripts or test scores. For postbaccalaureate nondegree admission information and procedures, access the Web site at www.asu.edu/graduate/admissions. A maximum of nine hours taken at ASU while in this category may be applied toward a master's degree if appropriate for the student's program of study.

The six-year maximum time limit applies to nondegree semester hours appearing on a master's program of study. Also, because of limited class size and resources, certain academic units may limit the enrollment of nondegree students.

Recognition of a Degree

Recognition of a degree is acknowledgment that the program leading to the degree is equivalent to a program offered by ASU or is an acceptable program for the proposed graduate major at ASU. A student who enters a graduate degree program at ASU is expected to have undergraduate educational experiences, including general education studies, that are appropriate for the program

Definition of a Unit of Credit

The Arizona Board of Regents has defined (May 26, 1979) a unit of credit for the institutions under its jurisdiction. A minimum of 45 hours of work by each student is required for each unit of credit. An hour of work is the equivalent of 50 minutes of class time (often called a "contact hour") or 60 minutes of independent study work. For lecture-discussion courses, this requirement equates to at least 15 contact hours and a minimum of 30 hours of work outside of the classroom for each unit of credit. Even though the values of 15 and 30 may vary for different modes of instruction, the minimum total of 45 hours of work for each unit of credit is a constant. Since the unit of credit as defined by the Arizona Board of Regents is the cornerstone of academic degree programs at ASU, degrees granted by other institutions that are recognized by ASU should be based on a similar unit of credit.

DIVISION OF GRADUATE STUDIES PROCEDURES

Change in Graduate Degree Program

A change from one graduate degree program to another requires a new application to the Division of Graduate Studies. The usual admission procedures are followed. For details on matters relating to the application fee, see "Application Fee," page 154.

Readmission to the Division of Graduate Studies

Any graduate student who has not been in attendance at the university for one semester must submit an application for readmission to the Division of Graduate Studies. The application should be submitted at least one month before the beginning of the semester in which the student plans to reenter. For details on readmission and other matters relating to the application fee, access the Web site at www.asu.edu/graduate/admissions.

Determination of Catalog Requirements

The *Graduate Catalog* is published annually. Requirements for an academic unit or college, campus, or the university as a whole may change and are often updated.

A student graduates under the curriculum, course requirements, and regulations for graduation in effect at the time of admission to a graduate degree program at ASU. A student may also choose to graduate under any subsequent catalog.

Some changes in policies and procedures affect all students regardless of the catalog used by the student. These policies and procedures may appear in the catalog or in other university publications.

Registration

Graduate students, like all university students, register during the intervals indicated in the *Schedule of Classes* issued by the University Registrar's Office. Details regarding registration and course drop-add procedures are also provided in the *Schedule of Classes*. Day and evening graduate classes, offered on or off campus during the two regular semesters and the summer sessions, are considered part of the regular program. SunDial, the ASU touch-tone telephone system for registration and fee payment, and the online registration system, accessed at any registrar site, ease the enrollment process.

Audit Enrollment

Graduate students may register as auditors in one or more courses with the approval of the supervisory committee chair and the consent of the instructor involved. The student must be registered properly and pay the fees for the course. An audited course is counted in the student's maximum course load. It does not count for students who must take a minimum number of credits, e.g., teaching assistants or students receiving financial assistance. The mark of "X" is recorded for completion of an audited course, unless the instructor determines that the student's participation or attendance has been inadequate, in which case a "W" may be recorded.

Withdrawal Policies and Procedures

Withdrawal from the University. To withdraw from *all* classes after having paid registration fees, a student must submit a request to withdraw using ASU Interactive, SunDial, or submit a signed request to any registrar location. The ASU Interactive and SunDial complete withdrawal option is available through the semester transaction deadline. A student may withdraw from all courses with marks of "W" through the semester transaction deadline. See the *Schedule of Classes* or the *Summer Sessions Bulletin* for dates of the complete withdrawal periods. A student may not avoid any penalty for academic dishonesty by withdrawing from a course. A student may be reinstated to a course to receive a penalty of a reduced or failing grade, or XE.

Note: A graduate student who does not enroll for one calendar year is considered withdrawn from the university and must fully reapply for admission to resume his or her degree program.

Instructor-Initiated Drop. An instructor may drop a student for nonattendance during the second week of classes in fall or spring semesters or the first four days of each summer session. Instructor-initiated drops for nonattendance are signed by the dean or dean's designee. The college notifies students by mail. The student must contact the instructor before the end of the first week of classes if absences during that period cannot be avoided.

Instructor-Initiated Withdrawal. An instructor may withdraw a student from a course with a mark of "W" or a grade of "E" (0.00) only if the student's continued presence in the course is disruptive to the instructor's ability to conduct the course. A student may appeal an instructor-initiated withdrawal within 10 days of being withdrawn to the standards committee of the college in which the course is offered. The decision of the committee is final.

Course Withdrawal. A student may withdraw with a grade of "W" from one or more classes beginning with the second week of classes through the tenth week of classes for the fall and spring semesters. For summer session classes, a student may withdraw with a grade of "W" from one or more classes from the third day of classes through the third week of the session. To withdraw from all classes a student must request a complete withdrawal. A student may not avoid any penalty for academic dishonesty by withdrawing from a course. A student may be reinstated to a course to receive a penalty of a reduced or failing grade, or XE.

Complete Withdrawal. A student may withdraw with a grade of "W" from all classes through the semester transaction deadline.

Medical Withdrawal. Normally, a medical withdrawal request is made in cases where serious illness or injury prevents a student from completing course work or when other arrangements with the instructor are not possible. Consideration is usually given for complete withdrawal. An application for less than a complete withdrawal must be well documented to justify the selective nature of the medical withdrawal request. This policy applies both to cases involving physical health problems and those involving mental or emotional difficulties.

To receive permission for a medical withdrawal from courses, a student must present a Request for Documented Medical Withdrawal form and proper documentation (usually a letter from a physician) of the medical condition to the medical withdrawal designee of the college of the student's major. For complete procedural information, contact the appropriate medical withdrawal designee.

A student may not avoid any penalty for academic dishonesty by withdrawing from a course. A student may be reinstated to a course to receive a penalty of a reduced or failing grade, or XE.

Course Load

The course load is determined by the supervisory committee but is not to exceed 15 semester hours of credit during each of the two semesters. Refer to the latest *Summer Sessions Bulletin* for course load limits for five-week and eight-week sessions. An audited course is counted in the student's maximum load.

All teaching and research assistants and associates must enroll for a minimum of six semester hours during each semester (fall and spring) of their appointment. The six

Enrollment Verification Guidelines for Graduate Students

	Full Time	Half Time	Less Than Half Time
Regular semester			
Graduate	9 or more hours	5–8 hours	4 or fewer hours
Graduate assistant*	6 or more hours	—	—
Five-week summer session			
Graduate	3 or more hours	2 hours	1 hour
Graduate assistant*	2 or more hours	1 hour	—
Eight-week summer session			
Graduate	5 or more hours	3–4 hours	2 or fewer hours

* For enrollment verification purposes, "graduate assistant" is a generic term that includes teaching assistants, research assistants, teaching associates, and research associates.

hours cannot include audit enrollment. Enrollment in continuing registration (595, 695, or 795) does not fulfill the six-hour requirement. A half-time (50 percent) teaching and research assistant or associate working 20 clock hours per week may not register for more than 12 semester hours of course work each semester; a third-time (33 percent) assistant or associate for more than 13 semester hours; and a quarter-time (25 percent) assistant or associate for more than 15 semester hours.

All graduate students doing research; working on theses or dissertations; taking comprehensive, Graduate Foreign Language, or final examinations; or using university facilities or faculty time must be registered for a minimum of one semester hour of credit (not audit) that appears on the program of study or is an appropriate graduate-level course, such as 595, 695, or 795 Continuing Registration.

All doctoral students are expected to fulfill academic residence requirements. Contact the offices of individual degree programs for information on specific residency requirements.

Enrollment Verification Guidelines. The registrar is responsible for verifying enrollment according to the general guidelines. See the "Enrollment Verification Guidelines for Graduate Students" table, on this page.

DIVISION OF GRADUATE STUDIES DEGREE REQUIREMENTS

Graduate Advising

The Division of Graduate Studies' Referral Office offers general information about policies, procedures, requirements, and support services. Students with regular admission status should contact their academic unit for degree program advising and program of study planning.

Grading

The "Grades" table, on this page defines grades and gives their values.

Ordinarily the instructor of a course has full discretion in selecting which grades to use and report from the available grading options.

A grade of "P" (pass) in a 400-level course may not appear on a program of study. (The grade is not used at the graduate level.) Grades on transfer work or ASU law credit are not included in computing GPAs.

Grades

Grade	Definition	Value
A+	—	4.33[1]
A	Excellent	4.00
A-	—	3.67
B+	—	3.33
B	Good	3.00
B-	—	2.67
C+	—	2.33
C	Passing	2.00
D	No graduate credit	1.00
E	Failure	0.00
I	Incomplete	—
NR	No report	—
W	Withdrawal	—
X	Audit	—
Y	Satisfactory	—
Z	Course in progress[2]	—

[1] Although the scale includes a grade of A+ with a value of 4.33, the cumulative GPA is capped at 4.00.

[2] This grade is usually given pending completion of courses.

Grades of "D" (1.00) and "E" (0.00) cannot be used to meet the requirements for a graduate degree, although they are used to compute GPAs. A student receiving a grade of "D" (1.00) or "E" (0.00) must repeat the course in a regularly scheduled (not an independent study) class if it is to be included in the program of study. However, both the "D" (1.00) or "E" (0.00) and the new grade are used to compute GPAs.

Graduate course work (500-, 600-, and 700-level courses) reported as an "I" (incomplete) must be completed within one calendar year. At the time the "I" grade is given, the student must complete a "Request for Grade of Incomplete" form. The form first serves as a record of the "I" grade and the work required to complete it. When the student has

completed the work, the form then serves as a change-of-grade authorization.

If the work specified on the form is not completed within one calendar year, the "I" grade (500-, 600-, and 700-level courses) becomes part of the student's permanent transcript, and the student is not allowed to complete the course work as specified on the "Incomplete" form. The student may, however, repeat the course after the "I" has become permanent, by reregistering, paying fees, and fulfilling all course requirements. The grade for the repeated course appears on the transcript but does not replace the permanent "I."

A grade of "W" is given whenever a student officially withdraws.

Repeating ASU Courses. Graduate students (degree or nondegree) may retake any course at any level at ASU, but all grades remain on the student transcript as well as in GPA calculations.

University Policy for Student Appeal Procedures on Grades

Informal. The following steps, beginning with step A, must be followed by any student seeking to appeal a grade. Student grade appeals must be processed in the regular semester immediately following the issuance of the grade in dispute (by commencement for fall or spring), regardless of whether the student is enrolled at the university. University policy protects students filing grievances and those who are witnesses from retaliation. Students who believe they are victims of retaliation should immediately contact the dean of the college in which the course is offered.

A The aggrieved student must first follow the informal procedure of conferring with the instructor, stating the evidence (if any) and reasons for questioning that the grade received was not given in good faith. The instructor is obliged to review the matter, explain the grading procedure utilized, and show how the grade in question was determined. If the instructor is a graduate assistant and this interview does not resolve the difficulty, the student may then go to the faculty member in charge of the course (regular faculty member or director of the course sequence) with the problem.

B. If the grading dispute is not resolved in step A, the student may appeal to the department chair or other appropriate chair of the area within the department (if any). The department chair may confer with the instructor to handle the problem. Step B applies only in departmentalized colleges.

C. If these discussions are not adequate to settle the matter to the complainant's satisfaction, the student may then confer with the dean of the college concerned (or the dean-designate), who will review the case. If unresolved, the dean or designate may refer the case to the college academic grievance hearing committee to review the case formally. In most instances, however, the grievance procedure does not go beyond this level.

Formal. The following procedure takes place after steps A, B, and C (or A and C) have been completed.

D. Each college has on file in the office of the dean (and in each department of the college) the procedures and composition of the undergraduate or graduate academic grievance hearing committee for student grievances. Each college committee shall operate under grievance procedures as stated, which satisfy due process requirements. The committee shall always meet with the student and the instructor in an attempt to resolve the differences. At the conclusion of the hearing, the committee shall send its recommendations to the dean.

E. Final action in each case is taken by the dean after full consideration of the committee's recommendation. Grade changes, if any are recommended, may be made by the dean. The dean shall inform the student, instructor, department chair (if any), the registrar, and the grievance committee of any action taken.

Scholarship

To be eligible for a degree in the Division of Graduate Studies, a student must achieve two GPAs of "B" (3.00) or higher. The first GPA is based on all courses numbered 500 or higher that appear on the transcript. (Courses noted as deficiencies in the original letter of admission are not included.) The second GPA is based on all courses that appear on the program of study.

Graduate students (degree or nondegree) may retake any course at any level at ASU, but all grades remain on the student transcript as well as in GPA calculations.

Academic excellence is expected of students doing graduate work. Upon recommendation from the head of the academic unit, the dean of graduate studies can withdraw a student who is not progressing satisfactorily.

The designation of honors (such as *cum laude*) is reserved for undergraduates. The Division of Graduate Studies does not use these academic distinctions.

Graduate Credit Courses

Courses at the 500, 600, and 700 levels are graduate credit courses. Courses at the 400 level apply to graduate degree requirements when appearing on an approved program of study. However, 400-level courses are not graduate courses by definition and cannot be certified as such for purposes of employment or transferring to other institutions.

Reserving of Course Credit by Undergraduates. Seniors at ASU within 12 semester hours of graduation may enroll in a 400-level or graduate-level course and reserve the credit for possible use in a future graduate program. The course cannot be used to meet a baccalaureate graduation requirement, however. Before registration in the class, the student must submit a Division of Graduate Studies Petition form requesting credit reservation; the form must be signed by the student's advisor, the head of the academic unit offering the class, and the dean of graduate studies.

Permission to reserve a course does not guarantee that the student is admitted to a graduate degree program or that the course may be used toward graduate degree requirements. A maximum of nine hours of credit may be reserved, and only courses with a grade of "B" (3.00) or higher are applicable. Reserved credit earned before admission to a graduate degree program is classified as nondegree credit. The maximum course load for a student enrolled in a reserved course

is 15 semester hours during a regular semester and six hours during a summer session.

Transfer Credit. Transfer of credit is the acceptance of credit from another institution for inclusion in a program of study leading to a degree awarded by ASU.

Under most circumstances, transfer credit may not be applied toward the minimum degree requirements for an ASU degree if they have been counted toward the minimum requirements for a previously-awarded degree.

At the individual academic unit's discretion, the number of hours transferred from other institutions may not exceed 20 percent of the total minimum semester hours required for a master's degree unless stated otherwise for a specific degree program. At the academic unit's discretion, up to 12 hours of credit taken at another institution and not counted toward a previous degree may be counted toward the minimum semester hours required for a specific ASU doctoral degree program.

Transfer credit taken before admission to a graduate degree program at ASU is nondegree credit. Nondegree credit taken at ASU combined with nondegree credit taken at another institution may not exceed nine semester hours on the master's program of study. The nine-hour limit does not apply to doctoral programs.

The date (month/day/year) on the dean of graduate studies' letter of admission is the actual date of admission. If the student is enrolled in courses on the admission date, those courses—if applicable—may be considered part of a program of study. Courses taken the semester before this date are nondegree hours.

Certain types of graduate credits cannot be transferred to ASU, including the following:

1. credits awarded by postsecondary institutions in the United States that lack candidate status or accreditation by a regional accrediting association;
2. credits awarded by postsecondary institutions for life experience;
3. credits awarded by postsecondary institutions for courses taken at noncollegiate institutions (e.g., government agencies, corporations, and industrial firms);
4. credits awarded by postsecondary institutions for noncredit courses, workshops, and seminars offered by other postsecondary institutions as part of continuing education programs; and
5. credits given for extension courses.

Acceptable academic credits earned at other institutions that are based on a unit of credit different from the ones prescribed by the Arizona Board of Regents are subject to conversion before being transferred to ASU.

Transfer credits must be acceptable toward graduate degrees at the institution where the courses were completed. Only resident graduate courses (at the institution where the courses were completed) with an "A" (4.00) or "B" (3.00) grade may be transferred. A course with the grade of pass, credit, or satisfactory may not be transferred.

Official transcripts of any transfer credit to be used on a program of study must be sent directly to the Graduate Admissions Office from the Office of the Registrar at the institution where the credit was earned.

Graduate Supervisory Committees

When the program of study is filed, upon the recommendation of the head of the academic unit, the dean of graduate studies appoints a graduate student's supervisory committee, consisting of a chair and other resident faculty members. The number of members serving on this committee depends on the degree program. Generally, graduate supervisory committees must consist of a minimum of three individuals.

Academic professionals (e.g., research scientists, research engineers), nontenure-track faculty (e.g., adjunct professors, research professors), and individuals granted affiliated faculty status through established university procedures may serve as cochairs or members of thesis and dissertation committees upon approval by the Division of Graduate Studies. Individuals who are recommended by an academic unit as eligible to serve as a cochair must meet the criteria established by the academic unit and be approved by the Division of Graduate Studies.

Qualified individuals outside the university, upon the recommendation of the head of the academic unit and approval of the Division of Graduate Studies, may serve as members of thesis and dissertation committees; however, such individuals generally may not serve as chairs or cochairs (unless they have affiliated faculty status). With the approval of the academic unit and the dean of graduate studies, former ASU faculty with students completing their degrees may continue to serve as cochairs. At least half of the committee must be faculty from ASU.

Graduate Foreign Language Examination

A graduate degree program may require proficiency in a foreign language. If a foreign language is required, students must demonstrate at least a reading knowledge in the area of study required by the supervisory committee and consistent with the requirements for the graduate degree program.

Students who are required to demonstrate proficiency in a foreign language must pass the Graduate Foreign Language Examination specific to their particular graduate program. The examinations are administered three times each year by the Department of Languages and Literatures, which certifies language competency. The chair of the student's supervisory committee is responsible for providing the Department of Languages and Literatures with materials from which the examination is then prepared. The chair should submit or recommend relevant books or journals of approximately 200 pages in length in the desired foreign language.

A student may petition the Division of Graduate Studies for a reexamination but must pass the examination in no more than three attempts.

Students who take the Graduate Foreign Language Examination must be registered for a minimum of one semester hour of credit (not audit) that appears on the program of study or is an appropriate graduate-level course—such as 595, 695, 795 Continuing Registration—in the semester in which the exam is taken.

Theses and Dissertations

The master's thesis or equivalent is an introduction to research writing. All doctoral degree candidates must submit a dissertation, with the exception of the Doctor of Musical Arts degree in Music (with a concentration in conducting or performance), which requires three recitals and a research paper. The PhD dissertation should be a valuable educational experience that demonstrates the candidate's mastery of research methods, theory, and tools of the discipline. It should demonstrate the candidate's ability to address a major intellectual problem and to propose meaningful questions and hypotheses. The dissertation should be a contribution to knowledge that is worthy of publication by an established press as a book or monograph or as one or more articles in a reputable journal.

For format, the Division of Graduate Studies must review the final copy of the master's thesis, doctoral dissertation, and other final documents that are required to be placed in the library. Copies of the *Format Manual* are available in the Division of Graduate Studies and at www.asu.edu/graduate/formatmanual on the Web. The student is required to submit a complete copy of the thesis or dissertation for format review at least 10 working days (two weeks if there are no holidays during the time period) before the proposed date of the oral defense. Doctoral students are encouraged to submit a completed Survey of Earned Doctorates Awarded in the United States, conducted by the National Research Council.

Graduate students and their supervisory committee chairs jointly select a style guide or journal format representative of the field of study. The Division of Graduate Studies allows certain flexibility in the format of the manuscript, but Division of Graduate Studies and library guidelines must be followed.

The student must submit two final copies of a thesis or dissertation to the ASU Bookstore for binding no later than one year following the date of the oral defense. The student is responsible for the binding fees. Bound copies are placed in the Hayden Library and Archives. Doctoral students must submit one copy of the title page, approval page, and abstract (which must not exceed 350 words); the original signature of the doctoral student must appear on the University Microfilms International (UMI) Dissertation Agreement Form. The student is responsible for the UMI microfilming fee, which covers the expense of having the document sent to UMI, where it is microfilmed and catalogued. Information on the dissertation later appears in *Dissertation Abstracts International*.

Application for Graduation

Students should apply for graduation with the Graduation section of the University Registrar's Office no later than the date specified in the found in the *Graduate Catalog*. All fees are payable at that time. Students applying for graduation after the deadline listed in the calendar are required to pay a late fee. When a student applies for graduation, the student is officially notified of any requirements he or she has not yet completed.

Students are requested to complete a questionnaire that serves as a graduate student exit survey.

Students who do not complete all degree requirements by their anticipated graduation date are required to pay a refiling fee.

Summer Sessions

Work taken during summer sessions carries the same scholastic recognition as that taken during a regular semester. A complete schedule of offerings is available in the *Summer Sessions Bulletin,* which may be obtained from the Office of Summer Sessions.

Dates and Deadlines

The "Division of Graduate Studies Calendar," in the *Graduate Catalog,* lists deadlines for the submission of theses and dissertations to the Division of Graduate Studies, the last day to apply for graduation, the last day to hold an oral defense of a thesis or dissertation, and the last day to submit theses and dissertations to the ASU Bookstore for binding. This information is also available on the Web at www.asu.edu/graduate/generalinfo/GradDdlns. Published dates are subject to change.

Student Responsibility

Graduate students are responsible for knowing and observing all procedures and requirements of the Division of Graduate Studies as defined in the *Graduate Catalog,* the *Schedule of Classes,* and the *Format Manual*. Each student should also be informed about the requirements of his or her degree program and any special requirements within the academic unit.

ACADEMIC INTEGRITY

The highest standards of academic integrity are expected of all students. The failure of any student to meet these standards may result in suspension or expulsion from the university and/or other sanctions as specified in the academic integrity policies of individual colleges.

Violations of academic integrity include, but are not limited to, cheating, fabrication, tampering, plagiarism, or facilitating such activities.

The university academic integrity policy is available in the Office of Student Life, or on the Web at asu.edu/studentaffairs/studentlife/judicial/academic_integrity.htm.

MISCONDUCT IN SCHOLARLY RESEARCH AND CREATIVE ACTIVITIES

Students are expected to maintain the highest standards of integrity and truthfulness in scholarly research and creative activities. Misconduct in scholarly research and creative activities includes, but is not limited to, fabrication, falsification or misrepresentation of data, and plagiarism. Misconduct by any student may result in suspension or expulsion from the university and other sanctions as specified by the individual colleges. Policies on misconduct are available in the Office of the Vice President for Research and Economic Affairs and on the Web at www.asu.edu/aad/manuals/rsp/rsp210.html.

Intercollegiate Interdisciplinary Graduate Programs

Many graduate programs have an interdisciplinary dimension. The programs in this section are administered by the Division of Graduate Studies and/or by more than one college. Refer to the college sections for other interdisciplinary programs. For more information, see "Interdisciplinary Study," page 151.

Business Administration—PhD

The interdisciplinary PhD degree in Business Administration with a concentration in agribusiness is administered by the Morrison School of Agribusiness and Resource Management and W. P. Carey School of Business. The objective of this program is to produce scholars who are trained in the latest methods of business and economic analysis as they relate to agribusiness. Graduates of the agribusiness concentration are prepared to assume teaching and research positions at top-ranked research universities. For more information, see the *Graduate Catalog*.

Creative Writing—MFA

The interdisciplinary MFA degree in Creative Writing (with options in fiction, nonfiction, playwriting, and poetry) is administered by the Creative Writing Committee. This studio/academic program involves the research, creative activity, and teaching interests of faculty within the Department of English and School of Theatre and Film. This program provides students with the opportunity to tailor a course of study to fit individual needs, talents, and goals. Students work under the direction of faculty who are practicing, published writers. For more information, see the *Graduate Catalog*.

Exercise Science—PhD

The interdisciplinary PhD degree in Exercise Science is administered by the Committee on Exercise Science. This individualized interdisciplinary degree integrates graduate courses from a variety of academic units to provide a sound foundation for research leading to a dissertation with concentrations in biomechanics, motor behavior/sport psychology, or physiology of exercise. For more information, see the *Graduate Catalog*.

Materials Science—MS

The interdisciplinary MS degree in Materials Science is administered by the Committee on the Science and Engineering of Materials. Faculty representing various disciplines provide a sound foundation for research leading to a thesis. Emphasis is placed on application of the core fundamentals for investigation of the relationships between syntheses, microstructure, physical and chemical properties, and the performance of solids in current technological applications. For more information, see the *Graduate Catalog*.

Science and Engineering of Materials—PhD

The interdisciplinary PhD degree in Science and Engineering of Materials is administered by the Committee on the Science and Engineering of Materials. Areas of concentration are available in high-resolution nanostructure analysis and solid-state device materials design. Emphasis is placed on the applications of chemical thermodynamics, the mechanics of solids, quantum mechanics and transport theory for investigation of the relationships between the microstructure and properties of solids, and the dependence of microstructures on processing. For more information, see the *Graduate Catalog*.

SCIENCE AND ENGINEERING OF MATERIALS (SEM)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Statistics—MS

The interdisciplinary MS degree in Statistics is administered by the Committee on Statistics. The program involves faculty and resources from multiple academic units, including the School of Accountancy and Information Management and the Department of Mathematics and Statistics. Areas of emphasis include applied statistics, mathematical statistics, statistical computing, statistical modeling, and statistical sampling and survey research. For more information, see the *Graduate Catalog*.

CERTIFICATE PROGRAMS

A number of certificate programs are offered by various academic units or programs on campus (see the "ASU Graduate Certificates" table, page 131).

Atmospheric Science

The interdisciplinary certificate program in Atmospheric Science is administered by an Executive Committee composed of faculty from the Ira A. Fulton School of Engineering and the College of Liberal Arts and Sciences. The objective of this program is to recognize ASU graduate students who specialize in a thesis or dissertation topic related to the atmospheric or oceanic sciences. For more information, see the *Graduate Catalog*.

Geographic Information Science

The interdisciplinary certificate program in Geographic Information Science (GIS) is administered by an executive committee. The objective of this program is to enable existing ASU graduate students and GIS professionals with advanced degrees to learn how to apply GIS concepts and technology for the purposes of spatial analysis. For more information, see the *Graduate Catalog*.

Gerontology

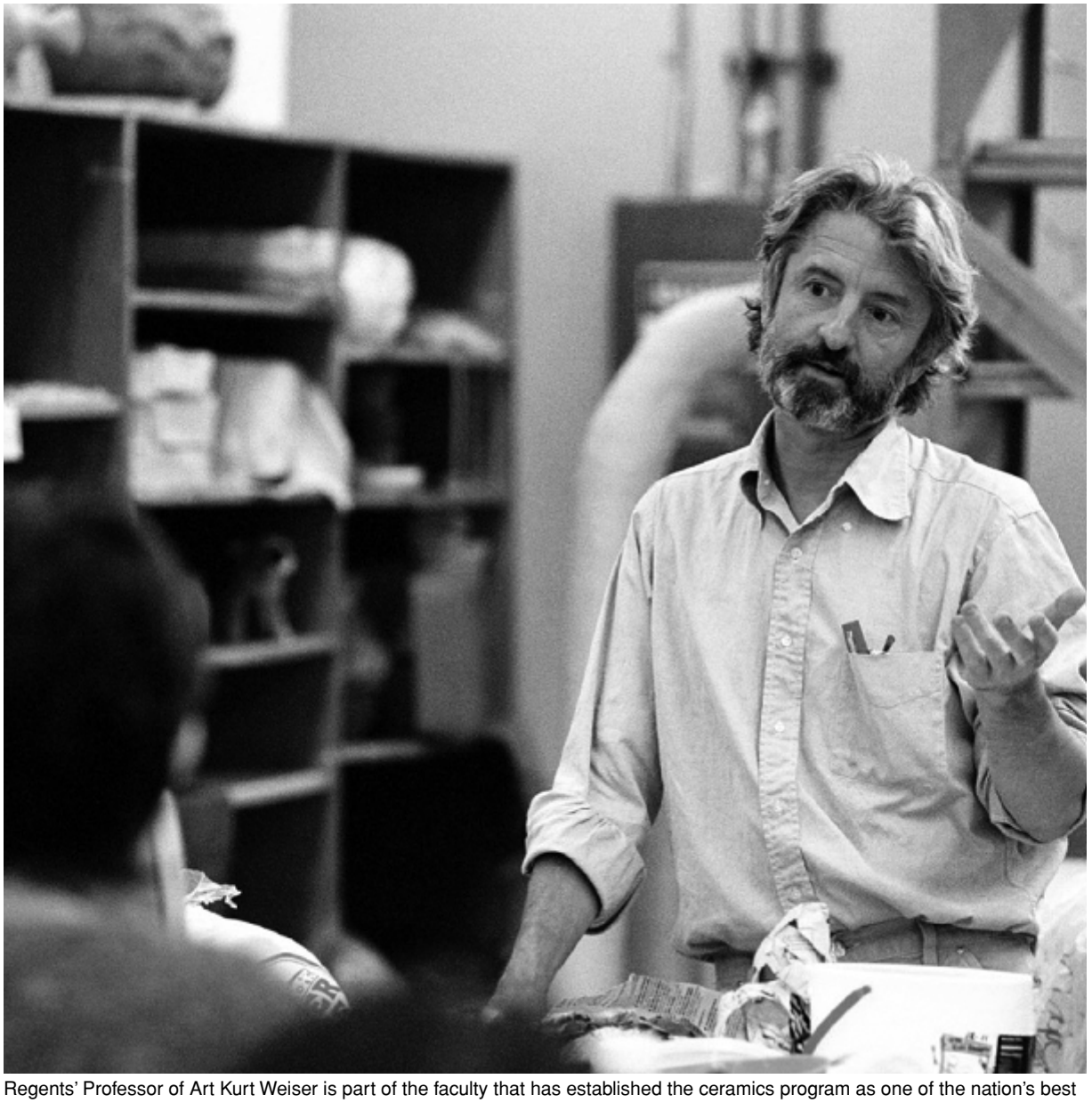
The interdisciplinary Certificate in Gerontology is administered by the Committee on Gerontology at the West campus. This program is open to individuals who have earned a baccalaureate degree. Students enrolled in the certificate program may simultaneously pursue a major in an academic unit offering a graduate degree or may enter the program as nondegree graduate students. For more information, see the *Graduate Catalog*.

Transportation Systems

The interdisciplinary Certificate in Transportation Systems program is administered by the Committee on Transportation Systems. The objective of this program is to enable existing ASU graduate students and transportation professionals with advanced degrees to examine transportation-related issues from a variety of perspectives and in the context of different travel modes. For more information, see the *Graduate Catalog*.

TRANSPORTATION SYSTEMS CERTIFICATE (TRC)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.



Regents' Professor of Art Kurt Weiser is part of the faculty that has established the ceramics program as one of the nation's best as ranked by *U.S. News and World Report*.

Tim Trumble photo

ASU Graduate Degrees

Graduate degrees, majors, and concentrations offered by the Polytechnic, Tempe, and West campuses and through the School of Extended Education are shown in the "ASU Graduate Degrees" table, on this page, organized by the name of the major. The table includes only officially approved concentrations; other informal areas of study may be available. See also the "Concurrent and Dual Degrees" table, page 169.

ASU offers these graduate degrees, abbreviated in the table below and elsewhere in the catalog:

Master of Accountancy and Information Systems (MAIS)
Master of Advanced Study (MAS)
Master of Architecture (MArch)
Master of Arts (MA)
Master of Business Administration (MBA)
Master of Computer Science (MCS)
Master of Computing Studies (MCST)
Master of Counseling (MC)
Master of Education (MEd)
Master of Engineering (MEng)
Master of Fine Arts (MFA)
Master of Health Sector Management (MHSM)
Master of Laws (LLM)
Master of Legal Studies (MLS)
Master of Liberal Studies (MLSt)
Master of Mass Communication (MMC)
Master of Music (MM)
Master of Natural Science (MNS)
Master of Physical Education (MPE)
Master of Public Administration (MPA)
Master of Public Health (MPH)
Master of Science (MS)
Master of Science in Design (MSD)
Master of Science in Engineering (MSE)
Master of Science in Technology (MSTech)
Master of Social Work (MSW)
Master of Taxation (MTax)
Master of Teaching English as a Second Language (MTESL)
Master of Urban and Environmental Planning (MUEP)
Professional Science Master's (PSM)
Doctor of Audiology (AuD)
Doctor of Education (EdD)
Doctor of Musical Arts (DMA)
Doctor of Nursing Science (DNS)
Doctor of Philosophy (PhD)
Juris Doctor (JD)

ASU Graduate Degrees

Major	Degree	Concentration[1]	Campus
Accountancy and Information Systems	MAIS	—	Tempe
Aerospace Engineering	MS, MSE, PhD	—	Tempe
Agribusiness	MS	Optional: agribusiness management and marketing or food quality assurance[1]	Polytechnic
Anthropology	MA	Archaeology, bioarchaeology, linguistics, museum studies, physical anthropology, or social-cultural anthropology	Tempe
	PhD	Archaeology, physical anthropology, or social-cultural anthropology	Tempe
Applied Biological Sciences	MS	GIS/remote sensing, natural resource management, or range ecology	Polytechnic
Applied Psychology	MS	—	Polytechnic
Architecture	MArch	—	Tempe

[1] If a major offers concentrations, one must be selected unless noted as *optional*.

[2] This program is also offered through the School of Extended Education.

[3] Applications are not being accepted at this time.

[4] This major is jointly offered with the University of Arizona.

[5] Students may pursue this degree only in conjunction with the doctoral degree in the same unit, which admits students to only the doctoral degree program.

ASU Graduate Degrees (continued)

Major	Degree	Concentration[1]	Campus
Art	MA	Art education or art history	Tempe
	MFA	Ceramics, digital technology, drawing, fibers, intermedia, metals, painting, photography, printmaking, sculpture, or wood	Tempe
Asian Languages and Civilizations—Chinese/ Japanese	MA	—	Tempe
Audiology	AuD	—	Tempe
Bioengineering	MS, PhD	—	Tempe
Biology	MS, PhD	Optional: ecology[1]	Tempe
Biotechnology and Genomics	LLM	—	Tempe
Building Design	MS	Design knowledge and computing, energy performance and climate-responsive architecture, or facilities development and management	Tempe
Business Administration	MBA	—	Tempe[2]
			West
	PhD	Accountancy, agribusiness, computer information systems, finance, health services research,[3] management, marketing, or supply chain management	Tempe
		Agribusiness	Polytechnic
Chemical Engineering	MS, MSE, PhD	—	Tempe
Chemistry	MS, PhD	Analytical chemistry, biochemistry, geochemistry, inorganic chemistry, organic chemistry, physical chemistry, or solid-state chemistry	Tempe
Civil and Environmental Engineering	MS, MSE, PhD	—	Tempe
Communication	MA	—	Tempe
	PhD	Communicative development, intercultural communication, or organizational communication	Tempe
Communication Disorders	MS	—	Tempe
Communication Studies	MA	—	West
Composition	MM	Optional: interdisciplinary digital media and performance[1]	Tempe
Computational Biosciences	PSM	—	Tempe
Computer Science	MCS	—	Tempe
	MS, PhD	Optional: arts, media, and engineering[1]	Tempe
Computing Studies	MCST	—	Polytechnic
Construction	MS	Optional: construction science, facilities, or management[1]	Tempe
Counseling	MC	—	Tempe
Counseling Psychology	PhD	—	Tempe
Counselor Education	MEd	—	Tempe
Creative Writing	MFA	—	Tempe
Criminal Justice	MA	—	West

[1] If a major offers concentrations, one must be selected unless noted as *optional*.

[2] This program is also offered through the School of Extended Education.

[3] Applications are not being accepted at this time.

[4] This major is jointly offered with the University of Arizona.

[5] Students may pursue this degree only in conjunction with the doctoral degree in the same unit, which admits students to only the doctoral degree program.

ASU Graduate Degrees (continued)

Major	Degree	Concentration[1]	Campus
Curriculum and Instruction	MA	Bilingual education, early childhood education, elementary education, English as a second language, Indian education, language and literacy, mathematics education, science education, secondary education, or social studies education	Tempe
	MEd	Bilingual education, early childhood education, elementary education, English as a second language, Indian education, language and literacy, mathematics education, professional studies, science education, secondary education, or social studies education	Tempe[2]
		English as a second language, instructional media in K–12 schools, or professional studies	Polytechnic
	EdD	Bilingual education,[3] curriculum studies, early childhood education, elementary education,[3] English as a second language,[3] Indian education,[3] language and literacy, mathematics education, science education, secondary education, or social studies education[3]	Tempe
	PhD	Art education, curriculum studies, early childhood education, elementary education, English education, language and literacy, mathematics education, science education, or special education	Tempe
		Exercise and wellness education, physical education	Polytechnic
Dance	MFA	Optional: interdisciplinary digital media and performance[1]	Tempe
Design	MSD	Graphic design, industrial design, or interior design	Tempe
Economics	MS[3], PhD	—	Tempe
Educational Administration and Supervision	MEd	—	Tempe[2] West
	EdD	—	Tempe
Educational Leadership and Policy Studies	PhD	—	Tempe
Educational Psychology	MA, MEd	—	Tempe
	PhD	Learning; lifespan developmental psychology; measurement, statistics, and methodological studies; or school psychology	Tempe
Educational Technology	MEd, PhD	—	Tempe
Electrical Engineering	MS, PhD	Optional: arts, media, and engineering[1]	Tempe
	MSE	—	Tempe[2]
Elementary Education	MEd	Optional: bilingual education, educational technology, ESL education, or reading[1]	West
Engineering	MEng	—	Tempe[2]
Engineering Science	MS	—	Tempe
	MSE	Executive embedded systems	Tempe[2]
	PhD	Materials science and engineering	Tempe
English	MA	Comparative literature, English linguistics, literature and language, or rhetoric and composition	Tempe
	PhD	Literature or rhetoric/composition and linguistics	Tempe

[1] If a major offers concentrations, one must be selected unless noted as *optional*.

[2] This program is also offered through the School of Extended Education.

[3] Applications are not being accepted at this time.

[4] This major is jointly offered with the University of Arizona.

[5] Students may pursue this degree only in conjunction with the doctoral degree in the same unit, which admits students to only the doctoral degree program.

ASU Graduate Degrees (continued)

Major	Degree	Concentration[1]	Campus
Environmental Design and Planning	PhD	Design; history, theory, and criticism; or planning	Polytechnic Tempe
Exercise and Wellness	MS	—	Polytechnic
Family and Human Development	MS	Optional: family studies[1]	Tempe
Family Science	PhD	Optional: marriage and family therapy[1]	Tempe
French	MA	Comparative literature, linguistics, or literature	Tempe
Geographic Information Systems	MAS	—	Tempe
Geography	MA, PhD	—	Tempe
Geological Sciences	MS, PhD	—	Tempe
German	MA	Comparative literature, language and culture, or literature	Tempe
Health Sector Management	MHSM	—	Tempe[2]
Higher and Postsecondary Education	MEd, EdD	Optional: higher education[1]	Tempe
History	MA PhD	Asian history, British history, European history, Latin American history, public history, U.S. history, or U.S. Western history Asian history, British history, European history, Latin American history, or U.S. history	Tempe Tempe
History and Theory of Art[4]	PhD	—	Tempe
Industrial Engineering	MS, MSE, PhD	—	Tempe
Information Management	MS	—	Tempe
Interdisciplinary Studies	MA	Optional: gerontology[1]	West
Justice Studies	MS PhD	— Optional: criminal and juvenile justice; dispute resolution; law, justice, and minority populations; law, policy, and evaluation; or women, law, and justice[1]	Tempe Tempe
Kinesiology	MS PhD	— Biomechanics, motor behavior/sport psychology, or physiology of exercise	Tempe Tempe
Law	JD	—	Tempe
Leadership and Innovation	EdD	Leadership in policy and administration or leadership of teaching innovation	West
Legal Studies	MLS	—	Tempe
Liberal Studies	MLSt	—	Tempe
Mass Communication	MMC	—	Tempe
Materials Engineering	MS, MSE	—	Tempe
Materials Science	MS	—	Tempe
Mathematics	MA PhD	— Optional: Computational biosciences[1]	Tempe Tempe
Mechanical Engineering	MS, MSE, PhD	—	Tempe

[1] If a major offers concentrations, one must be selected unless noted as *optional*.

[2] This program is also offered through the School of Extended Education.

[3] Applications are not being accepted at this time.

[4] This major is jointly offered with the University of Arizona.

[5] Students may pursue this degree only in conjunction with the doctoral degree in the same unit, which admits students to only the doctoral degree program.

ASU Graduate Degrees (continued)

Major	Degree	Concentration[1]	Campus
Microbiology	MS, PhD	—	Tempe
Molecular and Cellular Biology	MS	—	Tempe
	PhD	Optional: Computational biosciences[1]	Tempe
Music	MA	Ethnomusicology, music history and literature, or music theory	Tempe
	DMA	Conducting, interdisciplinary digital media and performance, music composition, music education, or performance	Tempe
Music Education	MM	Choral music, general music, instrumental music, or jazz studies	Tempe
Music Therapy	MM	—	Tempe
Natural Science	MNS	Biology, chemistry, geological sciences, mathematics, microbiology, physics, and/or plant biology	Tempe
Nursing	MS	Adult health nursing, community health nursing, family health nursing, nursing administration,[3] parent-child nursing, psychiatric/mental health nursing, or women's health	Downtown[2]
	DNS	Health processes or health outcomes	Downtown
Nutrition	MS	—	Polytechnic
Performance	MM	Collaborative piano, music theatre/opera musical direction, music theatre/opera performance, performance, or performance pedagogy	Tempe
Philosophy	MA, PhD	—	Tempe
Physical Activity, Nutrition, and Wellness	PhD	—	Polytechnic
Physical Education	MPE	—	Polytechnic
Physics	MS, PhD	—	Tempe
Plant Biology	MS, PhD	Optional: ecology or photosynthesis[1]	Tempe
	PhD	—	Polytechnic
Political Science	MA, PhD	American politics, comparative politics, international relations, or political theory	Tempe
Psychology	MA[5]	—	Tempe
	PhD	Behavioral neuroscience, clinical psychology, cognitive/behavioral systems, developmental psychology, quantitative research methods, or social psychology	Tempe
Public Administration	MPA	Optional: nonprofit administration[1]	Downtown[2]
	PhD	—	Downtown
Public Health[3]	MPH	Community health practice or health administration and policy	Tempe
Recreation	MS	—	Downtown
Religious Studies	MA, PhD	—	Tempe
Science and Engineering of Materials	PhD	High-resolution nanostructure analysis or solid-state device materials design	Tempe
Secondary Education	MEd	Optional: educational technology[1]	West

[1] If a major offers concentrations, one must be selected unless noted as *optional*.

[2] This program is also offered through the School of Extended Education.

[3] Applications are not being accepted at this time.

[4] This major is jointly offered with the University of Arizona.

[5] Students may pursue this degree only in conjunction with the doctoral degree in the same unit, which admits students to only the doctoral degree program.

ASU Graduate Degrees (continued)

Major	Degree	Concentration[1]	Campus
Social and Philosophical Foundations of Education	MA	—	Tempe
Social Work	MSW	Advanced direct practice or planning, administration, and community practice	Downtown[2]
		Advanced generalist practice	West
	PhD	—	Downtown
Sociology	MA, PhD	—	Tempe
Spanish	MA	Comparative literature, language and culture, linguistics, or literature	Tempe
	PhD	Cultural studies or literature	Tempe
Special Education	MA	—	Tempe
	MEd	Gifted, mildly disabled, multicultural exceptional, or severely/multiply disabled	Tempe
		Infants and young children	West
Speech and Hearing Science	PhD	Developmental neurolinguistic disorders, neuroauditory processes, or neurogerontologic communication disorders	Tempe
Statistics	MS	—	Tempe
Taxation	MTax	—	Tempe
Teaching English as a Second Language	MTESL	—	Tempe
Technology	MSTech	Aeronautical engineering technology, aviation management and human factors, computer systems, electronic systems engineering technology, environmental technology management[2], fire service administration[2], global technology and development, graphic information technology, instrumentation and measurement technology, management of technology, manufacturing engineering technology, mechanical engineering technology, microelectronics engineering technology, or security engineering technology	Polytechnic
Theatre	MA	—	Tempe
	MFA	Directing, interdisciplinary digital media, performance, performance design, or theatre for youth	Tempe
	PhD	Theatre and performance of the Americas or theatre for youth	Tempe
Tribal Policy, Law, and Government	LLM	—	Tempe
Urban and Environmental Planning	MUEP	—	Tempe

[1] If a major offers concentrations, one must be selected unless noted as *optional*.

[2] This program is also offered through the School of Extended Education.

[3] Applications are not being accepted at this time.

[4] This major is jointly offered with the University of Arizona.

[5] Students may pursue this degree only in conjunction with the doctoral degree in the same unit, which admits students to only the doctoral degree program.

Concurrent and Dual Degrees

Degrees	Administered By
JD/MBA	College of Law/W. P. Carey School of Business
JD/MD	College of Law/Mayo Medical School
JD/MHSM	College of Law/School of Health Management and Policy
JD/MS in Economics*	College of Law/Department of Economics
JD/PhD in Justice Studies	College of Law/School of Justice and Social Inquiry
JD/PhD in Psychology	College of Law/Department of Psychology
MA in Anthropology/MS in Justice Studies	School of Human Evolution and Social Change/School of Justice and Social Inquiry
MAIS/MBA	W. P. Carey School of Business
MArch/MBA	School of Architecture and Landscape Architecture/ W. P. Carey School of Business
MBA/MHSM	W. P. Carey School of Business
MBA/MS in Economics*	W. P. Carey School of Business
MBA/MSE in Electrical Engineering	W. P. Carey School of Business and Department of Electrical Engineering
MBA/MS in Information Management	W. P. Carey School of Business
MBA/MTax	W. P. Carey School of Business
MBA/Master of International Management	W. P. Carey School of Business/Carlos III University of Madrid (Spain); Graduate School of Business Administration (Peru); Graduate School of Commerce (France); Monterrey Institute for Technical and Superior Studies, Mexico State Campus (Mexico); and Thunderbird, the Garvin School of International Management
MS in Nursing/MPH*	College of Nursing/University of Arizona College of Public Health
MSE in Industrial Engineering/Master of International Management of Technology	Department of Industrial Engineering/Thunderbird, the Garvin School of International Management

* Applications for this program are not being accepted at this time.

Joint Undergraduate/Graduate Degrees

Degrees	Administered By
BA/MA in Political Science	College of Liberal Arts and Sciences/Department of Political Science
BS/MA in Mathematics	College of Liberal Arts and Sciences/Department of Mathematics and Statistics
BS/MS in Biology	College of Liberal Arts and Sciences/School of Life Sciences
BS/MS in Computer Science	Department of Computer Science and Engineering
BSE in Computer Systems Engineering/MS in Computer Science	Department of Computer Science and Engineering
BSE/MS in Aerospace Engineering	Department of Mechanical and Aerospace Engineering
BSE/MS in Mechanical Engineering	Department of Mechanical and Aerospace Engineering
BS in Computational Mathematical Sciences/MA in Mathematics	College of Liberal Arts and Sciences/Department of Mathematics and Statistics

International Programs

ipo.asu.edu

William G. Davey, PhD, Director

PURPOSE

Arizona State University is an internationally recognized research and doctoral granting institution. The International Programs Office (IPO) is responsible for developing and implementing a wide variety of international policies and activities. As part of the Office of the Executive Vice President and Provost, IPO administers university study programs abroad, visiting scholar programs at ASU, and protocol for international visitors. In cooperation with academic and administrative units, IPO develops international policies for ASU, represents the international interests of the university to the community at large, administers scholarships for studying abroad, supports faculty exchanges, and facilitates joint international research and training projects. IPO also represents the university's international interests to professional organizations and government agencies. The Office of Immigration Programs for International Faculty and Scholars within IPO assumes responsibility for international visitors who come to work, study, or conduct research on the ASU campuses, and also operates one of the nation's first U.S. Passport Offices located at a state university.

China is a dynamic study abroad destination with many unique cultural landmarks, including this mosque in Xi'an.

Diana Chu photo

ACADEMIC PROGRAMS

The Department of State-sponsored IIE Open Doors report ranks ASU as one of the nation's top twenty institutions in terms of student international mobility. In increasing numbers, students have chosen ASU because of its excellence in international programs, including extensive international study opportunities.

Two types of programs—study abroad and student exchange—are designed to enhance the academic development, professional preparation, and international perspective of students.

IPO offers more than 200 fall and spring semester and year-long international programs for ASU resident credit. Students on an IPO study abroad or exchange program retain full-time student status and the catalog status they held at the time of their departure. Study Abroad and Exchange Programs are available in Albania, Argentina, Armenia, Australia, Austria, Belgium, Brazil, Canada, Chile, China, Costa Rica, Czech Republic, Denmark, Dominican Republic, Ecuador, Egypt, England, France, Germany, Ghana, Greece, Hungary, India, Ireland, Israel, Italy, Japan, Jordan, Macedonia, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Russia, Scotland, Senegal, Serbia, Singapore, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, and Vietnam.

For a current list of host universities (in the countries listed in the previous paragraph) and the programs they offer, view the program menu on the IPO Web site at ipo.asu.edu/asu/program.

Exchange Programs. Exchange programs are those in which ASU students may study at a foreign institution, and students from that institution have a reciprocal opportunity to study at ASU. Participants simply pay their normal registration fees and tuition at ASU. For exchange programs, ASU registration fees and tuition may be paid by scholarships or waivers. Financial aid may, in most cases, be applied to the costs of exchange programs. Exchange programs offer students the chance to enter mainstream university life in the country of their choice. Normally, participation in an exchange program is dependent on prior attainment of an adequate level of language competence to be able to function in classes in the host country.

In several instances, students may have the opportunity to obtain advanced-level intensive language instruction for approximately one month in the host country before the start of the academic term.

Diverse program locations for students proficient in the host language include Chile, France, Germany, Korea, Mexico and more. Students desiring exchange programs with English as the language of instruction may consider programs in not only Australia, England, New Zealand, and Scotland, but also Austria, Netherlands, Scandinavia, Singapore, and Thailand. IPO also offers special exchanges in Japan, Italy, and Mexico where both English and the host language may be used.

Study Abroad Programs. IPO offers a world of study abroad programs, which are distinct from exchange programs in two ways: (1) rather than pay one's ASU tuition for the terms abroad as exchange programs require, participants simply pay a program fee to IPO that covers costs associated with that particular program, and financial aid may be applied to the program fee; (2) there is no reciprocal exchange of students (no foreign students come to ASU for the participants IPO sends abroad).

IPO Exchange and study abroad programs are administered in three ways:

1. direct programs,
2. partnership programs, and
3. specialty programs.

Direct Programs. ASU offers numerous study abroad and exchange program destinations through direct affiliation with overseas schools and universities. IPO direct programs can accommodate students from nearly every ASU major and suit a variety of personal preferences.

Partnership Programs. IPO works in conjunction with select major national program providers, such as the *American Institute for Foreign Study* (AIFS), *International Studies Abroad* (ISA), the *Institute for Study Abroad, Butler University* (IFSA, Butler), and the *Council for International Educational Exchange* (CIEE), to expand the number of quality program choices available to ASU students. Partnership programs offer opportunities for ASU students to study abroad through IPO on programs offered by these reputable partners while still maintaining enrollment at ASU, allowing access to ASU financial aid and resulting in ASU resident credit.

Specialty Programs. Specialty programs are specifically designed by one academic unit (school, college, or department), are partly administered by that unit in cooperation with IPO, and are only available to students from that academic area. Specialty programs are offered by the College of Human Services (for social work), the College of Education (for student teaching), the College of Law, the Ira A. Fulton School of Engineering, the Morrison School of Agribusiness and Resource Management, the School of Architecture, and the W. P. Carey School of Business.

International Programs maintains close ties with ASU's area studies programs, including the Center for Asian Studies, the programs in Korean Studies and Southeast Asian Studies, the Latin American Studies Center, and the Russian and East European Studies Consortium. Many IPO programs are specifically designed for students in these areas.

Close relationships are maintained with a number of campus partners. IPO cooperates with the Office of Pan-American Initiatives in the development of international relationships with international exchange and research opportunities throughout the Americas. The Barrett Honors College cooperates in the creation of special programs for the benefit of its students. The Department of Languages and Literatures assists in the staffing and management of a number of study abroad programs, especially those related to language acquisition. The W. P. Carey School of Business and College of Liberal Arts and Sciences maintain advising services and offer scholarships for their students intending to study abroad.

International Internship Opportunities. The International Programs Office provides numerous programs with professional credit-bearing international internship opportunities. IPO is affiliated with European Study Abroad to offer an eight-week, six semester hour internship in London or Madrid. Internship placements are available for most majors. In addition to the internship, students take two academic courses relating to the culture, language, and politics of the host country. Internship opportunities may be available in Australia, England, Germany, Ireland, and Mexico.

Procedures. Students interested in participating in such programs should contact the International Programs Office in TMPCT 198.

IPO assists students through every stage of planning, preparation, participation, and return from exciting international educational experiences. International Program coordinators are available to assist students in choosing a program that meets academic, personal, and professional goals.

Information on programs can be obtained from the International Programs Office in TMPCT 198, from the IPO Web page at ipo.asu.edu, or by phone at 480/965-5965.

How to Apply. Students interested in applying for an international program start the process by attending a Study Abroad 101 information session, held every Tuesday, Wednesday, and Friday from 3:30 P.M. to 4:30 P.M. at IPO. Students may then set up a personal account called myIPO at ipo.asu.edu/myipo. Through myIPO, students select their program preference and begin the application process. Eligible students then obtain the program specific application packet at IPO. Completed application packets are due to IPO by October 1, for spring programs, and by March 1, for fall and academic year programs. After the application process is completed, students attend predeparture orientations conducted by IPO. The presentations prepare participants for a comfortable and rewarding international experience.

Immigration Programs for International Faculty and Scholars. The International Faculty and Scholars Office (Immigration/Employment Visa Services) of the IPO is responsible for administration of the university's Exchange Visitor Program and Employment-Based Visa Programs. The responsibilities of this office also include providing information, guidance, and advice to the various departments, programs, and colleges of the Polytechnic, Tempe, and West campuses, as well as to the university's faculty, staff, students, and guests on questions and issues related to the university's J-1 Exchange Visitor and Employment-Based Visa programs and other immigration-related issues.

Summer Sessions

www.asu.edu/summer **Carol Switzer, MS, Director**

PURPOSE

Summer Sessions offers more than 4,000 fully accredited courses and provides an opportunity for students to begin or continue academic work on a year-round basis. Summer courses are equivalent to fall and spring courses in terms of content, credit awarded, and the standards expected of students regarding academic performance.

The program offers two five-week sessions and one eight-week session. See "University Calendar," page 22, for specific dates.

All Tempe campus courses (except some KIN courses) are held in air-conditioned classrooms or laboratories. A number of courses are offered at off-campus locations.

Through various summer study programs, ASU also offers students the opportunity to earn credit while studying in foreign countries. These programs are directed by ASU faculty and have been approved by the appropriate academic unit.

For more information, access the Summer Sessions Web site at www.asu.edu/summer.

Admission and Registration. The admission and registration process for summer sessions begins when the *Summer Sessions Bulletin* is distributed in early March.

Admission. All students must be admitted to ASU for the summer as nondegree students before enrolling, except continuing students who attend during the previous spring semester. New students admitted for the fall semester following the current summer must process the summer nondegree admission form before enrolling. The submission of transcripts or test scores is not required to attain this status.

Readmission. ASU students not enrolled during the spring semester preceding the current summer must be readmitted. See "Readmission to the University," page 80.

Conditional admission before graduation from high school may be granted. See "Admission Before Receipt of Final Transcript," page 67.

Advising. All students are strongly encouraged to seek academic advising before enrolling in summer courses. See "Academic Advising," page 79.

Bulletin. The *Summer Sessions Bulletin,* which contains the class schedule and the registration procedure, is available in early March at the Office of Summer Sessions, RITT B160, and at all registrar locations. The *Summer Sessions Bulletin* is also available on the Web at www.asu.edu/summer.

To request the *Summer Sessions Bulletin*, summer study abroad brochures, or other summer information, call 480/965-6611, or write

SUMMER SESSIONS
ARIZONA STATE UNIVERSITY
PO BOX 870601
TEMPE AZ 85287-0601

Food Services. Meal plans are available. For more information, access the Web site at www.asucampusdining.com, call 480/965-3464, or write

CAMPUS DINING
ARIZONA STATE UNIVERSITY
PO BOX 871101
TEMPE AZ 85287-1101

Housing. Air-conditioned residence halls are available for Tempe campus students. For more information, access the Web site at www.asu.edu/studentaffairs/reslife, call 480/965-3515, or write

RESIDENTIAL LIFE
ARIZONA STATE UNIVERSITY
PO BOX 870212
TEMPE AZ 85287-0212

Immunization. Students born after December 31, 1956, are not permitted to register without proof of measles (rubeola) immunity or immunization given after January 1, 1980. See "Immunization Requirements," page 74.

Parking. A decal is required to park at ASU. For more information, access the Web site at www.asu.edu/dps/pts, call 480/965-6124, or write

PARKING SERVICES
ARIZONA STATE UNIVERSITY
PO BOX 870704
TEMPE AZ 85287-0704

Registration. Registration may be completed online, by using SunDial, or in person. For more information, see the *Summer Sessions Bulletin.*

A maximum of seven semester hours in each five-week session or nine semester hours in the eight-week session may be taken. Hours of enrollment in any other institution or independent learning course are included in the maximum allowable course load during any given session.

Tuition and Fees. Summer sessions students pay for the actual number of semester hours enrolled, plus the Associated Students' Association fee, the Financial Aid Trust Fee, and the Student Recreation Complex fee. Students are also required to pay any special fees attached to specific classes. For more information, see the *Summer Sessions Bulletin.*

Downtown Phoenix Campus

www.asu.edu/downtownphoenix

Mernoy E. Harrison Jr., PhD,
Vice President, ASU; Provost, Downtown Phoenix Campus

Arizona State University is partnering with the City of Phoenix to build a modern, vibrant university campus in downtown Phoenix as part of a larger plan to revitalize and redevelop the city's urban core. ASU envisions a campus embedded within the city, embracing the cultural, socioeconomic, and physical setting of urban downtown Phoenix in the 21st century. The first phase of the campus will open in the fall semester of 2006. The full manifestation of ASU in downtown Phoenix is likely to take more than 10 years to achieve. When fully developed, the new full-service downtown Phoenix campus will serve 15,000 students, with academic buildings, student and nonstudent housing, compatible retail development, and cultural programs that create an active 24/7 environment. Current plans call for the College of Nursing, the Walter Cronkite School of Journalism and Mass Communication, the College of Public Programs (which includes the School of Community Resources and Development, the School of Social Work, and the School of Public Affairs), and KAET-TV (Channel 8) to relocate from the Tempe campus to downtown Phoenix.

In addition, University College has been created to provide undergraduate students with a cross-college alternative to the existing majors. Construction of the campus is being designed around the planned light rail system, which will provide a 20-minute commute between the downtown Phoenix and Tempe campuses.

CAMPUS STUDENT SERVICES

The Downtown Phoenix campus will have an array of student services, including but not limited to the following:

1. admissions and registration services,
2. academic advising,
3. Associated Students—student government,
4. ASU shuttle service,
5. bookstore,
6. counseling,
7. career services,
8. disability resource center,
9. financial aid services,
10. food service,
11. library services,
12. mail/postal services,
13. multicultural student services,
14. parking,
15. recreation and wellness and fitness,
16. student employment,
17. student housing—residential life,
18. student health care, and
19. tutoring.

For more information, access the Downtown Phoenix campus Web site at www.asu.edu/downtownphoenix.

A view of downtown Phoenix

Randy Bailey photo

College of Nursing

nursing.asu.edu

Bernadette M. Melnyk, PhD, Dean

PURPOSE

The faculty in the College of Nursing acknowledge their responsibility to health care consumers for the preparation through teaching, research, practice, and service of individuals who can provide professional quality nursing care. The purpose of the College of Nursing is to provide educational programs that prepare professional nurses to meet the health care needs of individuals, groups, and communities. To achieve this purpose, the college offers undergraduate, graduate, post-master's, doctoral, and continuing and extended education programs. Within the context of a liberal education, the degree programs prepare professional nurses who

1. provide the highest-quality health care to individuals, groups, and communities and who critically examine and effectively respond to the changing health care needs of society;
2. conduct research and creative activities that strengthen the knowledge base of the discipline, improve evidence-based nursing practice, and benefit the health of individuals, groups, and communities; and
3. provide service to the community through a range of nursing activities with diverse populations in a variety of settings.

The continuing and extended education program facilitates lifelong learning by providing opportunities for registered nurses (RNs) to enhance and expand their nursing practice to meet the health care needs of various populations and to further their own professional development.

ORGANIZATION

The College of Nursing is organized under three associate deans: academic affairs, research, and clinical practice and community partnerships.

The college offers an undergraduate program leading to a Bachelor of Science in Nursing (BSN) degree, a Master of Science (MS) degree in Nursing with preparation for advanced practice in nursing, a Doctor of Nursing Science (DNS) degree, and continuing and extended education opportunities for RNs, which include RN-BSN and RN-BSN-MS program tracks. A Post-Master's Nurse Practitioner program and a Graduate Certificate in Evidence-Based Practice in Nursing and Healthcare are also available.

ADMISSION

Preprofessional Admission. Students are admitted into the College of Nursing as "premajor Nursing" students. Admission to ASU as a premajor Nursing student does not guarantee admission into the professional program. Admission to the professional program requires a separate application to the College of Nursing and is competitive, with the greatest emphasis placed on grade point average based on selected prerequisite courses.

In addition to meeting the university requirements for admission, it is recommended that students complete one year each of high school chemistry and biology.

Premajor Nursing students are required to seek academic advising each semester through the College of Nursing Student Services Office. This advising includes course planning and information about application materials and deadlines.

Transfer Credits. While ASU accepts transfer credit from other accredited institutions, all transfer credit may not apply toward a BSN degree. Students completing course work at a community college or university other than ASU should consult a College of Nursing academic advisor to plan an appropriate sequence of prerequisite courses and to apply to the professional program. The college has a transfer partnership agreement with the Maricopa Community College District. See a College of Nursing academic advisor for details. The college may not accept transfer credit (especially science) completed more than seven years before the date of application to the professional program.

Professional Program Admission. Individuals interested in applying to the professional program must receive advising from a College of Nursing academic advisor and are required to attend an application workshop. Contact the Student Services Office in the College of Nursing at 480/965-2987 for details. Students are eligible for consideration for admission to the professional program if they meet the following criteria:

1. regular admission to the College of Nursing at the Downtown campus as a premajor Nursing student;
2. academic good standing at ASU and in the College of Nursing;
3. minimum prerequisite GPA of 2.75;
4. completion of designated prerequisite courses with an earned grade of "C" (2.00) or higher in each course;
5. completion of all application materials;
6. submission of all required health and immunization requirements;
7. a Test of English as a Foreign Language (TOEFL) score of 550 or higher for international students (see "TOEFL," page 73);
8. receipt of entrance examination scores; and
9. submission of other required materials.

Admission is selective and based on available resources. Meeting the minimum prerequisite GPA does not ensure admission. All qualified applicants may not be admitted. Students admitted to the professional program are required to meet the following additional criteria:

1. proof of CPR certification (Level C American Heart Association Health Care Provider);
2. proof of negative drug screen;
3. completion of all required health and immunization information;
4. eligible for fingerprint clearance card; and
5. other required materials.

Professional program courses are offered at the Downtown campus, the Mayo campus, the Polytechnic campus, and the West campus. Students are asked to specify location preference as part of the application process. Students are expected to complete the professional program on the campus assigned upon admission.

The four semester (64 semester hour) professional program is available in two options: (1) a 24-month option with classes scheduled during the fall and spring semesters at the Downtown campus, and (2) a 16-month year round option with classes scheduled during fall, spring, and summer sessions with minimal breaks between semesters available at various sites. For more information, visit the Web site at nursing.asu.edu, or contact the College of Nursing Student Services Office.

Opportunities for individual, direct, and group patient care are available in a variety of settings: community clinics; health fairs; hospice; geriatric facilities; schools; industries; hospitals; home health; and rehabilitation agencies.

Professional Program Transfer. Students requesting to transfer into the professional program with advanced standing may be required to submit letters of recommendation. Any student enrolled in good standing at any accredited/approved baccalaureate school of nursing within the past two years may apply for admission into the professional program. To be considered for admission to the professional program, transfer students must first be admitted to ASU as premajor Nursing students (see "Undergraduate Admission," page 66) and must also meet all professional program admission requirements. To be considered for advanced standing in the professional program courses, petitions for each course must be completed by the student accompanied by course descriptions and syllabus materials and be approved by the College Standards Committee.

Admission of Registered Nurses (RNs). All RN students are admitted into the College of Nursing as premajor Nursing students. Each RN must show evidence of a current unencumbered Arizona RN license or one from a compact state recognized by the Arizona State Board of Nursing. RN students are responsible for adhering to Arizona State Board of Nursing Rules and Regulations.

Alternatives are available to RNs to facilitate their progress in the program, including credit by examination, substitution of previously completed nursing courses for specified ASU nursing courses, and transfer of general education course work completed at other accredited colleges and universities. All RN students must consult with an academic advisor in planning their program of study. See "Professional Program Admission," page 174, for admission criteria into the BSN professional program. Registered nurses are admitted into the RN-BSN *only* program track twice a year, in January and in August.

Additional admission criteria required for application to the RN-BSN-MS program track include submission of

1. GRE scores;
2. current résumé;
3. statement of career goals;
4. three references (forms provided);
5. interview;
6. minimum prerequisite GPA of 3.00; and
7. other required materials.

RNs are accepted into the RN-BSN-MS program track once a year (in January).

Readmission to the Professional Program. Students who have not been in continuous enrollment must file a petition requesting readmission to the professional program and must provide the following documents:

1. proof of current enrollment or readmission to ASU and the College of Nursing in good standing;
2. transcripts from all colleges attended; and
3. all other admission requirements as outlined under "Admission," page 174.

Arizona State Board of Nursing Requirement. To be eligible to take the National Council Licensure Examination for Registered Nurses (NCLEX-RN), a student must have a high school diploma or GED certificate as well as proof of graduation from an approved nursing program. Arizona State law prohibits an individual convicted of a felony from applying for nursing licensure or certification until five years after the date of absolute discharge of the sentence.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Application for, and passage of, the NCLEX-RN is the sole responsibility of the student.

College Health Requirements. Students admitted/enrolled in the professional program are responsible for fulfilling the requirements of the health policies of the College of Nursing. The student is responsible for providing proof to the College of Nursing Student Services Office of having met these requirements before enrollment in the professional program courses. These health policies include the following requirements:

1. proof of measles (rubeola), mumps, and rubella immunization (two MMRs or appropriate titers);
2. proof of annual tuberculosis screening;
3. completed series of hepatitis B vaccine;
4. proof of hepatitis B titer;
5. current American Heart Association Level C CPR Certification;
6. proof of tetanus, diphtheria immunization (TD);
7. proof of varicella (chicken pox) immunization; and
8. proof of negative drug screen.

A student may not participate in any clinical experience without meeting these requirements.

An annual flu vaccine is also recommended; other health information may be required. While the Hepatitis A vaccination is not required for admission, information on who might benefit from the vaccination is available from the College of Nursing Student Services Office.

Latex Sensitivity. Healthcare workers are at risk for developing Latex allergies, which may be life threatening. It is the student's responsibility to report if an allergy or sensitivity to Latex products is suspected; medical care is imperative for diagnosis, guidance, and treatment.

Fingerprint Clearance. All College of Nursing students admitted to the professional program must submit a photocopy of their fingerprint clearance card to the Student Services Office by the first day of class.

Essential Functions. Students admitted to the professional program are expected to meet the Essential Functional Abilities of the Undergraduate Nursing Student. Essential functions for this program include gathering data through the senses (hearing, seeing, etc.), synthesizing information from a variety of sources, making decisions regarding patient care, and performing necessary physical and mental activities to ensure safe care. Some clinical experiences may require students to purchase their own protective devices. For complete details, call an advisor in the Student Services Office at 480/965-2987.

ASU Health Requirements. See "Undergraduate Admission," page 66, and "Immunization Requirements," page 74.

Professional Liability Insurance. It is highly recommended that students carry their own professional liability insurance when enrolled in clinical nursing courses.

Health and Accident Insurance. It is strongly recommended that all students carry their own health and accident insurance. Some clinical agencies require students to have current health insurance. See the *Undergraduate Student Handbook*. Each student is personally responsible for costs related to any accident or illness during or outside of school activities.

Automobile Insurance. Students are required by state law to carry automobile insurance. Students are responsible for transportation to and from clinical sites. Extensive travel may be required for selected clinical experiences.

ACADEMIC ADVISING

Academic advising, provided by the College of Nursing through the Student Services Office, is an essential aspect of the education experience; see "Academic Advising," page 79.

While the College of Nursing provides academic advising, *it is ultimately the responsibility of each student to fulfill academic and program requirements*. Advisors are available by appointment in the College of Nursing Student Services Office. Call 480/965-2987 (see "Student Services," page 181). Advisor appointments are also available at West campus, the Polytechnic campus, and at several community colleges in the area. Advisors assist students with program planning, registration, preparation of needed petitions, verification of graduation requirements, referrals to university and community resources, and career planning.

Student responsibilities include following university guidelines regarding submission of transcripts from all colleges other than ASU, obtaining the necessary signatures or computer verifications required by the university, and following university procedures for matriculation.

Mandatory Advising. All premajor Nursing students are required to meet with an academic advisor before registering for each semester of classes. All students on probation are required to meet with an advisor to plan strategies for improving their academic standing.

Declaration of Graduation. Students following the curriculum requirements of the 1996–1998 or later catalog editions must file a Declaration of Graduation form using the Degree Audit Reporting System during enrollment in the first semester of the professional program.

Student Employment. Each of the four semesters in the prelicensured professional program is composed of 16 semester hours. Seven to eight of these semester hours reflect three days in clinical laboratory practicum experience. The remaining eight to nine semester hours reflect classroom hours with preparation and study requiring additional time and effort. It is suggested that any other extracurricular activities or employment be kept at a minimum.

DEGREES

Nursing—BSN

The completion of the curriculum leads to a Bachelor of Science in Nursing (BSN) degree. The purpose of the program is to prepare beginning professional nurses, who possess the theoretical foundation and the clinical competence, to function in various health care settings. The graduate is prepared to deliver nursing care services to individuals, families, specific population groups, and communities. The

undergraduate program provides students with a foundation for graduate studies in nursing at the master's level.

Professional program courses are offered at four locations: the Downtown Phoenix campus, the Polytechnic campus, the Mayo campus, and the West campus. To be eligible to enroll in the professional courses at any location, students must be admitted to the College of Nursing, submit all required material for admission to the professional program, and be admitted to the college's undergraduate professional program.

Program objectives for the undergraduate curriculum are directed toward preparation of graduates with generalist abilities. Based on theoretical and empirical knowledge from nursing, the humanities, and physical, biological, and behavioral sciences, graduates are prepared to

1. combine theoretical knowledge from the sciences, humanities, and nursing as a base for critical thinking in professional nursing practice and develop understanding of client, health, environment, and nursing;
2. design comprehensive therapeutic nursing care in partnership with individuals, families, groups, populations, and communities, including those who are culturally diverse and/or vulnerable and at risk for health disparities;
3. provide safe, competent, and effective nursing care using principle-based communication, technical/psychomotor, teaching, management, and therapeutic skills;
4. generate own professional practice that focuses on health promotion, risk reduction, disease prevention and illness and disease management from a holistic perspective;
5. analyze and apply research findings to promote evidence-based nursing practice;
6. display values and behaviors consistent with the culture of professional nursing;
7. display personal and leadership characteristics appropriate for providers, designers, managers, and coordinators of care;
8. display responsibility and accountability for providers, designers, managers, and coordinators of care;
9. collaborate with nurses, other health care providers, and clients in the delivery of holistic care that is responsive to changing needs, sociopolitical, and global environmental factors; and
10. analyze current nursing and health care services and trends, and identify future health care needs.

Nursing—RN Program Tracks

Courses have been designed to expand the knowledge base of the RN. Practice experiences in home health, community health, and leadership prepare RNs for roles in the expanding health care arena. Programs of study are developed and implemented that reflect individual capabilities, prior educational learning experiences, and career goals of RNs. Faculty and academic advisors work with RN students to maximize learning experiences and plan a program that meets their unique needs and interests.

Two program tracks are available for RNs. The RN-BSN *only* and the RN-BSN-MS program tracks are structured to provide an accessible, accelerated, and predictable pathway through the program.

RN-BSN Only. The RN-BSN *only* program track offers RNs the opportunity to complete upper-division professional nursing courses in one calendar year in a program featuring reasonable costs, predictable year-round course scheduling, reduced in-class time, and a variety of instructional delivery methods, including Web-enhanced and Web-based courses. Completion of upper-division general education requirements may require additional time beyond the one year of professional nursing courses. Satisfactory completion of all general education and nursing prerequisite courses with a grade of "C" (2.00) or higher and an earned minimum prerequisite GPA of 2.75 is required. RNs are accepted into the RN-BSN *only* program track twice a year (January and August). See "Admission of Registered Nurses (RNs)," page 175.

RN-BSN-MS. The RN-BSN-MS program track, designed for highly motivated and experienced RNs, reflects an expansion of the RN-BSN *only* option. It provides for more rapid progression to graduate education that builds on the existing undergraduate curriculum and enables RN students to take selected graduate courses (earning a grade of "B" [3.00] or higher) that apply toward their baccalaureate degree. Satisfactory completion of all general education and nursing prerequisite undergraduate courses with a grade of "C" (2.00) or higher and an earned minimum prerequisite GPA of "B" (3.00) is required. See "Admission of Registered Nurses (RNs)," page 175.

The RN to master's degree program requires students to complete a minimum of 30 semester hours with a grade of "B" (3.00) or higher in all courses in the master's program of study.

Nursing—MS

The faculty in the College of Nursing offer a program leading to an MS degree in Nursing with concentrations in

1. adult health nursing with tracks in the primary care of chronically ill adults;
2. community health nursing;
3. psychiatric/mental health nursing;
4. family health nursing;
5. women's health;
6. parent-child nursing with the tracks in primary or acute care nursing of children, and neonatal programs; and
7. the nurse educator program.

The program requires a minimum of 40 semester hours with an earned grade of "B" (3.00) or higher in all courses in the program of study. Students in the nurse practitioner options are required to complete additional semester hours.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Requirements for this program are described in the *Graduate Catalog*. Persons interested in applying for admission to the program should write to the Division of Graduate Studies for a *Graduate Catalog* and application form (see "Admission to the Division of Graduate Studies," page 153) and contact the College of Nursing Student Services Office.

Nursing—DNS

An innovative Doctor of Nursing Science program prepares students to pursue a career as a leader in health policy, healthcare delivery, nursing education, and/or research. Emphasis is on application of research and theory in nursing practice. For more information, access the Web site at nursing.asu.edu.

GRADUATE CERTIFICATE PROGRAMS

Nurse Educator Program

The Graduate Certificate in Nurse Education in Academic and Practice Settings is a 14-semester-hour program. It is designed for nurses from academic or practice settings who want to prepare themselves for teaching in the rapidly changing landscape of nursing education. These courses can also be taken concurrently in the nursing master's program. For more information, access the Web site at nursing.asu.edu/programs/graduate/certificate/ned.

Evidence-Based Practice in Nursing and Healthcare Program

This post-master's Graduate Certificate in Evidence-Based Practice in Nursing and Healthcare program prepares nurse clinicians and other healthcare professionals as experts in evidence-based practice (EBP) and as system-wide change agents for the advancement of and sustainability of EBP. EBP is the conscientious use of best evidence (i.e., research findings, findings from quality improvement and practice management initiatives, and findings from patient assessment), in combination with clinician expertise and patient preferences and values, in clinical decision making. The EBP graduate certificate is a 17-semester-hour program offered on a consecutive 12-month basis beginning in January each calendar year. The program is designed to facilitate networking and support among the cohort of students; therefore, courses must be taken sequentially during the 12-month period. For more information, access the Web site at nursing.asu.edu/caep.

SCHOOL OF EXTENDED EDUCATION

The university-wide School of Extended Education provides an interactive link between ASU and the diverse communities it serves. The college assesses lifelong learning requirements and works in partnership with campuses, other colleges, and the community to serve learners, using a network of locations, programs, schedules, and technologies.

For more information, see "School of Extended Education," page 134, or access the Web site at www.asu.edu/xed.

UNIVERSITY GRADUATION REQUIREMENTS

In addition to fulfilling college and major requirements, students must meet all university graduation requirements. For more information, see "University Graduation Requirements," page 89.

First-Year Composition Requirement

Completion of both ENG 101 and 102 or ENG 105 or equivalent with a grade of "C" (2.00) or higher is required for graduation from ASU in any baccalaureate degree program.

General Studies Requirement

All students enrolled in a baccalaureate degree program must satisfy a university requirement of a minimum of 35 semester hours of approved course work in General Studies, as described in "General Studies," page 93. Note that all three General Studies awareness areas are required. Consult an advisor for an approved list of courses. Many of the university General Studies requirements may be met through completion of College of Nursing course requirements. See an academic advisor for details. General Studies courses are listed in the "General Studies Courses" table, page 96, in the *Schedule of Classes,* and in the *Summer Sessions Bulletin.*

COLLEGE DEGREE REQUIREMENTS

The BSN degree requires 120 semester hours. Any request for a course substitution or waiver, or modification in degree requirements and/or professional program admission requirements may be requested through a petition to the College of Nursing Standards Committee. For details, see an academic advisor.

Prerequisite Course Requirements

The following courses must be completed before enrolling in the professional program. Completion of these courses does not ensure admission to the professional program. RN students should refer to "RN-BSN Degree Requirements," page 179.

BIO	201	Human Anatomy and Physiology I *SG*	4
BIO	202	Human Anatomy and Physiology II	4
CDE	232	Human Development *SB*	3
CHM	101	Introductory Chemistry *SQ*	4
ENG	101	First-Year Composition	3
ENG	102	First-Year Composition	3
HCR	210	Clinical Health Care Ethics *HU*	3
HCR	220	Health Care Organizations *H*	3
HCR	230	Culture and Health *C, G*	3
HCR	240	Human Pathophysiology	4
MIC	205	Microbiology *SG**	3
MIC	206	Microbiology Laboratory *SG**	1
NTR	241	Human Nutrition	3
PGS	101	Introduction to Psychology *SB*	3
PHI	103	Principles of Sound Reasoning *L/HU*	3
CS statistics elective			3
HU/SB elective			3
MA course			3
Total prerequisites			56

* Both MIC 205 and 206 must be taken to secure SG credit.

MAJOR REQUIREMENTS

The Nursing major requirements are completed after admission to the professional program. All practice courses are graded satisfactory/fail. RN students should refer to "RN-BSN Degree Requirements," page 179.

Nursing Core Courses

Junior Year

First Semester

NUR	341	Theory I: Health Integrity	4
NUR	351	Pharmacology in Nursing	3
NUR	361	Professional Development	2
NUR	381	Nursing Practice I	7
Total			16

Second Semester

NUR	342	Theory II: Health Integrity and Alterations	5
NUR	362	Professional Development II: Nursing Research *L*	3
NUR	382	Nursing Practice II	8
Total			16

Senior Year

First Semester

NUR	441	Theory III: Health Integrity and Alterations	6
NUR	461	Professional Development III: The Art of Nursing *HU*	3
NUR	481	Nursing Practice III	7
Total			16

Second Semester

NUR	442	Theory IV: Health Integrity and Alterations	3
NUR	443	Theory V: Leadership and Management	3
NUR	462	Professional Development IV	2
NUR	482	Nursing Practice IV	8
Total			16
Nursing core total			64

Each semester of courses is prerequisite to subsequent semesters. See an advisor for current program information.

RN-BSN DEGREE REQUIREMENTS

Prerequisite Course Requirements

BIO	201	Human Anatomy and Physiology I *SG*	4
BIO	202	Human Anatomy and Physiology II	4
CDE	232	Human Development *SB*[1]	3
CHM	101	Introductory Chemistry *SQ*	4
ENG	101	First-Year Composition	3
ENG	102	First-Year Composition	3
HCR	240	Human Pathophysiology[1]	4
MIC	205	Microbiology *SG*[2]	3
NTR	241	Human Nutrition	3
NUR	341	Theory I: Health Integrity[1]	4
NUR	342	Theory II: Health Integrity and Alterations[1]	5
NUR	351	Pharmacology in Nursing[1]	3
NUR	361	Professional Development[1]	2
NUR	381	Nursing Practice I[1]	7
NUR	382	Nursing Practice II[1]	8
PGS	101	Introduction to Psychology *SB*	3
C, H elective			3
CS statistics elective			3
HU elective			3
MA course			3
Total prerequisites			75

[1] For alternatives, see an advisor.

[2] Both MIC 205 and 206 must be taken to secure SG credit.

General Education Courses

Electives (upper division)	7
G course (upper division)	3
Total	10

Professional Nursing Courses for RNs. The following nursing courses are taught over a period of 12 months. Theory classes are held one day a week for six months. Practice and theory courses require a commitment of three days a week over the remaining six months.

NUR	364	Professional Development II: Nursing Research for RNs	3
NUR	391	Registered Nurse Mobility I: Professional Development *L*	3
NUR	392	Registered Nurse Mobility II: Health and Wellness	3
NUR	440	Theory III: Health Integrity and Alterations for RNs	6
NUR	444	Theory IV: Health Integrity and Alterations for RNs	3
NUR	445	Theory V: Leadership and Management for RNs	3
NUR	460	Professional Development III: The Art of Nursing for RNs	3
NUR	464	Professional Development IV for RNs	2
NUR	495	Community Health/Home Health Practice for RNs	4
NUR	496	Leadership and Management Practice for RNs	5
Total			35
General elective total			10
Nursing core (RN) total			45

The sequential progression of courses for the RN-BSN is as follows:

1. NUR 391
2. NUR 392
3. NUR 460
4. NUR 364
5. NUR 440
6. NUR 495
7. NUR 444
8. NUR 445
9. NUR 496
10. NUR 464

RNs interested in pursuing the RN-BSN-MS track should contact an advisor in the College of Nursing Student Services Office.

ACADEMIC STANDARDS

Students are admitted into the College of Nursing as premajor Nursing students and are subject to the general standards of academic good standing at the university (see "Retention and Academic Standards," page 86). However, students who maintain standards of academic good standing do not necessarily qualify for admission into the professional program.

Consideration for admission into the professional program is contingent on achieving at least a "C" (2.00) in all prerequisite courses and earning a minimum GPA of 2.75 in prerequisite courses. In addition, a grade of "C" (2.00) or

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

higher is required in all course work for the degree except in nursing practice courses where a designation of a "Y" (satisfactory) grade is required.

Once admitted into the professional program, students are allowed only one nursing course failure within the program. The second failure in a nursing course leads to an automatic disqualification from the College of Nursing.

Probation and/or disqualification is in accordance with university policies. Academic dishonesty is not tolerated in any course and is subject to specific College of Nursing policies and procedures.

GRADING POLICY FOR NURSING COURSES

Within the undergraduate program, grades are assigned to reflect levels of achievement in relation to course objectives. Students who do not complete a required nursing course satisfactorily, receiving a grade of "D" (1.00) or "E" (0.00) (failing) or a mark of "W" (withdrawal), are not eligible to progress in the professional program. A student who withdraws from a course with a failing grade reported as an "E3," "E4," or "E9" is considered to have failed the course.

Any petition for curriculum adjustment, course substitution, overload, readmission to a nursing course, or readmission to the professional program must be approved by the College Standards Committee.

Withdrawal is in accordance with ASU withdrawal policy. Students are responsible for completing the university withdrawal procedure. To be considered for reenrollment in a professional program course, a completed petition must be submitted and approved by the College Standards Committee. See an academic advisor for assistance.

An incomplete in a required nursing course must be satisfactorily removed before progression in the professional program is permitted. A grade of "I" is not allowed in clinical courses. See "Grading System," page 82, for university policy.

Audited courses are not accepted as course credit in the minimum 120-semester-hour requirement for graduation.

STUDENT RESPONSIBILITIES

Health. Students in the College of Nursing who exhibit or demonstrate a lack of physical and/or mental health necessary to function effectively in a clinical experience and/or classroom setting may be required to complete a health examination and have the results made available upon request to the College Standards Committee. Students whose health, behavior, and/or performance have been questioned may be reviewed for continuation in nursing courses by the College Standards Committee. The student may appear in person before the committee and personally present information relevant to the committee's review.

Information may also be presented in writing without making a personal appearance.

Professional Standards. Students are held to the professional standards reflected in the American Nurses' Association Code of Ethics for Nurses. Professional behavior and appearance are required during all nursing course activities.

Student Transportation. Students are responsible for their own transportation to and from health agencies and other selected experience settings, such as home visits to clients. Extensive travel may be required for selected clinical experiences.

Laboratory Fees. In several nursing laboratory and clinical practice courses, students are provided an opportunity to practice and perfect nursing skills before contact with clients. These courses require an extensive use of equipment and supplies from the Nursing Learning Resource Center. Accordingly, students are assessed a fee for the following courses: NUR 341, 342, 381, 382, 441, 442, 481, 482, 495, and 496. Consult with an advisor for information on laboratory fees for Nursing courses. Fees may be assessed on other courses. See the current *Schedule of Classes*.

SPECIAL PROGRAMS

Honors Program. The Nursing Honors Program provides opportunities for academically talented nursing students to engage in educational enrichment opportunities. The program focuses on students in the professional program; however, opportunities are available in lower-division courses. For students pursuing upper-division honors work, this enriched learning experience begins in the junior year. Honors course work, consisting of at least 18 hours of upper-division honors credit, offers a challenging curriculum. Honors students are guided to complete honors credit in courses that complement their academic and career goals. Students interested in pursuing the Nursing Honors Program are encouraged to seek advising in the College of Nursing Student Services Office. Once admitted to the professional program, students receive advising from the honors coordinator.

For more information, call 480/965-2987, or stop by the Student Services Office. Interested students should also call the Barrett Honors College at 480/965-4033.

The Academy for Continuing Education Program. The Continuing and Extended Education Program presents a variety of credit and noncredit offerings at ASU campuses, employer work sites, or electronically. These offerings are designed to assist practicing registered nurses and other healthcare professionals in maintaining and enriching their competencies, broadening their scientific knowledge base, and enhancing their skills in adapting to the changing health care environment. Programs are organized in response to both the health care needs of populations and the learning needs of nurses engaged in a variety of professional roles and clinical specialties.

For descriptions of continuing and extended education offerings, call the College of Nursing, at 480/965-7431 or access the program's Web site at nursing.asu.edu/ace.

Academic Nursing Centers. The College of Nursing administers three Academic Nursing Centers: Community Service Health Clinic in Scottsdale; Breaking the Cycle Community Healthcare in Phoenix; and Escalante Health Clinic in Tempe. Nurse practitioners provide primary care with an emphasis on promotion of wellness to families and individuals of all ages. The centers also serve as learning sites for both master's and baccalaureate nursing students.

For more information, access the centers' Web site at nursing.asu.edu/anc.

American Indian Students United for Nursing (ASUN). The ASUN project was established in the fall of 1990 through a grant from the Indian Health Service. The purpose of ASUN is to increase the number of Native Americans studying nursing at ASU and the number of nurses providing care to Native American communities. This is being accomplished through special recruitments and by providing programs to help the students successfully complete their studies in nursing. ASUN services include academic advising, tutoring, and computer access. General information is provided regarding American Indian student resources, periodic Pow Wows, Blessings, luncheons, and similar activities. For more information, call the ASUN office at 480/965-0123.

GENERAL INFORMATION

Student Services. The Student Services Office in the College of Nursing provides academic advising, general advising, and referral to university resources. The staff of the Student Services Office is available to help students with a variety of concerns related to academic or personal issues. Advising appointments are available at various locations: the Downtown Phoenix campus, the Mayo campus, the Polytechnic campus, and West campus. Prospective students wanting more information on College of Nursing programs or wanting to schedule an advising appointment should contact the College of Nursing Student Services Office at 480/965-2987.

Scholarship and Financial Aid. For information on scholarships and loans, see "Financial Aid," page 59. Information about scholarship and loans for nursing students may be obtained from the Student Financial Assistance Office or the College of Nursing Student Services Office.

Learning Resources. The Learning Resource Center (LRC) contains a clinical simulation laboratory with a full range of simulated medical equipment and manikins, a complex care unit, and a health assessment lab at the Downtown campus, the Mayo campus, the Polytechnic campus, and West campus. The LRC materials include nursing course reference materials, selected nursing textbooks, nursing theses and applied projects, audiovisual equipment, media, models, and other visual aides. In the computer lab, computers with Microsoft Office Suite are available for nursing students, as well as a variety of computer software related to nursing and health care. Selected resources are available for checkout. The LRC is staffed to assist students during regular semester schedules. For more information, see the *Undergraduate Student Handbook*, available on the College of Nursing Web site at nursing.asu.edu/programs/undergraduate/handbook.htm.

Clinical Facilities. Learning experiences with patients/clients and families are provided under the supervision of qualified faculty in cooperation with a variety of federal, state, county, private, and other agencies. The College of Nursing has contracts with more than 350 agencies to provide clinical and practice experience for students, operates its own nurse-managed academic nursing centers in community settings, and offers experiences in a variety of other nurse-managed health services facilities. Various clinical laboratory facilities are available to students in this essential component of the program.

Student Activities. All ASU students are members of the Associated Students of ASU (ASASU) and participate in campus activities of interest to them. The student government of the university, ASASU, has a strong presence and offers a variety of services and activities. It is the official representative of the student body in matters of governance and budgeting.

College Council of Nursing Students. The College Council of Nursing Students (CCNS) is a member of ASASU and serves as the governing body of all student activities in the college. The council acts as a liaison between the Graduate Nurse Organization (GNO), the Student Nurses' Association (SNA), and the Nursing Students for Ethnic and Cultural Diversity. The CCNS provides for communication, cooperation, and understanding among undergraduate students, graduate students, and faculty and represents the college in university and nonuniversity affairs.

Graduate Nurse Organization. GNO is the coordinating body for nursing students in the graduate program. GNO provides programs, information, and orientation services.

Student Nurses' Association. SNA is a professional nursing organization. By being a member of SNA, the student belongs to the National Student Nurses' Association (NSNA), which is the student counterpart of the American Nurses Association for RNs. NSNA provides means for financial assistance, career planning, a voice in Washington, an opportunity for involvement, and low-cost comprehensive malpractice insurance.

Nursing Students for Ethnic and Cultural Diversity. This organization was formed in 1989 to provide a network of information and support for students interested in issues of cultural awareness and diversity.

Sigma Theta Tau International. The Beta Upsilon chapter of Sigma Theta Tau International (STTI) was chartered at the College of Nursing in 1976. Membership in STTI is an honor conferred on undergraduate and graduate students who have demonstrated outstanding academic and professional achievement.

ROTC Program. Students pursuing a commission through the Air Force or Army ROTC programs must take from 12 to 20 hours in the Department of Military Science. To avoid excessive course overloads, these students should plan on an additional one to two semesters and/or summer school to complete all degree requirements of the college.

American Museum of Nursing. The American Museum of Nursing exhibits include apothecary dating from 1700, nurse uniforms, and patient care equipment from the 1800s

to the present day. A library/archives houses nursing texts, journals, and books related to nursing. For more information, access the Web site at nursing.asu.edu/amon.

College of Nursing

nursing.asu.edu
480/965-3244

Professors: Fleury, Keller, Komnenich, Mattson, Melnyk, Schwartz

Associate Professors: Alpers, Baldwin, Bozzette, Brillhart, Cesarotti, Dirksen, Evans, Ismeurt, Killeen, Mays, McCarthy, Records, Ruiz, Sousa

Assistant Professors: Campesino, Chen, Cook, Cooke, McGrath, Pickens, Rosdahl, Shearer, Small

Clinical Professors: Bell, Schultz, Wojner-Alexandrov

Clinical Associate Professors: Adams, Armbruster, Davidson, Fargotstein, Fineout-Overholt, Hagler, Jasper, Kastenbaum, Link, Morris, Muzyka, Nuñez, Stillwell, White

Clinical Assistant Professors: Anderson, Benesh, Jarrell, Lersch, Lupone, Maxwell, Mitchell, Murray, Niesel, Peluso, Sayles, Sutter

COMMUNITY HEALTH PRACTICE (CHP)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

HEALTH CARE RELATED (HCR)

D HCR 210 Clinical Health Care Ethics. (3)
fall, spring, summer
Health care ethics emphasizing analysis and ethical decision making at clinical and health policy levels for health care professionals.
General Studies: HU

D HCR 220 Health Care Organizations. (3)
fall, spring, summer
Overview of United States health care delivery systems; financing, health policy, basic principles of budgeting, cost-benefit analysis, and resource management. Cross-listed as HSM 220. Credit is allowed for only HCR 220 or HSM 220.
General Studies: H

D HCR 230 Culture and Health. (3)
fall, spring, summer
Cultures of diverse groups and health/illness. Cross-cultural communication, awareness of own cultural influences, indigenous and alternative healing practices.
General Studies: C, G

D HCR 240 Human Pathophysiology. (4)
fall, spring, summer
Chemical, biologic, biochemical, and psychological processes used in study of structural and functional alterations in health with selected therapeutics. Prerequisites: BIO 201 and 202 and MIC 205 and 206 (or their equivalents).

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

NURSING (NUR)

D NUR 314 Health Assessment for Registered Nurses. (3)
spring
Introductory knowledge and skills for systematic physical, psychosocial, and developmental nursing assessment over the life span. 2 hours lecture, 3 hours lab. Prerequisite: admission to graduate Nursing program.

D NUR 341 Theory I: Health Integrity. (4)
fall and spring
Concepts related to health integrity with focus on individual clients. Fee. Prerequisite: admission to professional Nursing program. Corequisite: NUR 381. Pre- or corequisites: NUR 351, 361.

D NUR 342 Theory II: Health Integrity and Alterations. (5)
fall, spring, summer
Concepts related to selected alterations in health integrity with focus on individuals, families, and groups. Fee. Prerequisite: Junior I courses. Corequisite: NUR 382. Pre- or corequisite: NUR 362.

D NUR 351 Pharmacology in Nursing. (3)
fall and spring
Foundations of pharmacological interventions. Prerequisite: admission to professional Nursing program.

D NUR 361 Professional Development. (2)
fall and spring
Introduces professional nursing roles and responsibilities. Prerequisite: admission to professional Nursing program.

D NUR 362 Professional Development II: Nursing Research. (3)
fall, spring, summer
Introduces concepts and issues in nursing research. Emphasizes quantitative and qualitative research processes, examination of nursing research literature. Prerequisite: Junior I or admission to RN-BSN program.
General Studies: L

D NUR 364 Professional Development II: Nursing Research for RNs. (3)
fall and spring
Introduces concepts and issues in nursing research. Emphasizes qualitative and quantitative research processes, examination of nursing research literature. Seminar, Internet hybrid. Prerequisites: NUR 391; licensed RN.

D NUR 381 Nursing Practice I. (7)
fall and spring
Applies health assessment, nursing process, and basic skills to promote and maintain health integrity of individual clients. Lab, clinical experience. Fee. Prerequisite: admission to professional Nursing program. Corequisite: NUR 341. Pre- or corequisites: NUR 351, 361.

D NUR 382 Nursing Practice II. (8)
fall, spring, summer
Applies nursing process with selected individuals, families, and groups experiencing alterations in health integrity. Lab, clinical experience. Fee. Prerequisite: Junior I. Corequisite: NUR 342. Pre- or corequisite: NUR 362.

D NUR 391 Registered Nurse Mobility I: Professional Development. (3)
fall and spring
Historical, philosophical, and theoretical bases for professional nursing practice. Enhancement of critical inquiry skills through exploration of selected issues. Prerequisite: admission to RN-BSN program.
General Studies: L

D NUR 392 Registered Nurse Mobility II: Health and Wellness. (3)
fall and spring
Concepts of health integrity and community-based practice and professional nursing roles.

D NUR 394 Special Topics. (1–4)
selected semesters
Topics may include the following:

- International Community/Public Health Nursing. (3–4)
  summer
  Theoretical and clinical application of community assessment, intervention, health education program planning, and culturally competent nursing care. Lecture, discussion, clinical, seminar. Credit is allowed for only NUR 394 or 598 ST: International Community/Public Health Nursing. Prerequisites: both graduate

student in an approved nursing graduate program and RN licensure (US) or only RN licensure (US); 2 completed clinical semesters of Nursing major in an approved BSN or ADN program.

D NUR 440 Theory III: Health Integrity and Alterations for RNs. (6)
spring and summer
Concepts related to health integrity and alterations with focus on individuals, families, groups, aggregates, and communities. Prerequisite for RNs: NUR 392.

D NUR 441 Theory III: Health Integrity and Alterations. (6)
fall, spring, summer
Concepts related to health integrity and alterations with focus on individuals, families, groups, aggregates, and communities. Fee. Prerequisite: Junior II. Corequisite: NUR 481. Pre- or corequisite: NUR 461.

D NUR 442 Theory IV: Health Integrity and Alterations. (3)
fall, spring, summer
Advanced concepts related to health integrity and alterations in that integrity, with focus on selected client populations. Fee. Prerequisite: Senior I. Corequisites: NUR 443, 482. Pre- or corequisite: NUR 462.

D NUR 443 Theory V: Leadership and Management. (3)
fall, spring, summer
Selected theories and concepts of organizations, management, leadership with focus on nursing management and leadership in health care organizations. Prerequisite: Senior I. Corequisites: NUR 442, 482. Pre- or corequisite: NUR 462.

D NUR 444 Theory IV: Health Integrity and Alterations for RNs. (3)
fall, spring, summer
Advanced concepts related to health integrity and alterations in that integrity, with focus on selected client populations. Prerequisite: NUR 364.

D NUR 445 Theory V: Leadership and Management for RNs. (3)
fall and summer
Selected theories and concepts of organizations, management, leadership with focus on selected client populations for experienced RNs. Prerequisite: NUR 364.

D NUR 452 Nursing of Children with Developmental Disabilities. (3)
summer
Congenital and acquired physical and mental developmental disorders, including the evaluation of child and family and community resources. Prerequisite: RN license.

D NUR 460 Professional Development III: The Art of Nursing for RNs. (3)
fall and spring
Explores the aesthetic, ethical, and personal patterns of knowing in nursing for the practicing RN. Pre- or corequisite: NUR 391.

D NUR 461 Professional Development III: The Art of Nursing. (3)
fall, spring, summer
Explores the aesthetic, ethical, and personal patterns of knowing in nursing. Prerequisite: Junior II or admission to RN-BSN program.
General Studies: HU

D NUR 462 Professional Development IV. (2)
fall, spring, summer
Focuses on role transition to professional nursing. Prerequisite: Senior I.

D NUR 464 Professional Development IV for RNs. (2)
fall and summer
Capstone professional development course for the RN student. Prerequisite: NUR 460.

D NUR 481 Nursing Practice III. (7)
fall, spring, summer
Applies concepts and clinical practice related to health integrity and alterations with focus on individuals, families, groups, aggregates, and communities. Lab, clinical experiences. Fee. Prerequisite: Junior II. Corequisite: NUR 441. Pre- or corequisite: NUR 461.

D NUR 482 Nursing Practice IV. (8)
fall and spring
Capstone course with focus on synthesis and application of patterns of knowing and leadership, management concepts in collaborative nursing practice. Lab, clinical experiences. Fee. Prerequisite: Senior I. Corequisites: NUR 442, 443. Pre- or corequisite: NUR 462.

A nursing student listens to the heartbeat of a child at the Community Services Health Clinic. Dave Tevis photo

D NUR 494 Special Topics. (1–4)
fall, spring, summer
Advanced study and/or supervised practice in an area of nursing. Lecture and lab to be arranged. Prerequisite: 12 hours in Nursing major or instructor approval.

D NUR 495 Community Health/Home Health Practice for RNs. (4)
spring and summer
Theoretical content related to community and home health care. Clinical practice with individual, family aggregates. 1 hour lecture, 3 hours lab. Fee. Pre- or corequisite: NUR 440.

D NUR 496 Leadership and Management Practice for RNs. (5)
fall and summer
Capstone leadership and management experience for the RN student that utilizes patterns of knowing in nursing practice. Clinical lab. Fee. Pre- or corequisite: NUR 443.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

College of Public Programs

copp.asu.edu

Debra Friedman, PhD, Dean

PURPOSE

The College of Public Programs offers students rare opportunities to study and advance social work, public administration, nonprofit leadership and management, community resources for recreation planning, and tourism policy and planning. The college prepares students for rewarding careers in government, nonprofit agencies, politics, social services, public administration and public management, education, business and industry, and international service.

Established in 1979, the college is the home of the School of Community Resources and Development, School of Public Affairs, and School of Social Work. The college was established to bring together academic disciplines that have a focus on community and a concern for relevance in education and scholarly potential. Professional degree and certificate programs incorporate the spirit of leadership, scholarship, and professionalism.

Students in the college are able to leverage the location of the university to address urban issues, cultural diversity, globalization, and shifting demographics. Academic programs integrate professional training, social science research, community engagement, and the latest social theories. Highly qualified faculty are committed to improving institutions' and individuals' capacities to address critical public issues of an urbanized, advanced, and diverse society emphasizing local, national, and global concerns. Academic and student support staff are responsive to student needs and are committed to providing comprehensive student support services to ensure student success.

The College of Public Programs is committed to excellence in instruction, innovative research, and public service and provides transdisciplinary academic degrees and certificates that recognize civic responsibility, leadership, diversity, and human potential.

ORGANIZATION

The college is composed of three academic units, each administered by a director:

School of Community Resources and Development
School of Public Affairs
School of Social Work

The college administers these centers and institutes:

Advanced Public Executive Program
Center for Nonprofit Leadership and Management
Center for Urban Inquiry
Morrison Institute for Public Policy
Southwest Interdisciplinary Research Center

The general administration of the college is the responsibility of the dean, who is responsible to the executive vice president and provost. For more information, access the college's Web site at copp.asu.edu.

ADMISSION

Freshmen and Transfers. Individuals interested in admission to an undergraduate program in the College of Public Programs should refer to "Undergraduate Admission," page 66. Students who meet the minimum university admission requirements are admitted to the appropriate undergraduate academic unit of the college as a preprofessional.

Professional Status Admission Requirements. Entry to any undergraduate academic unit of the college with professional status requires the completion of

1. at least 56 semester hours with a minimum cumulative GPA of 2.50;
2. the university First-Year Composition requirement and the university mathematical studies requirement (see "University Graduation Requirements," page 89); and
3. the College of Public Programs writing competence, communication, and computer requirements (see "College Degree Requirements," page 186).

The academic units may also have additional requirements.

Most upper-division courses in the college are not open to preprofessional students. Preprofessionals should check the catalog information in their major fields to determine any course enrollment restrictions. Students should refer to this catalog and advising documents for specialized departmental retention and/or continued enrollment requirements in their major courses.

Transfer Credit. In most cases, course work successfully completed at a regionally accredited four-year institution of higher education is accepted into the respective academic unit.

Transferable course work successfully completed at an accredited two-year institution of higher education (community or junior college) transfers as lower-division credit up to a maximum of 64 semester hours.

College of Public Programs Baccalaureate Degrees and Majors

Major	Degree	Concentration*	Administered By
Recreation	BS	Recreation management or tourism management	School of Community Resources and Development
Social Work	BSW	—	School of Social Work

* If a major offers concentrations, one must be selected unless noted as *optional*.

Successful completion is defined for purpose of transfer as having received a grade comparable to an "A" (4.00), "B" (3.00), or "C" (2.00) at ASU. The acceptance of credits is determined by the director of Undergraduate Admissions, and the utilization of credits toward degree requirements is at the discretion of the academic unit and the college.

ADVISING

The mission of the College of Public Programs professional academic advising staff is to assist students in developing meaningful educational plans to meet their academic, career, and personal goals in an ongoing process of evaluation and clarification.

The advisors strive to perform their duties in a professional, ethical, confidential, accurate, and supportive manner, respecting student diversity and needs, and always holding the individual in highest regard. The student and advisor should accomplish this process in a spirit of shared responsibility to develop academic excellence, strong decision-making skills, and self-reliance.

A student who has been admitted to the College of Public Programs is assigned an academic advisor from the academic unit of the student's major area of study. Questions about advising should be directed to the student's academic advisor or to the College of Public Programs Student Services Office, WILSN 203.

Mandatory Advising. The following categories of students are required to receive advising and to be cleared on the Mandatory Advising Computer System before they may register for classes:

1. students with admissions competency deficiencies;
2. all freshmen;
3. transfer students in their first semester at ASU;
4. readmitted students;
5. students on probation;
6. students who have been disqualified;
7. students with special admissions status; and
8. all Social Work undergraduate majors.

Course Load. A normal course load per semester is 15 to 16 semester hours. The maximum number of hours for which a student can register is 18 semester hours unless an overload petition has been filed and approved by the Department/School Standards Committee and the Academic and Student Affairs Committee of the college. Semester course loads may be further limited for students in mandatory advising.

Petitions for overload are not ordinarily approved for students who have a cumulative GPA less than 3.00 and who do not state valid reasons for the need to register for the credits. Students who register for semester hours in excess of 18 and do not have an approved overload petition on file may have courses randomly removed through an "administrative drop" action.

Specific degree requirements are explained in detail under the respective college, school, and department sections.

DEGREES

Successful completion of a four-year program of 120 semester hours is specified by the respective academic unit within the College of Public Programs. See "College of Public Programs Baccalaureate Degrees and Majors" table, on this page.

GRADUATE PROGRAMS

Master's degree programs are offered by the three academic units of the College of Public Programs, and two of the units offer doctoral degrees. See the "College of Public Programs Graduate Degrees and Majors" table, page 186.

For more information on courses, faculty, and programs, see the *Graduate Catalog*.

SCHOOL OF EXTENDED EDUCATION

The university-wide School of Extended Education provides an interactive link between ASU and the diverse communities it serves. The college assesses lifelong learning requirements and works in partnership with campuses, other colleges, and the community to serve learners, using a network of locations, programs, schedules, and technologies.

For more information, see "School of Extended Education," page 134, or access the Web site at www.asu.edu/xed.

UNIVERSITY GRADUATION REQUIREMENTS

In addition to fulfilling college and major requirements, students must meet all university graduation requirements.

First-Year Composition Requirement

Students must demonstrate reasonable proficiency in written English by achieving a grade of "C" (2.00) or higher in both ENG 101 and 102 (or ENG 107 and 108 for international students), or in ENG 105 or its equivalent. Should a student receive a grade lower than "C" (2.00) in any of the courses, it must be repeated until the specified proficiency is demonstrated. Composition courses transferred from

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

College of Public Programs Graduate Degrees and Majors

Major	Degree	Concentration*	Administered By
Public Administration	MPA	Optional: nonprofit administration*	School of Public Affairs
	PhD	—	School of Public Affairs
Recreation	MS	—	School of Community Resources and Development
Social Work	MSW	Advanced direct practice or planning, administration, and community practice	School of Social Work
	PhD	—	School of Social Work

* If a major offers concentrations, one must be selected unless noted as *optional*.

out-of-state institutions must be evaluated and approved by the Writing Programs Office.

General Studies Requirement

All undergraduate students in the College of Public Programs are required to complete the university General Studies requirement to be eligible for graduation in any of the undergraduate curricula offered by the college.

General Studies courses are regularly reviewed. To determine whether a course meets one or more parts of the General Studies requirement, see "General Studies," page 93, and the current *Schedule of Classes*.

General Studies courses are also identified following course descriptions according to the "Key to General Studies Credit Abbreviations," page 95.

COLLEGE DEGREE REQUIREMENTS

In addition to the university General Studies requirement, the College of Public Programs has requirements in communication, computer science, and writing competence.

Communication Requirement

Undergraduate students in the College of Public Programs are required to take a course in communication that provides an overview of human communication in public and/or cultural contexts and helps students develop oral presentation skills and competence. Students majoring in Social Work choose from the following courses:

COM 100 Introduction to Human Communication *SB* 3
COM 225 Public Speaking *L* 3
COM 230 Small Group Communication *SB* 3
COM 241 Introduction to Oral Interpretation *L/HU* 3
COM 259 Communication in Business and the Professions 3

Majors in the School of Community Resources and Development choose from COM 225, 241, or 259.

Computer Requirement

A computer course is required for all undergraduate majors. Any computer (CS) course from the university General Studies list is acceptable. It may be included within the numeracy requirement or department or school degree program, where appropriate.

Non-English Language Requirement

The School of Social Work requires proficiency in a language other than English.

Writing Competence Requirement

In addition to ENG 101 and 102 First-Year Composition or their equivalent, one of the following courses in advanced written expository composition is required of all undergraduate majors:

ENG 215 Strategies of Academic Writing *L* 3
ENG 216 Persuasive Writing on Public Issues *L* 3
ENG 217 Writing Reflective Essays *L* 3
ENG 218 Writing About Literature *L/HU* 3
ENG 301 Writing for the Professions *L* 3
JMC 201 Journalism Newswriting *L* 3
JMC 202 Radio-Television Writing *L* 3

The writing competence course may be counted as fulfilling the university General Studies literacy and critical inquiry (L) requirement if it is on the university-approved list.

Pass/Fail Option

The College of Public Programs does not offer any courses for pass/fail credit. Courses completed for pass/fail credit outside the College of Public Programs may count only as elective credit in meeting degree requirements.

Limit on Physical Education Activity Hours

No more than eight hours of physical education activity courses may be counted within the minimum 120 hours required for graduation.

PREPROFESSIONAL REQUIREMENTS

Students should refer to the respective department or school section of the catalog and to department or school advising documents for more information on requirements.

Undergraduate Credit for Graduate Courses

To enable undergraduate students to enrich their academic development, the Division of Graduate Studies and the individual academic units of the College of Public Programs allow qualified students to take graduate-level courses for undergraduate credit. To qualify for admission to a graduate-level course, the student must have senior standing (87 or more semester hours successfully completed) and a cumulative GPA of 3.00 or higher. In addition, permission to enroll must be given before registration and must be approved by the instructor of the course, the student's advisor, the department chair or school director, and the dean of the college in which the course is offered.

ACADEMIC STANDARDS AND RETENTION

Good Standing. Students in the College of Public Programs are considered to be in good standing for the purpose of retention if they maintain a cumulative GPA of 2.00 or higher in all courses taken at ASU. However, to achieve professional status in the undergraduate degree programs in the college, students must have a cumulative GPA of 2.50 or higher at ASU.

Probation. Any student who does not maintain good standing is placed on academic probation. A student on academic probation is required to observe any limitations or rules the college may impose as a condition for retention.

Disqualification. A student who is on probation becomes disqualified if (1) the student has not returned to good standing or (2) the student has not met the required semester GPA.

Disqualification is exercised at the discretion of the college and becomes effective on the first day of the fall or spring semester following college action. A disqualified student is notified by the Office of the Registrar and/or the dean of the college and is not allowed to register for a fall or spring semester at the university until reinstated. A student who is disqualified may not attend as a nondegree student.

Reinstatement. Students seeking reinstatement after disqualification should contact the College of Public Programs Student Services Office regarding procedures and guidance for returning to good standing. When reinstatement includes readmission, application must be made to the Readmissions Section of the University Registrar.

All academic disciplinary action is the function of the College of Public Programs Student Services Office, WILSN 203, under the direction of the dean of the college. Students having academic problems should call this office for advising at 480/965-1034.

SPECIAL PROGRAMS

Barrett Honors College

The College of Public Programs cooperates with the Barrett Honors College, which affords superior undergraduates opportunities for interdisciplinary seminars and special topic courses taught by selected faculty. Honors students receive supplemental advising, priority preregistration, and complete a senior honors thesis. Participating students can major in any academic program. A full description of the requirements and the opportunities offered by the Barrett Honors College can be found in "The Barrett Honors College," page 145.

For more information, visit the College of Public Programs Student Services Office at WILSN 203, or call 480/965-1034. For more information about the Barrett Honors College, call 480/965-2359, or access the Web site at honors.asu.edu.

Certificate in Lesbian, Gay, Bisexual, and Transgender Studies

The undergraduate certificate in Lesbian, Gay, Bisexual, and Transgender Studies is offered by the Committee on Lesbian, Gay, Bisexual, and Transgender Studies, administered through the College of Public Programs.

Lesbians, gay men, bisexuals, and transgendered (LGBT) people play important roles as colleagues, clients, parents, children, siblings, neighbors, employees and employers, religious leaders, and friends. Given the increasing visibility and changing political climate for LGBT people in the United States, all students—not only those who identify themselves as gay, lesbian, bisexual, or transgender–are served well by learning about the histories, communities, and contemporary social issues regarding people from LGBT backgrounds. The educational experience is enhanced when students are introduced to complex intersections between and among sexual, racial, ethnic, religious, geographic, and national identities. The philosophy of this certificate program is to promote intellectual and pedagogical diversity as one of the university's greatest assets, in part by instilling in students sensitivity to cultures different from their own, but also through careful analysis of the self in historical, artistic, and sociocultural contexts.

The goals of the certificate program are to give students knowledge about specific lesbian, gay, bisexual, and transgendered communities; knowledge about the history and maintenance of the category, "lesbians and gay men"; theoretical perspectives on "heterosexuality" as a presumptive sexual identity; an understanding of Lesbian, Gay, Bisexual, and Transgender Studies as an academic area of inquiry; an understanding of community politics, dynamics, and conflicts; use-inspired education that culminates in a public presentation; and practical experience in utilizing course work knowledge in the community through an internship or community service project.

For information on the faculty and certificate requirements, access the Web site at copp.asu.edu.

College of Public Programs Council

The College of Public Programs Council is a unit of Associated Students of Arizona State University and serves as the coordinating body of student activities in the college. The council fosters communication, cooperation, and understanding among undergraduate students, graduate students, faculty, and staff. As the official representative student organization to the dean and college administration, the council appoints student members to faculty committees, cosponsors events with the college alumni association, and represents students at college and university functions.

Center for Nonprofit Leadership and Management

The Center for Nonprofit Leadership and Management (CNLM) promotes the understanding of the nonprofit sector in community life and focuses on effective practices that help organizations meet their mission. The center coordinates a nonprofit sector research program, facilitates educational offerings in nonprofit studies, and serves as a convener on contemporary issues. CNLM provides information and selected technical assistance services pertaining to such topical concerns as philanthropy, effective board

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

governance, and social enterprise. The center facilitates relationships among students, faculty, and community organizations across the range of its research and outreach activities. In addition, the center convenes leaders and managers from the nonprofit, business, and government sectors on issues pertinent to building nonprofit capacity in the region. CNLM is the leading nonprofit academic center in the region. It is nationally recognized for its knowledge and tools that support leader and manager effectiveness. The center supports the activities of three complementary nonprofit education programs at ASU; the American Humanics Program (undergraduate certificate), a postbaccalaureate program (graduate certificate program in Nonprofit Leadership and Management), and a professional development education program (through the Nonprofit Management Institute). For more information, call 480/965-0607, or access the Web site at nonprofit.asu.edu.

Center for Urban Inquiry

The mission of the Center for Urban Inquiry (CUI) is threefold: critical social science research, community engagement, and innovative education. The research agenda prioritizes the scrutiny of economic and social privilege and disadvantage. Specific research requests from policymakers, nonprofit and government agencies, and citizen groups are also considered. This includes a rapid response community research initiative established to provide intensive feedback to community research requests that must be completed within a limited time frame, as well as long-term process and outcome evaluations of programs and policies in the private and public sectors. CUI also facilitates collaborative research efforts among faculty, research professionals, and students. Such research includes an examination of the individual and collective costs of poverty in the Southwest and the design of comprehensive research to explore the extent and nature of racial profiling among agents of social control.

The center's direct community involvement ranges from the local to the global. This includes support of neighborhood groups advocating for homeowners and renters within the context of urban development and displacement, the creation of a hospital-based community partnership to combat youth violence, and participation in United Nations summits on sustainable development and indigenous peoples' rights. The center serves the university and community through innovative educational endeavors, including a distance-learning college program for incarcerated women, in-depth research training for graduate and undergraduate students, and courses in service learning, community action research, and international urban issues. CUI also serves as the administrative and programmatic home for the needs-based Nina Mason Pulliam Legacy Scholars Program for nontraditional students.

For more information, call 480/965-9216, access the center's Web site at www.asu.edu/copp/urban, or write

CENTER FOR URBAN INQUIRY
ARIZONA STATE UNIVERSITY
PO BOX 874603
TEMPE AZ 85287-4603

Southwest Interdisciplinary Research Center

The Southwest Interdisciplinary Research Center (SIRC) conducts multidisciplinary, community-based research on health disparities among the populations of the Southwest, concerning drug abuse, HIV/AIDS, and mental health. Research efforts focus on the needs and strengths of families and youth from diverse communities, and strive to foster a stronger link between practice and research in the social work and service delivery fields. The research center's goal is to develop a comprehensive interdisciplinary center for culturally oriented research on drug abuse and other health outcomes that will strengthen the university's capacity as a leader in the Southwest region, nationally, and internationally.

SIRC strengthens the institutional infrastructure of the School of Social Work, enhances the research capabilities of faculty and community social workers, and draws across many disciplines to create dynamic research partnerships. The center's research affiliates include faculty from nursing, psychology, social work, sociology, and other departments. SIRC is funded through competitive research grants and subcontracts awarded by the National Institute on Drug Abuse, the National Institutes of Health, the Centers for Disease Control and Prevention, and by ASU.

The mission of SIRC is to carry out interdisciplinary research in health disparities with populations of the Southwest, and increase the number and capacity of social work researchers working in the areas of substance abuse, HIV/AIDS, and mental health. The center's multidisciplinary and community-based research in these priority areas focuses on culturally-grounded prevention research, and culturally responsive and resiliency-focused services research.

SIRC studies the strengths, competencies, and other protective factors that buffer against drug use and risk behaviors of families and youth. Research focuses on the diverse cultural communities of the Southwest and the way that drug use, HIV/AIDS, and mental health are connected to ethnic, gender, developmental, geographic, and other social identity variables.

SIRC provides predoctoral applied research education to graduate students from social work, sociology, and other departments. In addition, SIRC provides continuing education and research dissemination activities in association with its community advisory board members and partners.

For more information, call 480/965-4699, access the center's Web site at sirc.asu.edu, or write

SOUTHWEST INTERDISCIPLINARY RESEARCH
CENTER
ARIZONA STATE UNIVERSITY
PO BOX 873711
TEMPE AZ 85287-3711

College of Public Programs

The academic units within the College of Public Programs may use the CPP prefix for course offerings that cross disciplinary boundaries.

COLLEGE OF PUBLIC PROGRAMS (CPP)

D CPP 194 Special Topics. (1–4)
selected semesters

D CPP 294 Special Topics. (1–4)
selected semesters
D CPP 394 Special Topics. (1–4)
selected semesters
D CPP 484 Internship. (1–12)
selected semesters
D CPP 494 Special Topics. (1–4)
selected semesters
D CPP 498 Pro-Seminar. (1–7)
selected semesters
D CPP 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

School of Community Resources and Development

scrd.asu.edu
480/965-7291
AG 281

Randy J. Virden, Director

Professors: Allison, Tyrrell, Yoshioka

Associate Professors: Ashcraft, Teye, Timothy, Virden

Assistant Professors: Brown, Budruk, Guo, Jones, Nyaupane, White

Lecturers: Barry, Ramella

RECREATION—BS

The School of Community Resources and Development is dedicated to improving the economic, environmental, social, and cultural well-being of communities (local, regional, and global) through research, discovery, instruction, and professional service.

The BS degree program in the School of Community Resources and Development is focused on three general areas of study: parks and recreation management; tourism development and management; and nonprofit leadership and management. It is a professional program that exposes students fully to community resource-related issues, including amenity service delivery, philanthropy, natural and cultural resources, human behavior and development, development issues (social, economic, and environmental), and public policy.

This interdisciplinary program is designed to provide the student with competencies necessary for employment in management and program delivery positions in diverse public, nonprofit, and private organizations such as community service departments, municipal and county park and recreation departments, state and national natural resource agencies, YMCAs, Boys and Girls Clubs of America, the United Way and other nonprofit organizations, clinical rehabilitation centers, hospitals, visitor and convention bureaus, senior centers, resorts, destination management companies, and other components of the tourism/commercial recreation industry.

Concentrations

Students may select from two concentrations: (1) recreation management and (2) tourism management.

Recreation Management. Students pursuing the recreation management concentration can further specialize in therapeutic recreation, community and urban recreation, natural resource recreation, or nonprofit youth and human service leadership and management (American Humanics). In addition to the 34 semester hours of major core classes, these areas of study consist of from 15 to 18 semester hours of recreation-related courses and from 12 to 19 semester hours of related-areas courses.

Therapeutic Recreation. Within the recreation management concentration, students may specialize in therapeutic recreation and in doing so, may qualify to sit for the National Council for Therapeutic Recreation Certification exam. This professional development prepares students for careers in clinical and community settings, working with disabled individuals in their pursuit of quality leisure experiences. This program is the only one of its kind in a growing field in Arizona.

Tourism Management. The tourism management concentration consists of 34 semester hours of major core courses, 12 semester hours of tourism-related requirements, nine semester hours of tourism options, and nine semester hours of nonmajor related course work.

SCHOOL MAJOR REQUIREMENTS

Students may declare Recreation as their major but cannot register for upper-division core classes without *professional status*. To be officially admitted with professional status to the BS degree program in Recreation, students must

1. meet the College of Public Programs preprofessional status admission requirements (see "Admission," page 184);
2. complete REC 120 and 210 with a grade of "C" (2.00) or higher; and
3. complete either COM 225, 241, or 259.

Transfer students who have completed 56 semester hours or more at another institution must remove any of the above course or scholastic deficiencies before being admitted *with professional status* to the BS degree in Recreation.

To graduate, students must complete the university General Studies requirement and the College of Public Programs course requirements in addition to major requirements.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

PROGRAM REQUIREMENTS

The 64- to 68-semester-hour BS degree in Recreation includes 34 semester hours of major core courses.

Recreation Major Core Courses

REC	120	Leisure and the Quality of Life *SB*	3
REC	210	Community Resources and Services	3
REC	330	Programming of Recreation Services *L*	3
REC	364	Foundations of Therapeutic Recreation	3
REC	440	Recreation Areas and Facilities Development and Management	3
REC	462	Management of Recreation and Tourism Services	3
REC	463	Senior Internship	12
REC	482	Assessment and Evaluation of Recreation Services	3
REC	494	ST: Preinternship Workshop	1
Total			34

REC 330, 440, 462, and 482 require *professional status* and must be taken in the proper sequence. NLM 463 and REC 463 are the department's capstone courses. Two hundred hours of professional leadership experience are required before enrollment in NLM 463 or REC 463. Students are not permitted to take additional course work during their senior internship placement period. Approval of internships for Tempe campus students must be received from the School of Community Resources and Development office.

A student must attain a grade of "C" (2.00) or higher in all courses within the major, including the related area. Specific courses that may be used to fulfill the related requirements, the related areas, and the directed elective course work are listed on check sheets available in the department office and on the Web at scrd.asu.edu.

MINORS

The school offers two minors: (1) Recreation Management and (2) Tourism. The minor in Recreation Management consists of REC 120 Leisure and the Quality of Life, REC 160 Leisure and Society, and 12 additional semester hours of approved course work, including 12 semester hours at the upper-division level, from Tempe campus. The Tourism minor consists of REC 120 Leisure and the Quality of Life, REC 305 Introduction to Travel and Tourism, and nine additional semester hours of upper-division approved courses from Tempe campus.

BIS CONCENTRATIONS

Concentrations in recreation management, tourism, and nonprofit youth and human service leadership and management are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Students in the BIS degree program may choose either recreation management or tourism management as one of their two concentrations, but not both.

Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

CERTIFICATE PROGRAM

Nonprofit Youth and Human Service Leadership and Management: American Humanics Certificate Program. The certificate program in American Humanics provides education and preparation for leadership and management positions in nonprofit youth and human service organizations. The program features professional affiliation with and certification by American Humanics, Inc., the nation's leader in education for nonprofit careers. American Humanics collaborates with a number of nonprofit organizations, including American Red Cross, Big Brothers/Big Sisters, Boys and Girls Clubs, Boy Scouts, Camp Fire USA, Girl Scouts, Habitat for Humanity, Junior Achievement, the United Way, and YMCA.

This program features an academic and experiential approach that highlights the unique issues of nonprofit organization management, with a particular emphasis on youth development agencies. The program includes active participation by nonprofit professionals who offer workshops, seminars, mentoring, and field trips. American Humanics national certification can be earned in conjunction with any baccalaureate degree.

NLM	220	Introduction to Nonprofit Organizations	3
NLM	300	Fund Raising and Resource Development	3
NLM	310	Volunteer Management	3
NLM	320	Professional Development Seminar*	4
NLM	420	American Humanics Institute	2
NLM	430	Managing Nonprofit Organizations	3
NLM	463	Senior Internship	12
Minimum total			30

* NLM 320 is taken four semesters, for one semester hour each term.

GRADUATE PROGRAM

MS Degree in Recreation. The curriculum for the MS degree in Recreation is designed to help students achieve both academic and professional goals. Areas of study include natural resource recreation, recreation administration, social/psychological aspects of leisure, and tourism and commercial recreation. Each student may complete a thesis or professional option. Information on the MS degree in Recreation is detailed in the *Graduate Catalog*.

NONPROFIT LEADERSHIP AND MANAGEMENT (NLM)

D NLM 191 First-Year Seminar. (1–3)
selected semesters
Topics may include the following:
- Art History Professional Program

D NLM 220 Introduction to Nonprofit Organizations. (3)
fall and spring
Introduces the nonprofit sector and its role in developing the cultural, economic, and social impact in U.S. society.

D NLM 235 Service Learning for Community Development. (3)
spring
Applies youth and adult development theories through community service immersion in collaboration with local nonprofit partners. Case studies, small group discussion.

D NLM 300 Fund Raising and Resource Development. (3)
fall
Theory and practice of philanthropy, resource acquisition methods through ethical fund raising, and earned income approaches for nonprofit organizations.

D NLM 310 Volunteer Management. (3)
spring
Administration of volunteer service programs. Studies and analyzes the volunteer personnel process. Cross-listed as REC 310. Credit is allowed for only NLM 310 or REC 310.

D NLM 320 Professional Development Seminar. (1)
fall and spring
Professional seminar featuring nonprofit executives; variable topics on leadership and management concerns. Forum for exchange between students and professionals. May be repeated for credit. Prerequisite: instructor approval.

D NLM 420 American Humanics Institute. (1–2)
fall
National Management Institute for preparation of nonprofit professionals. Requires out-of-state conference. May be repeated for credit. Prerequisite: instructor approval.

D NLM 430 Managing Nonprofit Organizations. (3)
spring
Analyzes administrative structures, decision making, and program delivery within nonprofit organizations. Prerequisites: NLM 220; senior standing.

D NLM 463 Senior Internship. (6 or 12)
fall, spring, summer
Supervised guided experience in selected agencies. May be repeated for credit. Cross-listed as REC 463. Credit is allowed for only NLM 463 or REC 463. Fee. Prerequisites: REC 440, 462, 482; Recreation major; senior standing.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

RECREATION MANAGEMENT AND TOURISM (REC)

D REC 120 Leisure and the Quality of Life. (3)
fall, spring, summer
Conceptual foundations for understanding the role of leisure in the quality of life. Social, historical, psychological, cultural, economic, and political foundations of play, recreation, and leisure.
General Studies: SB

D REC 150 Outdoor Pursuits. (3)
summer
Theories and practical applications related to outdoor recreation pursuits. Interdisciplinary approach to wilderness issues and philosophies, culminating in an outdoor experience. Field trips.

D REC 160 Leisure and Society. (3)
once a year
Analyzes the human relationship to leisure. Historical survey of philosophical, psychological, and socioeconomic bases for development of systems that provide leisure programs. Non-Recreation majors only.
General Studies: SB

D REC 210 Community Resources and Services. (3)
fall and spring
Introduces the system of public, nonprofit, and private sector resources and services comprising contemporary communities. Organized into three modular units with emphasis on the delivery of services in the parks and recreation, tourism, and nonprofit professions. Prerequisite: Recreation major. Pre- or corequisite: REC 120.

D REC 305 Introduction to Travel and Tourism. (3)
fall and spring
Examines the components of the travel and tourism industry at the state, national, and global levels.
General Studies: G

D REC 310 Volunteer Management. (3)
spring
Administration of volunteer service programs. Studies and analyzes the volunteer personnel process. Cross-listed as NLM 310. Credit is allowed for only NLM 310 or REC 310.

D REC 315 Community Recreation Systems. (3)
fall
Explores and assesses community recreation delivery systems in the United States. Prerequisite: REC 210.

D REC 325 Tourism Accommodations. (3)
fall
Local, national, and international overview of the lodging and food service industries. Prerequisite: REC 305.

D REC 330 Programming of Recreation Services. (3)
fall and spring
Foundations for effective program planning in varied leisure delivery systems. Prerequisite: Recreation professional status.
General Studies: L

D REC 340 Outdoor Survival. (3)
fall
Interdisciplinary approach to outdoor survival, including attitudes, psychological stress, physiological stress, preparation, hypothermia, navigation, flora, and wildlife. Field trips.

D REC 345 Meeting and Convention Planning. (3)
fall
Basic aspects and skills in planning meetings and conventions. Industry and market overview of certified meeting planners. Prerequisite: REC 305.

D REC 350 Tourism Marketing. (3)
fall and spring
Critical examination of marketing principles; applications to travel, tourism, and related industries in diverse settings, including local, national, and international. Corequisite: REC 305.

D REC 364 Foundations of Therapeutic Recreation. (3)
fall and spring
Introduces special recreation and therapeutic recreation services for persons with disabilities. Offers both a community and clinical perspective on specialized services. Prerequisite: Recreation major or minor.

D REC 370 Natural Resource Recreation Planning and Management. (3)
fall
Comprehensive introduction into theory, processes, and techniques for managing natural resource recreation with an emphasis on the public sector.

D REC 372 Tourism Planning. (3)
fall and spring
Applies economic and regional development concepts and theories to destination product development. Prerequisite: REC 305.

D REC 380 Wilderness and Parks in America. (3)
fall and spring
Examines the American Conservation Movement and the relationships between the environment and recreation behavior.
General Studies: SB, H

D REC 400 Processes and Techniques in Therapeutic Recreation. (3)
fall
In-depth analysis of theoretical and philosophical approaches to therapeutic recreation practice with emphasis on various facilitation techniques used in therapy. Prerequisite: REC 364 or instructor approval.

D REC 401 Program Design and Evaluation in Therapeutic Recreation. (3)
spring
In-depth analysis of assessment, treatment planning, program implementation, documentation, and evaluation strategies employed in therapeutic recreation practice. Prerequisites: both REC 364 and 400 or only instructor approval.

D REC 415 Tourism Transportation Systems. (3)
spring
Examines the role of various modes of transportation in domestic and international tourism development. Prerequisite: REC 305.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

D REC 440 Recreation Areas and Facilities Development and Management
once a year
Surveys development and management of public, private, and commercial recreation areas and facilities with a focus on meeting program needs. Prerequisite: Recreation professional status.

D REC 458 International Tourism. (3)
fall and spring
Global examination of international tourism and its significance as a vehicle for social and economic development.
General Studies: G

D REC 460 Clinical Issues in Therapeutic Recreation. (3)
spring
Explores contemporary problems/issues confronting the therapeutic recreation field; includes philosophical, historical, practice, management, research, and educational issues. Lecture, off-campus lab. Prerequisites: both REC 364 and 400 or only instructor approval.

D REC 462 Management of Recreation and Tourism Services. (3)
fall and spring
Basic principles of administration and their application in successful administrative situations. Analyzes administrative function, structure, and policies. Prerequisites: REC 330; Recreation professional status.

D REC 463 Senior Internship. (6 or 12)
fall, spring, summer
Supervised guided experience in selected agencies. May be repeated for credit. Cross-listed as NLM 463. Credit is allowed for only REC 463 or NLM 463. Fee. Prerequisites: REC 440, 462, 482; Recreation major; senior standing.

D REC 470 Environmental Interpretation and Education. (3)
spring
Introduces park interpretation and environmental education that includes theories, principles, and techniques. Prerequisite: REC 370.

D REC 480 Natural Resource Tourism. (3)
spring
Examines the interaction of tourism with culture, natural environment, as well as the impacts of tourism on the environment.

D REC 482 Assessment and Evaluation of Recreation Services. (3)
fall and spring
Introduces applied leisure research with emphasis on program evaluation, research design, data collection techniques, and data analysis. Prerequisites: REC 330; Recreation professional status.

D REC 494 Special Topics. (1–3)
fall and spring
Special topics selected by department faculty. Topics may include the following:
- Preinternship Workshop. (1)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

School of Public Affairs

spa.asu.edu
480/965-3926
WILSN 208

Robert Denhardt, Director

Professors: Cayer, Chapman, Coor, Crow, J. Denhardt, R. Denhardt, Friedman, Hall, Lan, Perry

Associate Professors: Campbell, McCabe

Assistant Professors: Al-Yahya, Catlaw, Corley, Peck, Voorhees

Professor of Practice: Vanacour

CERTIFICATE IN LEADERSHIP AND ETHICS

The School of Public Affairs, in conjunction with the Lincoln Center for Applied Ethics, offers a 15-semester-hour Leadership and Ethics Certificate program. The certificate prepares students for positions of leadership and responsibility in the university, in their communities, and throughout their careers in business, government, and society. Students explore the relationship between leadership and the capacity for individuals to assume responsibility for their actions and to act with a sense of ethics and integrity. The program provides students with an understanding of change processes as they affect individuals, groups, and organizations throughout society, so that students might better learn to cope with and direct change in positive and beneficial ways.

PAF	494	ST: Building Leadership Skills	3
PAF	494	ST: Leadership and Ethics	3
PAF	494	ST: Leadership and Change	3
PAF	494	ST: Leadership Capstone	3
Elective			3
Total			15

CERTIFICATE IN PUBLIC ADMINISTRATION AND PUBLIC MANAGEMENT

The School of Public Affairs offers a 15-semester-hour Public Administration and Public Management Certificate program. The certificate prepares students for leadership positions and careers in governmental agencies and nonprofit associations. To meet certificate requirements, students take four core courses and one elective course. The list of approved electives may be obtained by visiting the School of Public Affairs Student Services Office in WILSN 211, or by calling 480/965-1037.

PAF	300	Public Management and Administration	3
PAF	340	Public Management and Policy	3
PAF	420	Public Leadership	3
PAF	460	Public Service Ethics	3
Elective			3
Total			15

BIS CONCENTRATION

A concentration in public administration is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

GRADUATE DEGREES

The school also offers a 42-semester-hour professional Master of Public Administration degree, a 42-semester-hour Master of Public Policy degree, and the Doctor of Philosophy degree. The MPA degree is accredited by the National Association of Schools of Public Affairs and Administration. Consult the *Graduate Catalog* for information about the programs.

PUBLIC AFFAIRS (PAF)

D PAF 300 Public Management and Administration. (3)
fall and spring
Examines the context and role of the public manager and the development of the field of public administration.

D PAF 340 Public Management and Policy. (3)
fall and spring
Develops conceptual, critical, and practical understanding of policy, the policy process, and policy analysis.

D PAF 401 Statistics. (3)
fall and spring
Surveys statistical concepts and techniques with application to public administration. Does not count toward program of study. Satisfies statistics prerequisite requirement for PAF 501 and 502.

D PAF 420 Public Leadership. (3)
fall and spring
Examines key concepts, models, and strategies for leading public and nonprofit organizations, emphasizing self-knowledge, skills, and abilities for effective leadership.

D PAF 460 Public Service Ethics. (3)
fall and spring
Role, values, and issues of public management in democratic governance, citizen participation, power structures, and professional codes of conduct.

D PAF 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Building Leadership Skills
- Leadership and Change
- Leadership and Ethics
- Leadership Capstone

D PAF 498 Pro-Seminar. (3)
selected semesters
Small group and study for advanced students in the field of public administration. May be repeated for credit for a total of 6 hours. Prerequisites: minimum 2.00 GPA; school approval.

D PAF 499 Individualized Instruction. (1–3)
fall, spring, summer
Original study or investigation in public administration and public management under the supervision of a faculty member. May be repeated for credit for a total of 6 hours. Prerequisites: minimum 3.00 GPA; school approval.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

School of Social Work

ssw.asu.edu
480/965-6081
WHALL 135

Leslie Leighninger, Director

Professors: Ashford, LeCroy, Leighninger, MacEachron, Marsiglia, Martinez-Brawley, Moroney, Segal

Associate Professors: Brzuzy, Gerdes, Gustavsson, Krysik, Montero, Napoli, Nichols, Paz, Risley-Curtiss, Robles, Steiner, Stromwall, Waller

Assistant Professors: Bacchus, Holley, Kang, Larson, Niles, Roe-Sepowitz

Senior Instructional Professional: Gonzalez-Santin

Assistant Administrative Professional: Knutson-Woods

PURPOSE

The School of Social Work prepares professional social work practitioners who are committed to the enhancement of individual, family, and group problem-solving capacities and the creation of a more nurturing, just, and humane social environment.

The mission of the School of Social Work is to train professional social workers for beginning-level generalist practice (BSW) and for advanced direct practice and planning, administrative, and community practice (MSW). The focus is on populations of the Southwest and those who are most oppressed and most in need of social services.

The school is committed to the university's mission to be competitive with the best public research universities in the country. Faculty members have active research agendas under way that venture into a wide variety of topics, including work with children, issues of specific importance to Latino and indigenous peoples, poverty, human services planning, and many others.

ORGANIZATION

The School of Social Work is organized around three program areas:

1. Bachelor of Social Work (BSW);

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

The Agriculture Building is located on the Tempe campus between the Memorial Union and the Student Services Building.

Tim Trumble photo

2. Master of Social Work (MSW); and
3. Doctor of Philosophy (PhD with a major in Social Work).

The MSW program has two areas of concentration: (1) advanced direct practice (ADP) and (2) planning, administration, and community practice (PAC).

The BSW and MSW degrees are offered at Tempe campus and at the Tucson component; the PhD degree is offered at Tempe campus.

For more information regarding the master's and PhD programs, see the *Graduate Catalog*.

ADMISSION

Bachelor of Social Work

Preprofessional Status. Students who have declared Social Work as their major or have transferred from other universities or community colleges are admitted to ASU and the School of Social Work with preprofessional status. Transfer students should follow the procedure outlined under "Office of Undergraduate Admissions," page 65.

Applying for Professional Program Status. Students who have completed 56 or more semester hours and have taken SWU 171 Introduction to Social Work, SWU 291 Social Service Delivery Systems, SWU 295 Foundations of Social Work Practice, SWU 301 Human Behavior in the Social Environment I, and SWU 310 Social Work Practice I are eligible to apply for professional program status.

Students may obtain an application packet at the School of Social Work, Academic Services, WHALL 135, or request that one be mailed to their home address by calling 480/965-6081.

Applications are reviewed for admission for the fall and spring semesters. Students applying must have a Certificate of Admission to the university in their files by November 1 for spring admission and March 1 for fall admission. All other application materials (i.e., application form, additional statement, and two letters of reference) must be returned to

SCHOOL OF SOCIAL WORK
ACADEMIC SERVICES
ARIZONA STATE UNIVERSITY
PO BOX 871802
TEMPE AZ 85287-1802

Materials must be received by November 1 for spring admission or March 1 for fall admission. Failure to meet these deadlines may result in the applicant having to wait

for the next admissions period. Applicants are notified by mail of the committee's decision. Those applicants who have been denied admission may request a conference with the BSW program coordinator to discuss the decision and to obtain guidance in the development of future plans.

Criteria for Professional Program Status. Admission to professional program status is based on the following criteria:

1. A minimum of 56 semester hours with a cumulative GPA of at least 2.50 at ASU is required.
2. A minimum cumulative GPA of 2.75 in core social work courses (SWU 171, 291, 295, 301, and 310) and a grade of "C" (2.00) or higher in all social work courses are required.
3. The applicant's educational and career goals must be compatible with the educational objectives of the school.
4. Before admission to preprofessional status, it is required that students have had human service experience for a minimum of 240 hours in social work-related settings. Personal life experience may be substituted.
5. References are required for each applicant. One reference should be from a person who knows the applicant in a professional capacity and one from a person who knows the applicant in an academic capacity. Additionally, a third reference is later requested by the school from the applicant's SWU 310 instructor. This reference is used in the field placement process.
6. The College of Public Programs professional program status admissions requirements outlined under "Professional Status Admission Requirements," page 184, must be fulfilled.

Leave of Absence. Occasionally, for health or personal reasons, Social Work students who have achieved professional program status find it necessary to interrupt their studies. Students considering such requests meet with an academic advisor to look at alternatives and then submit a written request to the BSW program coordinator. A student may request a leave of absence from the Social Work program for a period of one year. Failure to request a leave of absence results in removal from the professional program. (This leave applies only to the Social Work program and not to the university. No leave of absence is granted from the university.) Except when recommended by the Committee on Academic and Professional Standards, the student must be in good standing in the program at the time the request is made. Students should be aware that nonattendance at the university for one or more semesters requires reapplication to the university.

Readmission. Undergraduate students who have previously attended ASU but have not been enrolled at this institution for one or more semesters are required to apply for readmission following university procedures as outlined under "Readmission to the University," page 80. Students who were previously admitted to the professional program may, in addition, be required to reapply for professional status.

Transfer Students. The university standards for evaluation of transfer credit are listed under "Transfer Credit," page 71. Community college students planning to transfer at the end of their first or second year should plan their community college courses to meet the requirements of the ASU curriculum selected. Students attending Arizona community colleges are permitted to follow the degree requirements specified in the ASU catalog in effect at the time they begin their community college work, providing their college attendance is continuous. See "Guidelines for Determination of Catalog Year," page 89.

Arizona students are urged to refer to the Course Applicability System for the transferability of specific courses from Arizona community colleges. Students may also access the guide through the Academic Transfer Articulation Office's Web site at www.asu.edu/provost/articulation.

Courses transferred from community colleges are accepted as lower-division credit only. Students are urged to choose their community college courses carefully, in view of the fact that there is a minimum number of hours of work taken at the university that must be upper-division credit (see "Credit Requirements," page 89).

Direct transfer of courses from other accredited institutions to the School of Social Work is subject to the existence of parallel and equal courses in the school's curriculum. Transfer credit is not given for courses in which the student has earned a grade below "C" (2.00).

Credit for "life experience" is not given in lieu of course requirements. A minimum of 30 semester hours earned in resident credit courses at ASU is required for graduation.

ADVISING

Students are responsible for meeting the degree requirements and seeking advising regarding their program status and progress. Upon admission to the Social Work major, each student is assigned a faculty advisor who assists with career planning. The academic advisor assists students with program planning, registration, preparation of needed petitions, verification of graduation requirements, and referrals to university and/or community resources. Students must meet with an academic advisor before any registration transaction.

DEGREES

Social Work—BSW

The school's undergraduate curriculum leads to a Bachelor of Social Work (BSW) degree. The BSW degree program is accredited by the Council of Social Work Education (CSWE). The principal objective of the undergraduate curriculum is to prepare students for beginning-level generalist practice in social work. The program is also designed to prepare students for culturally sensitive practice and to provide preparation for graduate training in social work. During the freshman and sophomore years, students concentrate on obtaining a strong background in liberal arts and sciences and are classified as preprofessional until they are officially

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

admitted to the professional program. Entrance into the Social Work professional program is not automatic (see "Applying for Professional Program Status," page 194).

Junior and senior Social Work majors focus on social work courses in research, social policy and services, social work practice, human behavior in the social environment, and field instruction in community agencies. In addition, majors take elective courses in related areas.

The BSW-level practitioner is seen as a generalist. The curriculum focuses on such roles as advocacy, case management, problem-solving, and referral functions with individuals, groups, families, organizations, and the community.

Tucson Component. The Tucson Component serves students living and working in southern Arizona pursuing the BSW degree. The Tucson Component—established in 1995 as a partnership between the Arizona Department of Economic Security, the ASU School of Social Work, and the School of Extended Education—became permanent in 1999. Full- and part-time students can complete all required upper-division social work courses and electives at a centrally located site near downtown Tucson, while completing general studies and other degree requirements through area community colleges, the University of Arizona, and Northern Arizona University. For more information, call the Tucson Component at 520/884-5507, extension 10.

MINOR

The minor in Social Welfare is designed for students interested in analyzing complex family, individual, and societal problems in the context of societal values, cultural diversity, and other social and economic variables. Eighteen hours of graded classroom SWU course work are required, including SWU 171, 291, 332, and 374. A minimum of 12 semester hours must be resident credit at the Tempe campus, and at least 12 hours must be upper-division credit. Students must receive a grade of "C" (2.00) or higher for all courses in the minor.

EARLY INTERVENTION CERTIFICATE PROGRAM

The Early Intervention Certificate is cross-disciplinary and is certified by the Arizona Early Intervention Program within the Arizona State Department of Economic Security. Students majoring in Social Work or Family and Human Development who wish to learn more about infants and toddlers at risk for developmental delay because of a known disability or because of exposure to environmental risk factors, and students who wish to work with infants and toddlers and their families in a variety of settings would benefit from this training.

Students interested in earning a certificate in Early Intervention must make a formal application to the Early Intervention Training Program. Students must have completed 56 semester hours and have a cumulative GPA of at least 2.50.

The certificate requires 17 semester hours of course work:

Choose between the course combinations below.....8
- CDE 338 Child Development Practicum (3)
- FAS 484 Internship (5)

— *or* —

- SWU 412 Field Instruction I (5)
- SWU 414 Field Instruction II (3)

SWU 437 Infant-Family Assessment and Observation *L*/*SB*.....3
or CDE 437 Infant-Family Assessment and Observation *L*/*SB* (3)

SWU 446 Risk and Variation in Child Development.....3
or CDE 444 Risk and Variation in Child Development (3)

SWU 498 Pro Seminar.....3
or CDE 337 Early Childhood Intervention (3)

BIS CONCENTRATION

A concentration in social welfare is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

GRADUATE PROGRAMS

The faculty in the School of Social Work offer a Master of Social Work (MSW) degree and a PhD degree in Social Work. For more information, see the *Graduate Catalog*.

UNIVERSITY GRADUATION REQUIREMENTS

In addition to fulfilling college and major requirements, students must meet all university graduation requirements. For more information, see "University Graduation Requirements," page 89.

General Studies Requirement

All students enrolled in a baccalaureate degree program must satisfy the university requirement for a minimum of 35 semester hours of approved course work in General Studies. See"General Studies," page 93.

Note that all three General Studies awareness areas are required, consult an academic advisor for approved courses.

SCHOOL OF SOCIAL WORK DEGREE REQUIREMENTS

All students enrolled in a baccalaureate degree program must satisfy School of Social Work degree requirements with additional course work chosen from among those courses that satisfy the General Studies requirement. General Studies courses are listed in the "General Studies Courses" table, page 96, in the course descriptions, in the *Schedule of Classes,* and in the *Summer Sessions Bulletin*.

A well-planned program of study may enable students to complete many General Studies and School of Social Work degree requirements concurrently. Students are encouraged to consult with an academic advisor in planning a program to ensure that they comply with all necessary requirements. All students are required to demonstrate proficiency in a language other than English (a spoken language or American Sign Language). Proficiency is defined as completing the second semester, intermediate level or higher, of a language other than English. The School of Social Work faculty strongly encourages students to consider Spanish or a tribal language.

Specific courses from the following areas must be taken to fulfill the college degree requirements.

Numeracy. School of Social Work students must complete a statistical analysis course (CS).

Humanities and Fine Arts. School of Social Work students must complete PHI 101 Introduction to Philosophy, PHI 105 Introduction to Ethics, or PHI 306 Applied Ethics.

Social and Behavioral Sciences. The following courses are required:

ECN	211	Macroeconomic Principles *SB*	3
PGS	101	Introduction to Psychology *SB*	3
		or SOC 101 Introductory Sociology *SB* (3)	
		or SOC 301 Principles of Sociology *SB* (3)	
Total			6

Natural Sciences. School of Social Work students must complete a course in either human biology or anatomy and physiology.

MAJOR REQUIREMENTS

The School of Social Work awards a Bachelor of Social Work degree upon the successful completion of a curriculum consisting of a minimum of 120 semester hours. This curriculum includes all university requirements (see "University Graduation Requirements," page 89), the College of Public Programs requirements, including the General Studies requirements (see "General Studies," page 93), as well as the School of Social Work degree requirements.

Course Load. A normal course load per semester is 15 to 16 semester hours. The maximum number of hours for which a student can register is 18 semester hours, unless an overload petition has been filed with and approved by the BSW program coordinator and the College of Public Programs dean's office.

Overload petitions are not ordinarily granted to students who have a cumulative GPA of less than 3.00 and who do not state valid reasons for the need to register for the credits. Students who register for semester hours in excess of 18 and do not have an approved overload petition on file may have courses randomly removed through an "administrative drop" action.

Social Work Core Requirements

SWU	171	Introduction to Social Work *SB, H*	3
SWU	291	Social Service Delivery Systems	3
SWU	295	Foundations of Social Work Practice *SB*/*C*	3
SWU	301	Human Behavior in the Social Environment I *L*/*SB*	3
SWU	310	Social Work Practice I	3
SWU	320	Research Methods in Social Work	3
SWU	332	Social Policy and Services	3
SWU	340	Human Behavior in the Social Environment II *SB*	3
SWU	374	Diversity and Oppression in a Social Work Context *C*	3
SWU	410	Social Work Practice II	3
SWU	411	Social Work Practice III	3
SWU	412	Field Instruction I	5
SWU	413	Field Instruction Seminar	1
SWU	414	Field Instruction II	3
SWU	415	Integrative Field Seminar	3
SWU	442	Introduction to Practice with Children and Families in Child Welfare	3
		or SWU 444 Issues in School Social Work (3)	
Total			48

SWU 412 and 414 each require 16 hours weekly per semester in the field. Students must file an application for field work before registering for the courses and must have senior standing to participate in the field work.

No credit is granted toward fulfilling major core requirements in any course in the student's major unless the grade in that course is at least a "C" (2.00). If a grade of "D" (1.00) or "E" (0.00) is earned in a major core course, the student must see the faculty advisor to discuss continuance in the major. Most courses in the program are sequential; successful completion of each course in the sequence is required to enroll in the following course.

Field Instruction. Field instruction for the BSW program is offered concurrently with classroom study. Students are assigned to a social service agency and work under the supervision of a School of Social Work-approved social work professional. Field instruction permits testing theory in practice and provides a base of experience for class discussions. Qualified agencies in several Arizona communities are utilized for field instruction.

BSW students work in one placement for 16 hours a week, for a total of 480 hours over two semesters. In assigning the placement, the school takes into account the student's educational needs and career goals. Generalist social workers need to be familiar with the methods of working with individuals, families, and groups, as well as in organizations and communities and with all ages and ethnic groups. Faculty are committed to helping students acquire the capabilities necessary for high-quality, social work generalist practice.

BSW field instruction agencies are located primarily in the Phoenix metropolitan area for Tempe students and throughout southern Arizona for Tucson students. Specially arranged, more distant placements may require up to a two-hour drive. Although car pools are possible, personal transportation is strongly recommended while attending school.

ELECTIVES

Each student is encouraged to consult with an academic advisor in selecting electives. Economics, education, psychology, and sociology are only a few of the academic units offering knowledge of value to the professional social work practitioner.

Undergraduate Student Enrollment in Graduate Classes. Seniors within 12 semester hours of graduation may enroll in a maximum of nine graduate semester hours in the School of Social Work, providing they have an overall GPA of 3.00 or higher at the time of enrollment and have secured the required signatures for approval. Completed courses may be eligible for use in a future graduate program

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

on the same basis as work taken by a nondegree graduate student (see the *Graduate Catalog*).

ACADEMIC STANDARDS

Good Standing. To remain in good academic standing, a student must maintain a minimum overall GPA of 2.00 or higher at the end of each semester in all courses taken at ASU.

Probationary Status. Any student who does not maintain good standing status is placed on probation. A student is placed on probation automatically when his or her GPA is less than the minimum 2.00 at the end of any semester.

Disqualification. Any student who is on probation becomes disqualified if (1) the student has not returned to good standing or (2) the student has not met the required semester GPA. See "Academic Standards and Retention," page 187, for more details on academic standards.

Academic Dishonesty. The faculty of the School of Social Work follow the guidelines as specified in the University Student Academic Integrity Policy. A copy of the policy may be obtained from the School of Social Work Office of Academic Services.

Termination from the Social Work Professional Program. A student is terminated from the professional program under any one of the following circumstances:

1. A BSW student receives an "E" (0.00) grade (failure) in field practicum.
2. A BSW student does not accept or is not accepted by three or more field agencies if, in the judgment of faculty and field staff, the placements can provide appropriate field experiences without undue inconvenience to the student.
3. The student does not adhere to professional expectations and standards (see the *ASU Student Code of Conduct*, *National Association of Social Workers Code of Ethics*, and CSWE Curriculum Policy Statement).
4. At any time field instructors, faculty, or the faculty advisor identify problems that indicate that a student cannot perform the required functions of a social worker.

Continuous Evaluation. While students are subject to the university's general retention policy, they are evaluated in the school on broader criteria than mere GPA. Students are reviewed for evidence of competency in social work and are continuously evaluated as they progress in the program. Prospective Social Work candidates who do not meet the established criteria are guided toward a program that is more compatible with their interests and abilities.

Reinstatement. A disqualified student who desires to be reinstated may submit an application for reinstatement. A disqualified student normally is not reinstated until at least one semester has elapsed from the date of disqualification. The burden of establishing fitness is on the disqualified student, who may be required to take aptitude tests and submit to other examinations before being readmitted.

APPEAL PROCEDURES

Appeals involving the professional standards of the discipline are decided by the School of Social Work Committee on Academic and Professional Standards only after discussing the matter with the instructor of the course, the faculty advisor, and the program coordinator.

STUDENT RESPONSIBILITIES

Students are expected to support and maintain the highest professional standards as spelled out in the *ASU Student Code of Conduct* and the *National Association of Social Workers Code of Ethics*.

Regular attendance is expected in all classes and in field education and is a critical factor in evaluation of performance.

Students' rights are protected through appeal to the Committee on Academic and Professional Standards or through consultation with the school's ombudsperson.

SOCIAL WORK (UNDERGRADUATE PROGRAM) (SWU)

For more SWU courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

D SWU 171 Introduction to Social Work. (3)
fall and spring
Descriptive and analytical historical perspective of the profession of social work, social problems, and the social welfare system. Designed for freshmen and sophomores considering this major.
General Studies: SB, H

D SWU 250 Stress Management Tools. (3)
spring
Helps students develop an understanding and behaviors to create a healthy balance in their lives by studying the bio/psycho/social aspects of wellness. Lecture, cooperative learning, small group activity.

D SWU 291 Social Service Delivery Systems. (3)
fall and spring
Knowledge and skills necessary to utilize community resources to be a competent case manager. Includes 40 hours of observational experience in local agencies. Prerequisite: PGS 101 or SOC 101. Pre- or corequisite: SWU 171.

D SWU 295 Foundations of Social Work Practice. (3)
fall and spring
Provides theoretical foundation and skill base necessary for social work interventions with individuals, small groups, and larger systems. Prerequisite: PGS 101 or SOC 101. Pre- or corequisites: SWU 171, 291.
General Studies: SB, C

D SWU 301 Human Behavior in the Social Environment I. (3)
fall and spring
Analyzes theories of personality and life span development from methodological, ecological, and systems perspectives up to adolescence. Prerequisite: PGS 101 or SOC 101. Pre- or corequisites: SWU 171, 291, 295.
General Studies: L/SB

D SWU 302 Human Biology for Social Workers. (3)
fall and spring
Overview of human anatomy and physiology, and the reciprocal relationship between physical and social environments. May be repeated for credit. Lecture, discussion.

D SWU 310 Social Work Practice I. (3)
fall and spring
Introduces social work methods, emphasizing the following skills: cross-cultural interviewing, assessment, referrals, and process and psychological recording. Prerequisite: SWU 295. Pre- or corequisite: SWU 301.

D SWU 320 Research Methods in Social Work. (3)
fall and spring
Applies scientific principles to field practice, impact assessment, intervention procedures, and problem formulation in social work. Lecture, cooperative learning. Pre- or corequisite: SWU 310.

D SWU 321 Statistics for Social Workers. (3)
fall and spring
Teaches social work students how to use and interpret descriptive and inferential statistics in social work practice. Lecture, small group work. Prerequisite: MAT 142 or higher. Pre- or corequisite: SWU 320.
General Studies: CS

D SWU 332 Social Policy and Services. (3)
fall and spring
Contemporary social, political, and economic issues. Special emphasis on poverty and inequality in the Southwest. Analysis and development of social welfare policies and programs. Lecture, cooperative learning, small group activity. Prerequisite: ECN 211. Pre- or corequisite: SWU 310.

D SWU 337 Early Childhood Intervention. (3)
fall and spring
Explores how child development theory affects practice with children and families, emphasizing development of young children and early intervention. Cross-listed as CDE 337. Credit is allowed for only SWU 337 or CDE 337. Prerequisite: CDE 232 or SWU 301 (or their equivalents).

D SWU 340 Human Behavior in the Social Environment II. (3)
fall and spring
Life span development from middle childhood to maturity. Lecture, discussion. Prerequisite: SWU 301. Pre- or corequisites: SWU 302, 310.
General Studies: SB

D SWU 374 Diversity and Oppression in a Social Work Context. (3)
fall and spring
Issues of social inequality related to race, ethnicity, gender, sexual orientation, and disability. Emphasizes populations of the Southwest. Prerequisite: SWU 310.
General Studies: C

D SWU 410 Social Work Practice II. (3)
fall and spring
Knowledge and skills in social work practice with individuals and families. Prerequisites: PHI 101 (or 105 or 306); SWU 310; Social Work major. Corequisites: SWU 412, 413.

D SWU 411 Social Work Practice III. (3)
fall and spring
Knowledge and skills in social work practice with groups, communities, and organizations. Prerequisites: SWU 410, 412, 413; Social Work major. Corequisites: SWU 414, 415.

D SWU 412 Field Instruction I. (5)
fall and spring
16 hours a week of supervised practice in an approved placement. Fee. Prerequisite: Social Work major. Corequisites: SWU 410, 413.

D SWU 413 Field Instruction Seminar. (1)
fall and spring
Field-focused seminar, including practice evaluation. 1.5 hours per week. Prerequisite: Social Work major. Corequisites: SWU 410, 412.

D SWU 414 Field Instruction II. (3)
fall and spring
16 hours a week of supervised practice in an approved placement. Fee. Prerequisites: SWU 413; Social Work major. Corequisites: SWU 411, 415.

D SWU 415 Integrative Field Seminar. (3)
fall and spring
Field-focused seminar to help integrate practice and theory. Prerequisite: Social Work major. Corequisites: SWU 411, 414.

D SWU 437 Infant Family Assessment and Observation. (3)
fall
Examines strategies for implementing developmental assessments and observations of young children and their families. Cross-listed as CDE 437. Credit is allowed for only CDE 437 or SWU 437. Prerequisite: CDE 232 or SWU 301 (or their equivalents).
General Studies: L/SB

D SWU 442 Introduction to Practice with Children and Families in Child Welfare. (3)
fall and spring
Focuses on the characteristics, strengths, and service needs of families and children in the Child Welfare System. Lecture, cooperative learning. Prerequisites: SWU 410, 412, 413; Social Work major.

D SWU 444 Issues in School Social Work. (3)
fall and spring
Demonstrates how community, family, and school are interdependent using an ecological metaphor, and introduces school social work. Lecture, cooperative learning. Prerequisites: SWU 410, 412, 413; Social Work major.

D SWU 446 Risk and Variation in Child Development. (3)
fall and spring
Impact that constitutional and environmental risk factors have on young children and their families. Cross-listed as CDE 444. Credit is allowed for only CDE 444 or SWU 446. Prerequisite: CDE 232 or SWU 301 (or their equivalents).

D SWU 493 Honors Thesis. (1–6)
selected semesters
General Studies: L

D SWU 498 Pro-Seminar. (1–7)
selected semesters
Topics may include the following:
- Developing Grants and Fund Raising. (3)
- Early Childhood Intervention. (3)
- Social Work and the Law. (3)
- Social Work with American Indians. (3)
- Substance Abuse. (3)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

SOCIAL WORK (GRADUATE PROGRAM) (SWG)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Polytechnic Campus

www.poly.asu.edu

Gerald S. Jakubowski, PhD, Vice President, ASU; Provost, Polytechnic Campus

Arizona State University at the Polytechnic campus emphasizes professional and technical programs that prepare graduates to move directly into careers and become ethical leaders in professional, public, and private life. A polytechnic is distinctive by offering

1. programs that integrate theory and practice;
2. programs based solidly in the liberal arts and sciences that emphasize problem solving, project-based activities, laboratories, and work experiences;
3. research that emphasizes applied knowledge and solutions to problems; and
4. programs that are responsive to the needs of business, industry, the professions, and the community

Twenty-three baccalaureate degree programs, nine master's degree programs, a doctoral program, and four certificate programs are offered through the College of Technology and Applied Sciences, East College, and the Morrison School of Agribusiness and Resource Management. Partnerships with programs at the Tempe campus provide additional doctoral program opportunities on the Polytechnic campus. (See the "Morrison School of Agribusiness and Resource Management Baccalaureate Degrees and Majors" table, page 207; the "East College Baccalaureate Degrees and Majors" table, page 215; and the "College of Technology and Applied Sciences Baccalaureate Degrees and Majors" table, page 246.)

The Polytechnic campus is located in southeast Mesa, 23 miles from the Tempe campus. With a student population of approximately 5,000, the 600-acre campus offers a small residential college environment. Students learn in high-tech, mediated classrooms and practice in fully equipped laboratories. They enjoy small classes, friendly and accessible faculty, opportunities for student leadership, and academic support services dedicated to helping them grow, learn, and graduate. Polytechnic campus graduates move into the world of work with knowledge and skills that help them succeed in their careers and in their personal and civic lives.

The campus is easily accessible via major interstate routes. See the "Polytechnic Campus Map," page 277. For more information, call 480/727-3278, or access the Web site at www.poly.asu.edu.

ACADEMIC ORGANIZATION

The chief academic officer of the Polytechnic campus is the provost. There are two colleges and one school administered by deans. These academic units develop and implement the teaching, research, and service programs of the institution. Additional support for the academic mission of the campus is provided by Library Services and Information Technology, each administered by a director. See "Polytechnic Campus," page 767, and "Academic Organization," page 19.

ACCREDITATION

The North Central Association of Colleges and Schools accreditation of ASU includes the Polytechnic campus. In addition, programs in Electronics Engineering Technology, Manufacturing, and Mechanical Engineering Technology are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc. (TAC of ABET). For more information, call 410/347-7700, or write

TECHNOLOGY ACCREDITATION COMMISSION
OF THE ACCREDITATION BOARD FOR
ENGINEERING AND TECHNOLOGY, INC
111 MARKET PLACE SUITE 1050
BALTIMORE MD 21202-7102

Both the professional flight and the air transportation management concentrations, in the Department of Aeronautical Management Technology, are fully accredited by the

Council on Aviation Accreditation. For more information, call 334/844-2431, send e-mail to caa@auburn.edu, or write

COUNCIL ON AVIATION ACCREDITATION
3410 SKYWAY DRIVE
AUBURN AL 36830

The Bachelor of Science degrees in the Department of Technology Management are fully accredited by the National Association of Industrial Technology (NAIT). For more information, call 734/677-0720, or write

NATIONAL ASSOCIATION OF INDUSTRIAL TECHNOLOGY
3300 WASHTENAW AVE SUITE 220
ANN ARBOR MI 48104-4200

The BS degree in Nutrition with a concentration in dietetics is accredited as a didactic program in dietetics (DPD) by the Commission on Accreditation for Dietetics Education of the American Dietetic Association. For more information, call 312/899-0040, or write

COMMISSION ON ACCREDITATION FOR DIETETICS EDUCATION
AMERICAN DIETETIC ASSOCIATION
120 S RIVERSIDE PLAZA SUITE 2000
CHICAGO IL 60606-6995

The BS degree in Agribusiness with a concentration in professional golf management is accredited by the Professional Golfer's Association of America. For more information, write

PGA EDUCATION DEPARTMENT
100 AVENUE OF THE CHAMPIONS
PO BOX 109601
PALM BEACH GARDENS FL 33410

ADMISSION

Nondegree Students. Nondegree students may take courses at the Polytechnic campus according to the special provisions under "Undergraduate Enrollment," page 65.

Degree-Seeking Students. Degree-seeking students must meet the university admissions standards set by the Arizona Board of Regents (ABOR). Any student admitted to ASU may take courses at the Polytechnic campus. To be admitted to a Polytechnic campus degree program, the student must meet undergraduate admissions requirements and the specific admission requirements of the Polytechnic campus program. A student who is admitted to a Polytechnic campus degree program is defined as a Polytechnic campus student.

For more admissions information and applications to the Polytechnic campus degree programs, call 480/727-3278 or write

UNDERGRADUATE ADMISSIONS
ARIZONA STATE UNIVERSITY
PO BOX 870112
TEMPE AZ 85287-0112

Transfer Among ASU Campuses

Degree-seeking students currently enrolled at either the Tempe campus or the West campus who want to relocate to a Polytechnic campus degree program should contact Student Enrollment Services at the Polytechnic campus, the Office of the Registrar at the Tempe campus, or the Admissions and Records Office at the West campus for appropriate procedures. All credit earned at any ASU campus automatically transfers to the Polytechnic campus. Students should consult with their Polytechnic campus major advisor to determine how this credit applies to their major and graduation requirements. Students should be aware that certain requirements (e.g., the minimum number of upper-division semester hours to graduate) may differ among campuses.

TRANSFER CREDIT

Courses taken from Chandler-Gilbert Community College through the Partnership in Baccalaureate Education are automatically transferred to the Polytechnic campus each semester. These courses and courses taken at other Arizona public community colleges transfer according to equivalencies established in the current Arizona Higher Education Course Equivalence Guide. (Transfer guides are available at www.asu.edu/provost/articulation.) The acceptability and applicability of courses transferred from other universities and community colleges is determined by the ASU Undergraduate Admissions in consultation with the faculty or academic advisor of the student's choice of major.

PARTNERSHIP WITH CHANDLER-GILBERT COMMUNITY COLLEGE

ASU, Chandler-Gilbert Community College (CGCC), and several other educational and research facilities share the Williams Campus in southeast Mesa. Located side by side on campus, ASU and CGCC have an innovative academic partnership that combines the strengths of the two institutions. ASU students may receive instruction from both institutions. Chandler-Gilbert faculty teach a selection of lower-division General Studies, general interest, and prerequisite courses for ASU majors. They deliver learner-centered instruction in small interactive courses that are developed in cooperation with ASU faculty and are 100 percent equivalent to parallel ASU courses.

ASU faculty teach all courses in the majors as well as General Studies and general interest courses. ASU students may be enrolled concurrently in both institutions. All transactions are handled through ASU. Students pay combined tuition or ASU tuition, whichever is less.

ADVISING

Academic advisors assist students in developing meaningful educational plans that are compatible with their goals. Advisors assist students in implementing their plans, overcoming obstacles, and achieving their educational objectives. Advisors work with students to achieve the following:

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Academic Advising at the Polytechnic Campus

Unit	Location	Telephone	Days	Hours*
Agribusiness and Resource Management, Morrison School of	WANER	480/727-1585	Mon.–Fri.	8 A.M.–5 P.M.
Barrett Honors College	CNTR 001	480/727-1452	Mon.–Fri.	8 A.M.–5 P.M.
East College	SUTON	480/727-1333	Mon.–Fri.	8 A.M.–5 P.M.
Applied Biological Sciences, Department of	WANER	480/727-1444	Mon.–Fri.	8 A.M.–5 P.M.
Applied Psychology, Faculty of	SUTON	480/727-1333	Mon.–Fri.	8 A.M.–5 P.M.
Business Administration, Faculty of	SUTON	480/727-1333	Mon.–Fri.	8 A.M.–5 P.M.
Education, Faculty of	SUTON	480/727-1103	Mon.–Fri.	8 A.M.–5 P.M.
Exercise and Wellness, Department of	EAW	480/727-1945	Mon.–Fri.	8 A.M.–5 P.M.
Human Health Studies, Faculty of	SUTON	480/727-1333	Mon.–Fri.	8 A.M.–5 P.M.
Multimedia Writing and Technical Communication, Faculty of	SUTON	480/727-1333	Mon.–Fri.	8 A.M.–5 P.M.
Nutrition, Department of	HSC 1345	480/727-1728	Mon.–Fri.	8 A.M.–5 P.M.
Technology and Applied Sciences, College of	CTDO	480/727-1874	Mon.–Fri.	8 A.M.–5 P.M.
University College	CNTR 001	480/727-1452	Mon.–Fri.	8 A.M.–5 P.M.

* Walk-ins are welcome; appointments are recommended.

1. development of suitable educational plans;
2. clarification of career and life goals;
3. selection of appropriate courses and other educational experiences;
4. accurate interpretation of institutional and program requirements;
5. greater student awareness of available educational resources and opportunities;
6. development of students' decision-making, information-seeking, planning, and problem-solving skills;
7. development of students' ability to accurately evaluate their progress toward educational goals;
8. reinforcement of student self-direction; and
9. increased student awareness of appropriate university and community support services that assist students in overcoming educational and personal problems as well as skill deficiencies.

Students are encouraged to take advantage of the skill and knowledge of the academic advisors available to them in the academic units and to seek academic advising early.

For more information or to schedule an advising session, call an academic advisor (see the "Academic Advising at the Polytechnic Campus" table, on this page), or access the Web site at www.poly.asu.edu/academics/advising.

Library Services

Strong resources and personal service define the Library at the Polytechnic campus. As a primarily electronic research library, it is designed to take maximum advantage of new technology. Electronic indexes, catalogs, and journals support study and research in many fields, with an emphasis on the majors offered at the Polytechnic campus. While the library acquires materials in all formats, by intention it prefers electronic text. Thousands of periodicals are available digitally in all subjects, while those available only in print form can be obtained quickly by the library. Documents in electronic form can be delivered directly to students' computers. Librarians and staff pursue service customized to individual students' needs, cultivating a small college atmosphere. The library's Web address is eastlib.poly.asu.edu.

Computing Services

Information Technology (IT) at the Polytechnic campus provides computing services to support academic programs. The IT department provides specialized software and systems to meet the particular needs of Polytechnic campus programs in support of e-learning initiatives. All classrooms are fully mediated (which includes computer equipped instructor lectern, DVD and CD for data and multimedia, and other audiovisual equipment). Multiple classrooms are equipped with computers, allowing students the ability to work on computing applications along with the instructor. IT maintains computing sites around campus, including the Computing Commons in the Academic Center, offering students computing and printing facilities. IT has a staff of support personnel to aid the campus community's diverse computing needs, including Web development, academic computing, and administrative computing.

SCHOOL OF EXTENDED EDUCATION

The university-wide School of Extended Education provides an interactive link between ASU and the diverse communities it serves. The school assesses lifelong learning requirements and works in partnership with campuses, other colleges, and the community to serve learners, using a network of locations, programs, schedules, and technologies.

For more information, see "School of Extended Education," page 134, or access the Web site at www.asu.edu/xed.

UNIVERSITY COLLEGE SERVICES

University College is a primary source of academic support for students, faculty, and staff. The college coordinates and offers academic programs and services designed to enhance the academic experience of all ASU students. The goals of University College are to play a major role in student retention, provide students the support necessary for successful completion of their first year and beyond, and

offer student-learning experiences that compliment those provided by other academic services. University College services are available on all four ASU campuses. University College at the Polytechnic campus includes the following offices:

Academic Resource Center
Academic Success and Engagement Programs
Barrett Honors College
Center for Academic Advising
Division of Graduate Studies
International Programs Office

Academic Resource Center

Undergraduate and graduate students can study, use computers for research and writing, and access tutoring services in the Academic Resource Center. Qualified undergraduate and graduate students provide tutoring to individual students or study groups, by appointment or on a drop-in basis. Assistance is offered face-to-face and online through the Web site to students seeking help with any written assignment. The Barrett Honors College, the Division of Graduate Studies, and the International Programs Office also have staff members in this area who are available to work with students on an appointment basis. The Academic Resource Center is located on the lower level of the Academic Center Building.

For more information, or to make an appointment, call 480/727-1452, or access the Web site at www.poly.asu.edu/learningcenter.

Office of Academic Success and Engagement Programs

The Office of Academic Success and Engagement Programs offers experiential learning and academic success course work. It is the goal of this office to help students develop the skills required for academic success and to provide opportunities for the hands-on application of those skills. Programs offered include service learning, university success courses, Voices of Discovery, academic success workshops, student leadership programs, and the National Society of Collegiate Scholars.

For more information, call 480/727-1452, or access the Web site at www.poly.asu.edu/learningcenter.

Barrett Honors College

The Barrett Honors College (BHC) offers courses and provides advising to all BHC eligible and admitted students enrolled at the Polytechnic campus. Students are able to complete the Barrett Honors College curriculum through courses taken at the Chandler-Gilbert Community College (Williams campus) and ASU at the Polytechnic campus.

For more information, or to make an appointment with the BHC advisor, call 480/727-1452, or access the Web site at www.poly.asu.edu/learningcenter.

Center for Academic Advising

The University College Center for Academic Advising at the Polytechnic campus offers developmental academic advising for a diverse group of students including all exploratory students, BIS and pre-BIS majors, and students in transition who may be changing majors or transferring to ASU. Academic advising is a partnership between the student and the advisor. Each has a mutual investment in the advising and its outcome. Effective academic advising is the foundation for successful completion of a bachelor's degree.

Polytechnic campus Student Union fountain Dave Tevis photo

Academic advisors assist students in selecting a major by suggesting complementary choices among the offerings in the General Studies curriculum. Advisors also encourage students to explore and identify majors consistent with the students' interests, values, and goals. Advisors help students understand university academic requirements, as well as policies and procedures. To schedule an appointment with a University College academic advisor at the Polytechnic campus, call 480/727-1452.

Division of Graduate Studies

The Division of Graduate Studies (DGS) has a satellite office located on the lower level of the CNTR. To schedule an appointment with the DGS representative, call 480/965-3521. For more information, access the Web site at www.asu.edu/graduate.

International Programs Office

The International Programs Office (IPO) has a satellite office located on the lower level of CNTR. To schedule an appointment with the IPO representative, call 480/965-0877. For more information, access the Web site at ipo.asu.edu.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Polytechnic Campus Student Services

The Polytechnic campus is a student-centered campus that offers many of the features of a small residential college in a suburban area while providing access to the resources of a major research university and the amenities of a large metropolitan area. The campus includes excellent educational facilities: mediated classrooms and modern laboratories, a 21st-century electronic library, and state-of-the-art computer equipment. Other amenities include an academic resource center, child care services, student union, bookstore, and copy center. A shuttle service provides transportation between the Polytechnic campus, Mesa Community College, and the Tempe campus. An additional shuttle is available for transportation from the Tempe campus to the West campus.

Enrollment Services

Enrollment Services provides services for admission, financial aid, business services, and registration. Conveniently located in the Student Affairs Complex, students find personnel ready to assist them with registration processes, tuition payment, financial assistance information, student employment, and parking decals. For more information, call 480/727-3278.

Food Services

The Polytechnic campus has a variety of food service options on campus to serve student, faculty, staff, and visitor needs. Services include a coffee bar, a sub shop, and a full-service dining facility in the Student Union. Catering services are also available. Food can be purchased on a cash basis; a meal plan can be selected to suit individual preferences. For more information about food service, call 480/727-1443.

Student Health Center

The Polytechnic campus Student Health Center provides confidential, primary health care services for all full- and part-time Polytechnic campus students at a nominal fee. The clinic offers primary care services. The center is staffed by a full-time nurse practitioner and a part-time doctor. Services include physical examinations and immunizations; treatment for health problems and injuries; health screenings, education, and counseling; diagnostic and laboratory tests; women's health care; and referrals to campus and community resources. The center is located at 7153 E. Thistle on the Polytechnic campus.

For more information, call 480/727-1500, or access the Web site at www.poly.asu.edu/students/health.

Student Counseling

Confidential professional counseling services are available to help ASU students achieve their academic goals by addressing a variety of problems and issues often faced in college. Professional help is offered in the following areas: psychological issues, personal concerns, relationship issues, career/life decision making, and crisis intervention. Individual, couples, and group sessions are available at no cost. Students may schedule an appointment by calling 480/727-1255, or in person at Student Counseling Services in QUAD 4.

Career Preparation Center

Professional career counselors and trained career peer advisors are available to meet with ASU students. They provide individual career advising, group workshops, assistance in researching job and internship possibilities, résumé and cover letter critiques, preparation for employment interviews, and career resources in print and online. Appointments may be made in person in QUAD 4.

For more information, call 480/727-1411, or access the Web site at www.poly.asu.edu/students/career.

Student Union

The Student Union is in the center of campus and serves as a common gathering place for students, faculty, staff, and guests. The union has dining facilities, a game room, a bookstore, a ballroom, meeting spaces, a lounge, and study areas. Programs and services that complement the academic experience and enhance campus life include a film series, dances, live performances, resources for student organizations, student government, cultural awareness activities, leadership workshops, community service information, and holiday celebrations. The union is staffed primarily by students, providing them the opportunity to develop valuable leadership skills and work experience.

For more information, call 480/727-1098, or access the Web site at www.poly.asu.edu/union.

Recreational Facilities and Services

ASU and Chandler-Gilbert Community College (CGCC) are partners in providing recreation, intramural, and group fitness opportunities on the Williams Campus. An optional $30 per semester fitness membership provides access to the Physical Activity Center (PAC) and the Chandler-Gilbert Fitness Center. Facilities include

1. a fitness center with state-of-the-art strength training and cardiovascular equipment;
2. two aerobic studios and equipment for step aerobics, fitness cycling, and kickboxing;
3. a martial arts, mat exercise, and yoga studio featuring a fully padded floor;
4. racquetball courts;
5. a gymnasium for intramural and open recreation;
6. an all-weather quarter mile track with an infield for soccer, Ultimate Frisbee, and flag football;
7. four tennis courts with lights for evening play; and
8. a seasonal swimming pool (May–September) with lights.

At the CGCC fitness center, trained exercise and wellness professionals are available to perform assessments, develop programs, and provide expert advice and training assistance.

In addition to the facilities, Campus Recreation operates group fitness programs that are free of charge with the paid fitness membership. Classes are offered Monday through Thursday and include fitness cycling, yoga, aerobic fitstep, aerobic kickboxing, water aerobics (in season), strength and conditioning, and pilates. A full schedule of intramural programs and special events are also offered through Campus Recreation. Times for open recreation are scheduled at Campus Recreation and the Chandler-Gilbert Fitness Center.

ASU students have developed clubs that work closely with the recreation programs to offer unique recreation experiences, including hiking, West African dance, flamenco dancing, and sunrise yoga. If you are interested in starting a club, send e-mail to Campus Recreation at campusrec@asu.edu.

For more information, access the Campus Recreation Web site at www.poly.asu.edu/campusrec, or call 480/727-1972. The Chandler-Gilbert Fitness Center can be reached at 480/988-8400.

Child Care

Child care programs on campus are offered through Head Start and Early Head Start and the Boys & Girls Club of the East Valley, Williams Campus Branch. Head Start and Early Head Start offer child care programs on campus for individuals who meet certain income criteria. The Boys & Girls Club offers after-school programs for children ages 6 to 18.

For more information, call the Williams Campus Child Development Center at 480/988-3644, the Boys & Girls Club at 480/279-1406, or Head Start at 480/988-9389.

Williams Campus Housing and Residential Life

Living on the Polytechnic campus provides students with an excellent opportunity to make the most of their college experience. No matter which housing option a student chooses, the residential life program offers social, academic, and recreational activities that are designed to support and enrich the student's campus life experience. Residential students benefit from easy access to campus resources such as the library, learning center, fitness center, and student union. Residents can select a meal plan from several options offered by Campus Dining Services.

The Polytechnic campus's unique residential environment offers housing options for Williams Campus students throughout their undergraduate and graduate education. These include residence halls, houses, and special residential communities. Residential students can also take advantage of such amenities as outdoor swimming, sand volleyball, tennis, and picnic areas.

For more information, call the Williams Campus Housing Office at 480/727-1700, access the Web site at www.poly.asu.edu/housing, or send e-mail to williams.reslife@asu.edu.

Residence Halls. Undergraduate and graduate students are eligible for residence halls with a large private room, featuring a private bath and a shared kitchenette. Each room includes basic furnishings as well as cable TV, local phone service, and high-speed Internet service; the kitchenette includes a refrigerator, microwave, and, in some cases, a stove.

Houses. A large number of two- to four-bedroom houses are available for students with families or for groups of single undergraduate or graduate students. Each house includes basic appliances; cable TV, high-speed Internet service; and water, sewer, and trash service.

Freshman Year Experience. Freshmen begin their residential experience on campus in one of three dedicated freshman residence halls that are part of the Freshman Year Experience (FYE) program. The FYE program helps freshmen achieve scholastic and personal success by providing academic support services and enhanced opportunities for learning, campus involvement, and out of class interaction with faculty. Research has consistently shown that freshmen participating in living-learning communities, such as FYE, achieve greater academic success. For more information about the FYE program, access the Web site at www.poly.asu.edu/students/fye.

The FYE hall offers two-bedroom suites with a shared bath, to house two to four students. Each room is furnished with local phone service, cable TV, and high speed internet service. The FYE hall features a computer lab, quiet study room, group study/tutoring room, and community lounge. Dean and Bell halls offer freshmen a pod style living environment. Each pod houses six residents and consists of four single bedrooms, one double occupancy bedroom, a limited kitchen, a bathroom, and a living room. Each room is furnished and is equipped with local phone service, cable TV, and high speed internet service. For more information, access the Web site at www.poly.asu.edu/housing.

Residents in the Freshman residence halls are required to purchase a meal plan through Campus Dining Services. For more information, access the Web site at www.poly.asu.edu/dining.

Morrison School of Agribusiness and Resource Management

www.poly.asu.edu/msabr

PURPOSE

Located at the Polytechnic campus, the Morrison School of Agribusiness and Resource Management provides a variety of academic programs in Agribusiness. Agribusiness is the business of food and fiber production and the technology necessary to change a raw material (a commodity) or an idea into a new product or business for the world's consumers. Producing, financing, marketing, and providing food and fiber for the world amounts to more than one-half of the earth's global economy.

Agribusiness courses in the Morrison School are designed to prepare students for a wide range of employment opportunities in agribusiness and business. More than 20 percent of all jobs in the United States are agribusiness-related, and the industry is even more important internationally, with more than half of all jobs in developing countries related to food and fiber products. Population increases worldwide have led forecasters to predict that more than nine billion food and fiber consumers will be part of the global agribusiness system by the year 2050. Forecasts also estimate that, at that time, more than 20,000 agribusiness jobs will go unfilled due to a lack of skilled professionals.

The academic programs in Agribusiness are especially designed to meet the needs of the urban student who has little or no previous agriculture experience. An interest in plants, animals, or food can be the starting point for career development in agricultural industries or resource management. The undergraduate programs also provide the necessary training for students preparing to enter graduate degree programs.

The Morrison School is strategically positioned to offer some unique programs. The concentration in professional golf management provides a student with the opportunity to qualify for the Professional Golfers' Association certification program in addition to majoring in Agribusiness. Similarly, for individuals more interested in the development and management of golf and other turf facilities, the golf and facilities management concentration is well suited.

Food, its marketing and safety, is of paramount importance today and in the future. The Morrison School offers specific concentrations in both of these areas. Food and agribusiness marketing is one of the signature academic concentrations in the school. Food science and safety are emphases stressed in the food, agribusiness and consumer products marketing concentration.

The BS degree in Agribusiness with a concentration in professional golf management is accredited by the Professional Golfer's Association of America. For more information, write

PGA EDUCATION DEPARTMENT
100 AVENUE OF THE CHAMPIONS
PO BOX 109601
PALM BEACH GARDENS FL 33410

NATIONAL FOOD AND AGRICULTURAL POLICY PROJECT

The National Food and Agricultural Policy Project (NFAPP) constructs a 10-year baseline forecast for the fruit and vegetable produce industry and specific commodities, responds to congressional inquiries concerning policies affecting the fruit and vegetable industry, and publishes a monthly newsletter highlighting research efforts. Areas of study include domestic and international promotion of fruits and vegetables, trade and the impact of trade agreements, and crop insurance and risk management. For more information, call the director at 480/727-1124.

DEGREE PROGRAMS

The Morrison School offers a BS degree in Agribusiness with the following concentrations: agribusiness finance; food, agribusiness and consumer products marketing; food science; general agribusiness; golf and facilities management; international agribusiness; management of agribusiness; professional golf management; and preveterinary medicine.

For students holding an AAS degree, the school offers the Bachelor of Applied Science degree with concentrations in consumer products technology and food retail management. See the "Morrison School of Agribusiness and Resource Management Baccalaureate Degrees and Majors" table, page 207.

The school also offers the MS degree in Agribusiness with concentrations in agribusiness management and marketing, and food quality assurance. Students may select either a research-oriented program, which leads to the completion of a supervised thesis, or a program consisting of course work only (nonthesis option). All MS candidates in Agribusiness must complete a minimum of 36 semester hours.

The Morrison School and the W. P. Carey School of Business offer an interdisciplinary PhD in Business Administration with a concentration in agribusiness. See the *Graduate Catalog* for requirements.

ADMISSION

The Morrison School admits students to the BS degree programs who meet the undergraduate admission requirements of Arizona State University; see

Morrison School of Agribusiness and Resource Management Baccalaureate Degrees and Majors

Major	Degree	Concentration*	Administered By
Agribusiness	BS	Agribusiness finance; food, agribusiness, and consumer products marketing; food science; general agribusiness; golf and facilities management; international agribusiness; management of agribusiness; preveterinary medicine; or professional golf management	Morrison School of Agribusiness and Resource Management
Applied Science	BAS	Consumer products technology or food retail management	Morrison School of Agribusiness and Resource Management

* If a major offers concentrations, one must be selected unless noted as *optional*.

"Undergraduate Admission," page 66. Admission to the BAS degree program is restricted to students holding an AAS degree from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and 2.50 for nonresident applicants.

GRADUATION REQUIREMENTS

Agribusiness—BS

The completion of a minimum of 120 semester hours—including First-Year Composition, General Studies (see "General Studies," page 93), and the school and concentration requirements—leads to the BS degree. Note that all three General Studies awareness areas are required. A minimum overall GPA of 2.00 is required for graduation and students must have completed a minimum of 45 semester hours of upper-division credit. Also see special graduation requirements under "Preveterinary Medicine," page 209.

Prerequisite Courses. Students who select the concentrations in agribusiness finance; food, agribusiness and consumer products marketing; food science; general agribusiness; golf and facilities management; international agribusiness; management of agribusiness; or professional golf management, must complete the following courses, some of which can also be used to meet university General Studies requirements:

ACC 230 Uses of Accounting Information I.....3
ACC 240 Uses of Accounting Information II[1].....3
BIO 100 The Living World *SQ*.....4
CHM 101 Introductory Chemistry *SQ*[2].....4
ECN 211 Macroeconomic Principles *SB*[3].....3
ECN 212 Microeconomic Principles *SB*.....3
ENG 301 Writing for the Professions *L*.....3
MAT 210 Brief Calculus *MA*[1].....3
Total.....26

1 This course is not required for the golf and facilities management concentration.
2 This course is not required for the professional golf management concentration.
3 This course is not required for the golf and facilities management or professional golf management concentration.

Core Requirements. Agribusiness employers require their employees to possess a wide range of skills and competencies. Rapid changes in information technology and the increasingly competitive food production and distribution sector mean that agribusiness needs graduates equipped to deal with these changes. The agribusiness core, required of all the concentrations, is designed to give students these skills. The core consists of courses in business principles—management, marketing, and finance—as well as in the fundamentals of agribusiness operations management.

AGB 100 Introduction to Agribusiness.....3
AGB 161 Computer Applications for Agribusiness Industries *CS*.....3
AGB 310 Agribusiness Management I.....3
AGB 320 Agribusiness Marketing I.....3
AGB 321 Agribusiness Marketing II[1].....3
AGB 332 Agribusiness Finance I.....3
AGB 333 Agribusiness Finance II[2].....3
AGB 360 Agribusiness Statistics *CS*.....3
AGB 364 Agribusiness Technologies I.....3
AGB 365 Agribusiness Technologies II[1].....3
AGB 410 Agribusiness Management II.....3
AGB 414 Agribusiness Analysis *L*.....3
Core total.....36

1 This course is not required for the professional golf management or golf and facilities management concentrations.
2 This course is not required for the golf and facilities management concentration.

Concentrations

After completing the required agribusiness core, students select a concentration in their area of interest. A concentration allows a student to select a series of courses that complement the agribusiness core, supplement the student's desire to master another area of interest, and broaden career opportunities.

Note: Omnibus hours will not exceed six hours.

Agribusiness Finance Concentration. Agribusiness finance concentration graduates are expected to possess a broad knowledge of financial theory and practice as it pertains to the agribusiness sector. This will involve applying quantitative and computer-based analytical techniques to real-world agribusiness problems. Specific course content includes topics in financial management, financial markets, risk management, and the evaluation of financial assets and business alternatives.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Agribusiness Finance

AGB 431 Intermediate Agribusiness Financial Management	3
AGB 434 Agricultural Risk Management and Insurance	3
AGB 435 Agricultural Commodities	3
AGB electives	8
Agribusiness core	36
Agribusiness prerequisite courses	26
Total	79

Management of Agribusiness Concentration. Agribusiness managers encounter many problems and opportunities on a daily basis that are unique to the agribusiness sector. Students choosing this concentration develop skills in managing people, internal resources, and external relationships in an increasingly dynamic environment.

Management of Agribusiness

AGB 411 Agricultural Cooperatives	3
or AGB 480 Agribusiness Policy and Government Regulations (3)	
AGB 451 Management Science *CS*	3
AGB 481 Applied Microeconomics	3
AGB electives	8
Agribusiness core	36
Agribusiness prerequisite courses	26
Total	79

Food, Agribusiness, and Consumer Products Marketing Concentration. Students in the food, agribusiness and consumer products marketing concentration develop critical skills relevant to dealing with firms involved in food, fiber, consumer products, and pharmaceutical manufacturing; distribution; and retailing. Students also learn about the relationship between input suppliers, commodity associations, and primary producers. To this end, food, agribusiness and consumer products marketing students are required to complete a series of courses that analyze the behavior and performance of both commodity and consumer food markets.

Food, Agribusiness and Consumer Products Marketing

AGB 422 Consumer Behavior	3
AGB 429 Marketing Research	3
AGB 435 Agricultural Commodities	3
or AGB 420 Food Marketing (3)	
AGB electives	8
Agribusiness core	36
Agribusiness prerequisite courses	26
Total	79

Food Science Concentration. The food science concentration focuses on both scientific and technical competency skills with an emphasis on food microbiology, food chemistry, biotechnology, mathematics, and statistics. This unique program prepares graduates for employment opportunities in the food, beverage, and dairy industries; regulatory agencies such as the FDA and USDA; international organizations such as FAO and WHO; and consumer organizations. In addition, graduates may choose to pursue advanced degrees.

Food Science

AGB 340 Food Processing	3
AGB 440 Food Safety	3
AGB 442 Food and Industrial Microbiology	4
AGB upper-division electives	7
Agribusiness core	36
Agribusiness prerequisite courses	26
Total	79

General Agribusiness Concentration. The general agribusiness concentration offers students a chance to build a broad perspective in the field of agribusiness. In an age of specialization, there remains a growing need for generalists. These individuals have mastered finance, marketing, management, and technologies such as computers and statistics and are capable of demonstrating this mastery.

General Agribusiness

AGB 435 Agricultural Commodities	3
AGB electives	14
Agribusiness core	36
Agribusiness prerequisite courses	26
Total	79

International Agribusiness Concentration. A student studying international agribusiness is typically preparing for a career with government agencies oriented toward international issues; programs of agribusiness for or in developing countries; U.S. agribusiness firms affected significantly by trade; or U.S.-based international agribusiness firms. This concentration requires a mastery of subjects in international trade, agricultural development, international policy, and global marketing practices and institutions.

International Agribusiness

AGB 450 International Agricultural Development *G*	3
AGB 452 International Agricultural Policy	3
AGB 454 International Trade	3
AGB electives	8
Agribusiness core	36
Agribusiness prerequisite courses	26
Total	79

Professional Golf Management Concentration. The Professional Golf Management (PGM) concentration, accredited by the Professional Golfer's Association (PGA) of America, is specifically designed for students who aspire to become Class A PGA Professionals and work in management careers in the golf industry. Any student admitted to this program should be aware that membership in the PGA of America is restricted to U.S. citizens and resident aliens. PGM students complete the agribusiness core, which helps them develop the critical skills needed to manage complex organizations. In addition, the PGM concentration requires a minimum of 23 semester hours of golf-related curriculum, of which nine hours consist of hands-on internship experience at golf facilities. The remaining 14 semester hours include courses selected from the following areas: golf course operations, turf grass management, club fitting and repair, pro shop merchandising, movement analysis, sports psychology and equipment, mechanics and shop maintenance and repair. Students must complete all PGA membership requirements, including the PGA Playing Ability Test. All golf-related courses and internships are selected with the assistance of the PGM program director.

Note: Omnibus hours will not exceed nine hours.

Special class fees are in place to cover the cost of PGA books, seminars, and testing. The PGM program fee ensures

all students have access to the ASU/PGM Practice Facility, the PING Swing Analysis Lab, and a club repair room.

PGM Admission. To be admitted to the PGM program, students must meet a playing ability test. Call the PGM director at 480/727-1912 for more information.

Professional Golf Management

Agribusiness core	30
Agribusiness prerequisite courses	19
Professional golf management courses	14
Professional golf management internship	9
Total	72

Golf and Facilities Management Concentration. The Golf and Facilities Management (GFM) concentration is designed to prepare students for careers as golf course superintendents. Through the agribusiness core, students develop the critical skills needed to manage complex organizations. In addition, the GFM concentration requires a minimum of 25 semester hours of golf and facilities management-related curriculum, of which six hours consist of hands-on internship experience at golf courses. The remaining 19 semester hours include courses selected from the following areas: golf course operations; plants and landscaping; soils, irrigation, and water management; fertilizers; pest control; turf grass management; mechanics; and shop maintenance and repair. For more information, call the GFM program coordinator at 480/727-1256.

Golf and Facilities Management

Agribusiness core	27
Agribusiness prerequisite courses	17
Golf and facilities management courses	19
Internship	6
Total	69

Prerequisite Courses for Preveterinary Medicine. Students who select the preveterinary medicine concentration must take the following courses, some of which can also be used to meet the General Studies requirement.

ACC 230 Uses of Accounting Information I	3
BCH 361 Principles of Biochemistry	3
BIO 187 General Biology I *SG*	4
BIO 188 General Biology II *SQ*	4
BIO 340 General Genetics	4
CHM 113 General Chemistry I *SQ*	4
CHM 115 General Chemistry with Qualitative Analysis *SQ*	5
or CHM 116 General Chemistry II *SQ* (4)	
Choose between the course combinations below	4–8
CHM 231 Elementary Organic Chemistry *SQ* (3)[1]	
CHM 235 Elementary Organic Chemistry Laboratory *SQ* (1)[1]	
—or—	
CHM 233 General Organic Chemistry I (3)	
CHM 234 General Organic Chemistry II (3)	
CHM 237 General Organic Chemistry Laboratory I (1)	
CHM 238 General Organic Chemistry Laboratory II (1)	
ECN 211 Macroeconomic Principles *SB*	3
or ECN 212 Microeconomic Principles *SB* (3)	
ENG 301 Writing for the Professions *L*	3
MAT 210 Brief Calculus *MA*	3
MIC 205 Microbiology *SG*[2]	3
MIC 206 Microbiology Laboratory *SG*[2]	1
PHY 111 General Physics *SQ*[3]	3
PHY 113 General Physics Laboratory *SQ*[3]	1
Upper-division AGB	9
Total	57–61

[1] Both CHM 231 and 235 must be taken to secure SQ credit.
[2] Both MIC 205 and 206 must be taken to secure SG credit.
[3] Both PHY 111 and 113 must be taken to secure SQ credit.

Preveterinary Medicine. A student studying agribusiness can also be preparing for admission to a professional veterinary school. While completing the courses needed for acceptance into veterinary school, the student is broadening his or her career potential with agribusiness courses. The Agribusiness major provides knowledge of how to run a business or practice. In addition, should a preveterinary student decide not to apply to a veterinary school, this major provides alternative career paths into human or veterinary pharmaceutical industries or the food industry. This concentration permits students to complete the preveterinary requirements for entrance to professional veterinary school.

Preveterinary Medicine

Agribusiness core	24
AGB 100 Introduction to Agribusiness (3)	
AGB 310 Agribusiness Management I (3)	
AGB 320 Agribusiness Marketing I (3)	
AGB 332 Agribusiness Finance I (3)	
AGB 360 Agribusiness Statistics *CS* (3)	
AGB 364 Agribusiness Technologies I (3)	
AGB 365 Agribusiness Technologies II (3)	
AGB 414 Agribusiness Analysis *L* (3)	
Preveterinary medicine prerequisites	57–61
Total	81–85

Veterinary College Acceptance. A student who has been accepted to a school of veterinary medicine before he or she has earned a BS degree in the Morrison School may do so by completing a minimum of 30 semester hours at ASU and the General Studies requirement. Students must receive a written statement from the dean of the Morrison School giving senior-in-absentia privileges. A student is eligible to receive the BS degree after the ASU Office of the Registrar receives a recommendation from the dean of the veterinary professional school and a transcript indicating the student has completed the necessary semester hours commensurate with ASU graduation requirements.

Veterinary Medical Schools. There are 27 schools of veterinary medicine in the United States. Each school establishes specific prerequisites that are required for admission. Advisors in the Morrison School assist students in designing their class schedules to meet the requirements of the veterinary schools to which they plan to apply. Each school generally looks for courses in biology, chemistry, genetics, microbiology, organic chemistry, and physics. In addition to a science foundation, all students must meet the University General Studies requirement, and complete 45 semester hours of upper-division courses.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

A graduate student in the Environmental Resources program shucks leaves as part of a research project designed to help determine how urban development affects the ecosystem in the desert Southwest.

Christine Lambrakis photo

APPLIED SCIENCE—BAS

The Bachelor of Applied Science degree is a capstone degree for the Associate of Applied Science degree. The BAS degree exposes students to advanced concepts and diverse critical thinking skills to prepare them for future career opportunities and professional advancement.

Admission

Admission to the BAS degree program is restricted to students holding an AAS degree from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and 2.50 for nonresident applicants.

BAS Degree Graduation Requirements

The BAS degree program consists of 60 semester hours of upper-division courses, with 30 semester hours in residence. An overall GPA of 2.00 or higher is required.

AAS degree	60
Assignable credit	6
BAS core	16
Concentration	19
General Studies	19
Total	120

General Studies Curriculum. The BAS curriculum builds on the general education content of the AAS degree. Additional General Studies courses are taken in the core or concentration. General Studies courses focus on contextual learning.

L	3
MA	3
HU	3
HU or SB	3
SB	3
SG	4
Total	19

Assignable Credit. Assignable credit allows space in the curriculum for prerequisite courses. The courses are determined by the student and advisor.

BAS Core

AGB 310 Agribusiness Management I	3
AGB 320 Agribusiness Marketing I	3
AGB 360 Agribusiness Statistics *CS*	3
AGB 414 Agribusiness Analysis *L*	3
AGB 460 Agribusiness Management Systems	3
Total	15

Consumer Products Technology Concentration. Students in this concentration prepare for a career in the food and consumer products industries. Students learn to develop food, drug, cosmetic, and other consumer products and to ensure product safety and marketability by obtaining a thorough mastery of courses in product and package design, manufacturing, processing, and safety.

Consumer Products Technology

AGB 340 Food Processing	3
AGB 364 Agribusiness Technologies I	3
AGB 440 Food Safety	3
MET 341 Manufacturing Analysis	3
MET 494 ST: Consumer Manufacturing	3
MET 494 ST: Packaging Design	3
AGB elective	1
Total	19

Food Retail Management Concentration. A student studying food retail management prepares for a career in the food marketing and distribution industries. Potential employers are food manufacturing and processing companies, distribution centers, wholesalers, and all types of food retailers, e.g., supermarkets, mass merchandisers, fast food outlets, restaurants, and direct marketers of food.

Food Retail Management

AGB 332 Agribusiness Finance I	3
AGB 340 Food Processing	3
AGB 420 Food Marketing	3
AGB 440 Food Safety	3
AGB 445 Food Retailing	3
AGB 484 Internship	1
AGB elective	3
Total	19

Morrison School of Agribusiness and Resource Management

www.poly.asu.edu/msabr
480/727-1585
WANER 101

Professors: Daneke, Edwards, Kagan, Marquardt, Richards, Seperich, Shultz, Thor

Associate Professors: Manfredo, Patterson, Raccach, Schmitz

Assistant Professor: Hughner

Senior Lecturers: Hudek, Lindley

AGRIBUSINESS (AGB)

E AGB 100 Introduction to Agribusiness. (3)
fall
Overview of agribusiness industries and career opportunities.

E AGB 161 Computer Applications for Agribusiness Industries. (3)
spring
Uses and integrates word processing, spreadsheets, and databases as tools for managing an agribusiness firm. Integrated lecture/lab.
General Studies: CS

E AGB 171 Animal Science. (3)
spring
Comparative growth, development, and propagation of domestic animals.

E AGB 191 First-Year Seminar. (1–3)
selected semesters

E AGB 194 Special Topics. (1–4)
selected semesters

E AGB 258 International Agribusiness. (3)
fall
Identifies and analyzes methods, problems, and future of international agribusiness operations. Emphasizes special problems associated with international agribusiness systems.
General Studies: G

E AGB 271 Veterinary Medicine Today. (3)
spring
Introduces the role of the veterinarian as related to the fields of food supply and veterinary medicine.

E AGB 294 Special Topics. (1–4)
selected semesters

E AGB 310 Agribusiness Management I. (3)
fall
Principles of management, including planning, organizing, integrating, measuring, and developing people in agribusiness organizations.

E AGB 311 Establishing an Agribusiness. (3)
fall
Opportunities and problems associated with new firm development in agribusiness. Business plan is written and presented orally.

E AGB 320 Agribusiness Marketing I. (3)
fall and spring
Examines marketing strategy, focusing on the marketing mix (product, price, promotion, and place) in a dynamic socioeconomic environment. Prerequisites: ACC 230, 240; AGB 360; ECN 212.

E AGB 321 Agribusiness Marketing II. (3)
fall and spring
Examines the food marketing system with emphasis on the marketing institutions, arrangements, and methods for basic commodities. Prerequisites: ACC 230, 240; AGB 360; ECN 212.

E AGB 332 Agribusiness Finance I. (3)
fall and spring
Introduces concepts in agribusiness financial management: time value of money, risk and return, capital budgeting, and cost of capital. Prerequisites: ECN 211 and 212 (or their equivalents); introductory accounting.

E AGB 333 Agribusiness Finance II. (3)
spring
Introduces financial markets and institutions. Interest rate determination, money and banking, equity markets, farm credit system, vendor financing. Prerequisites: ECN 211 and 212 (or their equivalents); introductory accounting.

E AGB 340 Food Processing. (3)
fall
Introduces processed food quality assurance, statistical sampling, and inspection procedures. Prerequisite: AGB 364.

E AGB 341 Food Analysis. (3)
selected semesters
Processing control and scientific instrumentation used in food quality assurance laboratories. Prerequisites: AGB 364; CHM 101.

E AGB 355 Sustainable Agriculture Systems. (3)
fall and spring
Innovative developments in precision farming, irrigation, soils, tillage methods, machinery, and biotechnology in crop production.

E AGB 360 Agribusiness Statistics. (3)
fall and spring
Statistical methods with applications in agribusiness and resource management. Prerequisite: college algebra.
General Studies: CS

E AGB 364 Agribusiness Technologies I. (3)
fall
Examines methods of managing diverse crop and livestock enterprises with emphasis on growth, development, marketing, and loss prevention. Prerequisite: BIO 100.

E AGB 365 Agribusiness Technologies II. (3)
fall
Biotechnology and other methods used in the production, processing, and distribution of food. Prerequisite: BIO 100.

E AGB 370 Wildlife and Domestic Animal Nutrition. (3)
spring
Survey of nutritional needs of domestic and wild animals. Prerequisite: a General Studies SQ course.

E AGB 371 Animal Genetics. (3)
fall
Principles of animal genetics, including heritable traits, chromosomal aberrations, population genetics, molecular genetics, and gene regulation. Prerequisites: BIO 187, 188.

E AGB 394 Special Topics. (1–4)
selected semesters

E AGB 410 Agribusiness Management II. (3)
spring
Principles of human resource management in agribusiness firms. Prerequisite: AGB 310.

E AGB 411 Agricultural Cooperatives. (3)
spring
Organization, operation, and management of agricultural cooperatives.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

E AGB 414 Agribusiness Analysis. (3)
fall and spring
Analysis of agribusiness firm decisions in the ecological, economic, social, and political environments. Special emphasis on ethical issues surrounding food production and consumption.
General Studies: L

E AGB 420 Food Marketing. (3)
spring
Food processing, packaging, distribution, market research, new food research and development, and social implications. Prerequisite: AGB 320.

E AGB 422 Consumer Behavior. (3)
fall
Applies behavioral concepts in analyzing consumer food purchases and their implications for marketing strategies. Fee. Prerequisite: completion of Agribusiness core (or its equivalent).

E AGB 424 Sales and Merchandising in Agribusiness. (3)
summer
Principles and techniques of selling and merchandising in the agricultural and food industries.

E AGB 425 Agricultural Marketing Channels. (3)
fall
Operational stages of agricultural commodities in normal distribution systems and implementation of marketing strategies. Prerequisite: AGB 320.

E AGB 429 Marketing Research. (3)
fall
Examines the marketing research process and its role in facilitating agribusiness decisions. Emphasizes problem identification, survey design, and data analysis. Fee. Prerequisite: completion of Agribusiness core (or its equivalent).

E AGB 431 Intermediate Agribusiness Financial Management. (3)
spring
Comprehensive treatment of topics in financial management of agribusiness: capital structure, dividend policy, asset valuation, mergers and acquisitions, risk management. Prerequisites: AGB 332, 333.

E AGB 433 Intermediate Agribusiness Financial Markets. (3)
spring
Role and function of agribusiness in U.S. financial system. Topics include rural banking, farm credit system, monetary policy, and federal reserve. Prerequisite: completion of Agribusiness core (or its equivalent).

E AGB 434 Agricultural Risk Management and Insurance. (3)
fall
Strategies to manage agricultural price and business risk: derivatives, insurance, self-insurance, and public policy. Prerequisite: completion of Agribusiness core (or its equivalent).

E AGB 435 Agricultural Commodities. (3)
fall and spring
Trading on futures markets. Emphasis on the hedging practices with grains and meats. Fee. Prerequisite: AGB 320.

E AGB 436 Entrepreneurship and Financial Management of E-commerce. (3)
fall
Uses lectures, case studies, and business plans to highlight challenges of starting and running a small business. Lecture, seminar, case studies, computer labs.

E AGB 440 Food Safety. (3)
spring
Control, prevention, and prediction of microbial and chemical food-borne diseases. Prerequisite: AGB 442 or instructor approval.

E AGB 441 Food Chemistry. (3)
spring
Biochemical and chemical interactions that occur in raw and processed foods. Prerequisites: CHM 115, 231.

E AGB 442 Food and Industrial Microbiology. (4)
selected semesters
Food- and industrial-related microorganisms; deterioration and preservation of industrial commodities. Lecture, lab. Prerequisite: a course in microbiology with lecture and lab.

E AGB 445 Food Retailing. (3)
fall
Food retail management. Discusses trends, problems, and functions of food retail managers within various retail institutions. Lecture, case studies.

E AGB 450 International Agricultural Development. (3)
fall
Transition of developing countries from subsistence to modern agriculture. Emphasis placed on implications for U.S. agribusiness working abroad.
General Studies: G

E AGB 451 Management Science. (3)
fall
Focus on the construction, solution, and interpretation of quantitative models used for management decision making in agribusiness firms. Prerequisites: AGB 320, 360; ECN 212; MAT 117.
General Studies: CS

E AGB 452 International Agricultural Policy. (3)
fall
Use of international trade theory to analyze the effects of government policies, trade agreements, and exchange rates on agribusiness. Prerequisite: ECN 212.

E AGB 454 International Trade. (3)
spring
International practices in trading of agribusiness, technology, and resource products and services.

E AGB 455 Resource Management. (3)
spring
Explores differences between societal and individual valuations of natural resources and considers public policy versus market-based solutions to environmental concerns. Prerequisite: ECN 212.
General Studies: SB

E AGB 460 Agribusiness Management Systems. (3)
spring
Development and use of decision support systems for agribusiness management and marketing.

E AGB 465 Organic Farming Technologies. (3)
fall and spring
Organic farming methods, including certification, soil fertility, planting, integrated pest management, irrigation, cover crops, rotations, and marketing farm products.

E AGB 470 Comparative Nutrition. (3)
selected semesters
Effects of nutrition on animal systems and metabolic functions. Prerequisite: CHM 231.

E AGB 471 Diseases of Domestic Animals. (3)
spring
Discusses animal welfare, mechanisms of disease development, causes and classification of diseases, disease resistance, and common zoonoses. Prerequisite: BIO 188.

E AGB 479 Veterinary Practices. (3)
fall and spring
Observation of and participation in veterinary medicine and surgery supervised by local veterinarians. Prerequisite: advanced preveterinary student.

E AGB 480 Agribusiness Policy and Government Regulations. (3)
spring
Development and implementation of government food, drug, pesticide, and farm policies and regulations that affect the management of agribusiness.

E AGB 481 Applied Microeconomics. (3)
fall and spring
Emphasizes application of the theory of the firm, theory of exchange, and consumer theory.

E AGB 484 Internship. (1–12)
fall and spring

E AGB 492 Honors Directed Study. (1–6)
selected semesters
Topics may include the following:
- Recent Advances in Food Science. (1)

E AGB 493 Honors Thesis. (1–6)
selected semesters

E AGB 494 Special Topics. (1–4)
selected semesters

E AGB 498 Pro-Seminar. (1–7)
selected semesters
Topics may include the following:
- Effective Consumer Response
  Fee.
- Selling Today
  Fee.

E AGB 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

PROFESSIONAL GOLF MANAGEMENT (PGM)

E PGM 100 PGA/PGM Introduction. (2)
fall
Introduces the golf professional training program. Career enhancement, rules of golf, tournament operations, and playing professional development programs. Fee. Prerequisite: admission to PGM program.

E PGM 110 Player Development I. (1)
fall and spring
Introductory instruction on golf game improvement to assist PGM students in preparation for Players Ability Test. Evaluation. Fee. Prerequisite: admission to PGM program.

E PGM 111 Player Development II. (1)
fall and spring
Instruction to assist PGM students in preparation for Players Ability Test with emphasis on full swing mechanics and practice plan development. Evaluation. Fee. Prerequisite: admission to PGM program.

E PGM 112 Player Development III. (1)
fall and spring
Emphasizes classroom and "hands-on" applications of full swing analysis and short game strategies. Special focus on golf course management. Evaluation. Fee. Prerequisite: admission to PGM program.

E PGM 113 Player Development IV. (1)
fall and spring
Emphasizes classroom and "hands-on" applications of full swing analysis and short game strategies. Special focus on golf course management. Evaluation. Fee. Prerequisite: admission to PGM program.

E PGM 114 Player Development V. (1)
summer
Introductory instruction on golf game improvement to assist PGM students in preparation for Player Ability Test. Evaluation. Prerequisite: admission to PGM program.

E PGM 120 Golf for Business and Life. (1)
fall and spring
Introduces nongolfing students to the game of golf. For beginners. Integrated lecture/lab.

E PGM 130 PGA/PGM Level 1. (2)
fall
Focuses on golf professional training program and the completion of the PGA Level One experience kit. Fee. Prerequisite: PGM 100.

E PGM 150 Teaching Golf I. (2)
fall and spring
Introduces golf instruction. Focus on fundamentals of golf swing and teaching techniques. Fee. Prerequisite: admission to PGM program.

E PGM 166 Turf Equipment Management. (3)
spring
Introduces turf equipment used on golf courses. Instruction in maintenance, adjustment, and safety issues. Integrated lecture/lab.

E PGM 194 Special Topics. (1–4)
selected semesters

E PGM 200 PGA/PGM Level 2. (2)
fall
Focuses on golf professional training program and the completion of the PGA Level Two experience kit. Fee. Prerequisite: admission to PGM program.

E PGM 250 Teaching Golf II. (1)
fall and spring
Communicating with student golfers, swing evaluation, key factors club fitting, developing a successful teaching practice. Prerequisite: admission to PGM program.

E PGM 300 PGA/PGM Level 3. (1)
fall
Business planning and operations, business communications related to business of golf. Completion of the PGA Level Three experience kit. Fee. Prerequisite: admission to PGM program.

E PGM 350 Teaching Golf III. (1)
fall and spring
Teaching swing concepts. Developing a teaching philosophy, analyzing flawed swing mechanics through video and swing analysis software. Prerequisite: admission to PGM program.

E PGM 363 Landscape and Turf Irrigation. (4)
fall
Design, management, and maintenance of landscape and turf irrigation systems. Lecture, lab. Cross-listed as ABS 363. Credit is allowed for only ABS 363 or PGM 363. Fee. Prerequisite: ABS 260 (or its equivalent).

E PGM 367 Landscape Plants and Design. (3)
spring
Identification, design, and use of plants in urban landscapes. Lecture, lab. Cross-listed as ABS 362. Credit is allowed for only ABS 362 or PGM 367. Fee. Prerequisite: ABS 260 (or its equivalent).

E PGM 400 GPTP IV. (1)
fall
Food and beverage control, supervision and delegation of golf facilities. Completion of the PGA Level Three experience kit. Prerequisite: admission to PGM program.

E PGM 463 Golf and Sports Turf Management. (3)
fall
Selection, establishment, and maintenance of turf grasses bred specifically for golf and sports facilities. Integrated lecture/lab. Cross-listed as ABS 463. Credit is allowed for only ABS 463 or PGM 463.

E PGM 466 Integrated Pest Control. (2)
fall and spring
Management of pests affecting golf turf and landscape plants. Structural Pest Control Board sprayer certification preparation offered during the semester.

E PGM 484 Internship. (1–12)
selected semesters

E PGM 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Food and Beverage
  Fee.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

East College

www.poly.asu.edu/ecollege

Glenn W. Irvin, PhD, Dean

PURPOSE

East College offers a variety of liberal studies and professional programs. Baccalaureate programs are offered in applied biological sciences, applied psychology, business administration, education, exercise and wellness, human health studies, interdisciplinary studies, multimedia writing and technical communication, and nutrition. Minors, certificates, and graduate programs are available in some areas.

East College provides advising for students who wish to begin their college careers at the Polytechnic campus but who are uncertain about a major. Exploratory/undeclared majors can complete portions of the General Studies requirement while taking advantage of the small, polytechnic-focused, residential campus environment.

East College offers a selection of ASU General Studies and general interest courses. The Humanities and Arts unit offers a selection of courses in art, communication, dance, English, history, music, philosophy, religious studies, and Spanish. The Social and Behavioral Sciences unit offers courses in anthropology, family and human development, political science, sociology, and women's studies. Mathematics and science courses are available through the Department of Applied Biological Sciences. Students should refer to the *Schedule of Classes* for specific courses offered each semester.

East College also offers statistics courses (APM) to meet requirements for a range of majors and support courses for the Bachelor of Applied Science (BAS) degree. The applied science core (ASC) courses are upper division and designed to build upon the mathematics and science base acquired in the Associate of Applied Science (AAS) degree.

Partnership in Baccalaureate Education. The Partnership in Baccalaureate Education, an agreement between Chandler-Gilbert Community College and Polytechnic campus, is coordinated through East College. Through this partnership, students take first-year composition courses and courses that meet lower-division ASU General Studies requirements. They are listed in "General Studies," page 93. These courses, combined with introductory courses within the major, are available in an innovative and integrated first-year curriculum designed to foster academic success. Students can also take major prerequisite courses, introductory language courses, and other lower-division courses of general interest through the partnership. These courses automatically transfer to ASU each semester.

DEGREE PROGRAMS

See the "East College Baccalaureate Degrees and Majors" table, page 215. For graduate degrees, see the "East College Graduate Degrees and Majors" table, page 216.

East College also offers certificate programs in Multimedia Writing and Technical Communication and in Spa Management; minors in Applied Biological Sciences, Applied Psychology, Food and Nutrition Management, Human Nutrition, Small Business, and Wellness Foundations; and concentrations for the BAS. See the *Graduate Catalog* for more information about graduate programs.

INTERDISCIPLINARY STUDIES—BIS

The Bachelor of Interdisciplinary Studies (BIS) program is intended for the student who has academic interests that might not be satisfied with existing majors. Building on academic concentrations and an interdisciplinary core, students in the BIS program take an active role in creating their educational plans and defining their career goals. The BIS program emphasizes written communication, versatility, and critical thinking, skills desired in the 21st-century workplace. Self-assessment and appraisal of opportunities to support academic and career goals are key elements in the core courses. The concentrations are generally based on approved academic minors, certificate programs, or special coherent clusters of course work. The student should be able to integrate these into a meaningful program.

The combination of areas of concentration gives students flexibility in creating unique programs to accomplish individual academic goals. Students who declare the BIS as their major in East College at Polytechnic campus take their core courses and at least one concentration through Polytechnic campus. The second concentration may be taken at the Polytechnic or Tempe campus. The BIS core courses are offered by East College. Concentrations at Polytechnic campus are offered by East College, the College of Technology and Applied Sciences, and the Morrison School of Agribusiness and Resource Management. Students interested in the BIS program should arrange an appointment

East College Baccalaureate Degrees and Majors

Major	Degree	Concentration*	Administered By
Applied Biological Sciences	BS	Applied biological sciences, applied biological sciences/secondary education, urban horticulture, or wildlife and restoration ecology	Department of Applied Biological Sciences
Applied Psychology	BS	—	East College
Applied Science	BAS	Food service management, multimedia writing and technical communication, or wellness	East College
Business Administration	BS	—	East College
Elementary Education	BAE	—	East College
Exercise and Wellness	BS	Exercise and wellness or health promotion	Department of Exercise and Wellness
Human Health Studies	BA, BS	—	East College
Interdisciplinary Studies	BIS	See the "BIS Concentrations" table, page 142.	Bachelor of Interdisciplinary Studies Advisory Committee
Multimedia Writing and Technical Communication	BS	—	East College
Nursing	BSN	—	College of Nursing (Downtown Phoenix campus)
Nutrition	BS	Dietetics, food and nutrition management, human nutrition, or nutrition communication	Department of Nutrition
Real Estate	BS	—	East College
Secondary Education	BAE	Academic specialization: physical education	East College

* If a major offers concentrations, one must be selected unless noted as *optional*.

with a University College advisor at 480/727-1452 before declaring the BIS major.

Basic Requirements

The BIS major requires 120 semester hours. The major is composed of a 12 hour core and a minimum of 36 hours in two or three concentration areas (18 hours or more each). Throughout the core sequence, the student assembles a portfolio, including self-assessment of progress toward career goals and an evaluation of key educational and personal activities that may apply. The core courses must be taken in sequence. These courses may not be transferred from other institutions. BIS 401 may be taken as a corequisite or prerequisite for BIS 402. All core courses must be completed with a grade of "C" (2.00) or higher.

Core Courses

BIS	301	Foundations of Interdisciplinary Studies *L*	3
BIS	302	Interdisciplinary Inquiry	3
BIS	401	Applied Interdisciplinary Studies	3
BIS	402	Senior Seminar *L*	3
Total			12

For course descriptions, see "School of Interdisciplinary Studies," page 139.

Other Requirements

In addition to the basic requirements, students must complete all university requirements, including First-Year Composition and General Studies. Early advising is recommended to ensure that students meet requirements efficiently and optimize their choices.

Declaring the BIS Major

Students must receive approval from an East College advisor before declaring the BIS major. In addition, the student must

1. complete at least 45 semester hours of university credit;
2. earn a cumulative GPA of at least 2.00;
3. complete two courses in each concentration with a minimum grade of "C" (2.00) before enrolling in BIS 301; and
4. complete the university mathematics and First-Year Composition requirements.

All incoming students and continuing students with a minimum GPA of 2.00 who do not meet the above requirements are placed in a pre-BIS major until the requirements have been met.

APPROVED CONCENTRATIONS

Each concentration requires 18 or more semester hours, with each course completed with a grade of "C" (2.00) or

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

East College Graduate Degrees and Majors

Major	Degree	Concentration[1]	Administered By
Applied Biological Sciences	MS	GIS/remote sensing, natural resource management, or range ecology	Department of Applied Biological Sciences
Applied Psychology	MS	—	Faculty of Applied Psychology
Curriculum and Instruction	MEd	English as a second language, instructional media in K–12 schools, or professional studies	Faculty of Education
	PhD[2]	Exercise and wellness education, physical education	Division of Curriculum and Instruction (Tempe campus)
Environmental Design and Planning[2]	PhD	Design; history, theory, and criticism; or planning	Committee on Environmental Design and Planning
Exercise and Wellness	MS	—	Department of Exercise and Wellness
Nutrition	MS	—	Department of Nutrition
Physical Activity, Nutrition, and Wellness	PhD	—	Department of Exercise and Wellness and Department of Nutrition
Physical Education	MPE	—	Faculty of Education
Plant Biology[2]	PhD	—	School of Life Sciences (Tempe campus)

[1] If a major offers concentrations, one must be selected unless noted as *optional*.

[2] Doctoral courses for this interdisciplinary program administered by the Tempe campus are offered at the Polytechnic campus.

higher. Twelve or more of the semester hours must be in upper-division courses. Students should check for new information about concentrations on the Web at www.poly.asu.edu/ecollege or contact an East College advisor at 480/727-1333.

ANTHROPOLOGY (ANT)

E ANT 194 Special Topics. (1–4)
selected semesters

E ANT 294 Special Topics. (1–4)
selected semesters

E ANT 394 Special Topics. (1–4)
selected semesters

E ANT 484 Internship. (1–12)
selected semesters

E ANT 494 Special Topics. (1–4)
selected semesters

E ANT 498 Pro-Seminar. (1–7)
selected semesters

E ANT 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

APPLIED MATHEMATICS (APM)

E APM 301 Introductory Statistics. (3)
selected semesters
Probability, distributions, statistical hypothesis testing, t-tests, basic correlation, and regression. Prerequisite: MAT 117 or instructor approval.
General Studies: CS

E APM 401 Intermediate Statistics. (3)
selected semesters
Analysis of variance, multiple comparisons, multiple regression. Prerequisite: APM 301 (or its equivalent) or instructor approval.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

ART (ARD)

E ARD 194 Special Topics. (1–4)
selected semesters

E ARD 294 Special Topics. (1–4)
selected semesters

E ARD 394 Special Topics. (1–4)
selected semesters

E ARD 484 Internship. (1–12)
selected semesters

E ARD 494 Special Topics. (1–4)
selected semesters

E ARD 498 Pro-Seminar. (1–7)
selected semesters

E ARD 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

APPLIED SCIENCE CORE (ASC)

E ASC 301 Contextual Uses of Algebra in Technology. (1)
fall and spring
Uses algebra to solve real-world technological problems using currently available computer software. Prerequisite: BAS major.

E ASC 302 Contextual Uses of Geometry in Technology. (1)
fall and spring
Uses geometrical concepts to solve real-world technological problems using currently available computer software. Prerequisite: BAS major.

E ASC 303 Contextual Uses of Trigonometry in Technology. (1)
fall and spring
Uses trigonometry to solve real-world technological problems using currently available computer software. Prerequisite: BAS major.

E ASC 315 Numeracy in Technology. (3)
fall and spring
Contextual uses of mathematics in applied sciences. Emphasizes using mathematical methodologies to solve technology-related problems. Prerequisite: BAS major.
General Studies: MA

E ASC 325 Physical Sciences in Technology. (4)
fall and spring
Physical systems and their interrelationships on technology systems. Real-world applications of physical systems. Lecture, lab.
Prerequisite: BAS major.
General Studies: SQ

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

COMMUNICATION (CMA)

E CMA 194 Special Topics. (1–4)
selected semesters

E CMA 294 Special Topics. (1–4)
selected semesters

E CMA 394 Special Topics. (1–4)
selected semesters

E CMA 484 Internship. (1–12)
selected semesters

E CMA 494 Special Topics. (1–4)
selected semesters

E CMA 498 Pro-Seminar. (1–7)
selected semesters

E CMA 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

DANCE (DNC)

E DNC 194 Special Topics. (1–4)
selected semesters

E DNC 294 Special Topics. (1–4)
selected semesters

E DNC 394 Special Topics. (1–4)
selected semesters

E DNC 484 Internship. (1–12)
selected semesters

E DNC 494 Special Topics. (1–4)
selected semesters

E DNC 498 Pro-Seminar. (1–7)
selected semesters

E DNC 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

ENGLISH/HUMANITIES (ENH)

E ENH 194 Special Topics. (1–4)
selected semesters

E ENH 294 Special Topics. (1–4)
selected semesters

E ENH 394 Special Topics. (1–4)
selected semesters

E ENH 484 Internship. (1–12)
selected semesters

E ENH 494 Special Topics. (1–4)
selected semesters

E ENH 498 Pro-Seminar. (1–7)
selected semesters

E ENH 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

FAMILY AND HUMAN DEVELOPMENT (FAM)

E FAM 194 Special Topics. (1–4)
selected semesters

E FAM 294 Special Topics. (1–4)
selected semesters

E FAM 394 Special Topics. (1–4)
selected semesters

E FAM 484 Internship. (1–12)
selected semesters

E FAM 494 Special Topics. (1–4)
selected semesters

E FAM 498 Pro-Seminar. (1–7)
selected semesters

E FAM 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

HISTORY (HTY)

E HTY 194 Special Topics. (1–4)
selected semesters

E HTY 294 Special Topics. (1–4)
selected semesters

E HTY 394 Special Topics. (1–4)
selected semesters

E HTY 484 Internship. (1–12)
selected semesters

E HTY 494 Special Topics. (1–4)
selected semesters

E HTY 498 Pro-Seminar. (1–7)
selected semesters

E HTY 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

MASS COMMUNICATION (MCN)

E MCN 194 Special Topics. (1–4)
selected semesters

E MCN 294 Special Topics. (1–4)
selected semesters

E MCN 394 Special Topics. (1–4)
selected semesters

E MCN 484 Internship. (1–12)
selected semesters

E MCN 494 Special Topics. (1–4)
selected semesters

E MCN 498 Pro-Seminar. (1–7)
selected semesters

E MCN 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

MUSIC (MSC)

E MSC 194 Special Topics. (1–4)
selected semesters

E MSC 294 Special Topics. (1–4)
selected semesters

E MSC 394 Special Topics. (1–4)
selected semesters

E MSC 484 Internship. (1–12)
selected semesters

E MSC 494 Special Topics. (1–4)
selected semesters

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

E MSC 498 Pro-Seminar. (1–7)
selected semesters

E MSC 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

PHILOSOPHY (PHL)

E PHL 194 Special Topics. (1–4)
selected semesters

E PHL 294 Special Topics. (1–4)
selected semesters

E PHL 394 Special Topics. (1–4)
selected semesters

E PHL 484 Internship. (1–12)
selected semesters

E PHL 494 Special Topics. (1–4)
selected semesters

E PHL 498 Pro-Seminar. (1–7)
selected semesters

E PHL 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

POLITICAL SCIENCE (PLS)

E PLS 194 Special Topics. (1–4)
selected semesters

E PLS 294 Special Topics. (1–4)
selected semesters

E PLS 394 Special Topics. (1–4)
selected semesters

E PLS 484 Internship. (1–12)
selected semesters

E PLS 494 Special Topics. (1–4)
selected semesters

E PLS 498 Pro-Seminar. (1–7)
selected semesters

E PLS 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

SOCIOLOGY (SCL)

E SCL 194 Special Topics. (1–4)
selected semesters

E SCL 294 Special Topics. (1–4)
selected semesters

E SCL 394 Special Topics. (1–4)
selected semesters

E SCL 484 Internship. (1–12)
selected semesters

E SCL 494 Special Topics. (1–4)
selected semesters

E SCL 498 Pro-Seminar. (1–7)
selected semesters

E SCL 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

SPANISH (SPN)

E SPN 194 Special Topics. (1–4)
selected semesters

E SPN 294 Special Topics. (1–4)
selected semesters

E SPN 394 Special Topics. (1–4)
selected semesters

E SPN 484 Internship. (1–12)
selected semesters

E SPN 494 Special Topics. (1–4)
selected semesters

E SPN 498 Pro-Seminar. (1–7)
selected semesters

E SPN 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

THEATRE (THR)

E THR 194 Special Topics. (1–4)
selected semesters

E THR 294 Special Topics. (1–4)
selected semesters

E THR 394 Special Topics. (1–4)
selected semesters

E THR 484 Internship. (1–12)
selected semesters

E THR 494 Special Topics. (1–4)
selected semesters

E THR 498 Pro-Seminar. (1–7)
selected semesters

E THR 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

WOMEN'S STUDIES (WNS)

E WNS 194 Special Topics. (1–4)
selected semesters

E WNS 294 Special Topics. (1–4)
selected semesters

E WNS 394 Special Topics. (1–4)
selected semesters

E WNS 484 Internship. (1–12)
selected semesters

E WNS 494 Special Topics. (1–4)
selected semesters

E WNS 498 Pro-Seminar. (1–7)
selected semesters

E WNS 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Department of Applied Biological Sciences

www.poly.asu.edu/ecollege/appliedbiologicalsciences

480/727-1444

WANER Third Floor

Ward W. Brady, Chair

Professors: Brady, Brock, Mushkatel, Sommerfeld, Stutz

Associate Professors: Green, Martin, Miller, Steele, Whysong

Assistant Professors: Hu, Marcum

Lecturer: Huffman

APPLIED BIOLOGICAL SCIENCES—BS

The Department of Applied Biological Sciences offers rigorous and practical programs in applications of the biological sciences. Consistent with a polytechnic vision, programs involve extensive student interaction with faculty through experience-based learning activities, including laboratories, field trips, internships, and faculty-guided research and service-learning projects. Mastery of fundamental biological principles is emphasized through quality learning in the classroom and hands-on activities in laboratories and in the living laboratories of the Sonoran desert and surrounding ecosystems.

Graduates can pursue entry-level careers in wildlife and restoration ecology, urban horticulture, and secondary education. The general program in Applied Biological Sciences also prepares graduates to succeed in graduate and professional schools in disciplines such as animal health, environmental biotechnology, medicine, dentistry, physical therapy, ecology, horticulture, and wildlife biology.

Mission

The mission of the department is to provide excellence by way of

1. academic programs that are rigorous and experience-based and involve extensive student-faculty interaction;
2. research, scholarship, and practice that advance knowledge, address practical problems, and explore emerging opportunities; and
3. service and outreach to the local and global communities.

Goal

The goal of the department's academic programs is to prepare practitioners, managers, and research scholars in fields related to the applied biological sciences who

1. are problem solvers, comfortable with interdisciplinary work and aware that many breakthroughs occur where fields overlap and multiple disciplines work together;
2. are technically proficient whether they work in the field or at the laboratory bench, understand why and how equipment and procedures work, and are capable of designing new protocols and techniques to meet new challenges;
3. constantly stay abreast of scientific advances, actively reading broadly and deeply, understanding not only the critical nature of the primary literature in their chosen field, but also the importance of keeping step with emerging data and technology and incorporating new ideas and technologies into their discipline;
4. understand ethical and policy implications of their work and are capable of debating science in a context beyond the technical details of their discipline;
5. are articulate in oral and written communication, forming cogent arguments and communicating them clearly; and
6. understand that groundbreaking science requires knowledge and creativity and that creativity is central to discovery.

For the latest information about program requirements and courses, access the Web site at www.asu.edu/ecollege/appliedbiologicalsciences, or call 480/727-1444.

Graduation Requirements

A total of 120 semester hours, with a minimum of 45 semester hours of upper-division credit, is required for graduation. As part of the undergraduate degree program, students complete the ASU General Studies requirement. For courses that meet ASU General Studies requirement, see "General Studies," page 93. It is strongly recommended that students work with an East College academic advisor when selecting courses to meet the General Studies requirement since otherwise required courses can often be used to meet the General Studies requirement.

Applied Biological Sciences Core. All Applied Biological Sciences students are required to complete the following courses:

Applied Biological Sciences Core			
ABS	300	Environmental Biology	3
ABS	302	Ethical and Policy Issues in Biology	2
ABS	350	Applied Statistics *CS*	3
BIO	187	General Biology I *SG*	4
BIO	188	General Biology II *SQ*	4
BIO	340	General Genetics	4
BIO	360	Animal Physiology	3
		or PLB 308 Plant Physiology (4)	
		or ABS 311 Applied Cellular Biology (3)	
CHM	113	General Chemistry I *SQ*	4
MAT	210	Brief Calculus *MA*	3
Total			30–31

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Students majoring in Applied Biological Sciences must select one of the concentrations listed below.

Applied Biological Sciences Concentration

This concentration offers students the opportunity to acquire a rigorous education in the biological and related sciences while providing flexibility to meet specific student interests. Students who plan to pursue research careers and postgraduate studies in biology, environmental biotechnology, and ecology may find this concentration appropriate. In addition, the concentration is designed for students planning to enter the health professions, including animal health, medicine, medical technology, epidemiology, dentistry, physical therapy, public health, and physician's assistant programs.

Students planning to enter professional programs need to include two semester sequences in physics and organic chemistry in their programs of study. BCH 361 Principles of Biochemistry is also suggested.

Applied Biological Sciences Concentration

ABS 355 Vertebrate Zoology....4
ABS 370 Ecology....3
ABS 490 Applied Biological Sciences Seminar....1
CHM 116 General Chemistry *SQ*....4
Choose between the organic chemistry course combinations below....4 or 8
  CHM 231 Elementary Organic Chemistry *SQ*[1] (3)
  CHM 235 Elementary Organic Chemistry Lab *SQ*[1] (1)
  — *or* —
  CHM 233 General Organic Chemistry I (3)
  CHM 234 General Organic Chemistry II (3)
  CHM 237 General Organic Chemistry Laboratory I (1)
  CHM 238 General Organic Chemistry Laboratory II (1)
Choose between the physics course combinations below....4 or 8
  PHY 101 Introduction to Physics *SQ* (4)
  — *or* —
  PHY 111 General Physics *SQ*[2] (3)
  PHY 112 General Physics *SQ*[3] (3)
  PHY 113 General Physics Laboratory *SQ*[2] (1)
  PHY 114 General Physics Laboratory *SQ*[3] (1)
Approved electives in Applied Biological Sciences....12
Total....32–40

[1] Both CHM 231 and 235 must be taken to secure SQ credit.
[2] Both PHY 111 and 113 must be taken to secure SQ credit.
[3] Both PHY 112 and 114 must be taken to secure SQ credit.

Applied Biological Sciences/Secondary Education Concentration

The applied biological sciences/secondary education concentration qualifies students for the State of Arizona Certification in Secondary Biology Education. Students interested in pursuing this concentration need to complete the science content courses related to biology and the courses specific to the secondary education curriculum. The program concludes with full-time student teaching in a secondary science classroom. Students interested in pursuing the concentration need to be admitted into the Teacher Education unit before taking the secondary methods courses (approximately during the junior year). See "Applied Biological Sciences–BS Secondary Education Concentration," page 229, for application requirements.

Secondary Education Concentration General Studies Requirement. For students choosing the secondary education concentration, the following courses must be used as General Studies courses in order to graduate in 120 hours:

ABS 350 Applied Statistics or equivalent *CS*....3
BIO 187 General Biology I *SG*....4
BIO 188 General Biology II *SQ*....4
MAT 210 Brief Calculus *MA*....3

Applied Biological Sciences/Secondary Education Concentration

ABS 355 Vertebrate Zoology....4
  or ABS 207 Applied Plant Taxonomy (3)
ABS 370 Ecology....3
ABS 490 Applied Biological Sciences Seminar....1
CHM 116 General Chemistry *SQ*....4
MIC 205 Microbiology *SG**....3
MIC 206 Microbiology Laboratory *SG**....1
PHY 101 Introduction to Physics *SQ*....4
Upper-division electives....3
Total....22–23

* Both MIC 205 and 206 must be taken to secure SG credit.

Secondary Education Curricula

BIO 480 Methods of Teaching Biology....3
BIO 482 Advanced Methods of Teaching Biology....3
EDC 350 Educational Technology I: Applications....1
EDC 351 Educational Technology II: Instruction and Evaluation....1
EDC 352 Educational Technology III: Design....1
EDC 494 ST: Professional Knowledge....2
EDP 303 Human Development *L/SB*....3
EDP 310 Educational Psychology *SB*....3
RDG 301 Literacy and Instruction in the Content Areas....3
SED 403 Middle and Secondary School Principles, Curricula, and Methods....3
SED 478 Student Teaching in Secondary Schools....10–12
SED 496 Field Experience....0
SPE 394 ST: Inclusion Practices at the Secondary Level....3
Total....36–38

Strongly Recommended

MCE 446 Understanding the Culturally Diverse Child *C*....3
SPE 311 Orientation to Education of Exceptional Children *SB, C*....3

Urban Horticulture Concentration

Urban horticulture emphasizes the relationship of plants and people in city environments. Set in a unique southwestern desert location, Polytechnic campus's program strives to teach urban horticulture students how to practice principles and develop skills that help create aesthetically pleasing urban environments. This approach is coupled with an appreciation of environmental conservation and stewardship. To achieve this goal, the program specializes in teaching students about the unique aspects of desert horticulture. Through course offerings, students can gain expertise in a diverse array of topics such as landscape plant identification culture and use; creation of public and private gardens in arid climates; management practices of landscape planting and irrigation design; installation and maintenance; xeriscape and water conservation; integrated pest management; installation and management of golf, sports, and recreational turf grass; plant propagation and greenhouse/

nursery management. Graduates are qualified to identify and grow ornamental landscape trees, shrubs, ground covers, grasses, flowering potted plants, and bedding plants. They also design, install, and maintain outdoor and indoor landscape environments that enhance urban aesthetics.

Urban Horticulture Concentration

ABS 225 Soils *SQ*[1] 3
ABS 226 Soils Laboratory *SQ*[1] 1
ABS 260 Fundamentals of Urban Horticulture *SG* 4
ABS 362 Landscape Plants and Design....4
ABS 363 Landscape and Turf Irrigation....4
ABS 364 Urban Forestry 3
ABS 462 Greenhouse/Nursery Management....4
or ABS 463 Golf and Sports Turf Management (3)
Choose one of the three courses below....3
ABS 465 Senior Enterprise Project (3)
ABS 484 Internship (3)
ABS 492 Honors Directed Study (3)
CHM 231 Elementary Organic Chemistry *SQ*[2] 3
PLB 414 Plant Pathology *L* 3
or PGM 466 Integrated Pest Control (2)
Approved upper-division electives....6
Total 36–38

[1] Both ABS 225 and 226 must be taken to secure SQ credit.
[2] Both CHM 231 and 235 must be taken to secure SQ credit.

Wildlife and Restoration Ecology

Applied ecology is the focus of the wildlife and restoration ecology concentration. Introductory course work emphasizes a core understanding of biological science, principles of plant and animal ecology, and the techniques and principles of ecosystem management. Students can choose to focus their course work on wildlife ecology or restoration ecology.

The discipline of ecological restoration provides a scientific basis for the reconstruction of degraded ecosystems and focuses on practices designed to improve the ecological structure and function, and on meeting societal needs for sustainable and functional ecosystems. The restoration process includes identifying the causes of degradation, devising methods and goals for the restoration effort, developing management strategies for the restored sites, monitoring changes on the site and assessing restoration success. Restoration practices may include improving wildlife habitat, reintroducing missing plants or animals, removal of invasive species, rebuilding of soils, and returning natural processes such as fire and flooding to ecosystems that historically experienced these disturbance regimes. Successful restoration projects require community involvement and demand consideration of the economic and social context in which restoration is carried out

The wildlife ecology course work is distinguished by its strong emphasis on habitat management. While students are expected to master the material found in traditional wildlife biology curricula, students are also expected to develop a strong expertise in habitat management. This background in habitat management requires proficiency in the botanical sciences, including plant ecology and provides a synergistic link with the ecological restoration concentration. The applied nature of the concentration is emphasized by the requirement for mastery of the analytic technologies (ranging from quantitative ecology and ecological modeling to the use of geographic information systems) as well as a comprehensive understanding of the economic and policy contexts in which wildlife habitat management occurs.

Wildlife and Restoration Ecology Concentration General Studies Requirements. For students choosing the wildlife and restoration ecology concentration, the following courses must be used as General Studies courses in order to graduate in 120 hours:

ABS 350 Applied Statistics or equivalent *CS* 3
ABS 480 Ecosystem Management and Planning *L* 3
BIO 187 General Biology I *SG* 4
BIO 188 General Biology II *SQ* 4
MAT 210 Brief Calculus *MA* 3

Wildlife and Restoration Ecology Concentration

ABS 207 Applied Plant Taxonomy 3
ABS 370 Ecology 3
ABS 374 Introduction to Wildlife Management....4
ABS 381 Natural Resources Policy....3
ABS 402 Vegetation and Wildlife Measurements 3
ABS 440 Ecological Restoration Techniques....3
ABS 480 Ecosystem Management and Planning *L* 3
ABS 485 GIS in Natural Resources....3
CHM 231 Elementary Organic Chemistry *SQ*[1] 3

Choose one of the following course groupings:
ABS 225 Soils *SQ*[2] 3
ABS 226 Soils Laboratory *SQ*[2] 1
ABS 433 Riparian and Wetland Ecology....3
ABS 441 Ecological Restoration Practicum....1
ABS 482 Ecology and Planning for Restoration 3
ABS 483 Restoration Planning Practicum....2
Approved supporting courses....15
— *or* —
ABS 355 Vertebrate Zoology....4
ABS 376 Wildlife Ecology 3
ABS 475 Habitat Management for Small Wildlife....4
ABS 476 Big Game Habitat Management....3
Approved supporting courses....15

[1] Both CHM 231 and 235 must be taken to secure SQ credit
[2] Both ABS 225 and 226 must be taken to secure SQ credit.

Biology and plant biology courses regularly offered on the Polytechnic campus include BIO 100, BIO 187, BIO 188, BIO 201, BIO 202, BIO 340, BIO 360, PLB 308, and PLB 414. For courses, see "School of Life Sciences," page 597.

BIS CONCENTRATION

A concentration in applied biological sciences is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and interdisciplinary core, students in the BIS program take active roles creating their educational

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

MINOR

The Applied Biological Sciences minor consists of 24 semester hours, including BIO 187 General Biology I, BIO 188 General Biology II, and at least 15 hours selected with the approval of an advisor; at least nine hours must be in the upper-division courses offered by the Department of Applied Biological Sciences.

GRADUATE PROGRAMS

Faculty associated with the Applied Biological Sciences program also offer a program leading to an MS degree in Applied Biological Sciences. Selected faculty also participate with the Division of Graduate Studies and the Colleges of Architecture and Environmental Design and Liberal Arts and Sciences in programs leading to PhD degrees in Environmental Design and Planning, with a concentration in Planning, and a PhD degree in Plant Biology. See the *Graduate Catalog* for requirements.

APPLIED BIOLOGICAL SCIENCES (ABS)

E ABS 130 Introduction to Environmental Science. (4)
fall
Introduces resources, their physical and chemical properties, classification, energy dynamics, and the role they play in environmental quality. Lecture, lab.
General Studies: SQ

E ABS 191 First-Year Seminar. (1–3)
selected semesters

E ABS 207 Applied Plant Taxonomy. (3)
spring
Introduces identification of vascular plants emphasizing seed plants. Surveys seed plant families. Lecture, lab, field trips. Fee. Prerequisite: BIO 187.

E ABS 225 Soils. (3)
fall
Fundamental properties of soils and their relations to plant growth, nutrition of man and animals, and environmental quality. Prerequisite: CHM 101 or 113 (or its equivalent).
General Studies: SQ (if credit also earned in ABS 226)

E ABS 226 Soils Laboratory. (1)
fall
Selected exercises to broaden the background and understanding of basic soil principles. Lab. Fee. Pre- or corequisite: ABS 225.
General Studies: SQ (if credit also earned in ABS 225)

E ABS 260 Fundamentals of Urban Horticulture. (4)
fall
Principles and practices of horticulture, emphasizing development, growth, and propagation of horticultural plants and environmental factors that affect these processes. 3 hours lecture, 3 hours lab. Fee. Prerequisite: BIO 187 or PLB 108.
General Studies: SG

E ABS 294 Special Topics. (1–4)
selected semesters

E ABS 300 Environmental Biology. (3)
spring
Ecosystem dynamics and the analysis of environmental impact from local to global scales. Introduces ecological risk assessment and life cycle analysis. Lecture, cooperative learning.

E ABS 301 Technology and Biology. (2)
spring
Demonstrations of a broad range of innovative technologies in molecular biology, cellular and organismal biology, horticulture, and wildlife and restoration ecology. Fee.

E ABS 302 Ethical and Policy Issues in Biology. (2)
spring
Policy environment and ethics in the practice of biology. Covers ethical reasoning, policy formulation, and regulatory agencies with examples from biotechnology and the environment.

E ABS 311 Applied Cellular Biology. (3)
spring
Overview of the biology of the cell, with emphasis on structure and function of biomolecules within the cell. Prerequisites: BIO 187; CHM 231 (or their equivalents).

E ABS 312 Structure and Function. (4)
spring
Surveys structural and functional attributes of plant and animals of particular importance in the applied biological sciences. Lecture, lab. Fee. Prerequisite: BIO 187.

E ABS 350 Applied Statistics. (3)
fall and spring
Statistical methods with applications in the biological sciences and natural resource management. Uses computers and the Internet. Prerequisite: MAT 117 (or its equivalent).
General Studies: CS

E ABS 355 Vertebrate Zoology. (4)
spring
Classification, anatomy, and physiology of the vertebrates. Lecture, lab. Prerequisites: BIO 188 and CHM 101 (or their equivalents).

E ABS 360 Southwest Home Gardening. (2)
fall and spring
Multimedia course for nonmajors surveying contemporary topics in Southwest home horticulture, including landscaping, flower and vegetable gardening, citriculture, interiorscaping, and others. Prerequisite: completion of General Studies SQ and SG requirements.

E ABS 362 Landscape Plants and Design. (4)
spring
Identification, design, and use of plants in urban landscapes. Lecture, lab. Cross-listed as PGM 367. Credit is allowed for only ABS 362 or PGM 367. Fee. Prerequisite: ABS 260 (or its equivalent).

E ABS 363 Landscape and Turf Irrigation. (4)
fall
Design, management, and maintenance of landscape and turf irrigation systems. Lecture, lab. Cross-listed as PGM 363. Credit is allowed for only ABS 363 or PGM 363. Fee. Prerequisite: ABS 260 (or its equivalent).

E ABS 364 Urban Forestry. (3)
fall
Care, maintenance, and valuation of the urban forest, including public and private landscape codes. Prerequisite: ABS 260 (or its equivalent).

E ABS 366 Indoor Plants. (3)
fall or spring
Identification, culture, and use of container-grown plants for interior environments. Prerequisite: ABS 260 or instructor approval.

E ABS 367 Urban Parks. (4)
spring
Overview of the management and maintenance of private and public parks, urban greenspaces, and recreational areas. Lecture, lab. Fee. Prerequisite: ABS 260 (or its equivalent).

E ABS 368 Plant Propagation. (3)
spring
Theory and application of sexual and asexual propagation techniques. Considers plant materials used both for urban horticulture and ecological restoration applications. 2 hours lecture, 3 hours lab. Fee. Prerequisite: BIO 188.

E ABS 370 Ecology. (3)
fall
Interactions between organisms and their environments; structure and dynamics of populations, communities, ecosystems, and landscapes, with emphasis on vegetation. Lecture, field trips. Prerequisite: BIO 188.

E ABS 372 Ecology: Ecosystems and Landscapes. (3)
spring
Structure and function of ecosystems, interactions of pattern and process in landscapes. Lecture, lab, field trips. Prerequisite: ABS 370.

E ABS 374 Introduction to Wildlife Management. (4)
spring
Managing wildlife in the Southwest, including life histories of small game, fur bearers, big game, and selected nongame specials. Fee. Lecture, lab, field trips. Prerequisite: completion of General Studies SQ and SG requirements.

E ABS 375 Conservation Biology. (3)
spring
Principles of conservation biology, management of threatened species and ecosystems, biodiversity patterns with emphasis on issues in the Southwest. Lecture, field trips. Fee. Prerequisite: ABS 374.

E ABS 376 Wildlife Ecology. (3)
spring
Examines ecological principles underlying wildlife population dynamics with emphasis on physiology, genetics, nutrition, and habitat factors. Lecture, lab. Prerequisite: ABS 370.

E ABS 378 Wildlife Nutrition. (3)
fall
Principles of nutrient metabolism in wildlife species, with emphasis on understanding the interaction of wildlife with their environment. Prerequisites: BIO 188; CHM 101.

E ABS 380 Restoration and Wildlife Plants. (3)
fall
Important wildland plants, including invasive and endangered species, wildlife food species, and species used for ecosystem restoration. Lecture, lab. Prerequisite: ABS 207 or 260.

E ABS 381 Natural Resources Policy. (3)
fall
Policies and regulations affecting management of natural resources, with emphases on wildlife and ecological restoration. Pre- or corequisite: ABS 300.

E ABS 402 Vegetation and Wildlife Measurement. (3)
spring
Vegetation inventory, sampling, monitoring, and evaluation. Methods of estimating wildlife populations, activity, and home ranges. Lecture, lab, 1 weekend field trip. Prerequisites: ABS 207, 350, 370.

E ABS 425 Soil Classification and Management. (3)
selected semesters
Principles of soil genesis, morphology, and classification. Presents management and conservation practices. Prerequisite: ABS 225 (or its equivalent).

E ABS 430 Watershed Management. (3)
selected semesters
Hydrologic, physical, biological, and ecological principles applied to watershed management. Impact of ecosystem manipulations on water yield and quality. Lecture, 1 weekend field trip. Prerequisite: ABS 225.

E ABS 433 Riparian and Wetland Ecology. (3)
selected semesters
Functions and components of riparian and wetland ecosystems and the management of these systems. Lecture, field trips. Prerequisite: ABS 370.

E ABS 434 Soil Ecology. (3)
selected semesters
Soils viewed in an ecosystem context, soil-plant relationships, nutrient budgets, and abiotic factors that influence soil processes. Lecture, lab, field trips. Prerequisites: ABS 225, 226, 370.

E ABS 435 Ecological Modeling. (3)
fall
Simulation modeling as a tool to study ecological processes and human impact on ecosystems and organisms. Lecture, lab. Prerequisites: ABS 350, 370.

E ABS 440 Ecological Restoration Techniques. (3)
fall
Techniques for ecological restoration, riparian and wetland restoration, and monitoring restoration success. Prerequisites: ABS 370, 380.

E ABS 441 Ecological Restoration Practicum. (1)
fall
Field experience in the evaluation and monitoring of implemented ecological restoration projects. Lab, field trips. Fee. Pre- or corequisite: ABS 440.

E ABS 460 Organic Gardening. (2)
fall
Applies principles and practices of organic gardening in the low desert, including environmental impacts of modern food production. 1 hour lecture, 3 hours lab. Fee. Prerequisite: ABS 260.

E ABS 462 Greenhouse/Nursery Management. (4)
spring
Greenhouse structures, environment, and nursery operations. Includes irrigation, nutrition, and other principles relative to production of nursery crops. 1 hour lecture, 3 hours lab. Fee. Prerequisite: ABS 260.

E ABS 463 Golf and Sports Turf Management. (3)
fall
Selection, establishment, and maintenance of turf grasses bred specifically for golf and sports facilities. Integrated lecture/lab. Cross-listed as PGM 463. Credit is allowed for only ABS 463 or PGM 463.

E ABS 465 Senior Enterprise Project. (3)
fall and spring
Selection and completion of an urban horticulture project with faculty advisor approval related to the field of study. Prerequisite: senior standing.

E ABS 470 Mammalogy. (3)
fall
Classification and biology of mammals, emphasizes North America. Pre- or corequisite: ABS 355.

E ABS 471 Ornithology. (3)
spring
Classification and biology of birds, emphasizing North America. Lecture, lab, field trips. Fee. Prerequisite: ABS 355.

E ABS 475 Habitat Management for Small Wildlife. (4)
fall
Habitat management considerations and practices for small game and nongame wildlife species in North America. Lecture, lab, field trips. Fee. Prerequisites: ABS 370, 376, 380.

E ABS 476 Big Game Habitat Management. (3)
spring
Habitat management considerations and practices for big game wildlife species in North America. 2 hours lecture, 3 hours lab. Prerequisites: ABS 370, 376. Pre- or corequisite: ABS 402.

E ABS 480 Ecosystem Management and Planning. (3)
selected semesters
Principles of ecosystem management, with emphasis on economic and policy constraints on the planning process. Risk assessment and management. Lecture, 1 weekend field trip. Prerequisites: both ABS 300 and senior standing or only instructor approval.
General Studies: L

E ABS 481 Riparian and Wetland Restoration. (3)
fall
Principles and problems in the restoration of degraded riparian and wetland ecosystems. Construction of wetlands. Prerequisites: ABS 433, 440.

E ABS 482 Ecology and Planning for Restoration. (3)
spring
Ecological principles and resource planning processes applied to the restoration of degraded landscapes. Prerequisites: ABS 225, 372, 440.

E ABS 483 Restoration Planning Practicum. (2)
spring
Field experience in ecological restoration techniques, selection of mitigation techniques, and implementation planning. Lab, extended field trip over spring break. Fee. Pre- or corequisite: ABS 482.

E ABS 484 Internship. (1–12)
selected semesters

E ABS 485 GIS in Natural Resources. (3)
fall
Principles of Geographic Information Systems (GIS) utilized in natural resource management. Use of computers for spatial analysis of

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L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

natural resources. Lecture, lab. Prerequisite: ABS 350 (or its equivalent).

E ABS 486 Introduction to Remote Sensing. (4)
selected semesters
Remote sensing technologies in natural resource management using computerized data from aerial photography and satellite imagery. Not for graduate credit. Lecture, lab. Prerequisite: ABS 485.

E ABS 489 Undergraduate Research. (1–3)
fall and spring
Undergraduate research under the supervision of an applied biological sciences faculty member. Prerequisite: junior or senior standing.

E ABS 490 Applied Biological Sciences Seminar. (1)
fall and spring
Current literature and significant developments related to applications of the biological sciences. May be repeated for credit. Prerequisite: junior or senior standing.

E ABS 492 Honors Directed Study. (1–6)
selected semesters

E ABS 493 Honors Thesis. (1–6)
selected semesters

E ABS 494 Special Topics. (1–4)
selected semesters

E ABS 498 Pro-Seminar. (1–7)
selected semesters

E ABS 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Faculty of Applied Psychology

www.poly.asu.edu/ecollege/appliedpsych
480/727-1177
SUTON Third Floor

Roger W. Schvaneveldt, Faculty Head

Professors: Cooke, Schvaneveldt

Assistant Professors: Becker, Gray

APPLIED PSYCHOLOGY—BS

This major offers a traditional psychology core leading to graduate school preparation and/or to applications in human factors with emphasis on human-computer interaction, aviation, or manufacturing. Although most careers in psychology require graduate training, there are some employment opportunities for BS students in applied settings. For example, there is a need for individuals who can help deal with problems of usability of products and systems. The Applied Psychology program offers courses and experiences to prepare students for these positions. The rigor of the major also provides strong preparation for further graduate study in psychology. The program serves students in other Polytechnic campus programs such as manufacturing engineering technology, aeronautical management technology, industrial technology, and business administration.

Graduation Requirements

The completion of 120 semester hours—including First-Year Composition, General Studies (see "General Studies," page 93), and major requirements—leads to the BS degree. The major allows for at least 21 semester hours of electives. The major requirements for the BS degree in Applied Psychology consist of a 28-semester-hour core of psychology courses, 12 semester hours in applied psychology, and 18 semester hours of related course work.

Core Courses. Core courses provide a general background in the basic scientific areas of psychology and provide a culminating experience to integrate the varied studies.

PGS	101	Introduction to Psychology *SB*	3
PGS	350	Social Psychology *SB*	3
PSY	230	Introduction to Statistics *CS*	3
PSY	290	Research Methods *L*/*SG*	4
PSY	323	Sensation and Perception	3
PSY	324	Memory and Cognition	3
PSY	325	Physiological Psychology	3
PSY	330	Statistical Methods *CS*	3
PSY	477	Applied Psychology Capstone Experience*	3
		or HON 493 Honors Thesis *L* (3)	
Total			28

* This PSY course is offered only by the Polytechnic campus. All other PSY courses listed above are offered by the Polytechnic and Tempe campuses.

Applied Psychology Courses. Students work with an advisor to select courses in Applied Psychology emphasizing human-computer interaction, aviation, training, manufacturing, or methods. Course work must include a minimum of four of the following courses:

PGS	304	Effective Thinking *L*	3
PGS	471	Psychological Testing	3
PSY	320	Learning and Motivation	3
PSY	360	Cognitive Science*	3
PSY	390	Experimental Psychology *L*	3
PSY	437	Human Factors *L*	3
PSY	438	Human-Computer Interaction*	3
PSY	439	Training and Skill Acquisition*	3
PSY	440	Industrial/Organizational Psychology*	3
PSY	448	Human Factors in Transportation*	3
PSY	449	Human Factors in Sport*	3
PSY	494	Special Topics	1–4

* This PSY course is offered only by the Polytechnic campus. All other PSY courses listed above are offered by the Polytechnic and Tempe campuses.

Related Course Work

BIO course with a lab			4
MAT	210	Brief Calculus *MA*	3
		or a higher MAT course (3)	
Computer skills course			3
Writing skills course			3
Courses selected in consultation with an advisor			5
Total			18

Minor in Applied Psychology

The minor in applied psychology consists of 22 semester hours with at least 12 being upper-division courses. The following are required courses that must be completed with a grade of "C" (2.00) or higher:

PGS 101 Introduction to Psychology *SB* 3
PSY 230 Introduction to Statistics *CS* 3
or equivalent statistics course
PSY 290 Research Methods *L*/*SG* 4
PSY 437 Human Factors *L* 3
or PSY 438 Human-Computer Interaction* (3)
or PSY 440 Industrial/Organizational Psychology* (3)
Additional hours of upper-division PSY and/or PGS courses 9

* This PSY course is offered only by the Polytechnic campus. All other PSY courses listed above are offered by the Polytechnic and Tempe campuses.

A maximum of three semester hours from the following courses can be used to satisfy minor requirements:

PGS 399 Supervised Research 3
PGS 499 Individualized Instruction 3
or PSY 499 Individualized Instruction (3)
PSY 492 Honors Directed Study 3

Note: A minimum of three classes (two of which are in the upper division) must be taken in residence at ASU.

For more information about program requirements and courses, call an East College advisor at 480/727-1333, or access the Web site at www.poly.asu.edu/ecollege/appliedpsych.

For PGS courses and additional PSY courses, see "Department of Psychology," page 635.

PSYCHOLOGY (SCIENCE AND MATHEMATICS) (PSY)

For more PSY courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

E PSY 360 Cognitive Science. (3)
selected semesters
Examines cognition from the varied perspectives of philosophy, linguistics, psychology, computer science (artificial intelligence), and neuroscience. Lecture, discussion. Prerequisite: PSY 324.

E PSY 438 Human-Computer Interaction. (3)
once a year
Theories, methods, and findings concerning the usability of computer systems and the design of effective user interfaces. Lecture, discussion, projects. Prerequisite: PSY 437.

E PSY 439 Training and Skill Acquisition. (3)
once a year
Theories, methods, and findings concerning the acquisition of skilled performance and the design of effective training systems. Lecture, discussion, projects. Prerequisite: PSY 437.

E PSY 440 Industrial/Organizational Psychology. (3)
once a year
Examines personnel selection, performance assessment, job and workplace design, job satisfaction, organizational behavior, management systems, and industrial safety. Lecture, discussion, projects. Prerequisite: PSY 230 (or an equivalent statistics course).

E PSY 448 Human Factors in Transportation. (3)
selected semesters
Examines human performance and human-machine design issues in aviation and ground transportation. Integrated lecture/lab. Pre- or corequisite: PSY 323.

E PSY 449 Human Factors in Sport. (3)
selected semesters
Examines how psychological principles can be applied to enhance the performance of athletes and coaches. Lecture, discussion. Pre- or corequisites: PSY 320, 323.

E PSY 477 Applied Psychology Capstone Experience. (3)
fall and spring
Applied psychology from a systems perspective. Requires a report based on research and/or applied work as a culminating experience. Lecture, discussion, projects. Prerequisite: senior standing.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Faculty of Business Administration

www.poly.asu.edu/ecollege/businessadmin
480/727-1287
SUTON Third Floor

Roger W. Hutt, Faculty Head

Professors: Daneke, Edwards, Kagan, Marquardt, Richards, Shultz, Thor

Associate Professors: Butler, Hutt, Manfredo, Patterson

Assistant Professor: Skilton

Lecturer: Watson

BUSINESS ADMINISTRATION—BS

The BS degree in Business Administration offers a survey of contemporary business disciplines and additional depth in at least three disciplines. The curriculum enables students to gain essential business competencies, knowledge of business disciplines and methods, and appreciation for contemporary business environments and cultures. Students prepare for careers in business, industry, or government, as well as for career advancement and entrepreneurial enterprises. This program operates under the umbrella of the AACSB International–accredited Tempe campus W. P. Carey School of Business, but it is offered through East College.

A total of 120 semester hours is required for graduation with a minimum of 51 semester hours of upper-division credit. As part of the undergraduate degree program, students complete the General Studies requirement (see "General Studies," page 93).

Requirements for the Business Administration major consist of 30 semester hours of lower-division core and skill courses, 22 semester hours of upper-division core courses,

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

one three-semester-hour capstone course, and 18 semester hours of approved electives. All of the upper-division business courses (with the exception of nine semester hours) must be taken at Polytechnic campus.

Business Administration Core

BUA	300	Career Management	1
FIN	300	Fundamentals of Finance	3
IBS	300	Principles of International Business *G*	3
LES	305	Legal, Ethical, and Regulatory Issues in Business	3
MGT	300	Organizational Management and Leadership	3
MKT	300	Principles of Marketing	3
SCM	300	Global Supply Operations	3
TWC	447	Business Reports *L*	3
Total			22

Capstone Course (Three Semester Hours)

MGT	440	Small Business and Entrepreneurship	3
		or BUA 440 Strategic Management (3)	

Approved Electives (18 Semester Hours)

Electives	18

Students select 18 semester hours of electives toward a goal of building upon and integrating prior and current course work. This set of courses, which must be approved by the Business Administration program head, allows students to study a subset of business problems or issues as well as focus on their career interests.

Approved electives include courses in Polytechnic campus industry-specific business programs (Aeronautical Management Technology, Agribusiness, and Technology Management).

For the latest information about application, admissions, program requirements, and courses, call East College at 480/727-1333, or access the Web site at www.poly.asu.edu/ecollege/businessadmin.

REAL ESTATE—BS

The Real Estate faculty offer a unique, integrated, one-year program designed for the student's last year of college. This innovative and award-winning program emphasizes student involvement with real estate executives on projects in the Phoenix metropolitan area. Students work in teams to develop their analytical, communication, technology, and team skills.

The program is organized around five aspects of real estate: brokerage/management, development, financing, investments, and market analysis. With broad interdisciplinary perspective, emphasis on team work, and involvement in projects, students may pursue careers in land development, investment analysis, appraisal, property management, brokerage, and mortgage finance.

Successful completion of the program satisfies the requirements of the major based on the following courses:

LES	411	Real Estate Law	3
REA	300	Real Estate Analysis	3
REA	331	Real Estate Finance	3
REA	401	Real Estate Appraisal	3
REA	441	Real Estate Land Development	3
REA	456	Real Estate Investments	3
Total			18

Minor in Small Business

The minor in small business is available to nonbusiness majors and consists of 18 semester hours, with five required courses and one approved elective. BUA 380 Small Business Leadership is a prerequisite or corequisite for other courses.

Requirements

BUA	380	Small Business Leadership	3
BUA	381	Small Business Accounting and Finance	3
BUA	382	Small Business Sales and Market Development	3
BUA	383	Small Business Working Relationships	3
BUA	384	Small Business Operations and Planning	3
Approved elective			3
Total			18

BIS Concentration in Small Business

The requirements for the small business concentration, for BIS students only, are identical to those for the minor in Small Business listed above. For BIS degree requirements, see "School of Interdisciplinary Studies," page 139.

BUSINESS ADMINISTRATION (BUA)

E BUA 300 Career Management. (1)
fall, spring, summer
Provides professional program business administration students with information on ASU business-related courses, business careers, interviewing, job hunting, and résumé skills.

E BUA 330 Organizational Leadership. (3)
fall and spring
Strategies, skills, and techniques that promote successful leadership within organizations. Practice leadership skills and self-discovery in preparation for leadership positions.

E BUA 380 Small Business Leadership. (3)
fall, spring, summer
Develops leadership skills needed to form, lead, and operate a small business. Emphasizes creating a vision, research, and problem solving. Lecture, team teaching, collaborative learning.

E BUA 381 Small Business Accounting and Finance. (3)
fall and spring
Accounting and finance skills needed by small business owners to acquire, allocate, and track monetary resources and evaluate performance. Lecture, team teaching, collaborative learning.

E BUA 382 Small Business Sales and Market Development. (3)
fall and spring
Building and maintaining customers, developing a market identity and a niche, and the importance of sales. Lecture, team teaching, collaborative learning.

E BUA 383 Small Business Working Relationships. (3)
fall and spring
Addresses communication and the people in a business—clients, employees, suppliers, competitors, governments, family, and self development. Lecture, team teaching, collaborative learning.

E BUA 384 Small Business Operations and Planning. (3)
fall and spring
Planning and executing plans—the what, when, where, how, and who from product/service/project idea to pay back or completion. Lecture, team teaching, collaborative learning.

E BUA 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Business Professional Development. (1)
- Professional Development. (1)

E BUA 440 Strategic Management. (3)
fall, spring, summer
Strategic formulation and administration of the total organization, including integrative analysis and strategic plan; interrelationship of business functional areas. Prerequisites: professional program business student; senior standing.

E BUA 441 Entrepreneurship and Feasibility. (3)
fall, spring, summer
Assessment of the opportunities, risks, and challenges associated with business start-up and continued operation. Prerequisites: completion of 100 hours; professional program business student. Pre- or corequisite: completion of all Business Administration core requirements.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

REAL ESTATE (REA)

For more REA courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

E REA Note 1. In addition to individual course prerequisites, nonbusiness students must have at least a 2.50 ASU cumulative GPA, a 2.50 ASU business GPA, and 56 earned semester hours to register for any upper-division business course unless otherwise noted.

E REA 300 Real Estate Analysis. (3)
once a year
Applies economic theory and analytical techniques to real estate markets. Topics include law, finance, appraisal, market analysis, investments, development. See REA Note 1. Prerequisite: professional program business student.

E REA 331 Real Estate Finance. (3)
once a year
Legal, market, and institutional factors related to financing proposed and existing properties. Emphasizes current financing techniques and quantitative methods. See REA Note 1. Prerequisites: FIN 300; professional program business student.

E REA 401 Real Estate Appraisal. (3)
once a year
Factors affecting the value of real estate. Theory and practice of appraising and preparation of the appraisal report. Appraisal techniques. See REA Note 1. Prerequisites: REA 300; professional program business student.

E REA 441 Real Estate Land Development. (3)
once a year
Neighborhood and city growth. Municipal planning and zoning. Development of residential, commercial, industrial, and special purpose properties. See REA Note 1. Prerequisites: REA 300; professional program business student.

E REA 456 Real Estate Investments. (3)
once a year
Analyzes investment decisions for various property types. Cash flow and rate of return analysis. See REA Note 1. Prerequisites: FIN 300; professional program business student.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Faculty of Education

www.poly.asu.edu/ecollege/education
480/727-1103
SUTON 240E

Bette S. Bergeron, Faculty Head

Professors: Bergeron, Darst

Assistant Professors: Kulinna, Marble, Smith

Clinical Assistant Professors: Gomez, Molina-Walters, White-Taylor

Senior Lecturers: Stever, Wenhart

Lecturers: Foley, Oliver, Orlowicz, Prest, Rinkol, Rome

ELEMENTARY EDUCATION—BAE

Program Overview

The Elementary Education program at the Polytechnic campus is unique in its focus on intensive field experiences, practical application of current theory, and emphasis on technology. The curriculum is also focused on and directly aligned with Arizona's standards for teachers. Courses are arranged sequentially and taken with peer cohorts in four semester-long blocks. Each semester Elementary Education students are immersed in field experiences that directly link with course discussions and assignments. Course instructors have taught in a variety of K–8 settings and can therefore augment class experiences with practical applications. Current educational technologies are incorporated into course delivery and assignments. Additionally, students have the opportunity to choose between the daytime Elementary Education program at the Polytechnic campus or one of the campus's district-based evening cohorts.

Graduation Requirements

A total of 120 semester hours is required for graduation with a minimum of 45 semester hours of upper-division credit. As part of the undergraduate degree program, students will complete ASU General Studies (see "General Studies," page 93) requirements. In addition, Elementary Education students are required to complete 18 semester hours in an academic specialization, which is tailored to an individual student's academic strengths (e.g., math, science, social studies, English). The remaining program hours, which specifically focus on the teaching profession, are outlined below. Students must first be admitted to the Polytechnic Elementary Education program before enrolling in the Professional Preparation Program courses (Blocks I–IV).

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Foundations (15 Semester Hours)*

EDP	310	Educational Psychology *SB*	3
EDP	313	Childhood and Adolescence	3
MCE	446	Understanding the Culturally Diverse Child *C*	3
MTE	180	Theory of Elementary Mathematics	3
SPE	311	Orientation to Education of Exceptional Children *SB, C*	3

* For foundation courses, see "College of Education," page 349.

Professional Preparation Program*

Block I

EDC	320	Integrated Learning Experience I: Learning Climate	2
EDC	330	Literacy I: Emerging Literacy and Phonemic Awareness	3
EDC	354	Educational Media in the Classroom	3
EDC	355	Accommodating Instruction for Diverse Learners	3
EDC	474	Field Experience	0–1

Block II

EDC	325	Integrated Learning Experience II: Instructional Design and Implementation	2
EDC	335	Literacy II: Intermediate Literacy and Phonetic Principles	3
EDC	345	Math Methods for the Elementary Classroom	3
EDC	474	Field Experience	0–1
ELL	415	Structured English Immersion (SEI) Methods	3

Block III

EDC	420	Integrated Learning Experience III: Assessment	2
EDC	430	Literacy III: Interventions	3
EDC	440	Science Methods for the Elementary Classroom	3
EDC	450	Social Studies Methods for the Elementary Classroom	3
EDC	474	Field Experience	0–1

Block IV

EDC	425	Integrated Learning Experience IV: Professional Knowledge	2
EDC	484	Student Teaching in the Elementary School	10–12

* Block courses can only be taken upon admission to the Elementary Education program.

Postbaccalaureate Program. Individuals who hold a bachelor's degree from an accredited institution are encouraged to participate in the Elementary Education program as nondegree graduate students. Postbaccalaureate students complete the same professional preparation program courses as outlined above, which are augmented by the students' unique life and work experiences.

In addition to participation in any of the four-semester undergraduate Elementary Education programs, postbaccalaureate students also have the option of an accelerated program with a master's degree option ("TEACH ME"). For more information, call 480/727-1103.

Application. Applications for the Polytechnic Elementary Education programs are due October 15 for spring admission, and April 15 for fall admission. Students eligible for admission must meet the following criteria:

1. admission to the Polytechnic campus;
2. a minimum cumulative GPA of 2.50;
3. completion of at least 56 semester hours at the time of admission (undergraduate degree-seeking students); or, completion of a bachelor's degree from an accredited institution (postbaccalaureate students); and
4. evidence of competence in written English.

Applications must include two letters of recommendation and a résumé outlining work with school-age children and/or their families. Students seeking admission to the postbaccalaureate "TEACH ME" program must also be admitted to the Division of Graduate Studies. Students should call the Polytechnic campus Teacher Education Office at 480/727-1103 for complete admission packet information and eligibility requirements.

State Certification. Students who successfully complete the undergraduate or postbaccalaureate routes to Elementary Education teacher preparation at the Polytechnic campus are recommended for K–8 certification in the State of Arizona pending the completion of all other requirements mandated by the state. These additional requirements include, but are not limited to, successful completion of all appropriate areas of the Arizona Education Proficiency Assessment and course work in the United States and Arizona constitutions. Because of the possibility that requirements for state certification may change, students are urged to maintain close contact with their education advisor.

SECONDARY EDUCATION—BAE

Physical Education. The faculty of education offer the BAE in Secondary Education with a concentration (academic specialization) in physical education. Students interested in obtaining certification to teach physical education will major in Secondary Education with a concentration in physical education. Once all state certification requirements are met, graduates are eligible to teach physical education in grades K–12.

Graduation Requirements

A total of 120 semester hours is required for graduation, with a minimum of 45 hours of upper-division credit. As part of the undergraduate degree program, students meet the General Studies requirement (see "Meeting the General Studies Requirement," page 93). Courses specific to the physical education concentration include courses in the content core (including courses offered by Exercise and Wellness), education foundations, and in the methods of teaching physical education. The program concludes with student teaching experiences in both an elementary and junior high/high school setting.

Application. Students interested in pursuing physical education/Secondary Education need to be admitted into the Education unit before taking the methods courses (usually during the junior year). The following are requirements for admission to the physical education program:

1. completion of 56 semester hours, including core content course work in physical education/exercise and wellness (the candidate should meet directly with the advisor to determine appropriate content course work that is to be completed before formal admittance);
2. an overall 2.50 GPA within the area of concentration;

3. proficiency in written English, met in one of the following ways: (*a*) GPA of 3.00 in ENG 101 and 102 (or equivalent) or (*b*) successful completion of a writing tutorial assigned by the Education unit; and
4. formal application to the Polytechnic Education program, including two letters of recommendation and current résumé; the résumé and letters should outline the candidate's experiences with children and/or their families and show proficiency in the content (i.e., physical education).

Advising Information. Students interested in the physical education program are advised through the Education unit. Students interested in the program should contact the Polytechnic Education Office to make an appointment with an advisor. Advising is required at the time a student seeks formal admission into the methods course sequence (approximately the junior year). However, students are encouraged to seek advising from Education as soon as they decide to pursue the physical education certification program.

For the latest information about application, admissions, program requirements, and courses, access the Web site at www.poly.asu.edu/ecollege/education, or call the Polytechnic campus Teacher Education Office at 480/727-1103 or the prospective student advisor at 480/727-1745.

Physical Education. Candidates for the BAE degree are required to complete course work in foundations, exercise, and wellness (content specialization), and in teacher preparation. Students must receive a grade of "C" (2.00) or higher and maintain a cumulative GPA of at least 2.50. Specific course work includes the following:

Foundations (17 Semester Hours)*

BIO	201	Human Anatomy and Physiology I *SG*	4
BIO	202	Human Anatomy and Physiology II	4
EDP	310	Educational Psychology *SB*	3
EDP	313	Childhood and Adolescence	3
SPE	311	Orientation to Education of Exceptional Children *SB, C*	3

* All foundation courses must be in progress or successfully completed with a grade of "C" (2.00) or higher at the time of application to the preparation program.

Exercise and Wellness (15 Semester Hours)*

EXW	300	Foundations of Exercise and Wellness *L/SB*	3
EXW	310	Computer Skills and Technology for Exercise and Wellness *CS*	3
EXW	315	Physiological Foundations of Movement	3
EXW	330	Kinesiological Foundations of Movement	3
EXW	450	Cultural and Social Issues in Exercise and Wellness *SB, C*	3

* At least three EXW courses must be in progress or completed at the time of application to teacher preparation.

Teacher Preparation (42–46 Semester Hours)

Block I

PPE	210	Teaching Fitness Activities for K–12 Students*	2
PPE	350	Physical Education for the Elementary School	3
PPE	474	Field Experience in Physical Education	0–1

Block II

PPE	215	Teaching Team Sports*	2
PPE	355	Physical Education in the Secondary School	3
PPE	474	Field Experience in Physical Education	0–1
RDG	301	Literacy and Instruction in the Content Areas	3

Block III

PPE	294	ST: Teaching Lifetime Activities for K–12 Students*	2
PPE	360	Adapted and Inclusive Physical Education	3
PPE	480	Professional Seminar for Physical Education	3
PPE	484	Internship: Student Teaching in Physical Education (Elementary)	6
PPE	494	ST: Motor Development	3
Physical education elective			3

Block IV

EDC	405	Classroom Management K–12	3
ELL	415	Structured English Immersion (SEI) Methods	3
PPE	294	ST: Teaching Adventure Activities for K–12 Students*	2
PPE	484	Internship: Student Teaching in Physical Education (Secondary)	6

* A minimum of six semester hours is required for teaching activity courses; these can be substituted with EXW 212.

APPLIED BIOLOGICAL SCIENCES–BS SECONDARY EDUCATION CONCENTRATION

Program Overview

Applied Biological Sciences majors can complete requirements for state certification in Secondary Biology through a concentration in applied biological sciences/secondary education. See "Applied Biological Sciences/Secondary Education Concentration," page 220. Students complete course work in the applied biological sciences core, science content courses related to secondary biology, and courses specific to the secondary education curriculum and instruction. The program concludes with full-time student teaching in secondary science classrooms.

Graduation Requirements

A total of 120 semester hours is required for graduation with a minimum of 45 hours of upper-division credit. As part of the undergraduate degree program, students meet the General Studies requirement (see "General Studies," page 93). Courses specific to the applied biological sciences/secondary education concentration are outlined below:

Applied Biological Sciences Core

ABS	300	Environmental Biology	3
ABS	301	Technology and Biology	2
ABS	302	Ethical and Policy Issues in Biology	2
ABS	350	Applied Statistics or equivalent *CS*	3
BIO	187	General Biology I *SG*	4
BIO	188	General Biology II *SQ*	4
BIO	340	General Genetics	4
MAT	210	Brief Calculus *MA*	3
Choose one course			3 or 4
ABS	311	Applied Cellular Biology (3)	

— or —

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

ABS 312 Structure and Function (4)
Choose one course ..... 3 or 4
BIO 360 Animal Physiology (3)
— *or* —
PLB 308 Plant Physiology (4)

Total 31–33

For students choosing the secondary education concentration, the following courses must be used as General Studies courses in order to graduate in 120 hours:

ABS 350 Applied Statistics *CS*[1] 3
BIO 187 General Biology I *SG* 4
BIO 188 General Biology II *SQ* 4
MAT 210 Brief Calculus *MA* 3

Applied Biological Sciences/Secondary Education Concentration

ABS 207 Applied Plant Taxonomy 3
or ABS 355 Vertebrate Zoology (4)
ABS 370 Ecology 3
ABS 490 Applied Biological Sciences Seminar 1
CHM 113 General Chemistry I *SQ* 4
CHM 116 General Chemistry II *SQ* 4
MIC 205 Microbiology *SG* [2] 3
MIC 206 Microbiology Laboratory *SG*[2] 1
PHY 101 Introduction to Physics *SQ* 4
Upper-division electives 2

Total 25–26

Secondary Education Course Work

BIO 480 Methods of Teaching Biology 3
BIO 482 Advanced Methods of Teaching Biology 3
EDC 354 Educational Media in the Classroom 3
EDC 494 ST: Professional Knowledge 2
EDP 310 Educational Psychology *SB* 3
EDP 313 Childhood and Adolescence 3
RDG 301 Literacy and Instruction in the Content Areas 3
SDE 474 Field Experience 0–1
SDE 484 Student Teaching in Secondary Schools 10–12
SED 403 Middle and Secondary School Principles, Curricula, and Methods 3
SPE 394 ST: Inclusion Practices at the Secondary Level 3

Total 36–39
Concentration total 61–65

[1] An equivalent course may be taken in place of ABS 350.
[2] Both MIC 205 and 206 must be taken to secure SG credit.

Strongly Recommended

MCE 446 Understanding the Culturally Diverse Child *C* 3
SPE 311 Orientation to Education of Exceptional Children *SB, C* 3

The Arizona Department of Education requires the following courses for certification; these courses must be completed before the Education unit can submit an Institutional Recommendation for certification:

EDC 405 Classroom Management K–12 3
ELL 415 Structured English Immersion (SEI) Methods 3

Application

Students interested in pursuing the applied biological sciences/secondary education concentration need to be admitted into the Education unit before taking the secondary methods courses (usually during the junior year). The following requirements for admission to the applied biological sciences/secondary education concentration mirror those of acceptance into other education programs at the Polytechnic campus. Requirements for entry include

1. completion of 56 semester hours;
2. a 2.50 cumulative GPA;
3. a 2.50 GPA within the major (Applied Biological Sciences);
4. proficiency in written English, met in one of the following ways: (*a*) GPA of 3.00 in ENG 101 and 102 (or equivalent) or (*b*) successful completion of a written proficiency exam; and
5. formal application to the Polytechnic campus Education program, including two letters of recommendation and current résumé; the résumé and letters should outline the candidate's experiences with adolescents and/or their families and show proficiency in the content (i.e., applied biological sciences).

Advising Information

Students interested in the applied biological sciences/secondary education concentration must participate in dual advising—in applied biological sciences and in education. Education advising is required at the time a student seeks admission to the Education unit. However, students are encouraged to seek advising from Education as soon as they decide to pursue the secondary education concentration. For more information about application, admission, program requirements, and courses, visit the Polytechnic campus Education Office, SUTON 240E, call 480/727-1103, or access the Web site at www.poly.asu.edu/ecollege/education.

EARLY CHILDHOOD EAST (EAC)

E EAC 494 Special Topics. (1–4)
selected semesters
Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.
Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

EDUCATION EAST (EDC)

E EDC 320 Integrated Learning Experience I: Learning Climate. (2)
fall and spring
Explores factors contributing to a positive and productive classroom learning environment. Interactive forum.

E EDC 325 Integrated Learning Experience II: Instructional Design and Implementation. (2)
fall and spring
Design and implementation of developmentally appropriate instruction, and the alignment of instruction with district and state academic standards. Interactive forum. Prerequisite: EDC 320.

E EDC 330 Literacy I: Emerging Literacy and Phonemic Awareness. (3)
fall and spring
Development of language from birth to age 8, and appropriate strategies for promoting growth in speaking, listening, reading, and writing. Applied inquiry. Corequisite: EDC 474.

E EDC 335 Literacy II: Intermediate Literacy and Phonetic Principles. (3)
fall and spring
Strategies for teaching literacy in intermediate elementary classrooms, the application of phonetic principles to instruction, and integrating literacy across disciplines. Applied inquiry. Prerequisite: EDC 330. Corequisite: EDC 474. Pre- or corequisite: EDC 325.

E EDC 340 Writing and the Professional Educator. (3)
fall and spring
Professional writing focused on foundational issues in education, including the culture of schooling, current social contexts, and educational law.
General Studies: L

E EDC 345 Math Methods for the Elementary Classroom. (3)
fall and spring
Developmentally appropriate practices for teaching and assessing mathematics in grades K–8. Applied inquiry. Fee. Prerequisite: MTE 180. Corequisite: EDC 474. Pre- or corequisite: EDC 325.

E EDC 350 Educational Technology I: Applications. (1)
fall and spring
Module focused on basic technological skills needed for managing classroom instruction. Lab.

E EDC 351 Educational Technology II: Instruction and Evaluation. (1)
fall and spring
Module focused on technology as an instructional medium, evaluation, and effective classroom use. Lab. Prerequisite: EDC 350.

E EDC 352 Educational Technology III: Design. (1)
fall and spring
Module focused on instructional design utilizing a variety of technologies, including multimedia. Lab. Prerequisite: EDC 351.

E EDC 354 Educational Media in the Classroom. (3)
fall and spring
Designing and implementing educational media into the K–12 curriculum. Includes instructional design, evaluation of sources, and introduction to multimedia applications. Prerequisite: acceptance into teacher preparation program.

E EDC 355 Accommodating Instruction for Diverse Learners. (3)
fall and spring
Identifying and accommodating learners with special needs, including classroom adaptations in instruction and assessment. Forum, practicum. Prerequisite: SPE 311. Corequisite: EDC 474. Pre- or corequisite: EDC 325.

E EDC 405 Classroom Management K–12. (3)
fall, spring, summer
Strategies for effective classroom management in K–12 schools. Includes models, application, and evaluation of a variety of management systems. Prerequisite: admittance to a teacher education program or instructor approval.

E EDC 420 Integrated Learning Experience III: Assessment. (2)
fall and spring
Principles related to classroom assessment, including the alignment of assessment to curriculum, test interpretation, and a variety of assessment techniques. Interactive forum. Prerequisite: EDC 325.

E EDC 425 Integrated Learning Experience IV: Professional Knowledge. (2)
fall and spring
Explores issues related to professional knowledge, including interdisciplinary instruction and the impact of the community on students' learning. Interactive forum. Prerequisite: EDC 420. Corequisite: EDC 484.

E EDC 430 Literacy III: Interventions. (3)
fall and spring
Strategies for accommodating students struggling with learning, with a focus on the areas of literacy acquisition and assessment. Forum, practicum. Prerequisites: EDC 335, 355. Corequisite: EDC 474. Pre- or corequisite: EDC 420.

E EDC 440 Science Methods for the Elementary Classroom. (3)
fall and spring
Developmentally appropriate practices for teaching and assessing sciences in grades K–8. Applied inquiry. Fee. Prerequisites: EDC 325, 345. Corequisite: EDC 474. Pre- or corequisite: EDC 420.

E EDC 450 Social Studies Methods for the Elementary Classroom. (3)
fall and spring
Developmentally appropriate practices for teaching and assessing social studies in grades K–8. Applied inquiry. Prerequisites: EDC 325, 335. Corequisite: EDC 474. Pre- or corequisite: EDC 420.

E EDC 455 Diverse Learners in the K–8 Classroom. (3)
fall, spring, summer
Identifies and implements instructional practices for students with diverse needs in the elementary classroom. Laws related to special populations. Interactive forum. Prerequisite: approval of the East Education Office.

E EDC 460 Principles of Curriculum and Instruction in the K–8 Classroom. (3)
fall, spring, summer
Current research and practices related to the K–8 curriculum, including application of motivation and learning theories, lesson development, and assessment. Interactive forum. Prerequisite: approval of the East Education Office.

E EDC 465 Literacy Instruction in the K–8 Classroom. (3)
fall, spring, summer
Principles of a developmentally appropriate elementary literacy curriculum and related instructional practices. Encompasses reading, language arts, writing, and oral expression. Interactive forum. Prerequisite: approval of the East Education Office. Corequisite: EDC 474.

E EDC 474 Field Experience. (0–1)
fall and spring
Applies course content in a K–8 school. Emphasizes observation, classroom management, planning and delivery of instruction, and assessment. Practicum. Fee. Corequisite: all methods courses in the teacher preparation program must be taken with Field Experience.

E EDC 475 Social Studies Instruction in the K–8 Classroom. (3)
fall, spring, summer
Principles of a developmentally appropriate social studies curricula and related instructional practices. Emphasizes cultural diversity and implications of a global society. Interactive forum. Prerequisite: approval of the East Education Office.

E EDC 480 Theory of Mathematics and Science Instruction. (3)
fall, spring, summer
Examines theoretical and conceptual frameworks of elementary mathematics and science instruction. Emphasizes academic content standards and prerequisite knowledge. Fee. Prerequisite: approval of the East Education Office.

E EDC 484 Student Teaching in the Elementary School. (10–12)
fall and spring
Supervised teaching in the area of specialization. Capstone internship in curriculum, instruction, and classroom management. Internship. Fee. Prerequisites: 2.50 GPA; completion of professional course sequence; approval of the East Education Office. Corequisite: EDC 425.

E EDC 485 Science Instruction in the K–8 Classroom. (3)
fall, spring, summer
Principles of a developmentally appropriate science curricula and related instructional practices, with an emphasis on learner-centered methodologies. Fee. Prerequisites: EDC 480 (or instructor approval); approval of the East Education Office. Corequisite: EDC 474.

E EDC 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Professional Knowledge

E EDC 495 Mathematics Instruction in the K–8 Classroom. (3)
fall, spring, summer
Principles of a developmentally appropriate mathematics curricula and related instructional practices, including a range of learning theories and their application. Fee. Prerequisites: EDC 480 (or instructor approval); approval of the East Education Office. Corequisite: EDC 474.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

ENGLISH AS A SECOND LANGUAGE (ELL)

E ELL 405 Language Minority Education. (3)
fall, spring, summer
Historical, philosophical, theoretical, pedagogical, and legal foundations of language minority education in the United States. Credit is allowed for only ELL 405 or 505.

E ELL 410 Linguistics: First - and Second-Language Acquisition and Use. (3)
fall, spring, summer
Examines current theories of first- and second-language acquisition and use and their application to ELL pedagogical contexts. Credit is allowed for only ELL 410 or 510.

E ELL 415 Structured English Immersion (SEI) Methods. (3)
fall, spring, summer
Prepares preservice teachers for linguistically diverse classrooms in which there are English Language Learners (ELLs) learning through Structured English Immersion (SEI) methodology. Focuses primarily on SEI strategies. Credit is allowed for only ELL 415 or 515.

E ELL 416 Advanced SEI Methods for ELLs. (3)
fall, spring, summer
More fully prepares teachers for linguistically diverse classrooms in which there are students learning through SEI methodology. Credit is allowed for only ELL 416 or 516. Prerequisite with a grade of "C" or higher: ELL 415.

E ELL 420 Literacy Methods for English Language Learners (ELLs). (3)
fall, spring, summer
Teaching reading and writing to English Language Learners (ELLs) with emphasis on integrated curriculum and literature-based instruction. Credit is allowed for only ELL 420 or 520.

E ELL 425 Assessment and Evaluation for English Language Learners (ELLs). (3)
fall, spring, summer
Discusses assessment methods for English Language Learners (ELLs) in the K–12 classroom through psychometric and sociocultural models of assessment. Credit is allowed for only ELL 425 or 525.

E ELL 430 Community and Parental Involvement in Language Minority Education. (3)
fall, spring, summer
Introduction to home-school collaboration using historical, educational, psychological, ethnic-social diversity, and sociological perspectives.

E ELL 445 Practicum with English Language Learners (ELLs). (3)
fall, spring, summer
Pairs students seeking a full ESL endorsement with full ESL-endorsed classroom teachers. Addresses areas including second language acquisition and development, assessment, and pedagogy. Practicum.

E ELL 484 Internship. (1–12)
selected semesters

E ELL 494 Special Topics. (1–4)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

INSTRUCTIONAL MEDIA (IMD)

E IMD 494 Special Topics. (1–4)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

PHYSICAL EDUCATION EAST (PPE)

E PPE 210 Teaching Fitness Activities for K–12 Students. (2)
fall, spring, summer
Practical application of biomechanical, physiological, psychological, and learning principles in the analysis of skill acquisition and performance. Integrated lecture/lab. Fee.

E PPE 215 Teaching Team Sports. (2)
fall, spring, summer
Practical application of biomechanical, physiological, psychological, and learning principles in the analysis of skill acquisition and performance. Integrated lecture/lab. Fee.

E PPE 294 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Teaching Adventure Activities for K–12 Students
- Teaching Lifetime Activities for K–12 Students

E PPE 350 Physical Education for the Elementary School. (3)
fall and spring
Scope and values of physical in elementary schools. Methods, materials, and practices in teaching for primary through upper grades. Integrated lecture/lab. Fee. Credit is allowed for only PPE 350 or 550. Prerequisite: field experience or instructor approval.

E PPE 355 Physical Education in the Secondary School. (3)
fall and spring
Current trends and theories such as elective programs, coed classes, legal issues, contract teaching, curriculum, and administration. Integrated lecture/lab. Fee. Credit is allowed for only PPE 355 or 555. Prerequisite: field experience or instructor approval.

E PPE 360 Adapted and Inclusive Physical Education. (3)
fall, spring, summer
Teaching individuals with disabilities physical skills and activities. Integrated lecture/lab. Credit is allowed for only PPE 360 or 560. Prerequisite: SPE 311 (or its equivalent).

E PPE 365 Teaching Physical Activity Concepts. (3)
fall, spring, summer
Teaching physical activity concepts in PE settings. Analyzes and critiques state and national physical education standards. Integrated lecture/lab. Credit is allowed for only PPE 365 or 565. Prerequisites: ENG 101, 102; EXW 300 (or its equivalent).

E PPE 370 Research on Teacher Education in Physical Education. (3)
fall, spring, summer
Discusses current research on teacher education across fields, with an emphasis on physical education pedagogy. Integrated lecture/lab. Credit is allowed for only PPE 370 or 570. Prerequisites: ENG 101, 102; EXW 300 (or its equivalent).

E PPE 375 Coaching Methods for Youth Sports. (3)
fall, spring, summer
Scope and values of coaching K–12. Methods, materials, and practice in coaching philosophy. Best practices and activities for grades K–12. Integrated lecture/lab. Credit is allowed for only PPE 375 or 575. Prerequisite: instructor approval.

E PPE 474 Field Experience in Physical Education. (0–1)
fall and spring
Analyzes course content in an elementary/secondary school setting. Emphasizes observation, pupil management, planning and delivering instruction and assessment. Practicum. Fee. Corequisite: PPE 350 or 355 or instructor approval.

E PPE 480 Professional Seminar for Physical Education. (3)
fall and spring
Methods of instruction, organization, and presentation of appropriate content in elementary and secondary physical education. Integrated lecture/lab. Prerequisites: PPE 350, 355. Corequisite: PPE 484.

E PPE 484 Internship. (1–12)
fall and spring
Practice of teaching. Relationship of practice and theory in teaching physical education. Internship. Fee. Prerequisites: PPE 350, 355. Corequisite: PPE 480.

E PPE 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Motor Development

E PPE 495 Research on Teaching in Physical Education. (3)
fall, spring, summer
Contemporary research and theory on teaching across fields with an emphasis on physical education pedagogy; provides a practical research experience. Integrated lecture/lab. Prerequisite: EXW 300 (or its equivalent).

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

SCIENCE EDUCATION (SCI)

E SCI 294 Special Topics. (1–4)
selected semesters

E SCI 484 Internship. (1–12)
selected semesters

E SCI 494 Special Topics. (1–4)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

SECONDARY EDUCATION EAST (SDE)

E SDE 194 Special Topics. (1–4)
selected semesters

E SDE 294 Special Topics. (1–4)
selected semesters

E SDE 394 Special Topics. (1–4)
selected semesters

E SDE 484 Internship. (1–12)
selected semesters
Topics may include the following:
- Student Teaching in Secondary Schools (10–12)

E SDE 494 Special Topics. (1–4)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

SPECIAL EDUCATION EAST (SPC)

E SPC 294 Special Topics. (1–4)
selected semesters

E SPC 484 Internship. (1–12)
selected semesters

E SPC 494 Special Topics. (1–4)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Exercise and Wellness

www.poly.asu.edu/ecollege/wellness
480/727-1945
EAW 109

William J. Stone, Chair

Professor: Stone

Associate Professors: Swan, Tudor-Locke

Assistant Professor: Adams

Senior Lecturer: Woodruff

Lecturer: Sebren

EXERCISE AND WELLNESS—BS

The BS degree in Exercise and Wellness offers two concentrations: (1) exercise and wellness and (2) health promotion. Exercise and Wellness students study physical activity and healthy lifestyles as they relate and contribute to optimal health and wellness. The exercise and wellness concentration is designed to prepare professionals and scholars in exercise and physical activity leadership as well as in wellness education. Areas of study include the kinesiological and physiological foundations of physical activity, exercise testing and prescription, as well as nutrition, stress management, social/cultural issues, and factors involved in health behavior change. The health promotion concentration is designed to prepare professionals and scholars in health and wellness promotion and disease prevention and management. Areas of study include epidemiology, health behavior change, prevention of chronic disease, program development and evaluation, as well as nutrition, stress management, social/cultural issues, and substance abuse. Students in both concentrations are exposed to the latest research and practice designed to enhance fitness, wellness, and healthy living, including both laboratory and field experiences. A unique aspect of both degree options in the Exercise and Wellness program is an outstanding internship program that provides preprofessional experience in all segments of fitness, wellness, health promotion, and the

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

allied health professions in metropolitan Phoenix or elsewhere in the country.

Career opportunities range broadly across the several sectors of the industry related to fitness, wellness, health promotion, and the health professions. Those settings include worksite/corporate, clinical/medical, community/educational, and the private/commercial sector. The degree is also ideal preparation for advanced study in health professions such as cardiopulmonary rehabilitation, physical therapy, and athletic training, as well as graduate study in exercise and wellness and public health.

Graduation Requirements

A total of 120 semester hours is required for graduation with a minimum of 45 semester hours of upper-division credit. As part of the undergraduate degree program, students complete ASU General Studies requirements. For a list of courses that meet ASU General Studies requirements, see "General Studies," page 93.

Exercise and Wellness students are required to complete the following courses:

Required Core Courses

EXW	300	Foundations of Exercise and Wellness *L*/*SB* 3
EXW	310	Computer Skills and Technology for Exercise and Wellness *CS* 3
EXW	320	Program Development and Leadership 3
EXW	342	Health Behavior Change 3
EXW	400	Stress Management for Wellness 3
EXW	450	Cultural and Social Issues in Exercise and Wellness *SB*, *C* 3
EXW	484	Exercise and Wellness Internship 6
NTR	241	Human Nutrition 3
Total		 27

Each EXW core course has specific prerequisite courses that must be taken before taking the respective core course. These prerequisite courses include the following:

BIO	201	Human Anatomy and Physiology I *SG* 4
BIO	202	Human Anatomy and Physiology II 4
CHM	101	Introductory Chemistry *SQ* 4
		or any equivalent chemistry course
COM	225	Public Speaking *L* 3
PGS	101	Introduction to Psychology *SB* 3
Total		 18

Exercise and Wellness Concentration. The following EXW courses are required of all students in the exercise and wellness concentration:

EXW	212	Instructional Competency Laboratory 6
EXW	315	Physiological Foundations of Movement 3
EXW	330	Kinesiological Foundations of Movement 3
EXW	420	Exercise Testing 3
EXW	425	Exercise Prescription 3
Elective*		 3
Total		 21

* Three semester hours must be selected from an approved list of concentration electives.

Health Promotion Concentration. The following EXW courses are required of all students in the health promotion concentration:

EXW	325	Fitness for Life 3
EXW	346	Health Promotion and Program Evaluation 3
EXW	350	Substance Abuse and Addictive Behavior 3
EXW	442	Physical Activity in Health and Disease *L* 3
EXW	444	Epidemiology 3
Elective*		 6
Total		 21

* Six semester hours must be selected from an approved list of concentration electives.

WELLNESS FOUNDATIONS MINOR

The minor in Wellness Foundations is appropriate for students in the BIS degree program. It consists of the following plus all prerequisite courses:

EXW	300	Foundations of Exercise and Wellness *L*/*SB* 3
EXW	325	Fitness for Life 3
EXW	342	Health Behavior Change 3
EXW	450	Cultural and Social Issues in Exercise and Wellness *SB*, *C* 3
EXW electives*		 6
Total		 18

* Six semester hours must be selected from an approved list of EXW electives. See an advisor for a list of approved electives.

BIS CONCENTRATION

A concentration in wellness foundations is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

APPLIED SCIENCE—BAS

The Bachelor of Applied Science (BAS) degree is a capstone degree for the Associate of Applied Science (AAS) degree. The BAS degree exposes students to advanced concepts and diverse critical thinking skills to prepare them for future career opportunities and professional advancement.

Admission

Admission to the BAS degree program is restricted to students holding an AAS degree from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and 2.50 for nonresident applicants.

BAS Degree Graduation Requirements

The BAS degree program consists of 60 semester hours of upper-division courses, with 30 semester hours in residence. An overall GPA of 2.00 or higher is required.

AAS degree	60
Assignable credit	5
BAS core	15
Concentration	21

General Studies	19
Total	120

General Studies Curriculum. The BAS curriculum builds on the general education content of the AAS degree. Additional General Studies courses are taken in the core or concentration. General Studies courses focus on contextual learning.

L	3
MA	3
HU	3
HU or SB	3
SB	3
SG	4
Total	19

Assignable Credit. Assignable credit allows space in the curriculum for an internship requirement.

BAS Core

EXW	300 Foundations of Exercise and Wellness *L*/*SB*	3
EXW	310 Computer Skills and Technology for Exercise and Wellness *CS*	3
EXW	320 Program Development and Leadership	3
EXW	325 Fitness for Life	3
EXW	346 Health Promotion and Program Evaluation	3
Total		15

Wellness Concentration. The wellness concentration is designed to prepare professionals in the area of wellness promotion and disease prevention and management.

Wellness Concentration

EXW	342 Health Behavior Change	3
EXW	350 Substance Abuse and Addictive Behavior	3
EXW	400 Stress Management for Wellness	3
EXW	442 Physical Activity in Health and Disease *L*	3
EXW	444 Epidemiology	3
EXW	450 Cultural and Social Issues in Exercise and Wellness *SB, C*	3
EXW	300- or 400-level elective	3
Total		21

CERTIFICATE IN SPA MANAGEMENT

The Spa Management Certificate program is a nondegree, 34-semester-hour program designed to prepare students for careers in spa administration. The program was designed and implemented in response to a rapidly growing spa industry, which has identified a real need for more directors, assistant directors, and supervisors, and for management candidates with formal education and training in spa administration. The required courses meet a comprehensive list of core competencies identified by the spa industry and an advisory committee of spa directors. This certificate is recognized by the International Spa Association, and it significantly enhances a graduate's opportunity for placement and advancement within the industry.

Admission to the certificate program is based on a rubric that includes higher education credits, GPA, work experience, résumé, references, and a letter of intent.

Required Courses

BUA	330 Organizational Leadership	3
BUA	381 Small Business Accounting and Finance	3
BUA	382 Small Business Sales and Market Development	3
BUA	383 Small Business Working Relationships	3
EXW	325 Fitness for Life	3
EXW	400 Stress Management for Wellness	3
EXW	484 Exercise and Wellness Internship	6
EXW	498 Pro Seminar: Spa Management I	2
HHS	300 Overview of Complementary Health Systems	3
NTR	345 Development of Healthy Cuisines	3
WED	165 Overview of Massage Therapy*	2
Total		34

* This course is offered through Chandler-Gilbert Community College.

Students must receive a grade of "C" (2.00) or higher in every course to earn the certificate. Any course in which a student fails to earn a "C" (2.00) or higher must be repeated.

GRADUATE PROGRAMS

The faculty offer programs leading to the MS degree in Exercise and Wellness. The department also participates with the Division of Graduate Studies and College of Education in the program leading to the PhD degree in Curriculum and Instruction with a concentration in exercise and wellness. See the *Graduate Catalog* for requirements.

EXERCISE AND WELLNESS (EXW)

E EXW Note 1. A $5.00 towel and locker fee is required each semester by students using towel and locker facilities for physical activity courses.

E EXW Note 2. Physical activity instruction courses (EXW 105, 205, 305) may not be taken for audit. Excessive absences and/or tardiness are considered disruptive behavior.

E EXW 100 Introduction to Health and Wellness. (3)
fall and spring
Current concepts in health, exercise, and wellness. Emphasis placed on personal health, theories, attitudes, beliefs, and behaviors. Cross-listed as HES 100/KIN 100. Credit is allowed only for EXW 100 or HES 100 or KIN 100.
General Studies: SB

E EXW 105 Physical Activity Instruction: Beginning. (1)
fall, spring, summer
Beginning instruction in a variety of physical activities such as aerobics, aquatics, racquet sports, physical conditioning, and golf. "Y" grade only. May be repeated for credit. 2 hours per week. Activity. Fee. See EXW Notes 1, 2.

E EXW 205 Physical Activity Instruction: Intermediate. (1)
fall, spring, summer
Intermediate-level instruction in a variety of physical activities. Continuation of EXW 105. "Y" grade only. May be repeated for credit. 2 hours per week. Activity. Fee. See EXW Notes 1, 2.

E EXW 212 Instructional Competency Laboratory. (2)
fall, spring, summer
Methods of instructing and leading fitness activities, including aerobic, resistance, and flexibility activities. May be repeated for credit. Integrated lecture lab. See EXW Note 1. Prerequisite: Exercise and Wellness major.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

E EXW 215 Physical Activity and Healthy Lifestyles. (1)
fall, spring, summer
Applies principles of physical activity to personal fitness testing and program planning for people of all ages. Telecampus course. Not open to Exercise and Wellness majors or to students who have credit for EXW 325.

E EXW 300 Foundations of Exercise and Wellness. (3)
fall, spring, summer
Analyzes research in various disciplines that contribute to health promotion and wellness.
General Studies: L/SB

E EXW 301 Concepts of Fitness and Wellness. (1)
fall, spring, summer
Guidelines for achieving health benefits of physical activity and other healthy lifestyles. Telecampus course. Not open to Exercise and Wellness majors or to students who have credit for EXW 325.

E EXW 302 Fundamentals of Wellness. (3)
fall and spring
Overview of fundamental health, exercise and wellness concepts. Emphasizes personal wellness assessment and application. Prerequisites: ENG 101, 105 (or 107).

E EXW 305 Physical Activity Instruction: Advanced. (1)
fall and spring
Advanced-level instruction in a variety of physical activities. Continuation of EXW 105. May be repeated for credit. "Y" grade only. 2 hours per week. Activity. Fee. See EXW Notes 1, 2.

E EXW 310 Computer Skills and Technology for Exercise and Wellness. (3)
fall, spring, summer
Applies computer technology to principles of social marketing, tailored communication, e-heath consumerism, and statistical analysis. Integrated lecture/lab. Prerequisite: MAT 142.
General Studies: CS

E EXW 311 Special Populations in Exercise and Wellness. (3)
fall
Introduces the challenged population and surveys the agencies that work with special populations.

E EXW 315 Physiological Foundations of Movement. (3)
fall and spring
Studies human movement with emphasis on physiological function of the body in response to physical activity and fitness training. Lecture, lab. Fee. Prerequisites: BIO 201, 202.

E EXW 320 Program Development and Leadership. (3)
fall and spring
Principles of planning, organizing, promoting, and leading fitness and wellness programs. Prerequisites: COM 225; Exercise and Wellness major.

E EXW 325 Fitness for Life. (3)
fall, spring, summer
Physical fitness and benefits of exercise with emphasis on self-evaluation and personalized program planning for a lifetime. Not open to students who have credit for EXW 215 or 301.

E EXW 330 Kinesiological Foundations of Movement. (3)
fall and spring
Studies and considers human movement with emphasis on kinesiology principles and their application to movement and fitness. Lecture, lab. Prerequisites: BIO 201, 202.

E EXW 342 Health Behavior Change. (3)
fall, spring, summer
Examines major theories of health behavioral change. Develops intervention strategies and techniques employed to facilitate health behavioral change. Prerequisite: PGS 101.

E EXW 346 Health Promotion and Program Evaluation. (3)
spring
Introduces and applies theory-based concepts and methods of health promotion and program evaluation. Lecture, online study. Prerequisite: EXW 342. Pre- or corequisites: EXW 300, 310.

E EXW 350 Substance Abuse and Addictive Behavior. (3)
spring
Studies addictive substances, their pharmacology and effects. Psychosocial risk factors for, and consequences of, substance abuse. Lecture, discussion, individual and group study.

E EXW 380 Body Image and Wellness. (3)
fall and spring
Explores body image in American culture from physical, psychological, historical, and societal perspectives. Prerequisites: NTR 241; PGS 101.

E EXW 400 Stress Management for Wellness. (3)
fall, spring, summer
Examines the stress response and management from a behavioral perspective as it pertains to individuals or groups. Prerequisite: PGS 101.

E EXW 420 Exercise Testing. (3)
fall and spring
Theoretical basis and practical application of pre-exercise screening, exercise testing, estimates of energy expenditure, and interpretation of results. Lecture, lab. Fee. Prerequisites: EXW 315; current CPR certification.

E EXW 425 Exercise Prescription. (3)
fall and spring
Theoretical basis for and application of general principles of exercise prescription to various ages, fitness levels, and health states. Prerequisites: EXW 320, 330. Pre- or corequisite: EXW 420.

E EXW 442 Physical Activity in Health and Disease. (3)
spring
Examines the role of physical activity and fitness in the development of morbidity and mortality throughout the human life span. Prerequisite: EXW 315.
General Studies: L

E EXW 444 Epidemiology. (3)
fall
Introduces epidemiological concepts and research literature, including physical activity, nutrition, tobacco, alcohol, injury prevention, and safe sex. Prerequisites: EXW 300, 310, 320. Pre- or corequisites: EXW 325, 350.

E EXW 450 Cultural and Social Issues in Exercise and Wellness. (3)
fall and spring
Examines contemporary sociocultural issues and social determinants of health and physical activity. Focuses on health disparities, obesity, and social stressors. Prerequisites: EXW 300; PGS 101.
General Studies: SB, C

E EXW 460 Resistance Training Application and Theory. (3)
fall
Fosters critical thinking as it applies to resistance training theory. Pre- or corequisite: EXW 315.

E EXW 484 Exercise and Wellness Internship. (6)
fall, spring, summer
Supervised practicum experience in approved exercise and wellness/health promotion agencies. Field work. Prerequisites: EXW 315, 320, 420. Pre- or corequisite: EXW 425.

E EXW 498 Pro-Seminar. (1–7)
selected semesters
Topics may include the following:

- Spa Management I. (2)
  fall and spring
  Provides an overview of the spa industry, programs and services typically found in different types of spas, operational systems and procedures, spa equipment and facility issues, financial issues, human resource issues, marketing for spas, computer software for spa operations, and other key administrative competencies specific to the spa industry.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Faculty of Human Health Studies

www.poly.asu.edu/ecollege/humanhealth
480/727-1333
WANER Third Floor

William L. Mermis, Faculty Head

HUMAN HEALTH STUDIES—BA AND BS

The baccalaureate degrees in human health studies examine the multiple dimensions of human health, including psychological, social, biological, spiritual, economic, and emotional dimensions. Different perspectives on health and health care are examined as well as how those perspectives influence changes in belief structures and behavior. Students engage in a critical examination of the alternative approaches to health care and health promotion.

The degrees in human health studies provide students with the general knowledge and intellectual competencies to pursue many different careers and graduate studies in human services or health professions. Students planning to seek admission to medical school or other postbaccalaureate practitioner training that requires an extensive background in mathematics and science benefit from the BS program.

Graduation Requirements

To graduate with either a BA or a BS in Human Health Studies, students must complete a minimum of 120 semester hours (45 upper–division hours), including the university General Studies requirements. Both the BA and BS degree programs require 45 semester hours of major requirements consisting of a 15-semester-hour core of Human Health Studies courses, a 12-semester-hour concentration, and 18 semester hours of related course work.

The difference between the BA and BS programs lies in the mathematics and science requirements. Both BA and BS students must take one semester of general biology with a lab and two semesters of human anatomy and physiology with labs. The BS program requires additional mathematics courses (through brief calculus) and the following science courses:

CHM 113 General Chemistry I *SQ* 4
CHM 116 General Chemistry II *SQ* 4
CHM 233 General Organic Chemistry I 3
CHM 234 General Organic Chemistry II 3
CHM 237 General Organic Chemistry Laboratory I 1
CHM 238 General Organic Chemistry Laboratory II 1
PHY 111 General Physics *SQ** 3
PHY 112 General Physics *SQ** 3
PHY 113 General Physics Laboratory *SQ** 1
PHY 114 General Physics Laboratory *SQ** 1

* Both PHY 111 and 113 or 112 and 114 must be taken to secure SQ credit.

HUMAN HEALTH STUDIES (HHS)

E HHS 100 Introduction to Holistic Health. (3)
selected semesters
Studies holistic health in a bio-psycho-socio-cultural context for health promotion and wellness.

E HHS 194 Special Topics. (1–4)
selected semesters

E HHS 294 Special Topics. (1–4)
selected semesters

E HHS 300 Overview of Complementary Health Systems. (3)
selected semesters
Identifies and describes major approaches to complementary health models in the context of holistic health. Prerequisite: HHS 100.

E HHS 302 Evidence-Based Complementary Health Modalities. (3)
selected semesters
Investigates complementary practices in the context of scholarly knowledge and standards for health care. Prerequisite: HHS 100.

E HHS 394 Special Topics. (1–4)
selected semesters

E HHS 400 Community-Based Complementary Health Services. (3)
selected semesters
Examines recent developments in community-based health and human services from a holistic perspective. Lecture, service learning. Prerequisite: HHS 100.

E HHS 402 Work, Health, and the Family. (3)
selected semesters
Examines issues and programs in the contemporary workplace and society. Future directions for the family and its health.

E HHS 403 Community Mental Health and Human Services. (3)
selected semesters
Examines concepts, issues, and programs in community mental health and the delivery of human services.

E HHS 405 Seminar in Holistic Health. (3)
selected semesters
Integrates concepts and issues in holistic health within philosophical, historical, political, economic, and cultural frameworks. Prerequisite: HHS 100.

E HHS 494 Special Topics. (1–4)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Faculty of Multimedia Writing and Technical Communication

www.poly.asu.edu/ecollege/multimedia
480/727-1287
SUTON Third Floor

Barry M. Maid, Faculty Head

Professor: Maid

Associate Professor: Stone

Lecturer: D'Angelo

MULTIMEDIA WRITING AND TECHNICAL COMMUNICATION—BS

In the Multimedia Writing and Technical Communication program, students learn how to produce, design, and manage information using traditional and leading edge technologies. Students

1. learn to communicate, orally and in writing, across audiences and cultures;
2. become aware of issues of ethics in technical communications;
3. gain an awareness of the global nature of technical communication—culturally and economically—and develop the ability to evaluate print, oral, and electronic sources;
4. gain an understanding of appropriate technical genres and learn to demonstrate technical editing skills in all work; and
5. become able to incorporate appropriate visual elements and design in written documents and oral presentations and to work in appropriate media.

The program serves students who wish to pursue careers as technical writers, technical editors, Web page and intranet page designers, multimedia designers, desktop publishers, publications managers, and information designers.

GRADUATION REQUIREMENTS

To graduate with a BS degree in Multimedia Writing and Technical Communication, students must complete a minimum of 120 semester hours, including university graduation requirements and the requirements of the major.

Multimedia Writing and Technical Communication Core

TWC	301 General Principles of Multimedia Writing *L*	3
TWC	401 Principles of Technical Communication *L*	3
TWC	411 Principles of Visual Communication *L*	3
TWC	421 Principles of Writing with Technology *L*	3
TWC	431 Principles of Technical Editing *L*	3
TWC	490 Capstone	3
Total		18

Major Electives. Fifteen semester hours are considered electives in the major (TWC). At least six of which need to be in genre courses, such as TWC 443 Proposal Writing or TWC 447 Business Reports. An Internship (TWC 484) or supervised work experience is strongly recommended.

For information about program requirements and courses, access the Web at www.poly.asu.edu/ecollege, or call an East College advisor at 480/727-1333.

Related Area. Students select a related area consisting of 12 semester hours of study in one other discipline. At least nine of these 12 semester hours must be in the upper division. Suggested disciplines might be, but are not limited to, applied psychology, business administration, or computer graphics. Students, with the help of an advisor, may also develop a coherent interdisciplinary related area.

BACHELOR OF APPLIED SCIENCE—BAS

A Bachelor of Applied Science is also offered with a concentration in multimedia writing and technical communication. The BAS degree is a "capstone" degree for the Associate of Applied Science degree. The BAS degree exposes students to advanced concepts and diverse critical thinking skills that prepare them for future career opportunities and professional advancement.

Admission. Admission to the BAS degree program is restricted to students holding an AAS degree or equivalent from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and a 2.50 for nonresident applicants.

Degree Requirements. In addition to the AAS degree, the BAS in Applied Science through East College consists of 60 semester hours of upper-division (300-level and above) courses, with 30 semester hours in residence.

Assignable credit	6
BAS core	15
General Studies	19
MWTC concentration	20
Total	60

General Studies Curriculum. The BAS curriculum builds on the general education content of the AAS degree. Additional General Studies (L, CS, and awareness areas) are met with courses in the core or concentration. General Studies courses focus on contextual learning.

L	3
MA	3
HU	3
HU or SB	3
SB	3
SG	4
Total	19

Assignable Credit. Assignable credit offers students the flexibility within the curriculum to take the prerequisite courses needed for success. The courses (six semester hours) are determined by the student and an advisor.

BAS Core. The area core (15 semester hours) is focused on management and organization, professional communication, qualitative analysis, and computer competency.

Multimedia Writing and Technical Communication Concentration. In consultation with an advisor, students select 20 semester hours of upper-division TWC courses.

CERTIFICATE PROGRAMS

An undergraduate Multimedia Writing and Technical Communication Certificate is available and requires 18 semester hours.

For students who have already completed a baccalaureate degree, a Postbaccalaureate Certificate in Multimedia Writing and Technical Communication is available that also requires 18 semester hours.

Postbaccalaureate Certificate in Multimedia Writing and Technical Communication. The postbaccalaureate certificate in Multimedia Writing and Technical Communication requires the following courses:

TWC 501 Principles of Technical Communication	3
Two of the following courses	6
TWC 511 Principles of Visual Communication (3)	
TWC 521 Principles of Writing with Technology (3)	
TWC 531 Principles of Technical Editing (3)	
Three 500-level TWC courses at least two of which must be genre courses, such as TWC 543 Proposal Writing or TWC 547 Business Reports	9
Total	18

For more information about both certificate programs, call an East College advisor at 480/727-1333, or access the Web site at www.poly.asu.edu/ecollege/multimedia.

BIS CONCENTRATION

A concentration in multimedia writing and technical communication is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

MULTIMEDIA WRITING AND TECHNICAL COMMUNICATION (TWC)

E TWC 194 Special Topics. (1–4)
selected semesters

E TWC 200 Impact of Communications Technology on Society. (3)
fall and spring
Organizational issues and development of technical communication. Activities include research, evaluations, and presentation of oral arguments in support of positions. Prerequisites: both ENG 101 and 102 or only ENG 105.
General Studies: L

E TWC 301 General Principles of Multimedia Writing. (3)
fall and spring
Introduces writing in a variety of media, understanding the consequences of integrating media, and effective editing techniques. Prerequisite: First-Year Composition.
General Studies: L

E TWC 351 Technical Writing and Editing. (3)
fall and spring
Effective style, format, and organization of technical material; editing principles and practices; copyediting versus substantive editing; and document management. Prerequisite: ENG 102.

E TWC 400 Technical Communications. (3)
fall, spring, summer
Planning and preparing technical publications and oral presentations based on directed library research related to current technical topics. Prerequisites: completion of first-year English requirements; a General Studies L course; senior standing with a major in College of Technology and Applied Sciences.
General Studies: L

E TWC 401 Principles of Technical Communication. (3)
fall and spring
Basic information design principles to produce effective written, oral, and electronic technical communication. Understanding of rhetorical and audience analysis. Pre- or corequisite: TWC 301.
General Studies: L

E TWC 403 Writing for Professional Publication. (3)
selected semesters
Analyzes the market and examines the publication process, including the roles of the author, editor, and reviewer. Pre- or corequisite: TWC 401.

E TWC 411 Principles of Visual Communication. (3)
fall and spring
Basic principles of visual communication in print and electronic media. Understanding graphic and document design, including typography and color. Pre- or corequisite: TWC 401.
General Studies: L

E TWC 421 Principles of Writing with Technology. (3)
fall and spring
Understanding historical and social impact of technology on writing, with emphasis on multimedia design, computer-mediated communication, and hypertext. Pre- or corequisite: TWC 401.
General Studies: L

E TWC 431 Principles of Technical Editing. (3)
fall and spring
Basic principles of technical editing (for print and electronic media), including copyediting, reviews, standards, style, and project management. Pre- or corequisite: TWC 401.
General Studies: L

E TWC 443 Proposal Writing. (3)
once a year
Develops persuasive strategies and themes for researching and writing professional proposals. Pre- or corequisite: TWC 401.

E TWC 444 Manual and Instructional Writing. (3)
once a year
Design and development of a user manual, writing instructions, improving graphics and page design, and usability testing. Pre- or corequisite: TWC 401.

E TWC 445 Computer Documentation. (3)
once a year
Introduces writing documentation for the computer industry. Pre- or corequisite: TWC 401.

E TWC 446 Technical and Scientific Reports. (3)
once a year
Introduces strategies, formats, and techniques of presenting information to technical and scientific audiences. Pre- or corequisite: TWC 401.
General Studies: L

E TWC 447 Business Reports. (3)
once a year
Introduces strategies, formats, and techniques of presenting information to business and other workplace audiences. Pre- or corequisite: TWC 401.
General Studies: L

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

E TWC 451 Copyright and Intellectual Property in the Electronic Age. (3)
fall
Explores issues related to copyright and intellectual property laws, with emphasis on electronic environment. Credit is allowed for only TWC 451 or 551. Prerequisite: TWC 301 or instructor approval.

E TWC 452 Information in the Digital Age. (3)
spring
Explores the creation, organization, dissemination, and use of information; the impact of technologies; and surrounding economic, legal, and social issues. Prerequisite: TWC 301 or instructor approval.

E TWC 453 Information and Communications Technology in American History. (3)
selected semesters
Explores the historical development of information and related technologies in the United States from colonial times to the present. Credit is allowed for only TWC 453 or 553. Lecture, Internet.

E TWC 454 Information Technology and Culture. (3)
fall, spring, selected summers
Explores the historical impact and intersection of communications technology and culture in America. Credit is allowed for only TWC 454 or 554. Lecture, Internet.
General Studies: C

E TWC 484 Internship. (3)
fall and spring
Applies classroom work in a supervised workplace environment. Pre- or corequisite: TWC 411 or 421 or 431.

E TWC 490 Capstone. (3)
fall and spring
Development of a professional portfolio, creation of a "culminating document," and synthesis of undergraduate experience. Prerequisite: instructor approval.

E TWC 494 Special Topics. (1–4)
selected semesters

E TWC 501 Principles of Technical Communication. (3)
fall and spring
Basic information design principles to produce effective written, oral, and electronic technical communication. Understanding of rhetorical and audience analysis. Pre- or corequisite: graduate standing.

E TWC 503 Writing for Professional Publication. (3)
selected semesters
Analyzes the market and examines the publication process, including the roles of the author, editor, and reviewer. Pre- or corequisite: TWC 501.

E TWC 511 Principles of Visual Communication. (3)
fall and spring
Basic principles of visual communication in print and electronic media. Understanding graphic and document design, including typography and color. Pre- or corequisite: TWC 501.

E TWC 521 Principles of Writing with Technology. (3)
fall and spring
Understanding historical and social impact of technology on writing, with emphasis on multimedia design, computer-mediated communication, and hypertext. Pre- or corequisite: TWC 501.

E TWC 531 Principles of Technical Editing. (3)
fall and spring
Basic principles of technical editing for print and electronic media, including copyediting, reviews, standards, style, and project management. Pre- or corequisite: TWC 501.

E TWC 543 Proposal Writing. (3)
once a year
Develops persuasive strategies and themes for researching and writing professional proposals. Pre- or corequisite: TWC 501.

E TWC 544 Manual and Instructional Writing. (3)
once a year
Design and development of a user manual, writing instructions, improving graphics and page design, and usability testing. Pre- or corequisite: TWC 501.

E TWC 545 Computer Documentation. (3)
once a year
Introduces writing documentation for the computer industry. Pre- or corequisite: TWC 501.

E TWC 546 Technical and Scientific Reports. (3)
once a year
Introduces strategies, formats, and techniques of presenting information to technical and scientific audiences. Pre- or corequisite: TWC 501.

E TWC 547 Business Reports. (3)
once a year
Introduces strategies, formats, and techniques of presenting information to business and other workplace audiences. Pre- or corequisite: TWC 501.

E TWC 551 Copyright and Intellectual Property in the Electronic Age. (3)
fall
Explores issues related to copyright and intellectual property laws, with emphasis on electronic environment. Credit is allowed for only TWC 551 or 451.

E TWC 552 Information in the Digital Age. (3)
spring
Explores the creation, organization, dissemination, and use of information; the impact of technologies; and surrounding economic, legal, and social issues. Credit is allowed for only TWC 552 or 452.

E TWC 553 Information and Communications Technology in American History. (3)
selected semesters
Explores the historical development of information and related technologies in the United States from colonial times to the present. Credit is allowed for only TWC 553 or 453. Lecture, Internet.

E TWC 554 Information Technology and Culture. (3)
fall, spring, selected summers
Explores the historical impact and intersection of communications technology and culture in America. Credit is allowed for only TWC 554 or 454. Lecture, Internet.

E TWC 584 Internship. (3)
fall and spring
Applies classroom work in a supervised workplace environment. Pre- or corequisites: TWC 511, 521, 531.

E TWC 598 Special Topics. (1–4)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Department of Nutrition

www.poly.asu.edu/ecollege/nutrition
480/727-1728
HSC 1386

Linda A. Vaughan, Chair

Professors: Johnston, Vaughan

Associate Professor: Hampl

Assistant Professors: Hutchins, Winham, Woolf

Lecturers: Dixon, Hall, Shepard

NUTRITION—BS

The BS degree in Nutrition offers four concentrations: dietetics, food and nutrition management, human nutrition, and nutrition communication.

The dietetics concentration provides students with a comprehensive range of nutrition, foods, and science courses

that meet the academic (didactic) requirements necessary to become a registered dietitian. This concentration has been granted full accreditation as a Didactic Program in Dietetics (DPD) by the Commission on Accreditation for Dietetics Education of the American Dietetic Association. Graduates of a DPD may apply for Dietetic Internships to establish eligibility to write the Dietetic Registration examination.

The food and nutrition management concentration provides a number of nutrition, foods, and business courses and is offered to students with an interest in food production, nutrition program management, and food/nutrition marketing.

The human nutrition concentration provides a sound foundation in the basic sciences and nutrition, but no food service courses are required. This program is often used by students who, while not seeking the credential of Registered Dietitian, are working toward a career in nutrition research or completing a premedical/predental program of study.

The nutrition communication concentration provides a strong core of nutrition and communication courses in conjunction with selected science and food related courses. This program is ideal for students with an interest in freelance writing or public relations.

Accreditation. The BS degree in Nutrition with a concentration in dietetics has been granted full accreditation as a Didactic Program in Dietetics (DPD) by the Commission on Accreditation for Dietetics Education of the American Dietetic Association. For more information, call 312/899-0040, or write

COMMISSION ON ACCREDITATION FOR
DIETETICS EDUCATION
AMERICAN DIETETIC ASSOCIATION
120 S RIVERSIDE PLAZA SUITE 2000
CHICAGO IL 60606-6995

Dietetics Concentration. The following NTR courses are required of all students in the dietetics concentration:

NTR	142	Applied Food Principles	3
NTR	150	Introduction to the Professions in Nutrition and Dietetics	1
NTR	241	Human Nutrition	3
NTR	340	Applications in Human Nutrition	3
NTR	341	Introduction to Planning Therapeutic Diets	3
NTR	343	Food Service Purchasing	3
NTR	344	Nutrition Services Management *L*	3
NTR	350	Nutrition Counseling *SB*	3
NTR	400	Preprofessional Preparation in Dietetics	3
NTR	440	Advanced Human Nutrition I	3
NTR	441	Advanced Human Nutrition II	3
NTR	444	Medical Nutrition Therapy	3
NTR	445	Management of Food Service Systems	3
NTR	446	Human Nutrition Assessment Lecture/Laboratory	3
NTR	448	Community Nutrition *L*	3
Total			43

In addition to the required NTR courses, the following related courses are required to complete the academic requirements of the Didactic Program in dietetics:

BCH	361	Principles of Biochemistry	3
BCH	367	Elementary Biochemistry Laboratory	1
BIO	201	Human Anatomy and Physiology I *SG*	4
BIO	202	Human Anatomy and Physiology II	4
CHM	113	General Chemistry I *SQ*	4
CHM	116	General Chemistry II *SQ*	4
CHM	231	Elementary Organic Chemistry *SQ*[1]	3
CHM	235	Elementary Organic Chemistry Laboratory *SQ*[1]	1
MIC	205	Microbiology *SG*[2]	3
MIC	206	Microbiology Laboratory *SG*[2]	1
Statistics course			3
Technical writing course			3
Total			34

[1] Both CHM 231 and 235 must be taken to secure SQ credit.
[2] Both MIC 205 and 206 must be taken to secure SG credit.

Additional supporting courses in the social sciences are required for completion of the DPD and must be selected in consultation with the Nutrition academic advisor.

Food and Nutrition Management Concentration. The following NTR courses are required of all students in the food and nutrition management concentration:

NTR	100	Introductory Nutrition or NTR 241 Human Nutrition (3)	3
NTR	142	Applied Food Principles	3
NTR	300	Computer Applications in Nutrition *CS*	3
NTR	343	Food Service Purchasing	3
NTR	344	Nutrition Services Management *L*	3
NTR	345	Development of Healthy Cuisines	3
NTR	351	Nutrition and Health Communications	3
NTR	401	Professional Practice in Food Service Management	3
NTR	445	Management of Food Service Systems	3
Total			27

Three more semester hours from the Department of Nutrition are required to complete this concentration. A maximum of three semester hours of Independent Study may be used to satisfy this requirement. Students select these courses in consultation with the Nutrition academic advisor.

In addition to the required NTR courses, the following related courses are required to complete the academic requirements of this concentration:

CHM	101	Introductory Chemistry *SQ*	4
MIC	205	Microbiology *SG*[1]	3
MIC	206	Microbiology Laboratory *SG*[1]	1
Business or technical writing course			3
Management (AGB 310; MGT 300, 380, or 394; WPC 380)			3
Marketing (AGB 320; MKT 300 or 394; WPC 382)			3
Other agribusiness or business courses[2]			6
Total			23

[1] Both MIC 205 and 206 must be taken to secure SG credit.
[2] Courses taken to fulfill the final six-credit business requirement should be taken from the following prefixes: ACC, AGB, BUS, CIS, CSE, ECN, FIN, IBS, MGT, MKT, QBA, SCM, TWC, and WPC. Students select these courses in consultation with the Nutrition academic advisor.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Human Nutrition Concentration. The following NTR courses are required of all students in the human nutrition concentration:

NTR	142	Applied Food Principles	3
NTR	241	Human Nutrition	3
NTR	340	Applications in Human Nutrition	3
NTR	341	Introduction to Planning Therapeutic Diets	3
NTR	440	Advanced Human Nutrition I	3
NTR	441	Advanced Human Nutrition II	3
NTR	444	Medical Nutrition Therapy	3
NTR	446	Human Nutrition Assessment Lecture/Laboratory	3
Total			24

An additional six semester hours from the Department of Nutrition are required to complete this concentration. A maximum of three semester hours of Independent Study may be used to satisfy this requirement. Students select these courses in consultation with the Nutrition academic advisor.

In addition to the required NTR courses, the following related courses are required in order to complete the academic requirements of this concentration:

BCH	361	Principles of Biochemistry	3
BCH	367	Elementary Biochemistry Laboratory	1
BIO	201	Human Anatomy and Physiology I *SG*	4
BIO	202	Human Anatomy and Physiology II	4
CHM	113	General Chemistry I *SQ*	4
CHM	116	General Chemistry II *SQ*	4
CHM	231	Elementary Organic Chemistry *SQ*[1]	3
CHM	235	Elementary Organic Chemistry Laboratory *SQ*[1]	1
MIC	205	Microbiology *SG*[2]	3
MIC	206	Microbiology Laboratory *SG*[2]	1
Total			28

[1] Both CHM 231 and 235 must be taken to secure SQ credit.

[2] Both MIC 205 and 206 must be taken to secure SG credit.

Nutrition Communication Concentration. The following NTR courses are required of all students in the nutrition communication concentration:

NTR	100	Introductory Nutrition or NTR 241 Human Nutrition (3)	3
NTR	142	Applied Food Principles	3
NTR	300	Computer Applications in Nutrition *CS*	3
NTR	345	Development of Healthy Cuisines	3
NTR	348	Cultural Aspects of Food *SB*,*C*	3
NTR	351	Nutrition and Health Communications	3
NTR	400	Preprofessional Preparation in Dietetics or NTR 401 Professional Practice in Food Service Management (3)	3
NTR	448	Community Nutrition *L*	3
NTR	450	Nutrition in the Life Cycle I *SB* or NTR 451 Nutrition in the Life Cycle II (3)	3
Total			27

In addition to the required NTR courses, the following related courses are required to complete the academic requirements of this concentration:

Mass Communication Core

18 credits required, nine must be upper-division, nine must be in residence at ASU:

MCO	110	Introduction to Mass Communication *SB* or MCO 120 Media and Society *SB* (3)	3
JMC	201	Journalism Newswriting *L* or JMC 202 Radio-Television Writing *L* (3)	3
JMC	270	Public Relations Techniques	3
Total			9

At least three more courses must be completed from the following list for a total of nine credits:

JMC	425	Online Media	3
JMC	445	Science Writing	3
MCO	418	History of Mass Communication *SB*, *H*	3
MCO	430	International Mass Communication *G*	3
MCO	435	Emerging Media Technologies	3
MCO	440	Applied Media Research	3
MCO	450	Visual Communication *HU*	3
MCO	456	Political Communication *SB*	3
MCO	460	Race, Gender, and Media *C*	3
MCO	494	Special Topics	3

Additional Requirements

BIO	201	Human Anatomy and Physiology I *SG*	4
BIO	202	Human Anatomy and Physiology II	4
CHM	101	Introductory Chemistry *SQ*	4
ENG	301	Writing for the Professions *L*	4
Statistics (see advisor for a list of courses)			3

MINORS

The faculty of the Department of Nutrition also offers minors in Food and Nutrition Management and Human Nutrition, each requiring 18 semester hours. At least 12 of the 18 must be in upper-division courses.

Food and Nutrition Management. The minor requires that students take the following courses:

NTR	100	Introductory Nutrition or NTR 241 Human Nutrition (3)	3
NTR	142	Applied Food Principles	3
NTR	300	Computer Applications in Nutrition *CS*	3
NTR	343	Food Service Purchasing	3
NTR	344	Nutrition Services Management *L*	3
NTR	445	Management of Food Service Systems	3
Total			18

Human Nutrition. The minor requires that students take the following courses:

NTR	241	Human Nutrition	3
NTR	340	Applications in Human Nutrition	3
NTR	341	Introduction to Planning Therapeutic Diets	3
NTR	440	Advanced Human Nutrition I	3
NTR	441	Advanced Human Nutrition II	3
NTR	444	Medical Nutrition Therapy	3
Total			18

Additional upper-division (or graduate) courses may be selected from among the following:

NTR	346	Sports Nutrition	3
NTR	348	Cultural Aspects of Food *SB, C*	3
NTR	350	Nutrition Counseling *SB*	3
NTR	351	Nutrition and Health Communications	3
NTR	446	Human Nutrition Assessment Lecture/Laboratory	3
NTR	448	Community Nutrition *L*	3
NTR	450	Nutrition in the Life Cycle I *SB*	3
NTR	451	Nutrition in the Life Cycle II	3

BIS CONCENTRATIONS

Concentrations in (1) food and nutrition management and (2) human nutrition are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

APPLIED SCIENCE—BAS

Food Service Management Concentration. The BAS degree with a concentration in food service management is designed to complement and enhance the educational preparation of students holding an AAS degree from a regionally accredited U.S. postsecondary educational institution. The concentration is particularly designed for students holding an AAS degree in culinary or hospitality science. The degree prepares students for careers in food production, service, management, and marketing. With additional education and/or professional training, students may also become credentialed as certified dietary managers, school food service and nutrition specialists, or registered sanitarians.

Admission. Admission to the BAS degree program is restricted to students holding an AAS degree from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and a 2.50 is required for nonresident applicants.

Degree Requirements. The BAS degree consists of 60 semester hours of upper-division (300 level and above) courses, with 30 hours in residence. A total of 120 semester hours are required for graduation.

AAS degree	60
Assignable credit	6
BAS core	15
General Studies	19
Concentration	20
Total	120

General Studies Curriculum. The BAS curriculum builds on the general education content of the AAS degree. Additional General Studies (L, CS, and awareness areas) are met with courses in the core or concentration. General Studies courses focus on contextual learning.

L	3
MA	3
HU	3
HU/SB	3
SB	3
SG	4
Total	19

Required Core Courses

NTR 300 Computer Applications in Nutrition *CS*	3
NTR 343 Food Service Purchasing	3
NTR 344 Nutrition Services Management *L*	3
NTR 345 Development of Healthy Cuisines	3
NTR 348 Cultural Aspects of Food *SB, C*	3
NTR 401 Professional Practice in Food Service Management	3
NTR 445 Management of Food Service Systems	3
Marketing course	3
NTR electives	6
Statistics course	3
Technical communications course	3
Total	36

Assignable Credit. Assignable credit offers students the flexibility within the curriculum to take the prerequisite courses needed for success. It also allows students to take additional technical electives. The courses are determined by the student and the advisor.

NUTRITION (NTR)

E NTR 100 Introductory Nutrition. (3)
fall, spring, summer
Basic concepts of human nutrition. Recent controversies in nutrition and how food choices affect personal health.

E NTR 142 Applied Food Principles. (3)
fall and spring
Applied scientific principles of food preparation and production. 2 hours lecture, 3 hours lab. Fee.

E NTR 150 Introduction to the Professions in Nutrition and Dietetics. (1)
fall and spring
Introduces the professions of nutrition and dietetics; their history, practice, and future; credentials, ethics, and standards of practice.

E NTR 241 Human Nutrition. (3)
fall, spring, summer
Principles of human nutrition. Emphasizes nutrient metabolism and the relationships between diet and disease. Prerequisite: CHM 101 (or its equivalent).

E NTR 300 Computer Applications in Nutrition. (3)
spring
Introduces nutrition and food software, including dietary assessment and analysis, food inventory and control, and telecommunications. Integrated lecture/lab. Prerequisites: NTR 100 (or 241), 341 strongly recommended; basic computer literacy.
General Studies: CS

E NTR 340 Applications in Human Nutrition. (3)
spring
Applications of nutrient metabolism through case studies and product evaluations; special topics in human nutrition. Prerequisites: BIO 201; NTR 241. Corequisite: BIO 202.

E NTR 341 Introduction to Planning Therapeutic Diets. (3)
fall and spring
Cultural, health, and economic aspects of planning therapeutic diets. Assessments of food and diet composition. Reviews common therapeutic diets. Credit is allowed for only NTR 341 or 345. Fee. Prerequisite: NTR 100 or 241 (or their equivalents).

E NTR 343 Food Service Purchasing. (3)
fall
Introduces purchasing systems, bid processes, receiving and storage procedures, and regulatory agencies involved in the food service industry. Prerequisite: NTR 142.

E NTR 344 Nutrition Services Management. (3)
fall and spring
Organization, administration, and management of food and nutrition services in hospitals and other institutions. Possible field trips. Prerequisite: NTR 100 or 241 (or its equivalent).
General Studies: L

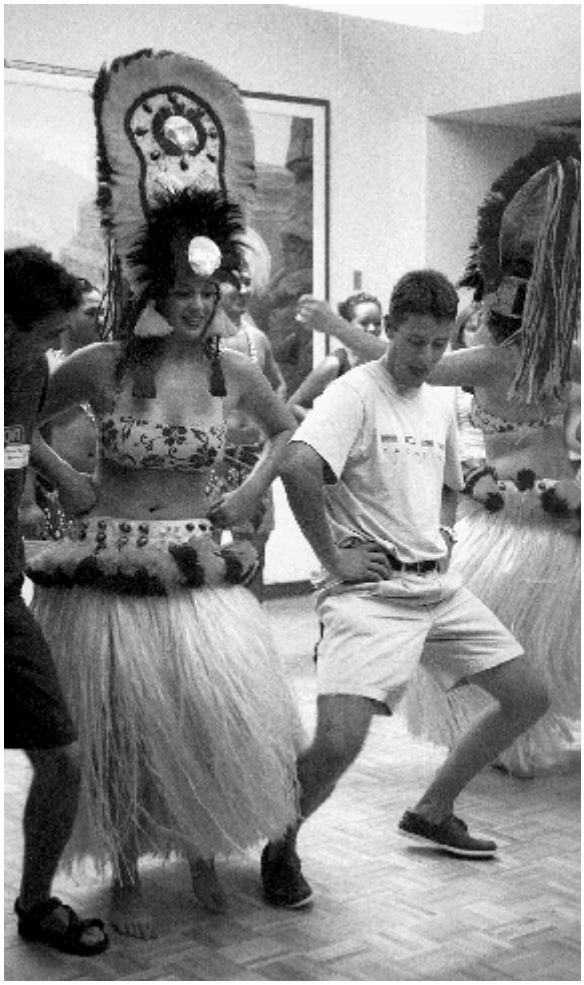
L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

E NTR 345 Development of Healthy Cuisines. (3)
fall
Principles and applications of nutrition and medical nutrition therapy; development of healthy cuisines in health and disease states. Credit is allowed for only NTR 345 or 341. Prerequisite: NTR 100 or 241 or instructor approval.

E NTR 346 Sports Nutrition. (3)
fall and summer
Nutritional needs of recreational and elite athletes; energy balance; nutrient metabolism during activity; fluid-electrolyte regulation; evaluation of ergogenic supplements. Prerequisites: BIO 202; NTR 241.

E NTR 348 Cultural Aspects of Food. (3)
spring and summer
Origins, development, and diversity of food preferences and dietary habits; food patterns and attitudes of global populations and U.S. immigrants. Prerequisite: NTR 100 or 241 (or its equivalent).
General Studies: SB, C

E NTR 350 Nutrition Counseling. (3)
spring
Counseling techniques in nutrition; interpersonal and communication skills in clinical and community sites; nutrition education for individuals and populations. Integrated lecture/lab. Prerequisites: NTR 100 (or 241) and 341 (or their equivalents).
General Studies: SB



Welcome Week activities at the Polytechnic campus

Tim Trumble photo

E NTR 351 Nutrition and Health Communications. (3)
fall
Approaches of nutrition and health communications; development of nutrition and health communication materials for selected target audiences. Prerequisite: NTR 100 or 241.

E NTR 400 Preprofessional Preparation in Dietetics. (3)
fall and spring
Applies academic knowledge in field practicum; aspects of professional development. Lecture, practicum. Prerequisites: NTR 341, 440 (or 441 or 444); senior standing in dietetics or human nutrition.

E NTR 401 Professional Practice in Food Service Management. (3)
spring
Applies academic knowledge in food service management to field practicum; develops practical skills in planning, purchasing, production, management. Lecture, practicum. Prerequisites: NTR 343; senior standing in food and nutrition management. Pre- or corequisite: NTR 344.

E NTR 440 Advanced Human Nutrition I. (3)
fall
Metabolic reactions and interrelationships of vitamins, minerals, and water. Prerequisites: BIO 201; NTR 241. Corequisite: BIO 202.

E NTR 441 Advanced Human Nutrition II. (3)
spring
Metabolic reactions and interrelationships of carbohydrate, lipid, and protein. Prerequisites: BCH 361 and BIO 202 and NTR 241 (or their equivalents).

E NTR 442 Experimental Foods. (3)
selected semesters
Food product development techniques, food evaluation and testing, and investigation of current research into food composition. 2 hours lecture, 3 hours lab. Fee. Prerequisites: CHM 231; NTR 142.

E NTR 444 Medical Nutrition Therapy. (3)
spring and summer
Principles of medical nutrition therapy for prevention and treatment of disease and promotion of health. Prerequisites: BIO 201 and 202 and NTR 341 (or their equivalents). CHM 231 strongly recommended.

E NTR 445 Management of Food Service Systems. (3)
fall and spring
Standardized methods of quantity food preparation, operation of institutional equipment, institutional menu planning, quantity food experiences. Integrated lecture/lab. Fee. Prerequisites: NTR 142 and 344 (or their equivalents).

E NTR 446 Human Nutrition Assessment Lecture/Laboratory. (3)
fall and spring
Clinical and biochemical evaluation of nutritional status. 2 hours lecture, 3 hours lab. Fee. Prerequisites: BCH 361, 367; NTR 440 (or 441).

E NTR 448 Community Nutrition. (3)
fall and spring
Food-related behaviors; organization and delivery of nutrition services; program design, implementation, and evaluation strategies; nutrition assessment of populations. Prerequisite: NTR 241 (or its equivalent).
General Studies: L

E NTR 450 Nutrition in the Life Cycle I. (3)
fall
Emphasizes nutritional needs and problems during pregnancy, lactation, infancy, and childhood. Prerequisite: NTR 100 or 241 (or its equivalent).
General Studies: SB

E NTR 451 Nutrition in the Life Cycle II. (3)
spring
Nutritional needs and problems of adults, particularly the elderly. Prerequisite: NTR 100 or 241 (or its equivalent).

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

College of Technology and Applied Sciences

technology.poly.asu.edu

Albert L. McHenry, PhD, Dean

PURPOSE

The College of Technology and Applied Sciences (CTAS) helps students develop knowledge and skill in technological fields that qualify them for career positions and leadership responsibility in industry, government, and commercial enterprise. Each student is guided to select a major that addresses short-term employment goals through state-of-the-art technological preparation. Long-term career aspirations are supported through the development of a strong base in mathematics, science, engineering, and technical principles, coupled with a solid foundation in liberal arts and a commitment to lifelong learning.

Engineering technology programs offer professional preparation through a BS degree that stresses state-of-the-art technological applications. Special emphasis is placed on the development of knowledge and skill in applied mathematics, natural sciences, and engineering principles with formal laboratory experiences. This mixed educational approach provides the basis for both employment and a long-term career evolution.

The other CTAS technology programs provide the opportunity for students to develop knowledge and skill in solving broad-scale industrial problems, operating modern technological systems, and managing personnel in the implementation of processes and production. Programs of study focus on the latest technologies in areas such as aviation flight training and management, environmental technology management, graphic information technology, fire service management, and industrial management.

Each student is encouraged to participate in creative activities through a close relationship with a faculty mentor. Learning through execution of the scientific method, using both inductive and deductive processes in applied research activities, is essential for both faculty and students.

ORGANIZATION

The College of Technology and Applied Sciences is composed of the following six academic units:

Department of Aeronautical Management Technology
Department of Electronics and Computer Engineering Technology
Department of Engineering
Department of Mechanical and Manufacturing Engineering Technology
Department of Technology Management
Division of Computing Studies

DEGREE PROGRAMS

See the "College of Technology and Applied Sciences Baccalaureate Degrees and Majors" table, page 246. For graduate degrees, see the "College of Technology and Applied Sciences Graduate Degrees and Majors" table, page 247.

The College of Technology and Applied Sciences offers programs leading to the BS degree and BAS degree. The college also offers the Master of Science in Technology (MST) degree and the Master of Computing Studies degree (MCST). For more information, see the *Graduate Catalog*.

ACCREDITATION

Undergraduate BS degree programs in Electronics Engineering Technology, Manufacturing Engineering Technology, and Mechanical Engineering Technology are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc. For additional information, call 410/347-7700, or write

TECHNOLOGY ACCREDITATION COMMISSION OF
THE ACCREDITATION BOARD FOR
ENGINEERING AND TECHNOLOGY INC
111 MARKET PLACE SUITE 1050
BALTIMORE MD 21202-7102

Both the professional flight and the air transportation management concentrations in the Department of Aeronautical Management Technology are fully accredited by the Council on Aviation Accreditation. For more information, call 334/844-2431, send e-mail to caa@auburn.edu, or write

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

College of Technology and Applied Sciences Baccalaureate Degrees and Majors

Major	Degree	Concentration[1]	Administered By
Aeronautical Management Technology[2]	BS	Air transportation management or professional flight	Department of Aeronautical Management Technology
Applied Computer Science	BS	—	Division of Computing Studies
Applied Science	BAS	Aviation maintenance management technology, aviation management technology, computer systems administration, digital media management, digital publishing, emergency management, fire service management, instrumentation, Internet and Web development, law enforcement management, manufacturing technology and management, materials joining and manufacturing technology, microcomputer systems, municipal operations management, operations management, semiconductor technology, software technology applications, or technical graphics	Bachelor of Applied Science Advisory Committee
Computer Systems[2]	BS	Computer hardware technology or embedded systems technology	Division of Computing Studies
Electronics Engineering Technology[2]	BS	Electronic systems, microelectronics, or telecommunications	Department of Electronics and Computer Engineering Technology
Engineering	BSE	—	Department of Engineering
Environmental Technology Management	BS	—	Department of Technology Management
Graphic Information Technology	BS	—	Department of Technology Management
Manufacturing Engineering Technology[2]	BS	Manufacturing engineering technology or mechanical engineering technology	Department of Mechanical and Manufacturing Engineering Technology
Mechanical Engineering Technology[2]	BS	Aeronautical engineering technology, automation engineering technology, or mechanical engineering technology	Department of Mechanical and Manufacturing Engineering Technology
Operations Management Technology	BS	—	Department of Technology Management

[1] If a major offers concentrations, one must be selected unless noted as *optional*.

[2] This major requires more than 120 semester hours to complete.

COUNCIL ON AVIATION ACCREDITATION
3410 SKYWAY DRIVE
AUBURN AL 36830

The Bachelor of Science degrees in Environmental Technology Management, Graphic Information Technology, and Operations Management are fully accredited by the National Association of Industrial Technology (NAIT). For more information, call 734/677-0720, or write

NATIONAL ASSOCIATION OF INDUSTRIAL TECHNOLOGY
3300 WASHTENAW AVENUE SUITE 220
ANN ARBOR MI 48104-4200

ADMISSION—BS DEGREE

The College of Technology and Applied Sciences admits first-year students who meet the undergraduate admission requirements of ASU. See "Undergraduate Admission," page 66. High school precalculus, physics, and chemistry are recommended. Transfer applicants must meet the university requirements for transfer students as specified under "Transfer Credit," page 71.

First-year students (new freshmen) are admitted to CTAS with professional status if they meet the general aptitude criteria for admission. First-year students admitted upon completion of the GED may be admitted if they have also achieved the minimum ACT or SAT scores required for undergraduate admission to the university.

College of Technology and Applied Sciences Graduate Degrees and Majors

Major	Degree	Concentration*	Administered By
Computing Studies	MCST	—	Division of Computing Studies
Technology	MSTech	Aeronautical engineering technology, manufacturing engineering technology, or mechanical engineering technology	Department of Mechanical and Manufacturing Engineering Technology
		Aviation management and human factors	Department of Aeronautical Management Technology
		Computer systems	Division of Computing Studies
		Electronic systems engineering technology, instrumentation and measurement technology, or microelectronics engineering technology	Department of Electronics and Computer Engineering Technology
		Environmental technology management, fire service administration, global technology and development, graphic information technology, or management of technology	Department of Technology Management
		Security engineering technology	College of Technology and Applied Sciences

* If a major offers concentrations, one must be selected unless noted as *optional*.

Students transferring from other ASU colleges may be admitted to CTAS with professional status if they meet the required GPA.

Transfer students from other institutions must meet the minimum admission requirements for college transfer students as described under "Transfer Credit," page 71.

All international students must have a minimum 500 TOEFL score to be admitted with professional status.

For those students who are admitted to the professional flight concentration, in the Department of Aeronautical Management Technology, a secondary application process is required.

Transfer Credit

Credit for courses taken at a community college or another four-year institution is awarded according to the guidelines under "Transfer Credit," page 71. Students who are transferring from an Arizona community college and have been in continuous residence may continue under the catalog in effect at the time of their entrance into the community college. Students should be aware that some course work that transfers to ASU may not be applicable toward CTAS degree requirements. Students should confer with an advisor. The College of Technology and Applied Sciences maintains a cooperative agreement with most Arizona community colleges and with selected out-of-state colleges and universities to structure programs that are directly transferable into the technology programs at Polytechnic campus. For assistance in transferring from Arizona community colleges, transfer guides are available at www.asu.edu/provost/articulation.

Courses taken more than five years before admission to a CTAS degree program are not normally accepted for transfer credit at the option of the department in which the applicant wishes to enroll. Courses completed within the five years preceding admission are judged as to their applicability to the student's curriculum.

ADMISSION—BAS DEGREE

Admission to the BAS degree program is restricted to students holding an AAS degree from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and a 2.50 for nonresident applicants.

ADVISING

New incoming and transfer students should seek initial advising from an academic advisor in the Dean's Office. CTAS students are then assigned faculty advisors who assist them with planning a program of study in the department of their major. The college requires that students consult with advisors before registering each semester. Advisors should be made aware of any employment obligations or special circumstances that may affect a student's ability to successfully handle a full course load. CTAS students may register for a maximum of 19 semester hours per semester. Any student wishing to take more than the maximum must petition the CTAS Standards Committee and have an approval on file before registering for a course overload.

GRADUATION REQUIREMENTS

Students must meet all university graduation requirements given in "University Graduation Requirements," page 89, as well as degree requirements of their major in the College of Technology and Applied Sciences. For detailed information on the degree requirements of a major in CTAS, refer to that department's individual description.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

COLLEGE STANDARDS

Pass/Fail Grades

The College of Technology and Applied Sciences does not offer pass/fail grades. Courses graded on a pass/fail basis do not count toward degree credit in CTAS. Students may request credit for pass/fail courses by petitioning the CTAS Standards Committee.

Entry into Upper-Division Courses (BS Degree)

Before enrolling in courses at the 300 level and above, CTAS students must be in professional status within the college. Students who are not in good academic standing must petition the CTAS Standards Committee. Students enrolled in another ASU college may not register for any 300- and 400-level CTAS courses unless those courses are required in the degree program and the students have the proper course prerequisites.

ACADEMIC STANDARDS

Retention. A student is expected to make satisfactory progress toward completion of degree requirements to continue enrollment in the College of Technology and Applied Sciences. Any one of the following conditions is considered unsatisfactory progress and results in the student's being placed on probationary status:

1. a semester with a GPA less than or equal to 1.50;
2. two successive semesters with GPAs less than 2.00; or
3. an ASU cumulative GPA less than 2.00.

A student on probation is subject to disqualification if (1) a semester GPA of 2.25 is not attained and the cumulative GPA is below 2.00 at the end of the probationary semester or (2) the student is placed on probation for two consecutive semesters and is unable to achieve the standard GPA stated in number one.

Students on academic probation are not allowed to register for more than 13 semester hours. Probationary students may not register for the semester following the semester in which they were declared probationary without a special permit from an advisor in the dean's office. Special permits are given only after the registrar records grades for the current semester.

Disqualification. During a semester on academic probation, a student who fails to meet the retention standards is disqualified. Students may request a review of their disqualification status by contacting the CTAS associate dean in the College of Technology Dean's Office. Any disqualified student who is accepted by another college at ASU may not register for courses in CTAS unless the courses are required in the new major. Disqualified students who register for courses in CTAS may be withdrawn from these courses any time during the semester.

Reinstatement. The college does not accept an application for reinstatement until the disqualified student has remained out of the college for at least a 12-month period. Merely having remained in disqualified status for this period of time does not, in itself, constitute a basis for reinstatement. Proof of ability to do satisfactory college work in the chosen discipline is required; for example, completing pertinent courses in the discipline at a community college with higher-than-average grades.

STUDENT RESPONSIBILITIES

Course Prerequisites. Students should consult the *Schedule of Classes* and the catalog for course prerequisites. Students who register for courses without the designated prerequisites may be withdrawn without their consent at any time before the final examination. The instructor, the chair of the department, or the dean of the college may initiate such withdrawals. In such cases, students do not receive monetary reimbursement.

SPECIAL PROGRAMS

Academic Recognition. Students completing baccalaureate degree requirements receive the appropriate honors designations on their diplomas consistent with the requirements specified by the university.

Students in the college are encouraged to seek information concerning entry into honor societies that enhance their professional stature. Tau Alpha Pi is the engineering technology honor society, and Alpha Eta Rho is available for aeronautical management technology students.

Barrett Honors College. The College of Technology and Applied Sciences participates in the programs of the Barrett Honors College, which provides enhanced educational experiences to academically superior undergraduate students. Participating students can major in any academic program. For more information, see "General Studies," page 93.

Scholarships. Information and applications for academic scholarships for continuing students may be obtained by contacting departmental offices. Other scholarships may be available through the university's Student Financial Assistance Office.

ROTC Students. Students pursuing a commission through either the Air Force or Army ROTC program must take 12 to 20 semester hours of courses in the Department of Aerospace Studies or Department of Military Science. To preclude excessive overloads, these students should plan on at least one additional semester to complete degree requirements. Because of accreditation requirements, aerospace studies (AES) or military science (MIS) courses are not accepted for engineering technology majors.

ENGINEERING TECHNOLOGY CORE (ETC)

E ETC 100 Languages of Technology. (4)
fall and spring
Introduces computer-aided design, programming, modeling, and technical documentation. Lecture, lab.
General Studies: CS

E ETC 191 First-Year Seminar. (1–3)
selected semesters

E ETC 194 Special Topics. (1–4)
selected semesters

E ETC 492 Honors Directed Study. (1–6)
selected semesters

E ETC 493 Honors Thesis. (1–6)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

SECURITY ENGINEERING TECHNOLOGY (SET)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Aeronautical Management Technology

eastair.poly.asu.edu
480/727-1381
SIM 201

William K. McCurry, Chair

Professors: Gesell, McCurry

Professor of Practice: Karp

Clinical Associate Professor: Pearson

Assistant Professor: Niemczyk

Lecturer: O'Brien

PURPOSE

Graduates are prepared for entry into the aviation and air transportation industry in productive, professional employment or, alternatively, for graduate study. Curricula emphasize principles underlying the application of technical knowledge as well as current technology, preparing the graduate to adapt to the rapid and continual changes in aviation and aerospace technology.

ADMISSION

Admission to the Bachelor of Science professional flight concentration requires an additional admission process. New and transfer students who have been admitted to ASU and who meet the requirements for admission to the College of Technology and Applied Sciences may be admitted without separate application to the Department of Aeronautical Management Technology only in the Bachelor of Applied Science concentrations, or to the Bachelor of Science air transportation management concentration. Transfer credits are reviewed by department faculty advisors. To be accepted as department credit, transfer courses must be equivalent in both content and level of offering. No flight experience or theoretical training courses beyond the Private Pilot Certificate are accepted. For more information, access the department Web page at eastair.poly.asu.edu.

DEGREES

The faculty in the Department of Aeronautical Management Technology offer a BS degree in Aeronautical Management Technology with concentrations in professional flight and air transportation management. A BAS degree in Applied Science is also offered with concentrations in aviation maintenance management technology and aviation management technology.

A Master of Science in Technology degree is offered for graduate study with a concentration in aviation management and human factors. For more information, see the *Graduate Catalog*.

ACCREDITATION

The professional flight and air transportation management concentrations in the Department of Aeronautical Management Technology are fully accredited by the Council on Aviation Accreditation. For more information, call 344/844-2431, send e-mail to caa@auburn.edu, or write

COUNCIL ON AVIATION ACCREDITATION
3410 SKYWAY DRIVE
AUBURN AL 36830

AERONAUTICAL MANAGEMENT TECHNOLOGY—BS

The Aeronautical Management Technology curricula are designed to provide a thorough technical background combined with an interdisciplinary general university education. The graduate is prepared to assume responsibilities in a wide area of managerial and technically related areas of aviation. The student gains a background in aircraft structures, reciprocating and turbine engines, aircraft performance and design, management skills, business principles, systems analysis, and a variety of course work specific to aircraft flight, airport operations, and air transportation systems. The degree offers two concentrations: professional flight and air transportation management. The concentrations are described separately on the following pages.

All degree requirements are shown on curriculum check sheets for the concentrations that are available by visiting the department or by accessing the department Web site at eastair.poly.asu.edu. Requirements include First-Year Composition, university General Studies (see "General Studies," page 93), and the Aeronautical Management Technology Core. Note that all three General Studies awareness areas are required. Consult an advisor for an approved list of courses. Refer to individual concentration degree requirements for additional required courses. Students must complete each Aeronautical Management Technology course with a grade of "C" (2.00) or higher.

Aeronautical Management Technology Core

AMT	101	Introduction to Aeronautical Management Technology....1
AMT	182	Private Pilot Ground School....3
AMT	201	Air Traffic Control....3

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

AMT	220	Aviation Meteorology	3
AMT	280	Aerospace Structures, Materials, and Systems	4
AMT	287	Aircraft Powerplants	4
AMT	308	Air Transportation *G*	3
AMT	350	Aircraft Design and Logistics Management	3
AMT	396	Aviation Professional	1
AMT	410	Aviation Safety and Human Factors	3
AMT	442	Aviation Law/Regulations	3
Total			31

Professional Flight Concentration

Flight training is certified by the Federal Aviation Administration. An FAA Class I medical examination is required for admission. It is recommended that a medical examination be completed by an aviation medical examiner of the student's choice before application for admission.

This program is designed for students who are seriously interested in becoming professional airline pilots. Because of limited space, the program selection process is academically competitive. Only those applicants who meet the subject matter and quality requirements and who submit their applications by the appropriate deadlines will be considered for admission.

The ASU Professional Flight program is the initial phase of the qualification/application process to become an airline first officer. Individuals seeking admission to the program must participate in a secondary application process. The secondary process will assess a candidate's FAA-certified First Class medical qualification; driving record; work and/or personal references; and cognitive, psychomotor skill, and psychological test results. It may also include a personal interview. The secondary application deadlines vary. Contact the department for current deadlines.

U.S. citizens must provide proof of citizenship as part of the secondary admission process to the professional flight concentration.

International students must meet all TSA clearance requirements before being admitted to the professional flight concentration. For more information, see the department Web site at eastair.poly.asu.edu. International students should check with Undergraduate International Admissions for details concerning admission and visa requirements. A TOEFL score of 600 is required for admission into the professional flight concentration. International students should be aware that they may encounter difficulty in converting their student visa to a work permit and therefore may not be able to find employment with a U.S. air carrier following graduation. International students are also advised that all certificates and ratings are under FAA certification and may not be accepted by the aviation authority in their home country.

Total program costs, which include aircraft, flight instructor time, flight training devices, simulator time, tests, fees, and tuition, require careful financial planning. Students must make satisfactory progress throughout both the flight and academic areas to be considered for continued advancement in the program. To proceed at a satisfactory pace through the flight training program, students should expect and plan to fly during the winter intercession and the summer session to complete the program. A program fee of $275 per semester is required for the professional flight concentration. A program fee of $125 per semester is required for the air transportation management concentration.

For more information, requirements, and specific application procedures, access the AMT Department Web site at eastair.poly.asu.edu.

Flight instruction costs are not included in university tuition and fees. The estimated cost of flight training is $50,000 in addition to normal university costs.

Degree Requirements

Professional flight students are required to complete 128 semester hours with a 2.00 cumulative GPA, including a minimum of 50 semester hours of upper-division courses. Students should be aware that a higher cumulative GPA may be required for employment by an airline upon graduation. All degree requirements are shown on the student's curriculum check sheet.

Concentration Requirements

In addition to the required courses for First-Year Composition, university General Studies (see "General Studies," page 93), and the Aeronautical Management Technology core, the following additional courses are required for the professional flight management concentration:

AMT	100	Flight Safety I	2
AMT	200	Flight Safety II	1
AMT	214	Commercial/Instrument Ground School I	3
AMT	300	Flight Safety III	1
AMT	322	Commercial/Instrument Ground School II	3
AMT	382	Air Navigation	3
AMT	385	Flight Instructor Ground School	3
AMT	387	Multiengine Pilot Ground School	1
AMT	392	Flight Instructor Instrument Ground School	3
AMT	400	Flight Safety IV	1
AMT	408	National Aviation Policy	3
AMT	482	Airline Instrument Procedures	3
AMT	486	Regional Jet Aircraft Systems	3
AMT	489	Airline Administration	3
AMT	490	Regional Jet Operations Capstone	3
Technical electives or internship			19
Total			55

Suggested Course Pattern for Freshmen

First Semester

AMT	100	Flight Safety I	2
AMT	101	Introduction to Aeronautical Management Technology	1
AMT	182	Private Pilot Ground School	3
AMT	220	Aviation Meteorology	3
ENG	101	First-Year Composition	3
MAT	270	Calculus with Analytic Geometry I *MA*	4
Total			16

Second Semester

AMT	214	Commercial/Instrument Ground School I	3
ENG	102	First-Year Composition	3
ECN	211	Macroeconomic Principles *SB* or ECN 212 Microeconomic Principles *SB* (3)	3
PHY	111	General Physics *SQ**	3
PHY	113	General Physics Laboratory *SQ**	1
Total			13

* Both PHY 111 and 113 must be taken to secure SQ credit.

Air Transportation Management Concentration

The air transportation management concentration is designed to prepare graduates for managerial and supervisory positions throughout the air transportation industry. An in-depth technical education is included along with broad exposure to business and management courses. This program of study is interdisciplinary in nature and prepares the aeronautical career-oriented student for positions such as air traffic control specialist, air carrier manager, airport manager, and general aviation operations manager. To facilitate career options, the student selects a focus area in either air carrier management or airport management.

Degree Requirements

Air transportation management students are required to complete 128 semester hours with a minimum 2.00 cumulative GPA, including a minimum of 50 semester hours of upper-division courses. All degree requirements are shown on the student's curriculum check sheet.

Concentration Requirements

In addition to the required courses for First-Year Composition, university General Studies (see "General Studies," page 93), and the Aeronautical Management Technology core, the following additional courses are required in the air transportation management concentration:

ACC	230	Uses of Accounting Information I 3
AMT	408	National Aviation Policy 3
AMT	444	Airport Management and Planning 3
AMT	489	Airline Administration 3
AMT	491	Aviation Management Capstone 3
OMT	343	Occupational Safety and Ergonomics 3
OMT	430	Ethical Issues in Technology 3
OMT	452	Industrial Human Resource Management 3
OMT	456	Introduction to Organized Labor 3
OMT	480	Organizational Effectiveness 3
TMC	346	Management Dynamics 3
Technical electives or internship 22		
Total 55		

Suggested Course Pattern for Freshmen

First Semester

AMT	101	Introduction to Aeronautical Management Technology 1
AMT	182	Private Pilot Ground School 3
AMT	220	Aviation Meteorology 3
ENG	101	First-Year Composition 3
MAT	270	Calculus with Analytic Geometry I *MA* 4
Total 14		

Second Semester

ENG	102	First-Year Composition 3
ECN	211	Macroeconomic Principles *SB* 3
		or ECN 212 Microeconomic Principles *SB* (3)
PGS	101	Introduction to Psychology *SB* 3
PHY	111	General Physics *SQ** 3
PHY	113	General Physics Laboratory *SQ** 1
General Studies elective *HU* 3		
Total 16		

* Both PHY 111 and 113 must be taken to secure SQ credit.

APPLIED SCIENCE—BAS

The Bachelor of Applied Science degree is a "capstone" degree for the Associate of Applied Science degree. The BAS degree exposes students to advanced concepts and diverse critical thinking skills that prepare students for future career opportunities and professional advancement.

Admission

Admission to the BAS degree program is restricted to students holding an AAS degree from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and a 2.50 for nonresident applicants.

Degree Requirements

The BAS degree in the College of Technology and Applied Sciences consists of 60 semester hours of upper-division (300 level and above) courses, with 30 hours in residence.

AAS degree	60
Assignable credit	6
BAS core	15
General Studies	19
Technical concentration	20
Total	120

General Studies Curriculum

The BAS curriculum builds on the general education content of the AAS degree. Additional General Studies (L, CS, and awareness areas) are met with courses in the core concentration. General Studies courses focus on contextual learning.

L	3
MA	3
HU	3
HU or SB	3
SB	3
SG	4
Total	19

Assignable Credit

Assignable credit allows space in the curriculum for prerequisite courses needed to succeed in the program. The courses are determined by the student and the advisor.

BAS Core

The area core is focused on management and organization, professional communication, quantitative analysis, and computer competency.

APM	301	Introductory Statistics *CS* 3
GIT	335	Computer Systems Technology 3
TMC	346	Management Dynamics 3
		or OMT 344 Industrial Organization (3)
		or OMT 452 Industrial Human Resource Management (3)
TMC	470	Project Management 3

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

TWC 400 Technical Communications *L* 3
Total 15

Technical Concentrations

Aviation Maintenance Management Technology. This concentration is for those students who have completed an airframe and powerplant certification as part of their AAS degree. Students receive an orientation in management practices that prepares them for progressively more responsible positions in the field of aviation maintenance management.

Aviation Management Technology. This concentration is for those students who have received training and education in some aspect of the air transportation industry (other than aviation maintenance), such as flight certificates and ratings, as part of their AAS degree. Students receive an orientation in management practices that prepares them for progressively more responsible positions in the field of aviation management.

STUDENT ORGANIZATIONS

The department hosts the local chapter of Alpha Eta Rho, an international professional aviation fraternity open to all students with an interest in aviation. The American Association for Airport Executives is open to all students with an interest in airport management. The Student Advisory Council is a leadership organization that facilitates student communication with faculty, departmental leaders, and university administrative personnel. The Women in Aviation International organization is open to all students.

AERONAUTICAL MANAGEMENT TECHNOLOGY (AMT)

E AMT Note 1. Flight instruction costs are not included in university tuition and fees.

E AMT 100 Flight Safety I. (2)
fall, spring, summer
Supervised private pilot flight training and flight safety briefings. Requires continuous enrollment until completion of the FAA Private Pilot Certificate. May be repeated for credit. Integrated lecture/lab. Fee. See AMT Note 1. Pre- or corequisites: both AMT 182 and 220 (or their equivalents).

E AMT 101 Introduction to Aeronautical Management Technology. (1)
fall and spring
Facilitates entry into Aeronautical Management Technology programs. Emphasizes *General Catalog* and concentration requirements, registration, careers, and Polytechnic campus facilities.

E AMT 182 Private Pilot Ground School. (3)
fall, spring, summer
Ground school preparation for Private Pilot Certificate. Aerodynamics, navigation, performance, and regulations. Integrated lecture/lab. Corequisite: AMT 220.

E AMT 194 Special Topics. (1–4)
selected semesters

E AMT 200 Flight Safety II. (1)
fall, spring, summer
Supervised commercial instrument flight training and safety briefings. Requires continuous enrollment until completion of FAA Commercial Pilot Certificate with Instrument Rating. Integrated lecture/lab. Fee. See AMT Note 1. Prerequisites: AMT 100; Private Pilot Certificate. Pre- or corequisite: AMT 214 or 322.

E AMT 201 Air Traffic Control. (3)
fall
Ground and air operations; weather services communications and routing; flight plans, IFR operations, departures and arrivals; and airport conditions and emergencies. Prerequisite: AMT 182.

E AMT 214 Commercial/Instrument Ground School I. (3)
fall and spring
Ground school leading to FAA Instrument Pilot Rating/Commercial Pilot Certificate (part 1 of 2). 10 hours ground trainer included. Integrated lecture/lab. Fee. Pre- or corequisites: AMT 182, 220.

E AMT 220 Aviation Meteorology. (3)
fall, spring, summer
Evaluation, analysis, and interpretation of atmospheric phenomena. Low- and high-altitude weather from the pilot's viewpoint. Corequisite: AMT 182.

E AMT 280 Aerospace Structures, Materials, and Systems. (4)
fall
Basic aerodynamics, incompressible/compressible airflow, wind tunnel testing, wing theory; analysis of aircraft structures; properties and applications of materials, and aircraft systems. Lecture, lab. Fee. Prerequisites: PHY 111, 113.

E AMT 287 Aircraft Powerplants. (4)
spring
Theory and performance analysis of gas turbine and reciprocating aircraft engines. Engine accessories, systems, and environmental control. Lecture, lab. Prerequisites: PHY 111, 113.

E AMT 300 Flight Safety III. (1)
fall, spring, summer
Supervised instructor flight training and safety briefings. Requires continuous enrollment until completion of FAA Flight Instructor Certificate with Instrument Instructor Rating. Integrated lecture/lab. Fee. See AMT Note 1. Prerequisite: AMT 200. Pre- or corequisite: AMT 385.

E AMT 308 Air Transportation. (3)
fall
Studies the historical and international development of air transportation and its social, political, and economic impact upon global interrelationships. Prerequisite: junior standing.
General Studies: G

E AMT 322 Commercial/Instrument Ground School II. (3)
fall and spring
Ground school leading to FAA Instrument Pilot Rating/Commercial Pilot Certificate (part 2 of 2). 10 hours ground trainer included. Integrated lecture/lab. Fee. Prerequisite: AMT 100 or instructor approval. Pre- or corequisite: AMT 214.

E AMT 350 Aircraft Design and Logistics Management. (3)
spring
Fundamental aircraft design principles, including performance factors associated with mission profiles and the identification of basic logistical support requirements. Integrated lecture/lab. Prerequisites: AMT 280, 287.

E AMT 360 Introduction to Helicopter Technology. (3)
selected semesters
Introduces the working functions of modern rotary wing aircraft, rotary wing flight theory, aerodynamics, controls, flight, and power requirements. Prerequisites: PHY 111, 113.

E AMT 370 Air Freight Operations. (3)
selected semesters
Air freight operations in National Aviation System; ramp operations, loading, weight and balance, and administration of airside and groundside operations. Prerequisite: junior standing.

E AMT 382 Air Navigation. (3)
fall and spring
Theory and application of modern advanced navigation and flight instrument systems. Introduces crew resource management in multiplace cockpits. Lecture, lab. Prerequisites: AMT 200, 322.

E AMT 385 Flight Instructor Ground School. (3)
fall and spring
Ground school in preparation for the FAA Flight Instructor Certificate. Integrated lecture/lab. Pre- or corequisite: AMT 200.

E AMT 387 Multiengine Pilot Ground School. (1)
fall and spring
Ground school preparation for the FAA Multiengine Rating. Integrated lecture/lab. Fee. See AMT Note 1. Prerequisite: AMT 200 or instructor approval.

E AMT 391 Multiengine Instructor Ground School. (2)
selected semesters
Ground school preparation for the FAA Multiengine Flight Instructor Rating. Integrated lecture/lab. See AMT Note 1. Prerequisites: AMT 300, 387, 400.

E AMT 392 Flight Instructor Instrument Ground School. (3)
fall and spring
Ground school preparation for the FAA Instrument Flight Instructor Rating. Lecture, lab. See AMT Note 1. Prerequisites: AMT 200, 385.

E AMT 394 Special Topics. (1–4)
selected semesters

E AMT 396 Aviation Professional. (1)
fall and spring
Career focus for management and flight students, including internships, résumé writing, interviews, and employment search in aviation industry. Prerequisite: junior standing.

E AMT 400 Flight Safety IV. (1)
fall, spring, summer
Multiengine crew training and safety briefings. Requires continuous enrollment until completion of multiengine rating. Integrated lecture/lab. Fee. See AMT Note 1. Prerequisite: AMT 300. Pre- or corequisite: AMT 387.

E AMT 401 Multiengine Instructor Rating. (1)
selected semesters
Normal and emergency flight operations. Instruction techniques and procedures for light multiengine land, airplane. Requires CFIAME Rating for course completion. Integrated lecture/lab. See AMT Note 1. Prerequisites: AMT 391, 400.

E AMT 408 National Aviation Policy. (3)
fall
Examines aviation and airspace policies and policy process, including agencies involved in formulation, implementation, and evaluation of aviation policy. Prerequisites: AMT 308; senior standing.

E AMT 410 Aviation Safety and Human Factors. (3)
fall
Aviation accident prevention, human factors, life support, fire prevention, accident investigation, and crash survivability. Development and analysis of aviation safety programs. Prerequisites: junior standing; completion of 1 semester of General Studies L requirement.

E AMT 412 Air Transportation Research. (1)
fall
Surveys practical research methodology in use in the air transportation industry. Topics include planning and design considerations.

E AMT 442 Aviation Law/Regulations. (3)
fall
Aviation within context of U.S. Common Law system. Public law, administrative rule making, sovereignty, enforcement, and case law analysis. Prerequisite: junior standing.

E AMT 444 Airport Management and Planning. (3)
spring
Orientation to administration and management of modern public airports, including overview of planning, funding, and development of airport facilities. Prerequisite: junior standing.

E AMT 482 Airline Instrument Procedures. (3)
fall
Advanced instrument flight using airline instrument procedures and airline crew and cockpit resource management. Lecture, lab. Prerequisites: a combination of AMT 200 and 322 and 382 or only instructor approval.

E AMT 484 Aeronautical Internship. (1–12)
fall, spring, summer
Work experience assignment with aerospace industry commensurate with student's program. Special project guidance by industry with university supervision. Prerequisites: advisor approval; junior standing.

E AMT 486 Regional Jet Aircraft Systems. (3)
fall and spring
Regional jet airline aircraft systems and flight procedures. Includes theoretical educational education for regional jet commercial passenger aircraft. Integrated lecture/lab. Prerequisite: AMT 382. Pre- or corequisite: AMT 482.

E AMT 489 Airline Administration. (3)
spring
Administrative organizations, economics of airline administration, operational structure, and relationship with federal government agencies. Prerequisite: junior standing.

E AMT 490 Regional Jet Operations Capstone. (3)
fall and spring
Regional jet aircraft operations and flight procedures. Includes theoretical education for RJ aircraft, FTD and full-motion simulator time. Integrated lecture/lab. Prerequisites: AMT 382; professional flight major. Corequisite: AMT 482.

E AMT 491 Aviation Management Capstone. (3)
spring
Integrated group project with industry partner to address current problems in either air carrier or airport management focus area. Prerequisite: senior standing.

E AMT 494 Special Topics. (1–4)
selected semesters

E AMT 496 Airline Aircraft Systems Capstone. (3)
spring
Commercial airline aircraft systems and flight procedures. Includes theoretical education for large, commercial passenger aircraft. Integrated lecture/lab. Prerequisite: senior standing.

E AMT 498 Pro-Seminar. (1–7)
selected semesters

E AMT 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Department of Electronics and Computer Engineering Technology

www.poly.asu.edu/ctas/ecet
480/727-1514
TECH 101

Lakshmi V. Munukutla, Chair

Professors: McHenry, Munukutla, Robertson

Associate Professors: Darveaux, Macia, Madakannan, Petrovic, Sundararajan, Zeng

PURPOSE

The Department of Electronics and Computer Engineering Technology prepares graduates to apply scientific and engineering knowledge, methods, and techniques in support of technological applications in electronics and computer engineering activities and processes.

The engineering technology curriculum is applications oriented and builds upon a background of applied science and mathematics, including the concepts and applications of calculus. Graduates are prepared to produce practical, workable, and safe solutions to technologically challenging problems. Graduates are employed in the electronics and computer industries with responsibilities such as designing, installing, and operating technical systems; analyzing and (re) engineering systems that embed computer hardware and software for unique applications; developing and producing products, managing manufacturing processes; and providing customer support for technical products and systems.

DEGREES

The faculty in the Department of Electronics and Computer Engineering Technology offer the BS degree in Electronics Engineering Technology (BS/EET).

For students holding an AAS degree, the department offers the BAS degree with a major in Applied Science. Two concentrations are available: instrumentation and semiconductor technology.

A Master of Science in Technology degree program with concentrations in electronic systems engineering technology, instrumentation and measurement technology, and microelectronics engineering technology is available for qualified BS graduates. See the *Graduate Catalog* for more information.

Electronics Engineering Technology—BS

Students interested in the BS degree in Electronics Engineering Technology may choose to specialize in one of the following three concentrations: electronic systems, microelectronics, and telecommunications.

The *electronic systems* concentration is aimed at preparing persons for careers in control, electronics, instrumentation, and power systems applications. This concentration allows a student to develop a broad-based knowledge of electrical/electronic fundamentals with an applications perspective.

The *microelectronics (UET)* concentration combines applied electronics, monolithic and hybrid integrated circuit processing and applications, device and component fabrication, and manufacturing. The objective of this concentration is to prepare persons to assume positions in the area of microelectronics manufacturing with immediately applicable knowledge as well as to develop a strong foundation of electronic fundamentals and methods. Graduates of this concentration secure positions in processing, manufacturing operations, and application areas in industry as members of diverse scientific engineering teams.

The *telecommunications* concentration encompasses the fundamentals of information and signal processing, modern bandwidth-efficient digital radio analysis with RF and microwave circuits and systems. Applications include telephone pulse code modulation, cable TV, fiber optic links, and satellite transmission circuits and systems.

The departmental curriculum is organized into two categories, technical studies and General Studies. Technical studies consist of core areas and the concentration specialty area. General Studies consist of courses selected to meet the university General Studies requirement (see "General Studies," page 93) as well as the math/science requirement of the Technology Accreditation Commission (TAC) of the Accreditation Board for Engineering and Technology (ABET). Note that all three General Studies awareness areas are required. Consult an advisor for an approved list of courses.

A minimum of 50 upper-division semester hours is required, including at least 24 semester hours of EET, CET, or UET upper-division hours to be taken at ASU. A minimum of 128 semester hours with a 2.00 or higher cumulative GPA is required for graduation. Complete program of study guides with typical four-year patterns are available from the department.

The General Studies portion of the BS/EET curriculum has been carefully structured to meet the specific requirements of the university and to include the content required by the TAC of the ABET, the professional accrediting agency for such curricula.

ELECTRONICS ENGINEERING TECHNOLOGY—BS DEGREE REQUIREMENTS

In addition to the courses listed for First-Year Composition and university General Studies, the following courses are required.

Engineering Technology Core

The following courses are required as part of the engineering technology core:

CON	211	Applied Engineering Mechanics: Statics	3
ETC	100	Languages of Technology *CS*	4
MET	340	Applied Thermodynamics and Heat Transfer	3
Total			10

Electronics Engineering Technology Core and Major Requirements

CST	100	Object-Oriented Software Development I	3

CST 150 Digital Systems I *CS* 4
CST 350 Digital Systems II 4
CST 354 Microcomputer Architecture and Programming 4
EET 208 Electric Circuit Analysis I 4
EET 301 Electric Circuit Analysis II 4
EET 310 Electronic Circuits I 4
EET 372 Communication Systems 4
EET 396 Professional Orientation* 1
EET 407 Energy Conversion and Applications 4
EET 410 Electronic Circuits II 4
UET 331 Electronic Materials 3
UET 415 Electronic Manufacturing Engineering Principles 3

Total 46

* Students must take EET 396 the semester in which they are enrolled in the 87th hour of credit (ASU plus transfer hours). If the 87th hour occurs in summer session, students should take EET 396 the prior spring semester.

Electronics Engineering Technology Concentrations

Electronic Systems

CST 383 Shell and Script Programming with UNIX 3
EET 406 Control System Technology 4
EET 430 Instrumentation Systems 4
EET 460 Power Electronics 4
Approved technical electives 7

Total 22

Microelectronics

CHM 116 General Chemistry II *SQ* 4
UET 416 Dopant Control Technology 3
UET 417 Semiconductor Technology Practice 3
UET 418 Systems on Silicon 3
UET 421 IC Device Characterization 3
UET 432 Semiconductor Packaging and Heat Transfer 3
Approved technical elective 2

Total 21

Telecommunications

CET 458 Digital Computer Networks 3
CET 473 Digital/Data Communications 4
EET 401 Digital Signal Processing for Multimedia 3
EET 494 ST: Digital Filter Hardware Design 3
Approved technical electives 9

Total 22

Electronics Engineering Technology
Program of Study
Typical First- and Second-Year Sequence

First Year

First Semester

ENG 101 First-Year Composition 3
ETC 100 Languages of Technology *CS* 4
MAT 170 Precalculus *MA* 3
PHY 111 General Physics *SQ*[1] 3
PHY 113 General Physics Laboratory *SQ*[1] 1

Total 14

Second Semester

CST 100 Object-Oriented Software Development I 3
CST 150 Digital Systems I *CS* 4
ENG 102 First-Year Composition 3
MAT 260 Technical Calculus I *MA* 3
PHY 112 General Physics *SQ*[2] 3
PHY 114 General Physics Laboratory *SQ*[2] 1

Total 17

Second Year

First Semester

CON 211 Applied Engineering Mechanics: Statics 3
CST 350 Digital Systems II 4
ECN 211 Macroeconomic Principles *SB* 3
EET 208 Electric Circuit Analysis I 4
MAT 261 Technical Calculus II *MA* 3

Total 17

Second Semester

CHM 113 General Chemistry I *SQ* 4
EET 301 Electric Circuit Analysis II 4
MAT 262 Technical Calculus III *MA* 3
MET 340 Applied Thermodynamics and Heat Transfer 3
HU, SB, or awareness area course 3

Total 17

[1] Both PHY 111 and 113 must be taken to secure SQ credit.
[2] Both PHY 112 and 114 must be taken to secure SQ credit.

APPLIED SCIENCE—BAS

The Bachelor of Applied Science degree is a "capstone" degree for the Associate of Applied Science degree. The BAS degree exposes students to advanced concepts and diverse critical thinking skills that prepare them for future career opportunities and professional advancement. Students wishing to enroll in the BAS concentrations offered by the Department of Electronics and Computer Engineering Technology should have an AAS in electronics technology or computer programming.

Admission

Admission to the BAS degree program is restricted to students holding an AAS degree from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and a 2.50 for nonresident applicants.

Degree Requirements

The BAS degree in the College of Technology and Applied Sciences consists of 60 semester hours of upper-division (300-level and above) courses, with 30 semester hours in residence.

AAS degree 60
Assignable credit 6
BAS core 15
General Studies 19
Technical concentration 20

Total 120

General Studies Curriculum

The BAS curriculum builds on the general education content of the AAS degree. Additional General Studies (L, CS, and awareness areas) are met with courses in the core or

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

concentration. General Studies courses focus on contextual learning.

L	3
MA	3
HU	3
HU or SB	3
SB	3
SG	4
Total	19

Assignable Credit

Assignable credit allows space in the curriculum for the prerequisite courses needed to succeed in the program. The courses are determined by the student and the advisor.

BAS Core

The area core focuses on management and organization, professional communication, quantitative analysis, and computer competency. The BAS core consists of five courses and varies depending upon concentration.

BAS Core

CST	354	Microcomputer Architecture and Programming	4
CST	386	Operating Systems Principles	3
EET	494	ST: Data Analysis	3
TMC	346	Management Dynamics	3
TWC	400	Technical Communications *L*	3
Total			16

Technical Concentrations

Instrumentation. This concentration studies instrumentation, power systems, and computer systems. The curriculum prepares the graduate to specify and prepare solutions for a wide variety of electrical and electronic instrumentation systems. Graduates from this concentration are prepared for technical leadership positions in the various segments of the electronics industry.

Semiconductor Technology. This concentration prepares graduates for careers in the semiconductor industry. The BAS degree provides graduates with an understanding of integrated circuit processing, mask making, packaging, and the software tools used in this industry.

ELECTRONICS ENGINEERING TECHNOLOGY (EET)

E EET 191 First-Year Seminar. (1–3)
selected semesters

E EET 208 Electric Circuit Analysis I. (4)
fall and spring
Electrical models, AC/DC steady-state analysis of first and second order systems. Circuit theorems. Three-phase circuits. Lecture, lab. Pre- or corequisite: MAT 261.

E EET 294 Special Topics. (1–4)
selected semesters

E EET 301 Electric Circuit Analysis II. (4)
fall and spring
Analysis of continuous-time signals and linear systems of using Laplace and Fourier response of circuits. Lecture, lab. Prerequisite: EET 208. Pre- or corequisite: MAT 262.

E EET 304 Transmission Lines in Computer Networks. (3)
spring
Theory and application of transmission lines in high-speed computer networks. Signal propagation and impedance matching. Lecture, lab, computer labs. Prerequisite: EET 301.

E EET 310 Electronic Circuits I. (4)
fall and spring
Multistage amplifier, analysis, and design using models and computer simulation. Lecture, lab. Prerequisite: EET 208.

E EET 372 Communication Systems. (4)
fall and spring
Systems analysis and design of AM, FM, PCM, and SSB communication systems. Noise and distortion performance of communication systems. Lecture, lab. Pre- or corequisites: EET 301, 310.

E EET 394 Special Topics. (1–4)
selected semesters

E EET 396 Professional Orientation. (1)
fall and spring
Technical, professional, economic, and ethical aspects of electronics/computer engineering technology practice and industrial organization. Lecture, projects. Prerequisite: junior standing.

E EET 401 Digital Signal Processing for Multimedia. (3)
fall
Applies DSP techniques to multimedia. Digital filter analysis and design. Time and frequency techniques. Computer applications. Cross-listed as CET 401. Credit is allowed for only CET 401 or EET 401. Prerequisites: EET 301; MAT 262.

E EET 403 PLCs, Sensors, and Actuators. (3)
spring
Applications, programming, and troubleshooting using PLCs. Interfacing to motors, sensors, and actuators. Fluid power principles. Lecture, lab, projects. Prerequisite: EET 208 (or equivalent electrical science course).

E EET 406 Control System Technology. (4)
spring
Control system components, analysis of feedback control systems, stability, performance, and application. Lecture, lab, computer simulations. Prerequisites: EET 301; MAT 262.

E EET 407 Energy Conversion and Applications. (4)
fall
Electricity, magnetism, mechanics, heat and units, and three-phase circuits. Electrical machines, transformers, generation, transmission, and distribution of electrical energy. Lecture, lab. Prerequisite: EET 208.

E EET 410 Electronic Circuits II. (4)
fall and spring
Analysis and design of OP-amps, power amplifiers, and digital logic families. Feedback design using frequency response. Computer analysis and design. Lecture, lab. Prerequisites: EET 301, 310.

E EET 430 Instrumentation Systems. (4)
fall
Measurement principles and instrumentation, techniques. Signal and error analysis. Lecture, lab. Prerequisites: EET 301, 310.

E EET 460 Power Electronics. (4)
spring
Analyzes circuits for control and conversion of electrical power and energy. Lecture, lab. Prerequisites: EET 301, 310, 407.

E EET 482 Industrial Practice: Internship/Co-op. (1–4)
fall, spring, summer
Specially assigned or approved activities in electronic industries or institutions. Requires report. May be repeated for up to a maximum of 10 credits. Prerequisites: Electronics Engineering Technology major; junior or senior standing.

E EET 484 Internship. (1–3)
selected semesters

E EET 490 Electronics Project. (1–4)
fall, spring, summer
Individual or small group projects in applied electronics, with emphasis on laboratory practice or hardware solutions to practical problems. Prerequisite: instructor approval.

E EET 492 Honors Directed Study. (1–3)
selected semesters

E EET 493 Honors Thesis. (1–6)
selected semesters

E EET 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Data Analysis. (3)
- Digital Filter Hardware Design. (3)

E EET 498 Pro-Seminar. (1–3)
selected semesters

E EET 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

MICROELECTRONICS ENGINEERING TECHNOLOGY (UET)

E UET 191 First-Year Seminar. (1–3)
selected semesters

E UET 194 Special Topics. (1–4)
selected semesters

E UET 294 Special Topics. (1–4)
selected semesters

E UET 305 Introduction to Microelectronics. (3)
fall, spring, summer
Quantifies the role of microelectronics technology and its associated skills as drivers for electronics systems development. Lecture with strong Web preparation and support. Prerequisite: junior standing.

E UET 331 Electronic Materials. (3)
fall
Physical, chemical, electromagnetic, and mechanical properties of electronic materials. Solid-state device characteristics and their material properties. Fee. Prerequisites: CHM 113; EET 208; PHY 112, 114.

E UET 411 Layer Deposition Technology. (3)
spring
Fundamentals, applications, and vacuum technology of layer deposition processes used in IC fabrication. Lecture with Web support. Fee. Credit is allowed for only UET 411 or 511. Prerequisite: UET 331. Corequisite: UET 417.

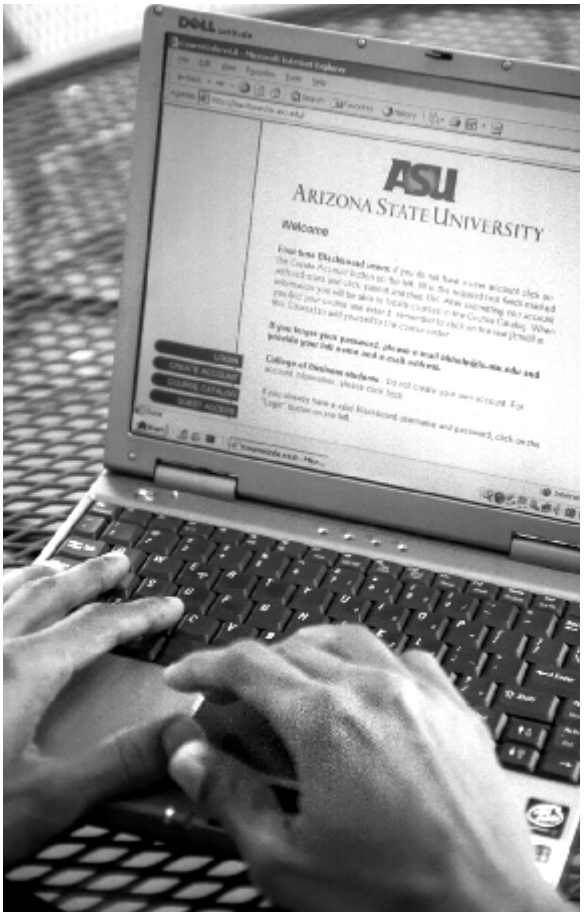
E UET 415 Electronic Manufacturing Engineering Principles. (3)
fall and spring
Electronic equipment design and fabrication principles and practice. Completion of electronics hardware design project and report. Lecture, lab. Fee. Prerequisite: senior standing (113 hours) in Electronics Engineering Technology.

E UET 416 Dopant Control Technology. (3)
fall
Design and practical realization of charge distribution in microelectronic devices, including ion implantation and diffusion processes. Lecture with Web support. Credit is allowed for only UET 416 or 516. Prerequisite: UET 331. Corequisite: UET 417.

E UET 417 Semiconductor Technology Practice. (3)
fall
Lab-based design and execution of safe and effective semiconductor fabrication operations. Lab. Prerequisite: UET 331 (or its equivalent). Corequisites: UET 411 and 416 and 424 (or their equivalents).

E UET 418 Systems on Silicon. (3)
spring
Factors that drive integration on silicon, including logic, memory, and interfaces. Economics of system-level solutions. Lecture with Web support and team activities. Credit is allowed for only UET 418 or 518. Prerequisite: UET 331. Corequisite: UET 417.

E UET 421 IC Device Characterization. (3)
fall
Design and operation of the major classes of semiconductor devices. Characterization by parameters and their extraction. Future technology trends. Lecture with Web support. Fee. Prerequisite: UET 331.



Many areas on campus accommodate wireless network connections, and wireless zones continue to expand on all ASU campuses.

Tim Trumble photo

E UET 424 Pattern Transfer Technology. (3)
spring
Maskmaking, lithography, and etch processes for integrated circuit fabrication. Lecture with Web support. Prerequisite: UET 331. Corequisite: UET 417.

E UET 426 Software Tools for the Semiconductor Industry. (3)
spring
Introduces software tools commonly used in the semiconductor industry, such as SUPREM IV, PSPICE, VIEWLOGIC, and ICED. Prerequisite: UET 331.

E UET 432 Semiconductor Packaging and Heat Transfer. (3)
spring
Packaging theory and techniques; hermetic and plastic assembly; thermal management; electrical characteristics and reliability. Prerequisite: UET 331 (or their equivalents).

E UET 437 Process Control and Validation. (3)
spring
Statistical process control and its application to IC fabrication. Design, control, and performance validation techniques throughout the manufacturing process. Lecture with Web support. Prerequisite: 300-level statistics course. Corequisite: UET 417.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

E UET 484 Internship. (1–3)
selected semesters

E UET 492 Honors Directed Study. (1–3)
selected semesters

E UET 493 Honors Thesis. (1–6)
selected semesters

E UET 494 Special Topics. (1–4)
selected semesters

E UET 498 Pro-Seminar. (1–3)
selected semesters

E UET 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog,* or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Engineering

www.poly.asu.edu/ctas/engineering
480/727-2727
CNTR 110

Chell Roberts, Chair

Professors: Henderson, Jakubowski

Associate Professors: Grondin, Hinks, Kuo, Roberts

Assistant Professor: Sugar

PURPOSE

The emerging problems that engineers must solve require a broad set of interdisciplinary skills. Engineers are challenged with improving the quality of life for human kind, designing new innovative products, preparing for potential catastrophes, and providing society with technological leadership. The Department of Engineering provides a flexible, new generation engineering education that serves as a foundation for a variety of technical and professional careers in a rapidly changing world.

Learning is approached through student-focused inquiry, through the investigation and solution of realistic engineering problems, and through frequent participation on interdisciplinary project teams. Learners are guided in the development of a strong foundation in modern engineering skills and in the ability to design, analyze, and build. The department is committed to mentoring students in learning, in the selection of career pathways, and in the transition to the professional world. Students graduating from the program have excellent engineering skills, global awareness, strong communication skills, good business skills, an understanding of entrepreneurship and the ability to continue life-long growth in their professional skills.

The engineering program provides a unique learning environment with faculty who make learning and students a top priority and where students are actively involved in their own education. Realistic projects permeate the curriculum, providing extensive experience in teaming with learners from other disciplines and in communicating to diverse audiences. Classrooms are design studios. The environment and learning approach connects engineering, science, math, and technology to real-world problems and smoothes the transition to a professional career.

The program structure is flexible and responsive to emerging engineering fields. The program integrates a broad knowledge base with study in multiple concentrations, providing both breadth and depth. This provides a greater flexibility in curricular and career pathways allowing for multidisciplinary experiences and novel combinations of expertise. Throughout the curriculum students learn to think critically, with a particular focus on how engineering addresses a variety of technical and societal problems.

DEGREE

The faculty in the Department of Engineering offer a BSE degree in Engineering.

ACCREDITATION

The program will seek accreditation through the Engineering Accreditation Council of the Accreditation Board for Engineering and Technology, Inc. (111 Market Place, Suite 1050, Baltimore, MD 21202, 410/347-7700) under the general engineering criteria applicable to all engineering degrees. The Accreditation Board requires that a program have graduates before accreditation can be granted. Typically, graduates from the year preceding accreditation are granted the status of having an accredited degree.

ENGINEERING—BSE

The Engineering curriculum is a flexible engineering undergraduate curriculum. Flexibility is achieved through a primary and a secondary concentration, automatically making the degree multidisciplinary in nature. The primary concentration is selected from a range of engineering specializations. The secondary concentration is selected from another engineering specialization or from an area of interest outside the engineering field. In addition, the curriculum has nine semester hours of unrestricted electives. This flexibility in the curriculum allows students to take 45 to 66 semester hours of engineering course work in addition to zero to 27 semester hours in the secondary concentration.

A minimum of 128 semester hours with a cumulative GPA of 2.00 is required for graduation. Students must complete First-Year Composition and the University General Studies requirements for Humanities, Social and Behavioral Science and the Global, Historical and Cultural diversity in the US awareness requirements and meet all other University degree requirements.

It is recommended that a student seeking transfer admission to this program at a later date plan on taking MAT 270 and 271; PHY 121 and 122 and CHM 113 or 114 as part of their university general studies requirements. Engineering courses covered by the standard articulation agreements

between the various Arizona universities and community colleges that are articulated as equivalent will be accepted as credit toward this degree.

For more information and advising on courses, send e-mail to engr@asu.edu, call (480) 727-2727, or access the Web site at www.poly.asu.edu/ctas/engineering.

ENGINEERING (EGR)

E EGR 194 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Critical Inquiry in Engineering. (3)
- Introduction to Engineering. (3)
- Introduction to Engineering Design. (4)
- Technology and Society. (3)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Department of Mechanical and Manufacturing Engineering Technology

www.poly.asu.edu/ctas/mmet
480/727-1584
SIM 295

Scott G. Danielson, Chair

Associate Professors: Biekert, Danielson, Nam, Palmgren, Rajadas, Rogers

Assistant Professor: Post

Senior Lecturer: Gintz

PURPOSE

The Department of Mechanical and Manufacturing Engineering Technology emphasizes applied engineering practice through four-year degree programs in Manufacturing Engineering Technology and Mechanical Engineering Technology. Math and science principles are applied to the solution of technical problems in a lecture/laboratory environment.

The Mechanical and Manufacturing Engineering Technology (MMET) degree programs endeavor to produce qualified and competent applied engineering professionals (engineering technologists). Graduates are prepared to make substantial contributions to their employers in as short a time as possible. Specifically, the MMET program strives to graduate individuals who possess

1. the scientific, technical, analytical, statistical, computational, and problem solving skills necessary for mechanical and manufacturing engineering practice (including specific aeronautical or automation skills, as appropriate);
2. the competencies appropriate to entry-level professionals in manufacturing systems engineering, enterprise engineering, analysis, product and system design, product realization testing, and quality control;
3. team building, leadership, communication, and project management skills;
4. an understanding of the social, political, and economic environment in which engineering operations function to include broad ethical considerations (i.e., work habits, safety, hazmat);
5. a depth of understanding in either aeronautical or automation practice (for mechanical engineering technology specialty concentrations only);
6. the basic knowledge of production processes taking design manufacturability into account (for Mechanical Engineering Technology graduates only); and
7. a depth of understanding in applications of manufacturing science, technology, and engineering in relation to process and production engineering (for Manufacturing Engineering Technology graduates only).

The goal of the manufacturing engineering technology program is to prepare students for employment in areas such as manufacturing engineering, manufacturing processes, automation, and quality control. Major emphasis is placed on reducing the amount of time required by industry to make the graduate productive in any area of work. The department actively supports the student chapter of the Society of Manufacturing Engineers.

The Mechanical Engineering Technology program produces graduates with the ability to design, develop, implement, and improve machinery, workstations, and systems. The curriculum prepares graduates for many job opportunities in engineering design, manufacturing, and laboratory environments. Graduates are prepared to design and develop machines and related mechanical equipment. Aircraft and their components, automation as used in manufacturing, machine tools, materials handling systems, and industrial production equipment are just a few examples. The department actively supports a student chapter of the Society of Automotive Engineers.

For more information about both programs, access the Web site at www.poly.asu.edu/ctas/mmet.

ACCREDITATION

The BS degree in Manufacturing Engineering Technology and the BS degree in Mechanical Engineering Technology are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc. (See "Accreditation," page 245, for more information.)

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

DEGREES

The Department of Mechanical and Manufacturing Engineering Technology offers the BS degree in Manufacturing Engineering Technology and the BS degree in Mechanical Engineering Technology.

For students holding an AAS degree, the department offers the BAS degree with concentrations in manufacturing technology and management and materials joining and manufacturing technology.

A Master of Science in Technology degree with concentrations in manufacturing engineering technology, mechanical engineering technology, and aeronautical engineering technology is offered for graduate study. See the *Graduate Catalog* for more information.

BS Degree Requirements

All degree requirements for programs are shown on curriculum check sheets. Requirements include First-Year Composition, University General Studies (see "General Studies," page 93), and the Engineering Technology Core. All three General Studies awareness areas are required. Consult an advisor for an approved list of courses. To graduate, students are required to complete a minimum of 128 semester hours with a 2.00 cumulative GPA, including at least 50 semester hours of upper-division courses.

Manufacturing Engineering Technology—BS

The BS degree in Manufacturing Engineering Technology requires 128 semester hours as specified below:

Engineering technology core	14
First-Year Composition	6
General Studies/department requirements	45
Manufacturing Engineering Technology major	54
Selected concentration	9
Total	128

The following courses constitute the Manufacturing Engineering Technology major and are required of all Manufacturing Engineering Technology students. Refer to the specific concentrations for additional requirements.

Manufacturing Engineering Technology Major

EET	403	PLCs, Sensors, and Actuators	3
MET	150	Introduction to Engineering Technology	1
MET	230	Introduction to Engineering Materials	2
MET	231	Manufacturing Processes	3
MET	300	Applied Material Science	3
MET	302	Welding Survey	3
MET	309	Nondestructive Testing and Quality Assurance	1
MET	313	Applied Mechanics of Materials	3
MET	314	Applied Mechanics of Materials Laboratory	1
MET	331	Machine Design I	3
MET	341	Manufacturing Analysis	3
MET	344	Casting and Forming Processes	3
MET	345	Advanced Manufacturing Processes	3
MET	351	Introduction to Automation	3
MET	396	Manufacturing Professional Orientation	1
MET	401	Quality Assurance	3
MET	416	Applied Computer-Integrated Manufacturing *CS*	3
MET	443	CNC Computer Programming	3
MET	444	Production Tooling	3
MET	460	Manufacturing Capstone Project I	3
MET	461	Capstone Project II	3
Total			54

A student participating in the Manufacturing Engineering Technology program may select from two concentrations: manufacturing engineering technology or mechanical engineering technology.

Manufacturing Engineering Technology Concentration. This concentration is designed to prepare technologists with both conceptual and practical applications of processes, materials, and products related to manufacturing industries. Accordingly, this concentration provides additional preparation for students to meet the responsibilities in planning the processes of production, developing the tools and machines, and integrating facilities for production or manufacturing.

Required Courses

MET	409	Applied Engineering Economics	3
MET	410	Manufacturing Resource Management	3
MET	442	Specialized Production Processes	3
Total			9

Mechanical Engineering Technology Concentration. The primary objective of the mechanical engineering technology concentration is to offer manufacturing students an emphasis in mechanics and thermal sciences. Required courses are as follows:

MET	410	Manufacturing Resource Management	3
MET	434	Applied Fluid Mechanics	3
MET	438	Machine Design II	3
Total			9

Mechanical Engineering Technology—BS

The BS degree in Mechanical Engineering Technology requires 128 semester hours as specified below:

Mechanical Engineering Technology major	63
Engineering technology core	14
First-year composition	6
General Studies/department requirements	45
Total	128

Students interested in the BS degree in Mechanical Engineering Technology choose one of the following three concentrations: mechanical, aeronautical, or automation engineering technology. Each concentration includes six courses for a total of 18 semester hours.

The mechanical engineering technology concentration builds a strong base of knowledge of the field and is available to students who do not desire a focused specialty area.

The aeronautical engineering technology concentration provides a specialty content area in aircraft airframe, propulsion, and aircraft production and operations. It prepares students for employment in areas such as aircraft design and manufacturing, aerodynamics, propulsion, and wind tunnel testing. However, aeronautical concentration graduates have a good general background in mechanical engineering technology and are not limited to employment opportunities in just the aviation industry.

The automation engineering technology concentration provides specialty content in mechanical automation. Automated assembly and testing are major components of most modern, high volume mechanical systems and manufacturing operations. As a specialty area, this concentration provides students with an opportunity to develop knowledge

and skill in the broad area of automation. It also dovetails well with the semiconductor industry where most process tools are highly automated.

The following courses constitute the Mechanical Engineering Technology major and are required of all Mechanical Engineering Technology students.

Mechanical Engineering Technology Major

AET	210	Measurements and Testing....3
AET	312	Applied Engineering Mechanics: Dynamics....3
MET	150	Introduction to Engineering Technology....1
MET	230	Introduction to Engineering Materials....2
MET	231	Manufacturing Processes....3
MET	300	Applied Material Science....3
MET	309	Nondestructive Testing and Quality Assurance....1
MET	313	Applied Mechanics of Materials....3
MET	314	Applied Mechanics of Materials Laboratory....1
MET	331	Machine Design I....3
MET	345	Advanced Manufacturing Processes....3
MET	396	Manufacturing Professional Orientation....1
MET	401	Quality Assurance....3
MET	409	Applied Engineering Economics....3
MET	432	Thermodynamics....3
MET	434	Applied Fluid Mechanics....3
MET	460	Capstone Project I....3
MET	461	Capstone Project II....3
Concentration....18		
Total....63		

APPLIED SCIENCE—BAS

The Bachelor of Applied Science (BAS) degree is a "capstone" degree for the Associate of Applied Science degree. The BAS degree exposes students to advanced concepts and diverse critical thinking skills that prepare them for additional career opportunities and professional advancement.

Admission

Admission to the BAS degree program is restricted to students holding an AAS degree from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for resident applicants and a 2.50 for nonresident applicants.

Degree Requirements

The BAS degree in the College of Technology and Applied Sciences consists of 60 semester hours of upper-division (300 level and above) courses, with 30 hours in residence. A total of 120 semester hours is required for graduation.

AAS degree	60
Assignable credit	6
BAS core	15
General Studies	19
Technical concentration	20
Total	120

General Studies Curriculum

The BAS curriculum builds on the general education content of the AAS degree. Additional General Studies (L, CS, and awareness areas) are met with courses in the core or concentration. General Studies courses focus on contextual learning.

L	3
MA	3
HU	3
HU or SB	3
SB	3
SG	4
Total	19

Assignable Credit

Assignable credit allows space in the curriculum for prerequisite courses needed to succeed in the program or additional technical electives. The courses are determined by the student and the advisor.

BAS Core

The area core focuses on management and organization, professional communication, quantitative analysis, and computer competency.

MET	401	Quality Assurance....3
MET	416	Applied Computer-Integrated Manufacturing *CS*....3
OMT	344	Industrial Organization....3
TMC	470	Project Management....3
TWC	400	Technical Communications *L*....3
Total....15		

Technical Concentration

Manufacturing Technology and Management. This concentration prepares supervisors and other personnel for technical and management positions in the manufacturing industry. Students increase their knowledge of manufacturing and gain insight into other areas, such as management, that support their professional growth.

MET	300	Applied Material Science....3
MET	302	Welding Survey....3
MET	309	Nondestructive Testing and Quality Assurance....1
MET	341	Manufacturing Analysis....3
MET	344	Casting and Forming Processes....3
MET	345	Advanced Manufacturing Processes....3
MET	396	Manufacturing Professional Orientation....1
MET	444	Production Tooling....3
Total....20		

Materials Joining and Manufacturing Technology. This concentration requires students to have a solid welding background, preferably a welding-based AAS degree, with welding certification desirable. The materials joining concentration includes additional study in welding and materials joining plus a series of manufacturing-related courses to provide a broad understanding of the complex world of manufacturing. This background allows transition into positions in process development, direct manufacturing support, quality control and assurance, sales, and management.

MET	300	Applied Material Science....3
MET	309	Nondestructive Testing and Quality Assurance....1
MET	351	Introduction to Automation....3
MET	396	Manufacturing Professional Orientation....1
MET	400	Materials and Joining Processes....3

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

MET 402 Advanced Material Joining 3
MET 409 Applied Engineering Economics 3
MET 437 Design for Materials Joining.....3

Total 20

AERONAUTICAL ENGINEERING TECHNOLOGY (AET)

E AET 191 First-Year Seminar. (1–3)
selected semesters

E AET 194 Special Topics. (1–4)
selected semesters

E AET 210 Measurements and Testing. (3)
fall
Measurement systems, components, system response, and the characteristics of experimental data. Integrated lecture/lab. Prerequisites: MET 230; PHY 112, 114.

E AET 215 Mechanics of Aerospace Systems. (3)
spring
Basic physics of flight. Principles and design of aircraft systems and powerplants.

E AET 294 Special Topics. (1–4)
selected semesters

E AET 300 Aircraft Design I. (3)
fall
Applied aerodynamics, standard atmosphere, speed measurement, infinite and finite wings, airplane performance. Fee. Prerequisites: MAT 260; PHY 112, 114.

E AET 310 Instrumentation. (3)
fall
Measurement systems, components, system response, and the characteristics of experimental data. Methods of collecting and analyzing data. Lecture, lab. Prerequisite: MAT 261. Pre- or corequisite: MET 313.

E AET 312 Applied Engineering Mechanics: Dynamics. (3)
fall
Masses; motion kinematics; dynamics of machinery. Prerequisite: MAT 261.

E AET 394 Special Topics. (1–4)
selected semesters

E AET 396 Aerospace Professional Orientation. (1)
fall
Career focus for Aeronautical Engineering Technology students. Familiarization with the aerospace industry. Prerequisite: junior standing.

E AET 415 Gas Dynamics and Propulsion. (3)
spring
Introduces compressible flow, internal and external flow, and aerothermodynamic analysis of propulsion systems. Prerequisite: MET 434.

E AET 417 Aerospace Structures. (3)
fall
Analysis and design of aircraft and aerospace structures. Shear flow. Semimonocoque structures. Effects of dynamic loading. Prerequisites: AET 300, 312; MET 313.

E AET 420 Applied Aerodynamics and Wind Tunnel Testing. (3)
fall
Introduces viscous and inviscid flow and their relationship to aircraft lift and drag. Wind tunnel design and testing. Integrated lecture/lab. Prerequisites: AET 300; MET 434.

E AET 432 Applied Heat Transfer. (3)
fall
Heat transfer by conduction, convection, and radiation. Applies heat transfer to engineering design problems. Pre- or corequisite: MET 434 or instructor approval.

E AET 484 Internship. (1–12)
selected semesters

E AET 487 Aircraft Design II. (3)
spring
Basic aerodynamics and airplane performance analysis methods applied to practical design project. Prerequisite: AET 300.

E AET 492 Honors Directed Study. (1–6)
selected semesters

E AET 493 Honors Thesis. (1–6)
selected semesters

E AET 494 Special Topics. (1–4)
selected semesters

E AET 498 Pro-Seminar. (1–7)
selected semesters

E AET 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

MECHANICAL AND MANUFACTURING ENGINEERING TECHNOLOGY (MET)

E MET 150 Introduction to Engineering Technology. (1)
fall
Introduces mechanical, manufacturing, and aeronautical engineering technology. Covers aspects of the industries utilizing these majors.

E MET 160 CADD and Solid Modeling. (1)
selected semesters
Uses 3-D solid modeling software to model mechanical parts and produce valid engineering drawings, including use of geometric dimensioning and tolerancing. Integrated lecture/lab.

E MET 191 First-Year Seminar. (1–3)
selected semesters

E MET 194 Special Topics. (1–4)
selected semesters

E MET 211 Statics. (3)
fall and spring
Vectors, forces and moments, force systems, equilibrium, analysis of basic structures and structural components, friction, centroids, and moments of inertia. May be repeated for credit. Prerequisites: MAT 260 (or 270); PHY 111, 113.

E MET 230 Introduction to Engineering Materials. (2)
spring
Introduction to materials and their properties, emphasizing basic concepts and structures and how these properties relate to manufacturing and design.

E MET 231 Manufacturing Processes. (3)
fall
Design documentation and material processes on plastics, ferrous and nonferrous materials, emphasizing orthographic projection, geometric dimensioning and tolerances. Lecture, lab. Prerequisite: MAT 117 or 170.

E MET 294 Special Topics. (1–4)
selected semesters

E MET 300 Applied Material Science. (3)
fall
Principles of materials science emphasizing concepts relevant to design, manufacturing, and use. Covers metals, polymers, ceramics, and composites. 2 hours lecture, 1 hour lab. Prerequisite: MET 230 or instructor approval.

E MET 302 Welding Survey. (3)
fall
Theory and application of industrial welding processes; introductory welding metallurgy and weldment design; SMAW, GTAW, GMAW, oxyacetylene, and brazing experiences. Lecture, lab. Prerequisite: junior or senior standing.

E MET 309 Nondestructive Testing and Quality Assurance. (1)
fall
Part and material inspection using metrology and nondestructive inspection tools and techniques. Theory and application with use of pertinent standards. Lab. Prerequisite: MET 231.

E MET 313 Applied Mechanics of Materials. (3)
spring
Stress, strain, stress-strain relations. Axial, shear, bending, torsional and combined loads and deflections.

E MET 314 Applied Mechanics of Materials Laboratory. (1)
spring
Measurements of loads and deformations relating stress and strain in axial, shear, bending, torsional, and combined loading configurations. 3 hours lab. Pre- or corequisite: MET 313.

E MET 331 Machine Design I. (3)
fall
Applies mechanics to design of machine elements and structures. Stress analysis, failure modes, tolerances, cylindrical fits, and shaft design. Prerequisite: MET 313.

E MET 340 Applied Thermodynamics and Heat Transfer. (3)
fall and spring
Thermodynamic systems and processes, first and second laws of thermodynamics, properties of pure substances, and applications to heat engines and special systems. Fundamentals of conduction, radiation, and convection. May be repeated for credit. Prerequisites: MAT 261 (or 271); PHY 112, 114.

E MET 341 Manufacturing Analysis. (3)
spring
Organizational and functional requirements for effective production. Analysis of industrial specifications, geometric dimensioning and tolerancing, costs, and group technology. Writing assembly production plans. Prerequisite: MET 231.

E MET 344 Casting and Forming Processes. (3)
spring
Analyzes various forming processes to determine load requirements necessary for a particular metal-forming operation. Information used to select equipment and design tooling. Metal casting processes and design of castings. Introduces powder metallurgy. Prerequisite: MET 300.

E MET 345 Advanced Manufacturing Processes. (3)
spring
Material removal processes emphasizing advanced turning, milling, and machinability studies using cutting tools. CNC programming for machining and turning centers. Lecture, lab. Prerequisite: MET 231.

E MET 351 Introduction to Automation. (3)
spring
Introduces automation. Topics include assembly techniques, fixed and flexible automation systems, robots, material-handling systems, sensors, and controls. Integrated lecture/lab. Prerequisite: EET 208 or instructor approval.

E MET 394 Special Topics. (1–4)
selected semesters

E MET 396 Manufacturing Professional Orientation. (1)
fall
Career focus for Manufacturing Engineering Technology students. Familiarization with the manufacturing industry. Prerequisite: junior standing.

E MET 400 Materials and Joining Processes. (3)
fall
Effects of joining processes on metals and composites. Thermal cycle effects on solid-state and liquid-solid material transformations. Prerequisite: MET 300.

E MET 401 Quality Assurance. (3)
spring
Introduces statistical quality control methods design of experiments, sampling, gauge requirements, specifications, quality assurance tools emphasizing CNC-CMM programming. Integrated lecture/lab. Prerequisite: junior standing.

E MET 402 Advanced Material Joining. (3)
spring
In-depth analysis of common materials-joining processes and their process parameters. Includes automation, soldering, and adhesive bonding. Lecture, lab. Prerequisite: MET 302 (or its equivalent).

E MET 409 Applied Engineering Economics. (3)
spring
Fundamentals of engineering economics in a practical, industry-based approach. Includes effects of depreciation, taxes, inflation, and replacement analysis. Lecture, computer lab experiences.

E MET 410 Manufacturing Resource Management. (3)
fall
Measures like cycle time, throughput, capacity, work-in-process, inventory, variability, and how they drive operating relationships in a factory. Credit is allowed for only MET 410 or 510. Prerequisite: MET 341.

E MET 415 Manufacturing Simulation. (3)
spring
Computer simulation of manufacturing operations. Discrete event simulation models range from individual processes to whole factories. Lecture, computer lab experiences. Prerequisite: MET 341.

E MET 416 Applied Computer-Integrated Manufacturing. (3)
fall
Techniques and practices of computer-integrated manufacturing as applied in a broad range of industry. Integrated lecture/ lab. Prerequisite: MET 341.
General Studies: CS

E MET 418 Composites Materials Manufacturing. (3)
spring
Introduces composite materials and associated manufacturing issues, including tooling, processes, and quality control. Related issues, including testing and joining. Integrated lecture/lab. Credit is allowed for only MET 418 or 518. Prerequisite: MET 300 or instructor approval.

E MET 432 Thermodynamics. (3)
spring
Thermodynamics of mixtures. Combustion process. Applies thermodynamics to power and refrigeration cycles.

E MET 433 Thermal Power Systems. (4)
selected semesters
Analyzes gas power, vapor power, and refrigeration cycles. Components of air conditioning systems. Direct energy conversion. Psychrometry. Analyzes internal combustion engines and fluid machines. Lecture, lab. Prerequisite: MET 432 or instructor approval.

E MET 434 Applied Fluid Mechanics. (3)
spring
Fluid statics. Basic fluid flow equations. Viscous flow in pipes and channels. Compressible flow. Applies fluid measurement and flow in conduits.

E MET 435 Alternate Energy Sources. (3)
selected semesters
Alternate energy systems, energy use and its impact on the environment, and demonstrating practical alternative energy sources to fossil fuels. Prerequisite: instructor approval.

E MET 436 Turbomachinery Design. (3)
selected semesters
Applies thermodynamics and fluid mechanics to the analysis of machinery design and power cycle performance predictions. Prerequisite: MET 434.

E MET 437 Design for Materials Joining. (3)
spring
Uses design principles to analyze structures and determine appropriate weld/braze/solder or adhesive joint size. Uses welding codes. Lecture. Prerequisites: ASC 315, 325.

E MET 438 Machine Design II. (3)
spring
Applies mechanics to the design of machine elements and structures. Emphasizes basics of gears, springs, brakes, clutches, and bearings. Prerequisite: AET 312; MET 331.

E MET 442 Specialized Production Processes. (3)
fall
Nontraditional manufacturing processes, emphasizing EDM, ECM, ECG, CM, PM, HERF, EBW, and LBW. Prerequisite: MET 231.

E MET 443 CNC Computer Programming. (3)
fall
Theory and application of N/C languages using CAM software and CNC machine tools. Lecture, lab. Prerequisite: MET 345 or instructor approval.

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E MET 444 Production Tooling. (3)
spring
Design and fabrication of jigs, fixtures, and special industrial tooling related to manufacturing methods. Lecture, lab. Prerequisite: MET 345.

E MET 452 Implementation of Robots in Manufacturing. (3)
selected semesters
Robotic workcell design, including end effectors, parts presenters, and optimum material flow. Prerequisite: MET 351 or instructor approval.

E MET 455 Automation Systems Integration. (3)
fall
Applies sensors and devices and their integration with PLCs and computers into automated devices and systems. Integrated lecture/lab. Prerequisites: EET 403; MET 351.

E MET 460 Capstone Project I. (3)
fall
Group project designing, evaluating, and analyzing components, assemblies, and systems. Develop products/manufacturing techniques demonstrating state-of-the-art technology. Integrated lecture, lab. Prerequisites: MET 331, 341; senior standing.

E MET 461 Capstone Project II. (3)
spring
Small-group projects applying manufacturing techniques, with emphasis on demonstrating state-of-the-art technology. Integrated lecture/lab. Prerequisite: MET 460 or instructor approval.

E MET 484 Internship. (1–12)
selected semesters

E MET 492 Honors Directed Study. (1–6)
selected semesters

E MET 493 Honors Thesis. (1–6)
selected semesters

E MET 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Composite Materials Manufacturing. (3)
- Consumer Manufacturing. (1–3)
- Manufacturing Resource Management. (3)
- Packaging Design. (1–3)

E MET 498 Pro-Seminar. (1–7)
selected semesters

E MET 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

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Department of Technology Management

technology.poly.asu.edu/dtm
480/727-1781
TECH 102

Thomas E. Schildgen, Chair

Professors: Duff, Hild, Schildgen

Associate Professors: Grossman, Humble, Matson, Olson

Assistant Professor: Harris

Clinical Associate Professor: Thomas

Clinical Assistant Professor: Nelson

Professors of Practice: Kime, Peterson

Senior Lecturer: Wilson

Lecturers: Dolin, Lestar, Parmentier

PURPOSE

The mission of the department is to prepare graduates who are able to develop and communicate technological solutions to industrial problems, to manage systems operations, to improve and evaluate products, to provide customer support, and to facilitate technology transfer in industry and government. Increased complexity and sophistication have created great demand for those individuals who possess a working knowledge of the technical phases of planning, testing, production, and fabrication of consumer and industrial products and equipment. Technology includes the application of science, systematic methods, procedures, machines, communication protocols, and materials control for the development, improvement, and implementation of state-of-the-art solutions to industrial problems.

DEGREES

The faculty in the Department of Technology Management offer BS degrees in Environmental Technology, Graphic Information Technology, and Operations Management Technology. These degrees are fully accredited by the National Association of Industrial Technology (NAIT). For more information, call 734/677-0720, or write

NATIONAL ASSOCIATION OF INDUSTRIAL TECHNOLOGY
3300 WASHTENAW AVENUE
SUITE 220
ANN ARBOR MI 48104-4200

For students holding an AAS degree the department offers the BAS degree in Applied Science, with concentrations in digital media management, digital publishing,

emergency management, fire service management, operations management, municipal operations management, and technical graphics.

A Master of Science in Technology degree is offered for graduate study. The department offers five concentrations for the graduate degree: environmental technology management, fire service administration, global technology and development, graphic information technology, and management of technology. For more information about the graduate program, see the *Graduate Catalog*.

BACHELOR OF SCIENCE

The curriculum consists of First-Year Composition, University General Studies, and technical courses. Note that all three General Studies awareness areas are required. Consult with an advisor for an approved list of courses. The technical part of the curriculum includes a required technology management core, degree course work, and technical electives selected with approval of an advisor.

Technology management students are required to complete a minimum of 120 semester hours with a minimum 2.00 cumulative GPA, including a minimum of 50 semester hours of upper-division courses to graduate.

Technology Management Core*

ETC	100 Languages of Technology *CS*	4
GIT	303 Digital Publishing	3
TMC	331 Quality Assurance	3
TMC	346 Management Dynamics	3
TMC	396 Professional Orientation	1
TMC	470 Project Management	3
TMC	494 ST: Senior Project	3
Total		20

* These courses are for the operations management technology and graphic information technology majors.

ENVIRONMENTAL TECHNOLOGY MANAGEMENT—BS

The Environmental Technology Management degree prepares graduates to manage such challenging problems in industry as regulatory compliance, hazardous materials management, pollution prevention, and international environmental standards for manufacturing. The curriculum is designed to provide a unique blend of critical scientific, technical, and management skills. Degree requirements encompass the development of a broad background in the natural sciences and mathematics, social and behavioral sciences, management theory, regulatory issues, and applied sciences. The program is purposely structured to facilitate transfer students who are searching for a degree program that builds upon a strong technical background and focuses on the environmental issues faced by industry.

GRAPHIC INFORMATION TECHNOLOGY—BS

The Graphic Information Technology degree prepares students for technical and management positions in the diverse graphic communication and information technology industries: digital printing and publishing; technical/digital media production; management of graphic information assets; quality assurance of graphic products; planning and evaluation of print, Internet, multimedia, and computer-based communications. This is an intensive 120-semester-hour program of study emphasizing theory and hands-on laboratory practice. Students develop skills to plan and execute graphic solutions using visualization and prepress, engineering graphic standards, technical document design, higher-level graphic programming languages, computer drawing and illustration, commercial digital photography, multimedia and three-dimensional modeling, project management, quality assurance, and e-commerce practices.

The Graphic Information Solutions facility (GIS), located in the Technology Center, provides internship opportunities and exposes students to current production technology, problem-solving skills, cost analysis, and human resource issues. Graduates are able to present technical solutions using graphics in print and Internet publications, engineering documents, media-rich presentations, interactive training and instruction, models, and animations. Typical career opportunities include graphic operations management, sales and marketing, information technology support in graphics-related industries, graphic systems analysis, digital publishing (both print and online), and computer graphics content planning and creation.

OPERATIONS MANAGEMENT TECHNOLOGY—BS

The Operations Management Technology degree prepares students for supervisory and administrative positions in industry, manufacturing, and public service organizations. Course work includes data analysis, economics, effective decision making, international business, legal and ethical studies, marketing, operations management, organizational effectiveness, project management, and safety. Emphasis is placed on health and safety within the workplace.

The operations management technology program may be articulated with a broad range of community college technical courses. Community college specializations in areas such as aeronautics, construction, electronics, fire science, police science, graphic information technology, hazardous materials and waste management, computer graphics, safety and health, human resource management, production management, and manufacturing may form a technical specialty area within this program. Consultation with an advisor is required to coordinate the course selection for transfer to this program.

CERTIFICATE PROGRAM IN HAZARDOUS MATERIALS AND WASTE MANAGEMENT

The Certificate Program in Hazardous Materials and Waste Management is designed to provide current and prospective employees of industry and government with a comprehensive and practical curriculum of study in hazardous materials management. The certificate program features instruction by ASU faculty, attorneys, and professionals who work in the specific area in which they teach. Participation in the certificate program is available in three options: a

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

certificate program for nondegree students, a BS degree in Environmental Technology Management with a Certificate in Hazardous Materials and Waste Management, and a Master of Science in Technology degree with a Certificate in Hazardous Materials and Waste Management. Students must complete seven selected courses (five required and two electives) and earn a grade of "C" (2.00) or higher to receive the certificate. Except for the introductory course, ETM 501 Principles of Hazardous Materials and Waste Management, the remainder of the courses may be taken in any sequence.

BIS CONCENTRATION

Concentrations in hazardous materials and waste management, and fire service management are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

APPLIED SCIENCE—BAS

The Bachelor of Applied Science (BAS) degree is a "capstone" degree for the Associate of Applied Science degree. The BAS degree exposes students to advanced concepts and diverse critical thinking skills that prepare them for future career opportunities and professional advancement.

Admission

Admission to the BAS degree program is restricted to students holding an AAS degree from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and a 2.50 for nonresident applicants.

Degree Requirements

The BAS degree in the College of Technology and Applied Sciences consists of 60 semester hours of upper-division (300 level and above) courses, with 30 hours in residence.

AAS degree	60
Assignable credit	6
BAS core	15
General Studies	19
Technical concentration	20
Total	120

General Studies Curriculum

The BAS curriculum builds on the general education content of the AAS degree. Additional General Studies (L, CS, and awareness areas) are met with courses in the core or concentration. General Studies courses focus on contextual learning.

L	3
MA	3
HU	3
HU or SB	3
SB	3
SG	4
Total	19

Assignable Credit

Assignable credit allows space in the curriculum for prerequisite courses needed to succeed in the program. The courses are determined by the student and the advisor.

BAS Core

The area core focuses on management and organization, professional communication, quantitative analysis, and computer competency.

APM	301	Introductory Statistics *CS*	3
GIT	335	Computer Systems Technology	3
OMT	452	Industrial Human Resource Management or TMC 470 Project Management (3)	3
TMC	346	Management Dynamics	3
TWC	400	Technical Communications *L*	3
Total			15

Technical Concentrations

Operations Management Technology. The purpose of this technical concentration is to prepare supervisors for management functions in industry, manufacturing, and public service organizations. The BAS degree provides the management and supervision content required for industry and governmental agencies.

Digital Media Management. This concentration prepares graduates for technical positions in industries implementing, planning, and producing interactive communications, integrated media, and multimedia for design, training, and marketing. Prospective students with AAS degrees in areas such as multimedia, printing and publishing, commercial graphics, desktop publishing, or computer illustration may be interested in pursuing a digital media management concentration.

Technical Graphics. This concentration prepares graduates for positions in industries implementing technical and engineering graphics in computer-aided design and computer integrated manufacturing. AAS degrees in drafting and design, computer-aided design, computer integrated manufacturing technology, mechanical technology, architectural technology, or construction technology may provide an excellent foundation for a technical graphics concentration.

Digital Publishing. This concentration prepares graduates for lead technical and entry-level management positions in the printing and publishing industry. AAS degrees in multimedia, printing and publishing, commercial art, desktop publishing, or computer illustration may find that this technical concentration provides excellent opportunities.

Emergency Management. This concentration prepares graduates for positions in industry, municipal departments, and government agencies. The curriculum addresses the established Federal Emergency Management Administration (FEMA) guidelines, on-site emergency response contingency planning, first responder scene management, logistical analysis, and communications protocol.

Fire Service Management. This concentration prepares graduates for positions in industry, municipal departments, and governmental agencies. The curriculum addresses services delivered by fire departments, fire service personnel development, zoning, planning, inspections, and arson investigations.

Municipal Operations Management. This concentration prepares students for supervisory and management functions within municipalities, public service organizations, or businesses that provide services to the public sector. The curriculum addresses quality assurance, ethical issues, leadership practices, operations management, project management, marketing, finance, public sector management, and organizational effectiveness.

Internet and Web Development. This concentration provides graduates with employment skills in the fields of e-commerce, online databases, active server pages, FLASH, HTML, and other computer languages and software applications.

Law Enforcement Management. This concentration is designed for law enforcement officers who work with firefighters and emergency managers in a changing global environment. The concentration focuses on supervisory and leadership skills needed to operate in a municipal environment, along with technological solutions to organizational effectiveness and complex interagency law enforcement investigations.

JOINT DEGREE

The joint Bachelor of Science or Bachelor of Applied Science and Master of Science in Technology degree program is designed to provide students with exceptional undergraduate standing the opportunity to include nine semester hours of upper-division course credit (three semester hours at the 400 level, six semester hours at the 500 level) in their graduate program of study. This joint degree is available for the following Master of Science in Technology concentrations: environmental technology management, fire service administration, graphic information technology, global technology and development, and the management of technology.

ADMISSIONS REQUIREMENTS

Students must meet these requirements to be considered for joint degree admission:

1. a minimum junior-senior GPA of 3.20;
2. ninety semester hours of undergraduate credit in a Department of Technology Management BS or BAS program; and
3. two letters of recommendation from Department of Technology Management faculty.

Senior Project Requirement

All baccalaureate degree students (BS and BAS) in the Department of Technology Management are required to complete a senior project for the requirements of graduation. The TMC senior project is a capstone experience that integrates theory and application of the undergraduate curriculum in an effort to address industry-inspired subject matter. The senior project is carried out under faculty supervision in a scheduled class and is related to the student's technical interests, academic goals, and career employment. The senior project is a study or research project involving a written document and oral presentation, which can involve service learning. A bound document and/or electronic copy of the project becomes part of the department's archival collection, available for public review.

ENVIRONMENTAL TECHNOLOGY MANAGEMENT (ETM)

E ETM 294 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Introduction to Organic Chemistry. (3)

E ETM 301 Environmental Management. (3)
selected semesters
Focuses on knowledge and skills necessary to manage environmental programs. Perspectives include regulatory, individual, corporate, and consulting. Lecture, full or partial Internet. Pre- or corequisites: CHM 101.

E ETM 302 Water and Wastewater Treatment Technology. (3)
selected semesters
Explores the development of treatment technologies. Addresses regulatory standards. Emphasizes theory and practice of system design, laboratory analysis standards and procedures. Pre- or corequisites: CHM 101; MAT 170.

E ETM 303 Environmental Regulations. (3)
selected semesters
Explores environmental laws, regulations, and directives. Addresses air, land, and water. Lecture, full or partial Internet.

E ETM 360 Introduction to Emergency Management. (3)
fall
Emergency management theories. Comprehensive emergency management. Mitigation, preparedness, response, and recovery. Post-disasters and policy formation. Current FEMA all-hazards approach.

E ETM 362 Managing Natural and Technological Disasters. (3)
spring
Federal, state, and local responses to emergencies. Management of mass casualties, evacuation, sheltering, and terrorism; declaration of emergency procedures.

E ETM 363 Computer Applications in Emergency Management. (3)
spring
Explores specific computer programs that are currently in use for contingency planning, tracking chemical inventories, and response resources. Cross-listed as FSM 363. Credit is allowed for only ETM 363 or FSM 363.

E ETM 364 Toxicology and Biohazards in Emergency Management. (3)
fall
Introduces poisons. Dose response routes of exposure and toxicokinetics. Diseases associated with natural disasters. Clinical presentation of treatments.

E ETM 401 Hazardous Waste Management. (3)
selected semesters
Definition of hazardous waste, RCRA and CERCLA regulations, hazardous waste classification system. Overview of hazardous waste management. Lecture, full or partial Internet. Prerequisite: ETM 301. Pre- or corequisite: CHM 101.

E ETM 402 Unit Treatment Technologies. (3)
selected semesters
Addresses various treatment technologies for contaminated air, water, and soil. Emphasizes design based upon medium, type of

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contamination, and concentration. Lecture, full or partial Internet. Prerequisite: ETM 302. Pre- or corequisites: CHM 101; MAT 170.

E ETM 406 Environmental Chemistry. (3)
selected semesters
Examines reactions, transport, and fates of hazardous chemicals in water, soil, air, and living organisms. Lecture, full or partial Internet. Prerequisites: CHM 101; MAT 170.

E ETM 407 Occupational Hygiene. (3)
spring
Overview of occupational health hazards, including recognition, evaluation, and control. Includes regulatory status and health standards. Prerequisites: CHM 101 (or 113 or 114); MAT 170.

E ETM 424 Comprehensive Emergency Management. (3)
summer
Addresses theory and management techniques for emergency preparedness, including mitigation, preparedness, response, and recovery. Pre- or corequisite: ETM 301.

E ETM 426 Environmental Issues. (3)
spring
Explores the science and policy implications of contemporary problems that threaten the environment. Pre- or corequisites: CHM 113; MAT 170.

E ETM 428 International Environmental Management. (3)
selected semesters
Emphasizes technological and economic pressures experienced by developing countries. Lecture, full or partial Internet.
General Studies: G

E ETM 460 National Incident Management System (NIMS). (3)
selected semesters
Covers concepts, terminology, players, compliance requirements including doctrine of National Incident Management System per HSPD-5. Discussion of National Response Plan.

E ETM 461 Homeland Security. (3)
selected semesters
In-depth analysis of policies, procedures, and organizational structure for effective homeland security program. Covers all hazard/all risk philosophy. Credit is allowed for only ETM 461 or 561. Prerequisite: junior or senior standing or instructor approval.

E ETM 468 Simulation and Exercising. (3)
selected semesters
Requirements, planning, conduct, and critique of exercises related to emergency planning. Emphasizes realism using moulage and props.

E ETM 469 Terrorism Defense. (3)
selected semesters
Explores the background and evolution of terrorism. Presents specific tactics for preparation for and response to acts of terrorism. Lecture, full or partial Internet.

E ETM 494 Special Topics. (1–4)
spring
Topics may include the following:
- Bioremediation. (3)
  Technical-regulatory and policy issues emanating from minetailing and animal waste. Lecture, case studies.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

FIRE SERVICE ADMINISTRATION (FSA)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

FIRE SERVICE MANAGEMENT (FSM)

E FSM 304 Fire Personnel Management. (3)
fall
Promotion, personnel development, career and incentive systems, validation of physical requirements, managerial and supervisory procedures.

E FSM 305 Quality Emergency Services. (3)
selected semesters
Covers quality issues relating to services delivered by progressive fire departments. Covers management of personnel and resources during organizational change.

E FSM 306 Fire Prevention Organization and Management. (3)
selected semesters
Examines and evaluates the techniques, procedures, programs, and agencies involved in preventing fires.

E FSM 307 Fire Department Safety Organization and Management. (2)
summer
Focuses on the management of fire department safety programs.

E FSM 308 Fire Department Budgeting. (3)
spring
Examines the role of fire department budgets and their relationship to other levels of government as a planning tool.

E FSM 309 Emergency Medical Service Organization and Management. (3)
spring
Focuses on the administration and management of emergency medical services delivered by a fire department.

E FSM 363 Computer Applications in Emergency Management. (3)
spring
Explores specific computer programs that are currently in use for contingency planning, tracking chemical inventories, and response resources. Cross-listed as ETM 363. Credit is allowed for only ETM 363 or FSM 363.

E FSM 400 Human Behavior and the Fire Threat. (3)
selected semesters
Proper ways of conducting post-fire interviews; emphasizes the psychological effects of communications during emergencies.

E FSM 401 Labor Relations in the Fire Service. (3)
fall
Examines the relationships between management and unions using the Relations by Objectives model.

E FSM 404 Fire Service Program Management and Fire Department Accreditation. (3)
fall
Examines how to develop, manage, and implement fire department programs, including an examination of the ICMA/IAFC accreditation process.

E FSM 405 Fire Service Leadership. (3)
summer
Focuses on developing personal and organizational leadership qualities required to be successful in the fire service.

E FSM 421 Political and Legal Consideration in Fire Science. (3)
spring
Study of legal and political considerations that affect the decision making of fire service managers.

E FSM 425 Fire Service Administration. (3)
fall
Presents modern management and planning techniques that apply to organizing a fire department.

E FSM 460 Incident Management Systems and Emergency Operations Center. (3)
fall
Covers IMS, terminology, players, and management philosophy. EOC setup, activation, operation, and termination. EOC funding and politics.

E FSM 493 Fire Service Management Senior Project. (2)
fall and spring
Capstone applied project. Applies knowledge learned from FSM course work to solve a practical fire service problem.

E FSM 494 Special Topics. (1–4)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

GRAPHIC INFORMATION TECHNOLOGY (GIT)

E GIT 135 Graphic Communications. (3)
fall and spring
Introduces the technologies involved in the design, image generation, transmission, and industrial production of multiple images for consumer utilization. Integrated lecture/lab, field trips.

E GIT 194 Special Topics. (1–4)
selected semesters

E GIT 210 Creative Thinking and Design Visualization. (3)
fall and spring
Fundamental methods, concepts, and techniques of creative thinking, design visualization, and problem solving. Also includes communication, cultural, and societal influences. Integrated lecture/lab. Prerequisite: ETC 100.

E GIT 212 Computer-Aided Design and Drafting (CADD). (3)
fall and spring
CADD for product design, representation, and documentation; includes projection theory, descriptive geometry, graphics analysis, drafting standards, and precision dimensioning techniques. Integrated lecture/lab. Prerequisite: ETC 100 (or its equivalent).
General Studies: CS

E GIT 215 Introduction to Graphics Programming. (3)
fall
Introduces analyzing, planning, and executing graphic programs using industry-standard programming tools. Integrated lecture/lab. Prerequisite: ETC 100 (or its equivalent).

E GIT 230 Digital Illustration in Publishing. (3)
fall and spring
Raster and vector illustration in publishing. Integrated lecture/lab. Pre- or corequisite: GIT 135.

E GIT 237 Web Content Design. (3)
spring
Introduces design principles for visual content on the World Wide Web; raster, vector, fonts, portable documents, color palettes, file formats. Integrated lecture/lab. Prerequisite: GIT 135 (or its equivalent). Pre- or corequisite: GIT 303.

E GIT 303 Digital Publishing. (3)
fall and spring
Introduces software and hardware used for digital publishing and infographics. Integrated lecture/lab. Prerequisites: GIT 135, 230.

E GIT 312 3-D Computer Graphics Modeling and Representation. (3)
fall
3-D solid modeling applications: concepts, techniques, data structures, modeling strategies, assemblies, geometric representation. Integrated lecture/lab. Prerequisite: GIT 212.
General Studies: CS

E GIT 313 Technical Illustration and Photorealistic Rendering. (3)
fall
Computer-generated graphics for technical illustration and design presentation: axonometric and perspective drawing; shading, shadowing, materials and textures; photorealistic rendering for PostScript output. Integrated lecture/lab. Prerequisite: GIT 212.

E GIT 314 Multimedia Design, Planning, and Storyboards. (3)
spring
Creative and conceptual process of content selection, planning, designing, flowcharting, storyboarding, proposing, configuring, prototyping, and presenting multimedia projects. Integrated lecture/lab. Prerequisite: GIT 237.

E GIT 333 Printing Technology. (3)
spring
Theory and application of sheet and web press technology for offset-lithography, flexography, screen process, and digital printing. Integrated lecture/lab. Pre- or corequisite: GIT 135.

E GIT 334 Image Capture and Manipulation. (3)
fall
Theory and application of image capture techniques used for all copy formats and conversion processes required for reproduction or dissemination. Integrated lecture/lab. Prerequisite: GIT 303.

E GIT 335 Computer Systems Technology. (3)
selected semesters
Survey of computer-based technology covering hardware, software, storage, networking, Internet, telecommunications, and information systems. Integrated lecture/lab. Prerequisite: junior standing.

E GIT 337 Web Content Design. (3)
fall and spring
Introduces design principles for visual content on the World Wide Web; raster, vector, fonts, portable documents, color palettes, file formats. Integrated lecture/lab. Pre- or corequisite: GIT 303.

E GIT 352 Technical Presentations. (3)
spring
Technologies for planning, creating, and delivering individual and group presentations. Prerequisites: ENG 102; GIT 303.

E GIT 384 Commercial Digital Photography. (3)
fall, spring, summer
Digital image, conversion, and output in a commercial studio emphasizing publishing workflow. Integrated lecture and lab. Prerequisite: GIT 334.

E GIT 394 Special Topics. (1–4)
selected semesters

E GIT 411 Computer Animation. (3)
fall and spring
2-D and 3-D computer animation methods: project planning, scripting, storyboards, advanced modeling, lighting, materials mapping, and motion. Integrated lecture/lab. Prerequisites: GIT 312, 334.

E GIT 412 Multimedia Authoring, Scripting, and Production. (3)
fall and spring
Production of multimedia projects using industry-standard authoring applications: project management, client considerations, and project documentation; user interface design, interactivity, media, and databases. Integrated lecture/lab. Prerequisite: GIT 314.

E GIT 413 Professional Portfolio Design and Presentation. (3)
spring
Digital media portfolio design and production: planning, audience analysis, media selection, authoring, media formats, production, copyright considerations, marketing, and delivery. Integrated lecture/lab. Prerequisites: GIT 314, 334.

E GIT 414 Web Site Design and Internet/Web Technologies. (3)
spring
Web site design, authoring, standards, protocols, tools, and development techniques for commercial client-sided Web-based graphic information systems. Integrated lecture/lab. Prerequisites: GIT 334, 337.

E GIT 415 Computer Graphics: Business Planning and Management. (3)
spring
Implementation planning: feasibility and application studies; needs assessment and operational analysis techniques; organization, managerial, and technology considerations; business plan development. Integrated lecture/lab, field trips. Prerequisite: senior standing in Information Technology (graphic information technology concentration).

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

E GIT 417 Advanced Internet Programming. (3)
fall
Uses industry-standard programming languages and techniques to create interactive graphic information Web sites and applications. Integrated lecture/lab. Prerequisite: GIT 414.

E GIT 432 Graphic Industry Business Practices. (3)
selected semesters
Business practices related to press/prepress/Web industries; trade customs, cost analysis, marketing and management approaches. Integrated lecture/lab, field trips. Prerequisite: GIT 333.

E GIT 435 Web Management and E-commerce. (3)
spring
Internet Web site management, security, online databases, and new e-commerce business models. Integrated lecture/lab. Prerequisite: GIT 414.

E GIT 436 Gravure Technology. (3)
spring
In-depth study of the market profile and production sequences related to the gravure method of printing. Prerequisite: GIT 135.

E GIT 437 Color Reproduction Systems. (3)
fall
Scientific analysis for the engineering of color reproduction systems and color models used in the graphics industry. Prerequisite: GIT 334.

E GIT 441 Graphic Information Systems. (3)
selected semesters
Graphic information systems common to the workplace: graphic user interfaces for online databases, geographic, industrial, architectural, and management applications. Integrated lecture/lab. Prerequisite: senior standing in Information Technology (graphic information technology concentration).

E GIT 450 Digital Workflow in Graphic Industries. (3)
fall
Analyzes digital production systems for input, assembly, and output of graphic information to print and Web, including networking and job tracking. Integrated lecture/lab. Prerequisite: GIT 334.

E GIT 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Computer Systems Applications. (3)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

GLOBAL TECHNOLOGY AND DEVELOPMENT (GTD)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

TECHNOLOGY MANAGEMENT CORE (TMC)

E TMC 191 First-Year Seminar. (1–3)
selected semesters

E TMC 194 Special Topics. (1–4)
selected semesters

E TMC 233 Desktop Publishing and Infographics. (3)
fall and spring
Introduces software and hardware used for desktop publishing and infographics. Lecture, lab.

E TMC 294 Special Topics. (1–4)
selected semesters

E TMC 331 Quality Assurance. (3)
spring
Instrumentation and methodologies for materials testing and quality control in various manufacturing processes. Lecture, field trips.

E TMC 346 Management Dynamics. (3)
fall and spring
Management challenges and the leadership skills needed to achieve organizational objectives in the changing industrial and technical environments. Prerequisite: junior standing.

E TMC 394 Special Topics. (1–4)
selected semesters

E TMC 396 Professional Orientation. (1)
fall and spring
Senior advising, industry presentations, and career counseling.

E TMC 470 Project Management. (3)
spring
Introduces techniques for managing small groups within larger organizations, including team building, motivating, planning, tracking activities, and computer tools. Prerequisites: ECN 211; OMT 344; TMC 346.

E TMC 484 Internship. (1–12)
selected semesters

E TMC 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Senior Project. (3)

E TMC 498 Pro-Seminar. (1–7)
selected semesters

E TMC 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

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OPERATIONS MANAGEMENT TECHNOLOGY (OMT)

E OMT 191 First-Year Seminar. (1–3)
selected semesters

E OMT 194 Special Topics. (1–4)
selected semesters

E OMT 294 Special Topics. (1–4)
selected semesters

E OMT 343 Occupational Safety and Ergonomics. (3)
fall
Health and safety movement, accident theories and effects, OSHA standards and liability, safeguarding, hazards, workers' compensation, ergonomics, and safety. Prerequisite: junior standing.

E OMT 344 Industrial Organization. (3)
spring
Industrial organization concepts. Topics relate to industrial relations, governmental regulations, organizational structure, labor relations, human factors, and current industrial practices. Prerequisite: TMC 346.

E OMT 345 Public Sector Management. (3)
fall and spring
Management in government and public agencies. Includes mission, planning and organizing to provide services, human resource issues, conflict resolution, coordination. Prerequisite: junior standing.

E OMT 394 Special Topics. (1–4)
selected semesters

E OMT 402 Legal Issues for Technologists. (3)
fall
American legal system and impact on technology management issues: contracts, torts, intellectual property, white collar crime, antitrust, environmental, and employment.

E OMT 405 Forecasting and Evolution of Technology. (3)
selected semesters
History and evolutionary nature of selected technologies, issues in the management of emerging technologies, and methods of technological forecasting. Prerequisite: TMC 346 (or its equivalent).

E OMT 430 Ethical Issues in Technology. (3)
spring
Topics in social responsibility for industrial technology and engineering. Prerequisite: TMC 346.

E OMT 440 Introduction to International Business. (3)
spring
International business principles and operations, including partnerships, trade agreements, currency issues, international sales, and cultural differences between countries. Prerequisite: TMC 346.
General Studies: G

E OMT 445 Industrial Internship. (1–10)
fall, spring, summer
Work experience assignment in industry commensurate with student's program. Specialized instruction by industry with university supervision. Pass/fail. Prerequisites: advisor approval; junior standing; 2.50 GPA.

E OMT 451 Industrial Distribution and Materials Management. (3)
selected semesters
Surveys topics in industrial distribution, including, but not limited to, materials handling, purchasing, receiving, warehousing, traffic, inventory control, and shipping. Prerequisite: OMT 343 or TMC 346.

E OMT 452 Industrial Human Resource Management. (3)
fall
Concepts and practices of human resource management in a global industrial environment. Prerequisite: TMC 346.

E OMT 453 Safety Management. (3)
selected semesters
Development and management of safety programs, education and training, and relationships within an organization. Prerequisite: OMT 343 or instructor approval.

E OMT 456 Introduction to Organized Labor. (3)
spring
Introduces labor relations, unions, federations, collective bargaining, grievances, and labor legislation. Prerequisites: OMT 344; TMC 346.

E OMT 461 Operations Management. (3)
fall
Introduces supervisory principles as applied to production of goods and services. Prerequisites: OMT 344; TMC 346.

E OMT 480 Organizational Effectiveness. (3)
spring
Human aspects of supervisory behavior in the industrial setting and how they influence efficiency, morale, and organizational practices. Prerequisite: TMC 346.

E OMT 484 Internship. (1–12)
selected semesters

E OMT 494 Special Topics. (1–4)
selected semesters

E OMT 498 Pro-Seminar. (1–7)
selected semesters

E OMT 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

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Division of Computing Studies

www.poly.asu.edu/ctas/dcst
480/727-1257
SUTON 140

Timothy E. Lindquist, Associate Dean and Director

Professor: Lindquist

Associate Professors: Koehnemann, Millard, Morrell, O'Grady

Assistant Professors: B. Gannod, G. Gannod, Gary

Senior Lecturer: Whitehouse

PURPOSE

The Division of Computing Studies provides educational programs rich in contextual experiences, which prepare graduates for success in the rapidly evolving computing profession. With the increasingly diverse application of computing and software technologies comes a need for individuals who are well versed in the fundamentals of the computing profession. Course offerings focus on the languages, methods, and tools reflecting computing best practices, and provide an education that is rich in hands-on problem-based learning experiences. The curriculum builds upon a background of applied science and mathematics, including the concepts and application of calculus and discrete structures. Graduates are employed in the computing industry with responsibilities such as analyzing, designing, implementing, evaluating, and operating computer-based systems, including (re)engineering systems that embed computer hardware and software, Web-based applications, and systems of internetworked cooperating components.

DEGREES

The faculty in the Division of Computing Studies offer the BS degree in Applied Computer Science and the BS degree in Computer Systems. For students holding an AAS degree with the appropriate computer science and mathematical background, the Division offers the Bachelor of Applied Sciences (BAS) degree. Three BAS concentrations are available: computer systems administration, microcomputer systems, and software technology applications.

The division also offers the Master of Computing Studies and the Master of Technology with a concentration in computer systems degree programs that are available for qualified BS graduates. For more information, see the *Graduate Catalog* or access the division Web site at www.poly.asu.edu/ctas/dcst.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

APPLIED COMPUTER SCIENCE—BS

The BS degree in Applied Computer Science is designed to provide students with an education that targets the computing profession. The program prepares students who are interested in employment or advanced study in software applications or software systems by providing broad-based knowledge and skills in software processes and their application. The program focuses on computer software as used in networked, distributed, and Web-based systems and applications.

The program prepares students for careers in software applications in the context of an industry in which software solutions are increasingly distributed using object-oriented languages and frameworks, and in which the internet, Web, and wireless technologies play an important role.

Each student must satisfy the courses listed for First-Year Composition and the university General Studies requirements. In addition, the following courses are required.

DEGREE REQUIREMENTS

Social/Behavioral Sciences
ECN 211 Macroeconomic Principles *SB* 3
or ECN 212 Microeconomic Principles *SB* (3)

Literacy
TWC 400 Technical Communications *L* 3

Natural Sciences
Choose one of the following combinations 8–9
CHM 113 General Chemistry I *SQ* (4)
CHM 115 General Chemistry with Qualitative Analysis *SQ* (5)
——— *or* ———
PHY 111 General Physics *SQ*[1] (3)
PHY 113 General Physics Laboratory *SQ*[1] (1)
PHY 112 General Physics *SQ*[2] (3)
PHY 114 General Physics Laboratory *SQ*[2] (1)
Natural Science Laboratory elective 4
Total 18–19

[1] Both PHY 111 and 113 must be taken to secure SQ credit.
[2] Both PHY 112 and 114 must be taken to secure SQ credit.

Mathematics
APM 301 Introductory Statistics *CS* 3
MAT 243 Discrete Mathematical Structures 3
MAT 294 ST: Mathematics of Change I 3
MAT 294 ST: Mathematics of Change II 3
MAT 294 ST: Mathematics of Change III 3
Numeracy elective 3
Total 18

Lower-Division Core
CST 100 Object-Oriented Software Development I 3
CST 150 Digital Systems I *CS* 4
CST 200 Object-Oriented Software Development II 3
CST 230 Applied Data Structures 3
Total 13

Upper-Division Core
CST 315 Software Enterprise I: Tools and Process 3
CST 316 Software Enterprise II: Construction and Transition 3
CST 326 Programming Languages for Technology with C/C++ and Visual Basic 4
CST 335 Applications of Computer Theory 3
CST 354 Microcomputer Architecture and Programming 4
CST 364 Computer Architecture 3
CST 386 Operating Systems Principles 3
CST 415 Software Enterprise III: Inception and Elaboration 3
CST 420 Foundations of Distributed and Web-Based Applications in Java 3
CST 433 Database Technology 3
CST 459 Internet Networking Protocols 3
CST 496 Ethics and Professionalism in Computing 3
Total 38

Major Electives
Choose from the following electives 12
CST 425 Server Software Programming (3)
CST 427 Distributed Object Systems (3)
CST 428 Web-Client User Interface Programming (3)
CST 441 Software for Personal Digital Assistants (3)
CST 452 Digital Logic Applications (4)
CST 456 Microcomputer Systems Interfacing (4)
CST 457 Advanced Assembly Language Applications (3)
CST 486 Embedded C Programming (3)
CST 488 Systems Administration of UNIX (3)
CST 489 Network Administration with TCP/IP (3)
Technical electives 10

Applied Computer Science
Program of Study
Typical First- and Second-Year Sequence

First Year

First Semester
CHM 113 General Chemistry I *SQ* 4
CST 100 Object-Oriented Software Development I 3
ENG 101 First-Year Composition 3
MAT 294 ST: Mathematics of Change I 3
Total 13

Second Semester
CHM 115 General Chemistry with Qualitative Analysis *SQ* 5
CST 150 Digital Systems I *CS* 4
ENG 102 First-Year Composition 3
MAT 294 ST: Mathematics of Change II 3
HU or SB elective 3
Total 18

Second Year

First Semester
CST 200 Object-Oriented Software Development II 3
CST 315 Software Enterprise I: Tools and Process 3
CST 354 Microcomputer Architecture and Programming 4
ECN 211 Macroeconomic Principles *SB* 3
MAT 243 Discrete Mathematical Structures 3
Total 16

Second Semester
CST 230 Applied Data Structures 3
CST 364 Computer Architecture 3
MAT 294 ST: Mathematics of Change III 3
HU or SB elective 3
Laboratory science elective 4
Total 16

COMPUTER SYSTEMS—BS

Students interested in the BS degree in Computer Systems may choose to specialize in one of the following concentrations: computer hardware technology or embedded systems technology.

The computer hardware technology concentration is designed to provide students with an opportunity to develop broad-based knowledge and skills in digital systems, interfacing techniques, and computer hardware applications.

The embedded systems technology concentration prepares students for the application, interconnection, design, analysis, and realization of special-purpose systems that involve both software and hardware components. This concentration balances the concerns of computer hardware with the processes and technologies involved in producing reliable software solutions.

Each student must satisfy the courses listed for First-Year Composition and the university General Studies requirements. In addition, the following courses are required.

DEGREE REQUIREMENTS

Social/Behavioral Sciences

ECN 211 Macroeconomic Principles *SB* 3
or ECN 212 Microeconomic Principles *SB* (3)

Literacy

TWC 400 Technical Communications *L* 3

Natural Sciences

PHY 111 General Physics *SQ*[1] 3
PHY 112 General Physics *SQ*[2] 3
PHY 113 General Physics Laboratory *SQ*[1] 1
PHY 114 General Physics Laboratory *SQ*[2] 1
Natural Science Laboratory elective 4
Natural Science Laboratory elective 4
Total 22

[1] Both PHY 111 and 113 must be taken to secure SQ credit.
[2] Both PHY 112 and 114 must be taken to secure SQ credit.

Mathematics

APM 301 Introductory Statistics *CS* 3
MAT 243 Discrete Mathematical Structures 3
MAT 294 ST: Mathematics of Change I 3
MAT 294 ST: Mathematics of Change II 3
MAT 294 ST: Mathematics of Change III 3
Total 15

Lower-Division Core

CST 100 Object-Oriented Software Development I 3
CST 150 Digital Systems I *CS* 4
CST 200 Object-Oriented Software Development II 3
CST 230 Applied Data Structures 3
EET 208 Electric Circuit Analysis I 4
Total 17

Major (54 semester hours)

CST 326 Programming Languages for Technology with C/C++ and Visual Basic 4
CST 350 Digital Systems II 4
CST 354 Microcomputer Architecture and Programming 4
CST 364 Computer Architecture 3
CST 383 Shell and Script Programming with UNIX 3
CST 386 Operating Systems Principles 3
CST 400 Software Engineering Technology 3
CST 415 Software Enterprise III: Inception and Elaboration 3
or UET 415 Electronic Manufacturing Engineering Principles (3)
CST 456 Microcomputer Systems Interfacing 4
CST 494 ST: Professional Orientation 1
Total 32

Computer Hardware Technology Concentration

CET 458 Digital Computer Networks 3
or CET 473 Digital/Data Communications (4)
CST 452 Digital Logic Applications 4
EET 301 Electric Circuit Analysis II 4
EET 401 Digital Signal Processing for Multimedia 3
Technical electives 7–8

Embedded Systems Technology Concentration

CST 420 Foundations of Distributed Web-Based Applications in Java 3
CST 441 Software for Personal Digital Assistants 3
or CST 494 ST: Internet-Enabled Embedded Devices (3)
CET 458 Digital Computer Networks 3
or CST 459 Internet Networking Protocols (3)
CST 486 Embedded C Programming 3
EET 401 Digital Signal Processing for Multimedia 3
Technical electives 7

Computer Systems Program of Study
Embedded Systems Concentration
Typical First- and Second-Year Sequences

First Year

First Semester

CST 150 Digital Systems I *CS* 4
ENG 101 First-Year Composition 3
MAT 294 ST: Mathematics of Change I 3
PHY 111 General Physics *SQ*[1] 3
PHY 113 General Physics Laboratory *SQ*[1] 1
Total 14

Second Semester

CST 100 Object-Oriented Software Development I 3
ENG 102 First-Year Composition 3
MAT 294 ST: Mathematics of Change II 3
PHY 112 General Physics *SQ*[2] 3
PHY 114 General Physics Laboratory *SQ*[2] 1
HU/SB elective 3
Total 16

Second Year

First Semester

CST 200 Object-Oriented Software Development II 3
CST 350 Digital Systems II 4
CST 354 Microcomputer Architecture and Programming 4
ECN 211 Macroeconomic Principles *SB* 3
MAT 243 Discrete Mathematical Structures 3
Total 17

Second Semester

CST 230 Applied Data Structures 3
EET 208 Electric Circuit Analysis I 4
MAT 294 ST: Mathematics of Change III 3
Laboratory science elective 4
Total 14

[1] Both PHY 121 and 122 must be taken to secure SQ credit.
[2] Both PHY 112 and 114 must be taken to secure SQ credit.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

APPLIED SCIENCE—BAS

For students who have completed an Associate of Applied Science from a regionally accredited institution, the Bachelor of Applied Science (BAS) offers a pathway to a bachelor's degree. The BAS is a flexible 60-semester-hour degree that builds on the associate's degree with upper-division course work. Computing Studies offers three concentrations: computer systems administration, microcomputer systems, and software technology applications.

Admission

Students interested in a BAS concentration offered by Computing Studies must have completed an Associate of Applied Science degree from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and 2.50 or higher for nonresident applicants. Applicants should have sufficient background in the area of intended study—software, microcomputer systems, or networking.

Degree Requirements

The BAS degree in the College of Technology and Applied Sciences consists of 60 semester hours of upper-division courses, with 30 semester hours in residence. The BAS course of study includes general studies, an area core, discipline-specific course work, and assignable credit.

AAS degree 60
Assignable credit 6
BAS core 15
General Studies 19
Technical concentration 20
Total 120

General Studies Curriculum

The BAS curriculum builds on the general education content of the AAS degree. Additional portions of the General Studies requirement (L, CS, and awareness areas) are met with courses in the core or concentration. General Studies courses focus on contextual learning.

L 3
MA 3
HU 3
HU or SB 3
SB 3
SG 4
Total 19

Assignable Credit

Assignable credit allows space in the curriculum for prerequisite courses needed to succeed in the program or additional technical electives. The courses are determined by the student and the advisor.

Technical Concentration

Computer Systems Administration
Choose from the following 20
CST 354 Microcomputer Architecture and Programming (4)
CST 383 Shell and Script Programming with UNIX (3)
CST 386 Operating Systems Principles (3)
CST 459 Internet Networking Protocols (3)
CST 488 Systems Administration of UNIX (3)
CST 489 Network Administration with TCP/IP (3)
CST 300- or 400-level major electives (7)

Microcomputer Systems
Choose from the following 20
CST 326 Programming Languages for Technology with C/C++ and Visual BASIC (4)
CST 354 Microcomputer Architecture and Programming (4)
CST 364 Computer Architecture (3)
CST 383 Shell and Script Programming with UNIX (3)
CST 386 Operating Systems Principles (3)
CST 457 Advanced Assembly Language Applications (3)
CST 300- or 400-level major electives (6)

Software Technology Applications
Choose from the following 20
CST 326 Programming Languages for Technology with C/C++ and Visual BASIC (4)
CST 354 Microcomputer Architecture and Programming (4)
CST 386 Operating Systems Principles (3)
CST 400 Software Engineering Technology (3)
CST 420 Foundations of Distributed Web-Based Applications in Java (3)
Choose one of the following combinations (3)
CST 425 Software Server Programming (3)
——— *or* ———
CST 427 Distributed Object Systems (3)
——— *or* ———
CST 428 Web-Client User Interface Programming (3)
CST 433 Database Technology 3
CST 300- or 400-level major electives 3

COMPUTER ENGINEERING TECHNOLOGY (CET)

E CET 401 Digital Signal Processing for Multimedia. (3)
fall
Applies DSP techniques to multimedia. Digital filter analysis and design. Time and frequency techniques. Computer applications. Cross-listed as EET 401. Credit is allowed for only CET 401 or EET 401. Prerequisites: EET 301; MAT 262.

E CET 458 Digital Computer Networks. (3)
spring
Network hardware and software, topologies, protocols, OSI model, LANs, WANs, Internet; basic concepts of packet switching, routing, error controlling. Prerequisite: CST 354.

E CET 473 Digital/Data Communications. (4)
fall
Signals, distortion, noise, and error detection/correction. Transmission and systems design. Interface techniques and standards. Lecture, lab. Prerequisites: CST 354; EET 372.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

COMPUTING STUDIES (CST)

E CST 100 Object-Oriented Software Development I. (3)
fall
Basic concepts of object-oriented analysis, design, and programming using Java. Basic Java variables, expressions, arrays, statements, methods, and classes.

E CST 150 Digital Systems I. (4)
fall and spring
Number systems, Boolean algebra, combinational logic, K-maps, flip-flops, sequential circuits, state machines, and minimization techniques. Lecture, lab. Prerequisite: MAT 117 (or its equivalent).
General Studies: CS

E CST 191 First-Year Seminar. (1–3)
selected semesters

E CST 200 Object-Oriented Software Development II. (3)
fall and spring
Object modeling with class and interaction diagrams; inheritance and run-time binding; introduces frameworks with Java collections and windowing. Prerequisite: CST 100.

E CST 230 Applied Data Structures. (3)
fall
Introduces data structures: strings, stacks, queues, binary trees, recursion, searching, and sorting. Prerequisite: CST 200.

E CST 256 C Programming for Engineering Technology. (3)
fall, spring, summer
Applied and practical problem solving using the C programming language. Prerequisite: ETC 100.

E CST 294 Special Topics. (1–4)
selected semesters

E CST 315 Software Enterprise I: Tools and Process. (3)
fall
Introduces tools and techniques used in software enterprise/ development, including coding, design, testing, configuration management, and personal process management. Prerequisite: CST 200.

E CST 316 Software Enterprise II: Construction and Transition. (3)
spring
Best practices in software construction in the context of a team project, including refactoring, defensive programming, unit testing, and configuration and release management. Lecture, lab. Prerequisites: CST 230, 315, 326.

E CST 326 Programming Languages for Technology with C/C++ and Visual BASIC. (4)
fall and spring
Programming language design and implementation concepts through programming C/C++, Visual BASIC; execution, run-time management, data control, pointers, templates, multiple inheritance. Lecture, lab. Prerequisites: CST 200; CST 150.

E CST 335 Applications of Computer Theory. (3)
fall
Introduces and applies formal language theory and automata, Turing machines, decidability, undecidability, recursive function theory, and complexity theory. Prerequisites: CST 230; MAT 243.

E CST 350 Digital Systems II. (4)
fall
Analysis and design of synchronous and asynchronous state machines. Introduces VHDL. Lecture, lab. Prerequisite: CST 150.

E CST 354 Microcomputer Architecture and Programming. (4)
fall and spring
Microcomputer architecture, assembly language programming, I/O considerations, exception and interrupt handling. Introduces interfacing. Lecture, lab. Prerequisite: CST 150.

E CST 364 Computer Architecture. (3)
fall
Processor performance, RISC/CISC, processor design and implementation, basic pipelining, memory hierarchy, I/O. Lecture, lab. Prerequisites: CST 200, 354.

E CST 383 Shell and Script Programming with UNIX. (3)
spring
UNIX operating system programming of shells, environment and 4th-generation languages and tools, such as sed, awk, perl, grep, make. Prerequisite: CST 100.

E CST 386 Operating Systems Principles. (3)
fall
Fundamentals of operating systems, process management, scheduling and synchronization techniques, memory and file management, protection and security issues. Prerequisites: CST 100 (or 256), 354.

E CST 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Applications of Computing Theory. (3)

E CST 400 Software Engineering Technology. (3)
spring
Software life-cycle models; project management; team development environments; software specification, design, implementation techniques and tools, validation, and maintenance; user documentation. Prerequisite: CST 326.

E CST 415 Software Enterprise III: Inception and Elaboration. (3)
fall
Third course in the four-course enterprise sequence. Students perform inception (project launch) and elaboration (requirements analysis) activities in project teams. Integrated lecture/lab, project. Prerequisite: CST 316 or 400.

E CST 420 Foundations of Distributed Web-Based Applications in Java. (3)
fall and spring
Principles underlying design and implementation of distributed software components; sockets, protocols, threads, XML, serialization, reflection, security, and events. Prerequisites: CST 230; CST 386.

E CST 425 Server Software Programming. (3)
once a year
Design and implementation of software servers, threaded socket servers, servers for distributed Web-based applications; security for the Web. Prerequisite: CST 420 or instructor approval.

E CST 427 Distributed Object Systems. (3)
fall
Distributed applications with Web services, NET, RMI, CORBA; concepts and frameworks for managing, registering, locating, and securing distributed object applications. Corequisite: CST 420.

E CST 428 Web-Client User Interface Programming. (3)
fall
Client-server model for window interfaces. Java Swing, Applets, mark-up and scripting languages; Web tools and related technologies. Prerequisite: CST 420 or instructor approval.

E CST 433 Database Technology. (3)
fall
Introduces database technologies and DBMS, data models, and languages. Prerequisites: CST 230, 326.

E CST 441 Software for Personal Digital Assistants. (3)
fall
Mobile computing using Java's K, Virtual Machine, MIDP for wireless applications; user interfaces, persistent data storage, and networking. Prerequisite: CST 420.

E CST 452 Digital Logic Applications. (4)
spring
Design of sequential machines using system design techniques and complex MSI/LSI devices with lab. Prerequisite: CST 350.

E CST 456 Microcomputer Systems Interfacing. (4)
fall
Programming using BIOS and DOS routines. Disk operations, TSR routines, and device drivers. Lecture, lab. Prerequisite: CST 354.

E CST 457 Advanced Assembly Language Applications. (3)
spring
Applies 32-bit assembly language programming using advanced assembler techniques and interfacing to high-level languages. Prerequisite: CST 354.

E CST 459 Internet Networking Protocols. (3)
fall
Computer networking for application, transmission control and network layers using the Internet protocols as a model; reliability and security. Prerequisites: CST 200 (or 256), 354.

E CST 484 Internship. (1–3)
selected semesters

E CST 486 Embedded C Programming. (3)
fall
Programming concepts for embedded systems. Interfacing and controlling LED, LCD, keypads, buttons. Embedded OS concepts. Timers and interrupts. Serial communication. Integrated lecture/lab. Prerequisites: CST 326, 354.

E CST 488 Systems Administration of UNIX. (3)
fall
Administration of UNIX, its processes, system calls, kernel, file structure, and interprocess communication using command line tools. Integrated lecture/lab. Prerequisites: CST 383, 386.

E CST 489 Network Administration with TCP/IP. (3)
spring
Writing C programs and shell scripts to create, control, and administer computer networks. Installation and maintenance of computer networks. Prerequisites: CST 383, 459.

E CST 490 Reading and Conference. (1–12)
selected semesters

E CST 492 Honors Directed Study. (1–3)
selected semesters

E CST 493 Honors Thesis. (1–6)
selected semesters

E CST 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Applied Software Process. (3)
- Computer Project
- Embedded C. (3)
- Internet-Enabled Embedded Devices
- Professional Orientation. (1)

E CST 496 Ethics and Professionalism in Computing. (3)
fall
Studies major social and ethical issues in computing, including impact of computing on society, ethical behavior, and social responsibility. Prerequisite: senior standing.

E CST 498 Pro-Seminar. (1–3)
selected semesters

E CST 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62

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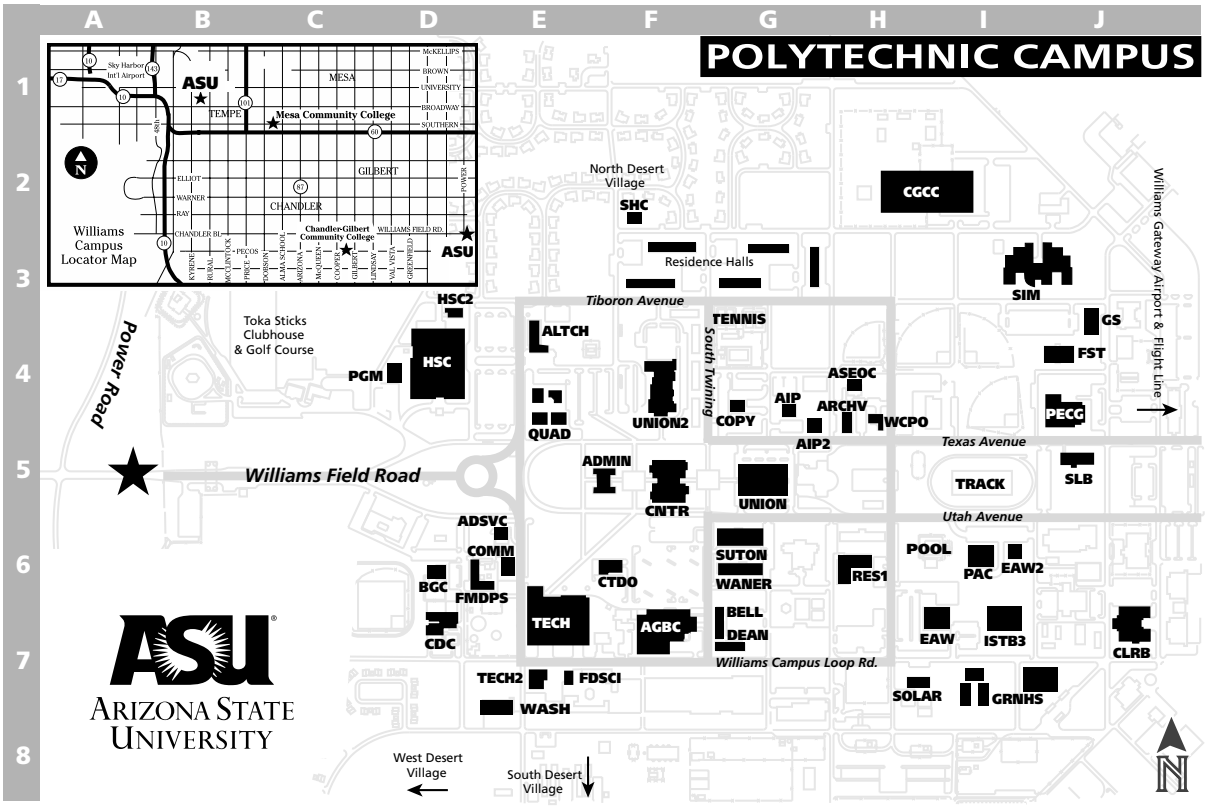
The Polytechnic campus maintains facilities at the leading edge of technology.

Tim Trumble photo



ADMIN	Administration Building (F5)
ADSVC	Administrative Services (E5)
AGBC	Agribusiness Center (F7)
AIP	American Indian Programs (G4)
AIP2	American Indian Programs Annex (G4)
ALTCH	Altitude Chamber Building (E3)
ARCHV	Library Archives (H4)
ASEOC	Alternate State Emergency Operations Center (H4)
BELL	Bell Hall (G7)
BGC	Boys and Girls Club (D6)
CDC	Child Development Center (D7)
CGCC	Chandler-Gilbert Community College (H2)
CLRB	Classroom Building (J7)
CNTR	Academic Center Building (F5)
COMM	Communications (E6)
COPY	Williams Express Copy Services (G4)
CTDO	College of Technology Dean's Office (F6)
DEAN	Dean Hall (G7)
EAW	Exercise and Wellness Center (I7)
EAW2	Exercise Instructional Lab Building (I6)
FDSCI	Agribusiness Food Science Lab (E7)
FMDPS	Facilities Management/DPS (D6)
FST	Fire Science Technology (J4)
GRNHS	Greenhouses (I7)
GS	General Studies (J4)
HSC	Health Sciences Center (D4)
HSC2	Health Sciences Center Research (D3)
ISTB3	Interdisciplinary Science and Technology Building 3 (I7)
PAC	Physical Activity Center (I6)
PECG	Physical Education Center/Gym (J5)
PGM	Professional Golf Management (D4)
POOL	Swimming Pool (H6)
QUAD	Student Affairs (1,2,4), CERTT Lab (3) (E4)
RES1	Freshman Experience Dorm (H6)
SHC	Student Health Center (F2)
SIM	Flight Simulator Building (I3)
SLB	CGCC Science Lab Building (J5)
SOLAR	Photovoltaic Testing Laboratory (H7)
SUTON	Sutton Hall (G6)
TECH	Technology Center (E7)
TECH2	Technology Center Annex (E7)
TENNIS	Tennis Courts (G4)
UNION	Williams Campus Union (G5)
UNION2	Campus Union Annex (F4)
WANER	Wanner Hall (G6)
WASH	Launderette (E7)
WCPO	Williams Campus Post Office (H4)

Tempe Campus

www.asu.edu

Milton D. Glick, PhD, Executive Vice President and Provost of the University

Founded in 1885, the Tempe campus of Arizona State University is located near the heart of metropolitan Phoenix in the city of Tempe. The Tempe campus comprises more than 700 acres and offers outstanding physical facilities to support the university's educational programs. The campus is characterized by broad pedestrian malls laid out in an easy-to-follow grid plan, with spacious lawns and subtropical landscaping.

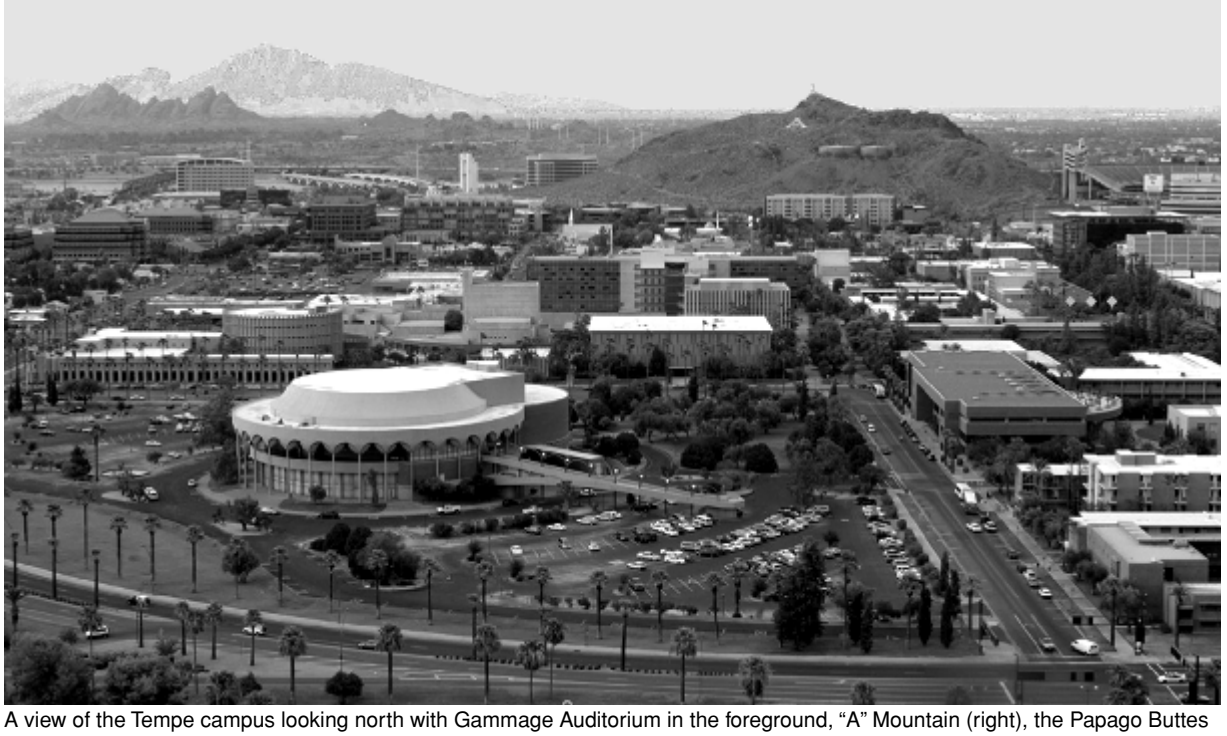
ASU is a multicampus state-supported university with a student enrollment of more than 48,900 on the Tempe campus. Among the colleges are more than 90 programs leading to bachelor's degrees and more than 140 programs leading to graduate degrees, including a law degree program. These colleges are located on the Tempe campus:

1. Barrett Honors College;
2. College of Design;
3. College of Education;
4. College of Law;
5. College of Liberal Arts and Sciences;
6. Katherine K. Herberger College of Fine Arts;
7. Ira A. Fulton School of Engineering;
8. W. P. Carey School of Business; and
9. Walter Cronkite School of Journalism.

The Division of Graduate Studies and University Libraries are also administered through the Tempe campus.

The mission of the university is to provide outstanding programs in instruction, research, and creative activity; to promote and support economic development; and to provide service appropriate for the nation, the state of Arizona, and the state's major metropolitan area. The Tempe campus supports the university mission through faculty who are excellent scholars and researchers and who are committed to teaching excellence.

The Tempe campus offers a broad range of educational experiences through a traditional semester calendar and summer and winter sessions. ASU programs offer diversity in academic, athletic, cultural, and social activities to prepare students to be productive citizens in a multicultural society.



A view of the Tempe campus looking north with Gammage Auditorium in the foreground, "A" Mountain (right), the Papago Buttes (left), and Camelback Mountain in the distance

Tim Trumble photo

Tempe Campus Student Services

The mission of the Division of Student Affairs is to provide the highest quality programs and services that support undergraduate and graduate education of ASU students. In fostering student success, Student Affairs provides access for every student to a holistic living and learning environment in collaboration with the broader university community. To fulfill this mission, the Division of Student Affairs is fully committed to enhancing student persistence and graduation. The Office of the Vice President for Student Affairs is located in FOUND 210. For more information, call 480/965-7293, or access the Web site at www.asu.edu/studentaffairs.

The university is committed to the belief that an education involves more than attending class. While the acquisition of knowledge is a central part of the university experience, learning about others, about independence and leadership, and about living in a complex society are equally important. Student Affairs' services and developmental programs reflect this philosophy.

RESIDENTIAL LIFE

Living in one of the ASU residence halls provides students the opportunity to make the most of their university experience. Special residential communities for freshmen, honors students, students in particular academic areas, and students interested in a healthy living community offer opportunities and activities that enrich the educational experience.

The Freshman Year Experience program (see "Freshman Year Experience," page 282) provides a unique environment of classrooms, live-in tutors, academic advisors, and other support services designed to help freshmen develop skills for success.

Because the demand for campus housing is high, students are encouraged to apply for housing early (before February 1) for the best chance to live on campus for fall semester. Housing is not guaranteed. Students must be admitted to ASU before applying for housing. Requests for specially modified rooms for students with disabilities should be noted on the application.

Students will receive residence hall application information with their admission certificate. For more information, access the Web site at www.asu.edu/studentaffairs/reslife, call 480/965-3515, or write to

RESIDENTIAL LIFE
ARIZONA STATE UNIVERSITY
PO BOX 870212
TEMPE AZ 85287-0212

Information about meal plans on the Tempe campus may be obtained by calling 480/965-3464 or writing

CAMPUS DINING
ARIZONA STATE UNIVERSITY
PO BOX 871101
TEMPE AZ 85287-1101

STUDENT DEVELOPMENT AND THE MEMORIAL UNION

ASU students experience success through active involvement in learning and within their community. Student development enhances student learning through academic support services and programs and encourages student involvement in the community through participation in cocurricular programs, clubs, employment, leadership opportunities, organizations, service, and the arts.

Memorial Union

The Memorial Union (MU) serves as the campus community center for students, faculty, staff, and guests on the Tempe campus. Opportunities for student involvement are abundant with programs and services that enhance the ASU experience. Students can connect through activities, clubs, community service, organizations, student government, and the arts.

The building's features include an art café; computer lab and workroom; Internet stations; multipurpose meeting rooms; study and group work areas; Sparky's Den: a recreation center with bowling, billiards, and a video arcade; and tutoring and academic support.

Services provided in the MU include banking facilities and several ATMs, catering, infant care facilities, food venues, a general store, a hair salon, Internet stations, a music store, a travel agency, ASU athletic ticket office outlet and team shop, SunCard office, and Copy Center.

The MU also maintains a permanent art collection composed of paintings, fine art prints, photographs, sculptures, and tapestries. The collection, located throughout the four levels of the building, includes works of faculty, alumni, and students from ASU's Herberger College of Fine Arts, as well as works of other recognized artists.

A variety of student employment opportunities are available at the MU. Some of the student positions include administrative clerk, building manager, computer lab attendant, event assistant, information desk associate, and Sparky's Den associate. The MU offers flexible work schedules to accommodate class schedules. Promotion from within the various work groups is encouraged.

For more information about any of these services or to explore employment, call the MU Information Desk at 480/965-5728, or access the Web site at www.asu.edu/studentaffairs/mu.

Child and Family Services. Child and Family Services (CFS) provides resource and referral services to students, faculty, and staff. Information about the Campus Children's Center (480/921-2737), Child Development Laboratory (480/965-7267), Child Study Laboratory (480/965-5320), the College of Education Preschool (480/965-2510), and Open Horizons (480/894-8870) may be obtained at CFS or by calling the programs directly. CFS maintains a child care referral database and coordinates workshops and discussion groups on child and elder care issues. Educational materials and listings of additional on- and off-campus activities, programs, and services for children and their families are available at the CFS office, MU 14C.

For more information, call 480/965-9515, or access the Web site at www.asu.edu/studentaffairs/mu/family.

Student Legal Assistance. Student Legal Assistance counsels and advises students regarding their legal rights and responsibilities. This service is offered free of charge to currently enrolled ASU students. Notary services are also available. Typical consultation topics include auto-related issues, criminal matters, debt, domestic relations, wills, towing and traffic violations, landlord/tenant issues, and miscellaneous issues. Student Legal Assistance is located in the Memorial Union, Room 329.

For more information, call 480/965-6307, or access the Web site at www.asu.edu/studentaffairs/mu/legal.

Transition and Parent Programs

The Transition and Parent Programs office coordinates and directs transition activities and parent programs and services for new students and their families on behalf of the Division of Student Affairs. Additionally, Transition and Parent Programs engages parents and families in support of their students' educational and developmental experiences. The purpose of this office is to assimilate new students and their families to the services, resources, and campus culture at ASU and to provide resources, programs, and information for parents and families. Some of the programs coordinated by this office include Sun Devil 101/Welcome Week, More to Explore, Family Weekend, and Spring Welcome.

For more information, call Transition and Parent Programs at 480/965-4564, or access the Transition and Parent Programs Web site at asu.edu/studentaffairs/mu/transitions.

Sun Devil Involvement Center

Located on the third floor of the Memorial Union, the Sun Devil Involvement Center (SDIC) provides opportunities for student involvement through clubs, coalitions, community service, fraternities and sororities, leadership, programming, student government, and cocurricular connections.

For more information, call 480/965-2255, or access the Web site at www.asu.edu/studentaffairs/mu/sdic.

Associated Students of Arizona State University. Associated Students of Arizona State University (ASASU) is the student government of the university and the official representative of the undergraduate student government (USG) and graduate and professional student association (GPSA) in matters of university governance and budgeting. Through elected, volunteer, and paid positions, students can become active, contributing members of ASASU. Students can participate in a wide variety of activities and services, including College Councils, Student Senate, Graduate Assembly, and Safety Escort Service. Students interested in concerts, lectures, and Homecoming are encouraged to become involved with the Programming and Activities Board.

For more information, call 480/965-3161, or access the Web site at www.asu.edu/asasu.

Co-Curricular Programs and Activities. Co-Curricular Programs and Activities (CCPA) engages the ASU community in programs and activities that promote student learning and involvement. CCPA provides opportunities for students to become actively involved in the campus community through participation on the Mean Plan Committee, Student Development and Memorial Union Advisory Board, and Faculty Recognition Committee. CCPA works closely with faculty to offer programs that foster dialogue, lead to the exchange of ideas, and provide out-of-class learning experiences for students. Each year, CCPA sponsors a number of annual events, such as the Student/Faculty Retreat and Last Lecture Series.

For more information on CCPA programs or student involvement opportunities, call 480/965-9600, or access the Web site at www.asu.edu/studentaffairs/partnerships.

Student Organization Resource Center. The Student Organization Resource Center (SORC) provides opportunities for students to get involved with established campus organizations and helps students start new organizations. The center maintains a list of all registered groups, assists with the coordination of major events, and provides a resource desk where students can access information on student activities and leadership opportunities. Members of

REACH, a student paraprofessional organization, are available for outreach sessions.

SORC also connects students with opportunities to participate in special events and programs on campus. Programs supported by SORC include live entertainment in the Memorial Union's Art Café and two weekly student-run comedy troupes—*Barren Mind Improv* and *Farce Side Comedy Hour*.

For more information, call 480/965-2255, or access the Web site at www.asu.edu/clubs.

Community Service Program. The Community Service Program strives to engage students, faculty, and staff in meaningful cocurricular service. By engaging students in worthwhile service while promoting a lifelong commitment to citizenship and social justice, the Community Service Program affords students the key opportunity to turn learning into social action.

For more information, visit the Community Service Program, located at the Sun Devil Involvement Center on the third floor of the Memorial Union, access the Web site at www.asu.edu/studentaffairs/mu/community, or call 480/965-0305.

Short-Term Service Projects. The Community Service Program collaborates with Valleywide agencies and campus entities to provide meaningful episodic service events such as the Cesar Chavez Day of Service, the Fall Service Plunge, and the Martin Luther King Jr. Day of Service.

Community Service Opportunity Clearinghouse. A clearinghouse of information from more than 400 social service and nonprofit agencies across the Valley of the Sun offers information about internships, post-graduation opportunities, and long-term service. Students can use this resource to design a service experience that complements their academic, personal, and professional goals.

Greek Life. Fraternities and sororities have held a prominent place on the Tempe campus for the past 100 years. The Greek life community is a home away from home — a place that plays a critical role in enhancing a student's quality of life while developing their potential. Currently the Greek life community is experiencing record growth and comprises over 50 fraternities and sororities and approximately 2,800 undergraduate students. It is self-governing and represented by the following five councils: Interfraternity Council, Multicultural Greek Council, National Association of Latino Fraternal Organizations Council, National Pan-Hellenic Council, and Panhellenic Council.

For more information, call Greek Life at 480/965-5292, or access the Web site at www.asu.edu/studentaffairs/mu/greeklife.

STUDENT LIFE

Student Life strives to enhance student learning and student achievement by fostering a positive, inclusive campus environment; providing services to meet the needs of a diverse student body; and empowering students to advocate for their needs and interests by developing leadership and life skills. Opportunities for leadership and community involvement help students prepare for their roles as responsible citizens. Students learn and sharpen their leadership skills through their involvement in student activities, workshops, and community service.

For more information, access the Web site at www. asu.edu/studentaffairs/studentlife.

Student Judicial Affairs. Student Judicial Affairs oversees the review of conduct issues, involving both students and student organizations, as set forth by the Arizona Board of Regents (ABOR) *Student Code of Conduct*. This code is designed to balance the rights and needs of the individual with the responsibility of the individual to meet the needs of the community. Outreach and education are provided to students, faculty, and staff in areas such as student rights and responsibilities, campus and community standards, and university policies. Referrals for student conduct issues are accepted from faculty, staff, students, or observers. The Student Judicial Affairs designee reviews all referrals. Students who are found to have violated the ABOR *Student Code of Conduct* are subject to appropriate sanctions for student misconduct. Student Judicial Affairs is located in Student Life, SSV 263.

For more information, call 480/965-6547, or access the Web site at www.asu.edu/studentaffairs/studentlife/judicial.

Danforth Chapel. Built in 1948 as a multifaith chapel and retreat for the university community to use for prayer, meditation, weddings, memorial services, baptisms, Bible study groups, and worship, Danforth Chapel continues to provide opportunities for those functions. The chapel is located on Cady Mall between the Memorial Union and Hayden Library.

For more information, call 480/965-6547, or access the Web site at www.asu.edu/studentaffairs/studentlife/danforth.

STUDENT RISK MANAGEMENT

Student Risk Management assists student organization leaders, members, and advisors as well as Division of Student Affairs staff in learning to identify the potential and perceived risks involved in their activities. Guided by a philosophy of shared responsibility, the staff encourages the development of prudent judgment skills used to eliminate, limit, or accept these risks. Outreach efforts focus on the empowerment of students to make intelligent, fair, and reasonable choices within the boundaries established by state, federal, or local laws; the ASU *Code of Conduct* and institutional policies; and the educational mission of ASU. Student leaders as well as faculty and staff advisors wishing to collaborate on the creation of student organization environments that support members and leaders in their decision-making processes are encouraged to access these services. Additionally, Student Risk Management works to provide information regarding institutional policies as well as information regarding trends in higher education that are related to risk management while serving as a resource to assist staff with compliance needs when planning or facilitating events on behalf of the Division of Student Affairs.

For more information, call 480/965-5298, or access the Web site at www.asu.edu/studentaffairs/risk.

MULTICULTURAL STUDENT SERVICES

Educational Opportunity Center. The Educational Opportunity Center is a community outreach service that focuses on first-generation, low-income individuals. The center offers vocational testing and guidance as well as assistance in application for admission, scholarships, and financial assistance at a postsecondary institution suited to a particular individual's needs. Services are free, partially funded by the U.S. Department of Education. The center has a main office at 1000 East Apache Blvd., Suite 118, in Tempe and satellite offices around Maricopa County.

For more information, call 480/894-8451, or access the Web site at asu.edu/studentaffairs/mss/eoc.

Multicultural Student Center. The Multicultural Student Center supports the transition, retention, and graduation of multicultural students by engaging them in various support services and programs within a culturally affirming environment. One-on-one guidance, consultation, and referral are offered to address the academic, personal, and cultural needs of multicultural students. The African American Men of ASU Program, the Hispanic Mother/Daughter Program, and the Native American Achievement Program strive to increase the persistence and graduation rates of students within the African American, Hispanic, and American Indian communities. Summer opportunities, such as the Academic Program Promoting Leadership Enrichment and Service, African American Summer Bridge Program, LINKS @ ASU, and the Native American Summer Institute, assist students with the transition and adjustment to university life. The Asian Lead Academy and Black Youth Recognition Conference provide outreach to the community in an effort to help junior high and high school students develop academically, personally, and professionally. The student coalitions, as well as other multicultural student organizations, provide cultural programming and academic support to African American, American Indian, Asian, Asian Pacific American, Hispanic/Latino, gay, lesbian, bisexual, transgendered, and women student communities.

The MSC office is located in SSV 394. For more information, call 480/965-6060, or access the Web site at www.asu.edu/studentaffairs/mss/mcc.

Upward Bound Program. Upward Bound is a college preparatory program designed to increase the academic skills and motivational levels of participants (low-income, potential first-generation college students) to encourage their completion of high school, as well as enrollment in and graduation from postsecondary institutions. The year-round program includes summer residential components funded by the U.S. Department of Education. The Upward Bound Program office is located in SSV 276.

For more information, call 480/965-6483, or access the Web site at www.asu.edu/studentaffairs/mss/upwardbound.

Veterans Upward Bound. Veterans Upward Bound is designed for low-income, first-generation veterans who wish to pursue postsecondary education but whose life experiences did not adequately prepare them for the educational requirements of today. College preparation instruction in writing, reading, mathematics, general science, study skills, and computer literacy are provided to suit each veteran's individual needs. Veterans lacking a high school diploma can also prepare for obtaining their General Education Development (GED) while participating in Veterans Upward Bound. Interest inventory assessments and career advising are also available. All services are free, funded by the U.S. Department of Education. The Veterans Upward Bound office is located at 1000 East Apache Blvd., Suite 106, in Tempe.

For more information, call 480/965-3944, or access the Web site at asu.edu/student/affairs/mss/vub.

EDUCATIONAL DEVELOPMENT

International Student Office. The International Student Office (ISO) supports student success by engaging students to maintain compliance with visa regulations and by providing programming and advising that enriches their educational experiences. The ISO's principal responsibilities and services include administrative support, immigration counseling, initial orientation, visa administration, and campus and community activities that promote international awareness and enrich the educational experiences of students. The ISO is located in SSV 265.

For more information, call 480/965-7451, or access the Web site at www.asu.edu/studentaffairs/ed/iso.

Disability Resource Center. The Disability Resource Center (DRC) facilitates equal access to educational and cocurricular programs, campus activities, career exploration, and employment opportunities for qualified ASU students with disabilities, ensuring they are provided with mandated reasonable and effective accommodations. A U.S. Department of Education TRIO Student Support Services Grant also allows DRC to incorporate a unique academic enhancement model into the disability support services program for 270 selected students with disabilities who meet TRIO eligibility requirements. Disability documentation is required and information regarding disabilities is confidential. DRC is located on the first floor of Matthews Center.

For more information, call 480/965-1234 (voice) or 480/965-9000 (TTY), send a fax to 480/965-0441, or access the Web site at www.asu.edu/studentaffairs/ed/drc.

LEARNING SUPPORT SERVICES

Adult Re-Entry Program. The Adult Re-Entry Program offers a variety of services to assist undergraduate students age 25 and older in reaching their academic goals, such as preenrollment assistance, orientation, peer mentoring, resource and referral information, support groups, and scholarships. The Adult Re-Entry Center in MU 14 provides a welcoming environment for individual or group study.

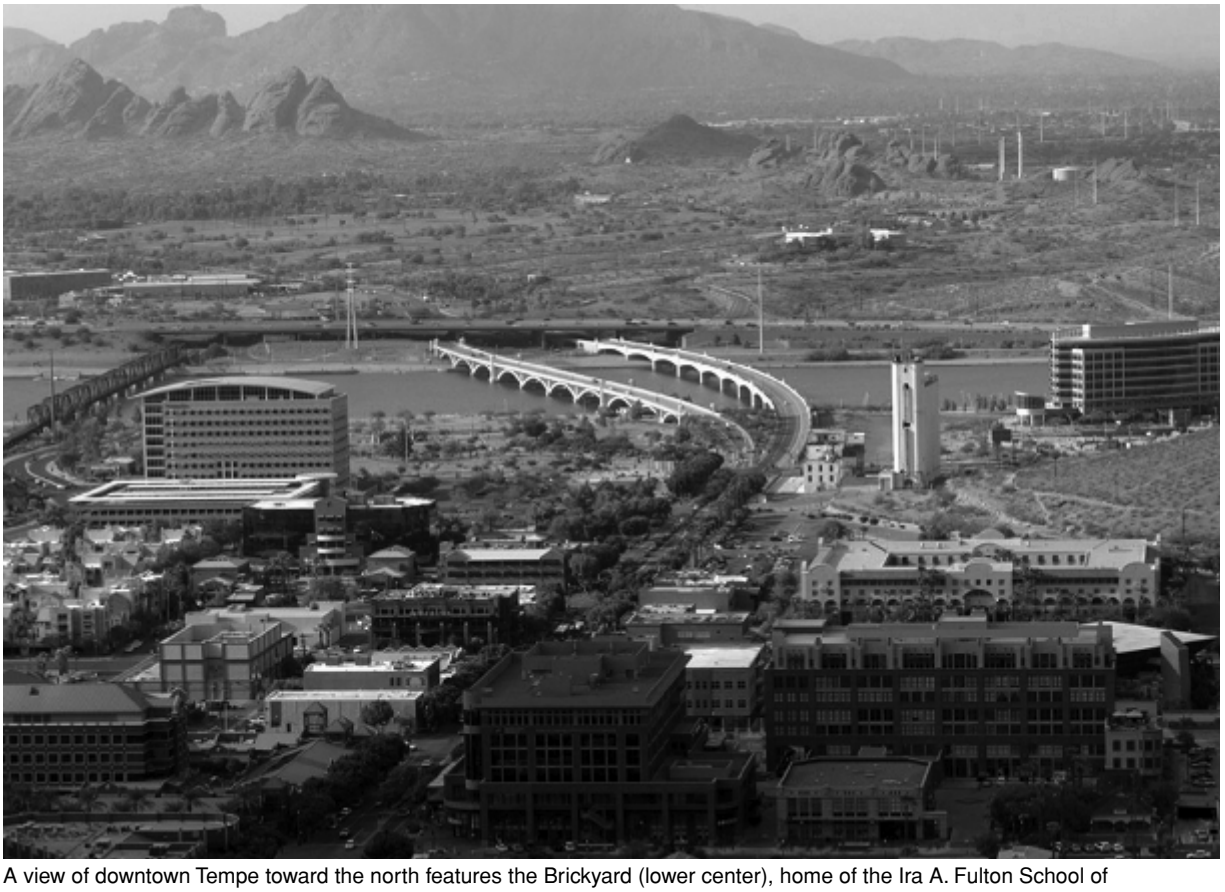
For more information, call 480/965-2252, or access the Web site at www.asu.edu/studentaffairs/reentry.

Freshman Year Experience. A student's freshman year is a time to learn new ideas, meet new people, and grow as an educated citizen ready to contribute to the community. Freshman Year Experience (FYE) provides a strong foundation for all first-year students and students in transition that fosters the student's academic and personal success. FYE achieves this mission by providing academic support services, opportunities for the exchange of ideas, and

workshops; generating and supporting research and scholarship; hosting visiting scholars and practitioners; fostering faculty interaction within living and learning communities; administering a Web site; and offering student involvement opportunities with the university community. FYE helps freshmen achieve academic and personal success by coordinating services and programs in settings designed just for freshmen.

FYE features

1. tutoring support offered at no cost to all freshmen by tutors who live in the residence halls, creating an academic-focused atmosphere available through tutoring centers in the residence halls open five evenings each week;
2. academic advising in FYE sites, with academic advisors employing a developmental approach to advising;
3. computer labs at FYE sites available 24 hours a day, with lab attendants available during evening hours to provide assistance and answer questions;
4. a full complement of freshman courses offered at FYE sites, such as freshman-level English, history, mathematics, political science, and the university success course for freshmen;
5. peer coaching: undergraduate and graduate students working with first-year students individually or in a group setting to assist the students with transitional issues such as time management, note taking, study skills, critical reading, and test taking;
6. a peer mentoring program: through which freshmen can request a sophomore or junior-level student mentor of the same major to guide them through their first year.
7. personal development and support programs, with presentations from various departments, focusing on academic expectations, academic skills, freshman transition, major and career choice, and other related developmental issues; and
8. living and learning communities for freshmen in the W. P. Carey School of Business, Ira A. Fulton School of Engineering, Tempe campus College of Education, Katherine K. Herberger College of Fine Arts, College of Public Programs, College of Nursing, College of Liberal Arts and Sciences, College of Design, Barrett Honors College, Walter Cronkite School of Journalism and Mass Communication, University College's Exploratory/Undecided majors, as well as communities for students interested in the themes of Leadership/Civic Engagement and Healthy Living.



A view of downtown Tempe toward the north features the Brickyard (lower center), home of the Ira A. Fulton School of Engineering; MIll Avenue bridges; and Camelback Mountain in the distance.

Tim Trumble photo

FYE is open to all freshmen regardless of their place of residence (on or off-campus). Halls designated as FYE sites in 2006–2007 are Cholla, Manzanita, McClintock, Palo Verde complex, San Pablo, Sonora, and Sahuaro.

For more information, call 480/965-1512, send e-mail to FYE-Q@asu.edu, or access the Web site at www.asu.edu/studentaffairs/fye.

Learning Resource Center. The Learning Resource Center (LRC) provides comprehensive learning support services to ASU students including tutoring, academic coaching, academic skills workshops, and software training. LRC services are designed to support student retention and improve academic performance and graduation rates. Recent research shows that ASU freshmen who engage in weekly tutoring at the LRC have a 0.50 higher cumulative GPA than nonusers at the end of freshman year.

The LRC offers tutoring in a variety of locations and formats to serve different student needs. This includes free, scheduled, and drop-in small group tutoring; test review sessions; online tutoring (through the LRC Web site); and individual, fee-based tutoring by appointment. Tutoring is offered in approximately 100 courses, including mathematics, first-year composition, languages, business, chemistry, biology, engineering, and computer science. Daytime tutoring is offered Monday through Friday in two locations: MU 14 and Palo Verde West. Evening tutoring is offered Sunday through Thursday in the MU location and in tutoring sites located in Freshman Year Experience residence halls. Residential and off-campus students are welcome to use tutoring in any of these locations.

The academic coaching program provides individual assistance to help students improve general academic skills, including time and stress management, organizational strategies, textbook reading, and test preparation. Students can schedule an appointment or walk-in to meet with a peer coach, and those who qualify can schedule weekly coaching meetings throughout the semester. Peer coaches also present workshops on academic skills topics in LRC daytime and evening locations throughout the year.

The LRC offers two options for students who want to improve their software skills: individual tutoring and group workshops. Students can walk in or schedule tutoring sessions with software specialists or participate in workshops offered in LRC instructional computer labs. Students can practice new skills in staffed lab sessions that supplement all software workshops. LRC instructional computer labs are located in the Memorial Union (Montgomery Instructional Lab) and in SSV 392.

Students can view tutoring schedules and workshops on the LRC Web site at www.asu.edu/studentaffairs/lrc.

For more information or to schedule an appointment, call or drop in at the LRC in Palo Verde West at 480/965-6254, or in MU 14 at 480/965-7728.

DEAN OF STUDENTS OFFICE

Student Advocacy and Assistance

Student Advocacy and Assistance guides students in resolving educational, personal, and other campus impediments toward successful completion of their academic goals. Student Advocacy and Assistance links students with appropriate university and community resources, agencies, and individuals; collaborates with faculty and staff in the best interest of the students; and follows through to bring efficient closure to student concerns. Student Advocacy and Assistance is located in Student Life, SSV 263.

For more information, call 480/965-5852, or access the Web site at www.asu.edu/studentaffairs/deanofstudents/advocacy.

COUNSELING AND CONSULTATION

Services. Counseling and Consultation offers a range of confidential, time-limited counseling and psychiatric services for ASU students. Staff members are available to discuss any important personal concern a student may be facing, particularly issues related to the adjustment to university life. Professional help in the following areas is available: psychological issues, personal concerns, interpersonal issues, and crisis intervention. Counseling and Consultation staff members have a strong commitment to meeting the needs of students of color and nontraditional students. Counseling and Consultation staff consists of both male and female mental health professionals, including psychologists, counselors, psychiatric providers, and social workers. Students are initially seen by an individual counselor for assessment. Continuing services in the form of individual, couples, or group meetings are then offered on a time-limited basis depending upon the student's need and staff availability. Limited psychiatric services are available, if needed, for students receiving counseling.

Counseling and Consultation offers counseling groups on topics such as women's and men's issues, eating disorders, substance abuse, stress management, multicultural/diversity issues, and interpersonal relationships. Other services available to the ASU community include consultation and outreach programming.

Crisis Intervention. Crisis intervention for students experiencing mental health emergencies is available. During normal working hours, students may call and request same day appointments to discuss urgent situations. After office hours, EMPACT Suicide Prevention Center, Inc., is available for crisis consultation by calling 480/921-1006.

Confidentiality. Confidentiality is of utmost importance. Information about a student is not released without that student's written permission, except in the case of imminent danger to self or others, child/adult abuse, court order, or where otherwise required by law. Notations of counseling and psychiatric services are not a part of a student's academic record.

Appointments. ASU students may schedule an initial counseling appointment by phone (480/965-6146) or in person at SSV 334. There is no cost for the initial personal consultation. Fees are charged for additional sessions, career testing, and psychiatric services. Fee reductions and waivers are available. Office hours are 8 A.M. to 5 P.M. Monday through Friday. Counseling and Consultation is located at SSV 334. Additional information is available on the Counseling and Consultation Web site at www.asu.edu/studentaffairs/counseling.

Training Programs. Counseling and Consultation provides training for psychologists and other mental health professionals through postdoctoral, internship, residency, and practicum training programs.

Testprep@ASU. Testprep@ASU offers courses to help students prepare for the following graduate entrance exams: the Graduate Record Exam (GRE), the Graduate Management Admissions Test (GMAT), and the Law School Admission Test (LSAT).

The office is located in SSV 340 and is open 9 A.M. to 6 P.M. Monday through Thursday and 9 A.M. to 5 P.M. Friday.

For more information about test preparation workshops call 480/965-6777, visit the office, or access the Web site at www.asu.edu/testprep.

Career Testing Services. Counseling and Consultation offers two separate Exploration Workshops through Career Testing Services (CTS). Both workshops are based upon well-established tests taken before attending each workshop. The Career Exploration Workshop focuses on career/major selection and uses the Strong Interest Inventory to help individuals find a major or career based upon interests. The Personal Styles Exploration Workshop focuses on personal style evaluation and uses the Myers Briggs Type Indicator to help individuals understand their personality preferences. Career testing is available to students and nonstudents.

For more information about career testing workshop schedules and fees, call CTS at 480/965-6777, or access the Web site at www.asu.edu/studentaffairs/counseling/personaldev.html.

CAMPUS HEALTH SERVICE

Services. Campus Health Service offers fully accredited outpatient health care to all students enrolled at ASU. The professional staff, consisting of physicians, nurse practitioners, registered nurses, dietitians, and health educators, has special interest and training in college health care. Consultant physicians in dermatology, orthopedics, and other specialties are on-site and are available by referral from a member of the Campus Health Service professional staff.

Additional services include comprehensive women's health care, immunizations, a travel clinic, and an allergy clinic for students needing periodic injections. The pharmacy at the Campus Health Service provides many prescription and over-the-counter medications at reasonable costs. Radiology and laboratory services are also available.

A parental "consent to treat" form is required before a student under 18 can receive treatment at Campus Health Service. A copy of the parental consent form may be obtained from the Campus Health Service Web site at www.asu.edu/studentaffairs/health.

Hours. Students are strongly encouraged to schedule appointments to minimize waiting time and to allow students the opportunity to establish a relationship with one clinician. Appointments are available by calling 480/965-3349. Patients with urgent health care problems may be seen at the Campus Health Service Acute Care Clinic on a same-day basis. The clinic is open weekdays from 9 A.M. to 5:30 P.M.

Fees. Full-time students are charged for primary care visits at Campus Health Service and for consultant visits, radiological procedures, laboratory procedures, medications, certain special or surgical procedures, and certain health education services. Patients receiving medical treatment off campus, such as consultations, emergency care, and hospitalization, are responsible for any resulting charges.

Insurance. *While Campus Health Service provides comprehensive ambulatory care, it is not a substitute for health insurance.* Medical insurance coverage is strongly recommended for all students and is required for international students. Eligible students and dependents may enroll in health insurance coverage arranged by ASU. Dependents must complete an application and may require underwriting approval by the insurance carrier. The coverage assists students in paying for laboratory and radiology procedures, off-campus consultations, hospitalization, surgery, and emergency and after-hours care. Students may purchase health insurance through SunDial, the ASU touch-tone telephone registration system, or at Student Health.

For more information, call the Campus Health Service insurance office at 480/965-2411.

Bridge Discount Program. This discount program reduces the total health care costs for certain services rendered at Campus Health Service. Students enrolled in this program are charged co-payments for specialist visits, basic x rays, and laboratory tests.

For more information, call 480/965-2411, or access the Web site at www.asu.edu/studentaffairs/health.

WELLNESS AND HEALTH PROMOTION

ASU Wellness and Health Promotion advances wellness and fosters a healthy campus environment that supports academic, personal, and professional success. Relevant health information is provided to reduce risk and address critical issues that impact campus life. Information, support, and referral is available for alcohol and other drug abuse prevention, body image enhancement and eating disorders prevention, healthy eating and nutrition, HIV/AIDS and sexually transmitted infection prevention, sexual health promotion, sexual assault and relationship violence prevention and victim advocacy, stress management, and violence prevention.

Wellness and Health Promotion offers presentations, special events, information booths, a resource room, workshops, Web and printed materials, and peer education programs.

The Home Safe Violence Prevention and Advocacy Center offers a 24 hour helpline for information, support, and referral. Peer advocates are trained to answer the helpline and assist other students.

Student organizations such as AIDS HOPE, V-Day Campaign, and Students Educating about Rape and Violence Everywhere offer excellent opportunities for students to address issues of personal interest.

Wellness and Health Promotion offers programs and services during and outside of regular business hours. Students are invited to drop in, call, or connect via email for information or to get involved in helping others.

For more health information, wellness calendar, and program information call 480/965-4721, or access the Web site at www.asu.edu/studentaffairs/wellness.

STUDENT MEDIA

Student Media offers the largest combined news products for the university, produced completely by student employees and volunteers.

The *State Press* campus newspaper, one of the largest daily newspapers in Arizona, is published five days a week by ASU students who make editorial decisions with the support of experienced university staff. It is distributed free of charge on the Polytechnic, Tempe, and West campuses, and in downtown Tempe.

The *ASU Web Devil* is Student Media's online news center and community guide, with local news and listings of restaurants, hotels, apartments, transportation, campus maps, and interesting cultural and entertainment opportunities within the community surrounding ASU. Access the Web site at www.asuwebdevil.com.

Sun Devil Television (SDTV) broadcasts on Channel 2 to ASU residence halls, Greek housing, the Towers apartment building, the Memorial Union, the Student Recreation Center, and various departments that utilize the university cable system. Student employees and volunteers produce several news and entertainment programs a day. Music videos and premium movies are also aired nightly.

All of these products provide students with on-the-job training in newswriting, photography, editing, broadcast reporting and production, online reporting, design, and advertising. They also address the many informational needs of the university community, not only through stories about the campus and local and national events, but through paid classified and display advertisements by area merchants, campus groups, and university faculty, students, and staff.

Student Media provides complete prepress services, including graphics and design, to the university community.

For more information, call 480/965-7572.

CAREER SERVICES

Career Services provides advising for individual career planning concerns and offers information about numerous career fields and opportunities. Students are encouraged to use the Career Education Center throughout their academic careers. An online career planning system assists students in evaluating and making career choices. Career Services offers workshops and classroom presentations on career planning, interviewing skills, résumé writing, and a myriad of additional career-related topics. Advisors are available to assist students on an individual basis in career planning and employment.

Hundreds of employers from business, industry, government, social service agencies, health organizations, and educational institutions come to ASU to interview students seeking permanent positions and career-related summer, intern, and co-op employment. Career Services facilitates these interviews for both employers and students to meet each group's needs and interests. In addition, career and job fairs are scheduled throughout the year.

The agency's services support students' career development throughout their college experience, and Career Services encourages participation in programs as early as the student's freshman year. The Tempe campus office is located in SSV 329.

For more information, call 480/965-2350, or access the Web site at www.asu.edu/studentaffairs/career.

STUDENT RECREATION COMPLEX AND CAMPUS RECREATION

The Student Recreation Complex (SRC) is the place to become involved and meet people with similar interests in an active lifestyle. Opportunities for involvement are plentiful, as Student Affairs' Campus Recreation is one of the largest programs of its kind in the country, serving more than 27,000 students annually. Programs offered include intramural sports, informal recreation, fitness, aquatic and sports skills classes, outdoor recreation, children and family programs, sport clubs, adaptive recreation for individuals with long- or short-term disabilities, a wellness program, safety education, experiential learning, and special events.

A variety of student employment opportunities, with flexible work schedules, are available at the SRC. Student positions include: facility managers, lifeguards, weight room supervisors, equipment room attendants, administrative assistants, personal trainers, group fitness instructors, outdoor trip leaders, Web developers, graphic designers, and front desk monitors.

The SRC is located on the south end of Palm Walk. Features include a variety of resistance and cardiorespiratory equipment, a 9,000 square-foot weight room, three large gymnasiums, 14 indoor racquetball courts, one squash court, martial arts, aerobics and sport club rooms, outdoor equipment rental, and adaptive weight equipment. Outdoor facilities include a lighted, multiuse complex with four fields, a .43-mile perimeter walking and jogging path, four sand volleyball courts, 14 tennis courts, and a 70-meter swimming pool with two movable bulkheads that allow the pool to be divided into three parts for simultaneous multiuse programming. Any student taking a class on the Tempe campus is an automatic member and can use the SRC for drop-in use. Polytechnic campus and West campus students can pay a student membership fee to use the SRC facility.

For more information, call 480/965-8900, stop by for a tour, or access the Web site at www.asu.edu/studentaffairs/src.

ARIZONA PREVENTION RESOURCE CENTER

The Arizona Prevention Resource Center (APRC) serves as a centralized source for individuals, schools, and communities throughout Arizona to support, enhance, and initiate programs focused on the prevention of the use and abuse of alcohol and other drugs; gangs and violence; and other areas, such as health promotion, domestic violence, and dropout prevention. The APRC operates in the following program areas:

1. Clearinghouse—provides accurate, timely, and personalized prevention information and materials through an in-house library, access to national

sources, and links with prevention programs in Arizona.

2. Training and Technical Assistance—provides high quality, responsive training and technical assistance for organizations and individuals undertaking prevention programs in local communities and schools; focus is on research-based (promising and proven) practices.
3. Evaluation and Accountability—coordinates and provides leadership for a statewide evaluation strategy for accountability in alcohol and other drug prevention and treatment programs; produces an annual inventory of substance abuse and gang prevention and treatment programs in Arizona; designs and conducts contracted evaluations of community-based prevention programs; and promotes accountability in all aspects of APRC operations.
4. Strategic Initiatives and Planning—promotes effective collaboration between prevention and treatment program leadership; broadens the funding base for prevention programs; researches and develops strategies for comprehensive statewide systems and accountability.

For more information, call 480/727-2772 or toll-free at 1-800-432-2772, access the Web site at www.azprevention.org, or write

ARIZONA PREVENTION RESOURCE CENTER
ARIZONA STATE UNIVERSITY
PO BOX 872208
TEMPE AZ 85287-2208

Information can also be obtained by fax, at 480/727-5400, or at 542 East Monroe Street in Phoenix, Building D.

INTERCOLLEGIATE ATHLETICS

The university is a member of the National Collegiate Athletic Association, Division I, and the Pacific-10 Conference. The university has 22 varsity intercollegiate sports and more than 500 participants. Intercollegiate athletics at ASU are governed by a board of faculty, students, and staff under the regulations of the Arizona Board of Regents, the NCAA, the Pacific-10 Conference, and the university. Policies are administered by Intercollegiate Athletics. All athletic grants-in-aid and scholarships are administered in coordination with Intercollegiate Athletics.

FAITH COMMUNITIES

Various religious centers representing most major religious groups are available near the Tempe campus and provide students with opportunities to participate in programs of religious worship and to meet other students through social activities.

For more information, call the Campus Interfaith Council at 480/965-6547, or access the Web site at www.asu.edu/studentaffairs/studentlife/interfaith.

OTHER OPPORTUNITIES FOR STUDENT INVOLVEMENT

Communication Activities: Interpreters Theater. Participants write, compile, and perform scripts for presentation in diverse on- and off-campus settings through the Hugh Downs School of Human Communication.

For more information, call 480/965-5061.

Dance. The Department of Dance presents six to eight faculty- and/or student-directed concerts a year.

For more information, call 480/965-5029.

Forensics. The ASU Forensic squad, associated with Pi Kappa Delta national forensic honorary association, travels to trophy tournaments across the country.

For more information, access the Web site at www.asu.edu/clas/communication/undergraduate/forensics.

KASC Radio. At KASC, in the Walter Cronkite School of Journalism and Mass Communication, students work in programming, performance, news, production, promotion, sales, and management. The station, programmed entirely by students, offers a modern rock format as an alternative to other Valley radio stations. New music by national as well as local bands is the focus of the KASC format. The music is complemented by ASU news and sports features.

For more information, access the Web site at www.theblaze1260.com.

Music. Performing organizations within the School of Music provide opportunities for involvement and credit, including bands, Lyric Opera Theatre, symphony orchestra, and choral organizations.

For more information, call 480/965-3371.

Theatre. The School of Theatre and Film presents six to eight mainstage theatre productions and many student-generated productions each year. Auditions for roles in mainstage productions are open to all university students, regardless of major. Backstage production participation opportunities are also available to all students. Audition information is available from the School of Theatre and Film, GHALL 232, 480/965-5337. The department provides community outreach opportunities with schools and connections with professional theatre companies.

W. P. Carey School of Business

wpcarey.asu.edu

Robert E. Mittelstaedt Jr., MBA, Dean

PURPOSE

The mission of the W. P. Carey School of Business reflects a commitment to expand knowledge and educate future business leaders in a world-class learning environment that values thought leadership, real-world applications, technology, global perspective, ethics, and community. These programs address issues of importance to future managers in a world characterized by demands for continuous improvements in quality; growing sophistication of information technology; globalized markets; racial, cultural, and gender diversity in the workforce; and a demand for managers with practical, realistic skills.

Students have many opportunities to supplement their academic experiences. The school offers an honors program for academically talented students, an international component to provide a variety of international opportunities, an internship program that provides related practical experience, and more than 30 cocurricular organizations to increase student interaction and learning.

The school is a member of AACSB International—The Association to Advance Collegiate Schools of Business, the official accrediting organization in the field of business. The undergraduate and graduate programs and the School of Accountancy are also accredited by this organization.

The school is host to a chapter of Beta Gamma Sigma, a national society that recognizes high academic achievement in AACSB International–accredited schools. Selection to Beta Gamma Sigma is the highest scholastic honor a student in business can earn. Students in the top seven percent of the junior class and the top ten percent of the senior class are invited for membership every spring. For more information about Beta Gamma Sigma, access the Web site at betagammasigma.org, or stop by BA 150.

In addition to the regular degree curricula, other programs of study in the school are designed to meet special needs. Selected majors are available in the evening, and continuing education courses are conducted for qualified persons who are regularly employed and who otherwise would be unable to enroll in college courses. Short courses and institutes on a noncredit basis are organized in cooperation with various business groups for the furtherance of in-service training of employed personnel.

The school works in partnership with the business community, and the board of the Dean's Council of 100 serves as a primary source of advice and counsel for the school. Through the various divisions of the L. William Seidman Research Institute, the school reaches out to the business community through research and executive education. For more information, access the school's Web site at wpcarey.asu.edu.

ORGANIZATION

The courses offered by the W. P. Carey School of Business are organized into groups so that a related sequence may be established for the various subject fields. For administrative purposes, these fields are organized into the following academic units:

School of Accountancy
Department of Economics
Department of Finance
School of Health Management and Policy
Department of Information Systems
Department of Management
Department of Marketing
Department of Supply Chain Management

ADMISSION

The Prebusiness Program. Each student admitted to the W. P. Carey School of Business is designated as a prebusiness student. The student follows the freshman and sophomore sequence of courses listed in the curriculum outline. Students should follow the recommendations of an academic advisor in completing the prescribed background and skill courses in preparation for the subsequent professional program. The skill courses follow.

ACC 230 Uses of Accounting Information I.....3
ACC 240 Uses of Accounting Information II.....3
CIS 105 Computer Applications and Information Technology *CS*.....3
ECN 211 Macroeconomic Principles *SB*.....3
ECN 212 Microeconomic Principles *SB*.....3
Choose between the course combinations below..... 6 or 3
ENG 101 First-Year Composition (3)
ENG 102 First-Year Composition (3)
———*or*———
ENG 105 Advanced First-Year Composition (3)

———*or*———

ENG 107 English for Foreign Students (3)
ENG 108 English for Foreign Students (3)
MAT 210 Brief Calculus *MA* 3
MAT 211 Mathematics for Business Analysis 3
QBA 221 Statistical Analysis *CS* 3
Total ..... 27 or 30

Accountancy and Computer Information Systems majors should refer to their specific requirements under the "School of Accountancy," page 297, and the "Department of Information Systems," page 303, which list variations in the skill courses.

Completion of lower-division requirements does not ensure acceptance to the upper-division professional program. Prebusiness students are not allowed to register for 300- and 400-level business courses.

The Professional Program. The junior and senior years constitute the professional program of the undergraduate curriculum.

Students who wish to apply to the W. P. Carey School of Business professional program must submit an application during one of the three annual application periods. Candidates are strongly encouraged to visit the undergraduate programs office, in BA 109, at the beginning of the semester in which they wish to apply to pick up information regarding academic qualifications, admissions criteria, and application deadlines. The application can be found on the Web at wpcarey.asu.edu/up/up_professional_program.cfm. All applicants must be admitted to ASU by the time they submit their professional program application and must provide official SAT or ACT scores.

Nonbusiness Students. A nonbusiness student is permitted to register for selected 300- and 400-level business courses only during online registration and only if, (1) at the time of registration, the student has junior standing (56 semester hours completed) and (2) the student has a minimum cumulative GPA of 2.50 at ASU and a minimum GPA of 2.50 for all business courses completed at ASU. Students who have 56 semester hours completed but have never attended ASU are given a one-semester period to register and to establish a GPA at ASU. Students must meet all prerequisites and course requirements as listed in the catalog. Economics courses have different prerequisites; see the individual economics courses for those requirements.

Nonbusiness majors are limited to a maximum of 15 semester hours of selected upper-division business courses (excluding ECN courses).

Bachelor of Interdisciplinary Studies. The W. P. Carey School of Business participates in the Bachelor of Interdisciplinary Studies (BIS) degree. For details about the BIS degree, refer to "School of Interdisciplinary Studies," page 139.

Minors. Two minors are available to nonbusiness students: a minor in Business and a minor in Small Business. The Small Business minor is offered only at the Polytechnic campus. To complete the Business minor, students must obtain the requirements from the undergraduate programs office in the W. P. Carey School of Business and complete the specified business courses with a grade of "C" (2.00) or higher. To complete the Small Business minor, students must obtain the requirements from the Polytechnic campus Business Administration program on SUTTON, third floor. Courses used in a student's major may not be used toward a minor. Students are advised to consult an advisor in the colleges of their majors to ensure the proper selection of courses for the minor. The upper-division courses for the minor are restricted to students with 56 hours who are in good standing (a 2.00 ASU GPA or better).

Nondegree Undergraduate and Graduate Students. A nondegree undergraduate or graduate student is permitted to enroll in selected 300- and 400-level business courses only during online registration and only if (1) the student has an ASU cumulative GPA of at least 2.50 and an ASU cumulative business GPA of at least 2.50 at the time of online registration or (2) the student has never attended ASU, in which case he or she is given a one-semester period to register during online registration and to establish a GPA at ASU. Students must meet all prerequisites and course requirements as listed in the catalog. Economics courses have different prerequisites; see the individual economics courses for those requirements.

Nondegree undergraduate and graduate students are limited to a maximum of 15 semester hours of selected upper-division business courses (excluding ECN courses).

SECONDARY EDUCATION—BAE

The College of Education offers a Bachelor of Arts in Education degree in Secondary Education with an academic specialization in business.

Academic Specialization ITC Admission Requirements

This degree is offered through the Initial Teacher Certification (ITC) program in the College of Education. See "Initial Teacher Certification Professional Program Admission," page 350, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more information or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

The following courses must be completed with a grade of "C" (2.00) or higher before applying to the ITC professional program:

ECN 211 Macroeconomics Principles *SB* 3
ECN 212 Microeconomic Principles *SB* 3

In addition, the following courses may be in progress when applying to the ITC but must be completed before starting the program:

ACC 230 Uses of Accounting Information I 3
CIS 105 Computer Applications and Information Technology *CS* 3

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Business. The major teaching field consists of 46 semester hours and six additional hours in teaching methods. A grade of "C" (2.00) or higher is required in all academic specialization courses. Required major courses are as follows:

ACC	230	Uses of Accounting Information I	3
ACC	240	Uses of Accounting Information II	3
CIS	105	Computer Applications and Information Technology *CS*	3
ECN	211	Macroeconomic Principles *SB*	3
ECN	212	Microeconomic Principles *SB*	3
ENG	301	Writing for the Professions *L*	3
FIN	300	Fundamentals of Finance	3
		or FIN 380 Personal Financial Management (3)	
LES	305	Legal, Ethical, and Regulatory Issues in Business	3
MAT	211	Mathematics for Business Analysis	3
MGT	300	Organizational Management and Leadership	3
MGT	440	Small Business and Entrepreneurship	3
MKT	300	Principles of Marketing	3
MKT	310	Principles of Selling	3
		or MKT 424 Retail Management (3)	
QBA	221	Statistical Analysis *CS*	3
SCM	300	Global Supply Operations	3
Typing/keyboarding			1
Total			46

Teaching Methods

BUE	480	Teaching Business Subjects	3
BUE	481	Technology in Business and Vocational Education	3
Total			6

ADVISING

The student should follow the sequence of courses in the "Curriculum Outline Prebusiness Program," on this page, and the recommendations of the academic advisor in completing the prescribed background and skill courses in preparation for the subsequent professional program.

For more advising information, access the undergraduate programs Web site at wpcarey.asu.edu/up.

Curriculum Outline Prebusiness Program

First Year

First Semester

CIS	105	Computer Applications and Information Technology *CS*	3
ENG	101	First-Year Composition	3
		or ENG 107 English for Foreign Students (3)	
MAT	210	Brief Calculus *MA*	3
General Studies			3
PGS or SOC course			3
Total			15

Second Semester

COM	100	Introduction to Human Communication *SB*	3
		or COM 225 Public Speaking *L* (3)	
		or COM 230 Small Group Communication *SB* (3)	
		or COM 259 Communication in Business and the Professions (3)	
ECN	211	Macroeconomic Principles *SB*	3
		or ECN 212 Microeconomic Principles *SB* (3)	
ENG	102	First-Year Composition	3
		or ENG 108 English for Foreign Students (3)	
MAT	211	Mathematics for Business Analysis	3
Laboratory science *SQ*			4
Total			16

Second Year

Third Semester

ACC	230	Uses of Accounting Information I	3
ECN	212	Microeconomic Principles *SB*	3
		or ECN 211 Macroeconomic Principles *SB* (3)	
QBA	221	Statistical Analysis *CS*	3
General Studies			3
PGS or SOC course			3
Total			15

Fourth Semester

ACC	240	Uses of Accounting Information II	3
General Studies			9
Laboratory science *SQ*/*SG*			4
Total			16

Prebusiness program total 62

Accountancy and Computer Information Systems majors should refer to their specific course requirements under the "School of Accountancy," page 297, and the "Department of Information Systems," page 303, which list course requirement variations. Management majors should refer to their specific course requirements under the "Department of Management," page 306.

Students are encouraged to have College Algebra (MAT 117) proficiency before registering in ECN 211 and 212. ECN 211 and 212 should be taken during the second and third semesters without any delay in the prebusiness program.

Professional Program. Students admitted to the professional program should select the necessary upper-division business courses to complete the major by consulting their departmental advising guide, with an academic advisor, or with a faculty advisor. Professional program students must complete WPC 301, ENG 301, and SCM 300 during their first semester in the professional program.

Transfer Credit. Credit from other institutions is accepted subject to the following guidelines. Students planning to take their first two years of work at a community college or another four-year college should take only those courses in business and economics that are offered as freshman- or sophomore-level courses at any of the state-supported Arizona universities. These lower-division courses are numbered 100 through 299. *A maximum of 30 hours of business and economics courses from community colleges are accepted toward a bachelor's degree in business.*

Students may transfer a maximum of nine semester hours of approved upper-division business course work required for the business degree to the Tempe campus. Professional business courses taught in the junior or senior year in the state universities may not be completed at a two-year college for transfer credit in the business core or major. The introductory course in the legal, ethical, and regulatory issues in business is accepted as an exception to this policy, but only lower-division credit is granted. Such courses may be utilized in the free elective category subject to the 30-hour limitation. Courses taught as vocational or career

W. P. Carey School of Business Baccalaureate Degrees and Majors

Major	Degree	Concentration	Administered By
Accountancy	BS	—	School of Accountancy
Computer Information Systems	BS	—	Department of Information Systems
Economics*	BS	—	Department of Economics
Finance	BS	—	Department of Finance
Management	BS	—	Department of Management
Marketing	BS	—	Department of Marketing
Supply Chain Management	BS	—	Department of Supply Chain Management

* This major is offered by the College of Liberal Arts and Sciences as well, with different requirements.

classes at the community colleges that are not taught in the schools of business at any one of the state universities are not accepted for credit toward a bachelor's degree. Courses taught in the upper-division business core at the state universities must be completed at the degree-granting institution unless transferred from an accredited four-year school. Normally, upper-division transfer credits are accepted only from AACSB International–accredited schools. To be accepted for credit as part of the professional program in business, all courses transferred from other institutions must carry prerequisites similar to those of the courses they are replacing at ASU.

An Associate in Transfer Partnership degree is available to Maricopa community college students who wish to complete their first two years of course work at a Maricopa community college and transfer to the W. P. Carey School of Business without loss of credit. An Associate of Business degree is available to students who wish to complete their first two years of course work at an Arizona community college and transfer to the W. P. Carey School of Business without loss of credit. Students should consult with an academic advisor in undergraduate programs to plan curriculum requirements and/or access Business Transfer Guides for optimal course selection at www.asu.edu/provost/articulation.

DEGREES

The faculty in the W. P. Carey School of Business offer the BS degree in Accountancy, Computer Information Systems, Economics, Finance, Management, Marketing, and Supply Chain Management upon successful completion of a four-year curriculum of 120 semester hours. Students may select one of the majors shown in the "W. P. Carey School of Business Baccalaureate Degrees and Majors" table, on this page. Each major is administered by the academic unit indicated.

GRADUATE PROGRAMS

The faculty in the W. P. Carey School of Business offer graduate degrees as shown in the "W. P. Carey School of Business Graduate Degrees and Majors" table, page 292. Students have the opportunity to obtain dual degrees in two years with several master's degree programs in the W. P. Carey School of Business, including these examples:

MBA/MAIS
MBA/MHSM
MBA/MS degree in Information Management
MBA/MTax

Other concurrent degrees available are as follows:

MBA/JD
MBA/MArch
MBA/MIM with Thunderbird, the Garvin School of International Management, Glendale, AZ; Graduate School of Business Administration (Peru); Graduate School of Commerce (France); Monterrey Institute for Technical and Superior Studies, Mexico State Campus (Mexico); and Carlos III University of Madrid (Spain)

Applicants to the MBA degree program must have significant work experience.

For more information about the W. P. Carey MBA program, see the *Graduate Catalog*.

UNIVERSITY GRADUATION REQUIREMENTS

In addition to fulfilling school and major requirements, students must meet all university graduation requirements. For more information, see "University Graduation Requirements," page 89.

General Studies Requirement

All students enrolled in a baccalaureate degree program must satisfy a university requirement for a minimum of 35 hours of approved course work in General Studies, as described under "General Studies," page 93. Note that all three General Studies awareness areas are required.

General Studies courses are listed in the "General Studies Courses" table, page 96, in the course descriptions, in the *Schedule of Classes,* and in the *Summer Sessions Bulletin*.

First-Year Composition Requirement

Completion of both ENG 101 and 102 or ENG 105 with a grade of "C" (2.00) or higher is required for graduation from ASU in any baccalaureate program.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

W. P. Carey School of Business Graduate Degrees and Majors

Major	Degree	Concentration[1]	Administered By
Accountancy and Information Systems	MAIS	—	School of Accountancy
Business Administration	MBA	—	W. P. Carey School of Business
	PhD	Accountancy, agribusiness,[2] computer information systems, finance, health services research,[3] management, marketing, or supply chain management	W. P. Carey School of Business
Economics	MS[3], PhD	—	Department of Economics
Health Sector Management	MHSM	—	School of Health Management and Policy
Information Management	MS	—	Department of Information Systems
Public Health[3]	MPH	Community health practice or health administration and policy	School of Health Management and Policy
Statistics[4]	MS	—	Committee on Statistics
Taxation	MTax	—	School of Accountancy

1 If a major offers concentrations, one must be selected unless noted as *optional*.

2 This concentration is administered in collaboration with the Morrison School of Agribusiness.

3 Applications are not being accepted at this time.

4 This program is administered by the Division of Graduate Studies.

SCHOOL DEGREE REQUIREMENTS

School degree requirements supplement the General Studies requirement with additional course work from the approved university general studies list or the W. P. Carey School of Business Policy Statement. Business courses may not be used to fulfill school degree requirements except for ECN 211 and 212 and QBA 221.

A well-planned program of study may enable students to complete many General Studies and school degree requirements concurrently. Students are encouraged to consult with an academic advisor in planning a program to ensure that they comply with all necessary requirements.

Specific courses from the following areas must be taken to fulfill the school degree requirements.

Social and Behavioral Sciences. W. P. Carey School of Business students must complete ECN 211 and 212, one course with the PGS prefix, and one course with the SOC prefix and may include these courses toward the General Studies requirements.

Mathematical Studies. W. P. Carey School of Business students must complete MAT 210 and MAT 211 (or a more advanced MAT course) and QBA 221 and may include these courses toward the General Studies requirements.

Communication. All students in the W. P. Carey School of Business except Accountancy and Management majors must complete COM 100, 225, 230, or 259 and ENG 301. Accountancy majors must complete COM 230 (or 100) and 259. Management majors must complete COM 225 or 259.

Additional Courses. Additional courses, as needed to complete 60 hours (54 hours for Accountancy majors), may be selected from the General Studies areas (see "General Studies," page 93) or from the W. P. Carey School of Business Policy Statement. Students are encouraged to consult with an academic advisor to ensure that they comply with all necessary requirements. Business courses may not be used to fulfill this requirement except for ECN 211 and 212 and QBA 221.

Additional Graduation Requirements

In addition to completion of courses outlined under "Major Requirements," page 293, to be eligible for the BS degree in the W. P. Carey School of Business, a student must

1. have completed at least 30 semester hours at the Tempe campus;
2. have attained a cumulative GPA of 2.00 or higher for all courses taken at this university, for all business courses taken at this university, and for all courses for the major taken at this university;
3. have earned a "C" (2.00) or higher in each lower-division core and skill course and each course in the major;
4. have earned a minimum of 51 semester hours in traditional courses that were designed primarily for junior or senior students and were completed in an accredited, four-year institution; and
5. have met all university degree requirements.

Exceptions. Any exception to these requirements must be approved by the Standards Committee of the W. P. Carey School of Business.

Declaration of Graduation. A student in a professional program must complete a Declaration of Graduation during

the semester in which the student completes 87 semester hours. The Degree Audit Reporting System should be used to guide the student in successfully completing degree requirements in a timely manner. Students who have not met this requirement are prevented from further registration. Some students may be required to complete a Program of Study in place of the Declaration of Graduation. Students should consult their advisors for the proper procedure.

Pass/Fail

Business majors may not include among the credits required for graduation any courses taken at this university on a pass/fail basis. Pass/fail credits taken at another institution may be petitioned for use, but only if the student can demonstrate proof that the pass grade was equivalent to a "C" (2.00) or higher.

MAJOR REQUIREMENTS

Students seeking a BS degree in the W. P. Carey School of Business must satisfactorily complete a curriculum of 120 semester hours.

A major consists of a pattern of 18 to 24 semester hours in related courses falling primarily within a given subject field. Available majors are shown in the "W. P. Carey School of Business Baccalaureate Degrees and Majors" table, page 291.

Major Proficiency Requirements. Students must receive grades of "C" (2.00) or higher in upper-division courses for the major. If a student receives a grade below "C" (2.00) in any course in the major, this course must be repeated. If a second grade below "C" (2.00) is received in either an upper-division course in the major already taken or in a different upper-division course in the major, the student is no longer eligible to take additional upper-division courses in that major. University policy states a course may be repeated only one time.

Business Core Requirements

The business core is designed to provide an understanding of the fundamentals of business and to develop a broad business background. The faculty designed the core to cover the impact of information technology and e-business practices on business. By educating and training students in the use of data-driven decision-making tools and applications software, the school provides greater opportunity for its students. All students seeking a BS degree in the W. P. Carey School of Business complete the core courses.

The lower-division business core courses provide the fundamental skills needed in professional program courses and introduce students to the supply chain, business processes, and enterprise solutions software in addition to technology skills such as Excel and Access.

Lower-Division Business Core

ACC	230	Uses of Accounting Information I	3
ACC	240	Uses of Accounting Information II	3
CIS	105	Computer Applications and Information Technology *CS*	3
Lower-division business core total			9

The upper-division business core provides an enhanced understanding of the digital economy, e-business, and business processes in addition to increasing content knowledge and other skills.

Upper-Division Business Core

FIN	300	Fundamentals of Finance	3
LES	305	Legal, Ethical, and Regulatory Issues in Business	3
MGT	300	Organizational Management and Leadership	3
MKT	300	Principles of Marketing	3
SCM	300	Global Supply Operations	3
WPC	301	Business Forum (first semester)	1
International business course			3
Upper-division business core total			19
Business core total			28

Accountancy, Computer Information Systems, and Management majors should refer to their specific requirements under the "School of Accountancy," page 297, and "Department of Information Systems," page 303, and "Department of Management," page 306, which list variations in the business core courses.

Elective Courses

Sufficient elective courses are to be selected by the student to complete the total of 120 semester hours required for graduation.

ACADEMIC STANDARDS

Probation. All business students, freshman through senior, must maintain a minimum GPA of 2.00 for all courses completed at ASU. If this standard is not maintained, the student is placed on probation. Students on probation must see an advisor before further registration.

Students on probation must obtain a semester GPA of 2.50 with no grade lower than a "C" (2.00). If a student on probation meets this requirement, but the cumulative GPA remains below 2.00, the student is given an additional semester on continued probation. At the end of continued probation, the student must return to good standing (a minimum GPA of 2.00) to avoid disqualification.

Disqualification. Students who do not meet probation requirements are academically disqualified. Disqualified students should meet with an academic advisor. These students may attend ASU during summer and winter sessions; however, they are not eligible to enroll in upper-division business courses.

Reinstatement and Readmission. Students seeking reinstatement (after disqualification) or readmission (after an absence from the university) should contact the undergraduate programs office, in BA 109, regarding procedures and guidance for returning to good standing.

Academic Dishonesty. The faculty of the W. P. Carey School of Business follow the guidelines in the Student Academic Integrity Policy on academic dishonesty. A copy of the policy may be obtained in the undergraduate programs office, BA 109.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

W. P. Carey School of Business Undergraduate Certificates

Certificate	Administered By	Campus
Automotive Entrepreneurs and Leaders, Certificate for*	W. P. Carey School of Business	Tempe
Healthcare Organizations and Society, Certificate in	School of Life Sciences and the W. P. Carey School of Business	Tempe
International Business Studies, Certificate in	W. P. Carey School of Business	Tempe
Quality Analysis Certificate	W. P. Carey School of Business	Tempe
Small Business and Entrepreneurship Certificate*	W. P. Carey School of Business	Tempe

* This certificate is only for students in the W. P. Carey School of Business.

Student Appeal Procedure on Grades. The faculty of the W. P. Carey School of Business have adopted a policy on the student appeal procedure on grades. A copy of the policy may be obtained in the undergraduate programs office, BA 109.

SPECIAL PROGRAMS

Asian Studies. Students in the W. P. Carey School of Business may pursue a program with an emphasis in Asian studies as part of the BS degree requirements in business. For more information, visit the Center for Asian Studies, in COOR 6611, or call 480/965-7184.

Certificate for Automotive Entrepreneurs and Leaders. The Certificate for Automotive Entrepreneurs and Leaders is available only to business majors at ASU. This certificate program provides students with the knowledge and basic skills necessary to enter careers in automotive management. These skills include hiring and managing personnel and teams, understanding consumers and human behavior, managing financing and cash flows, handling the demand chain for car inventory, managing customer service operations, and managing automobile marketing efforts.

Students are required to complete a bachelor's degree from the ASU W. P. Carey School of Business and complete a minimum of 15 semester hours of approved course work, including the following six hours:

MGT 494 ST: Dealership Management 3
or MKT 494 ST: Dealership Management (3)
WPC 494 Special Topics 3

To complete the certificate the student selects at least nine additional hours of business courses, including a three-semester-hour internship. Courses must be approved in advance by the faculty advisor for the certificate program. The student must complete the 15 semester hours of course work with grades of "C" (2.00) or higher.

To assure students a quality experience, space in the Certificate for Automotive Entrepreneurs and Leaders program is limited and based on available resources. Professional program students must submit an application. Admission criteria include GPA, career goals, and application materials.

For more information, call 480/965-9640, visit BA 109, or access the Web site at wpcarey.asu.edu/up/certificates/cael.cfm.

Certificate in Small Business and Entrepreneurship. A certificate in Small Business and Entrepreneurship is available only to business majors at ASU. The certificate requires 15 semester hours of classes, of which the following six semester hours must be included:

MGT 440 Small Business and Entrepreneurship 3
MGT 445 Business Plan Development 3

The remaining nine semester hours consist of three additional upper-division courses relevant to small business. A copy of the approved electives for business majors pursuing the Certificate in Small Business and Entrepreneurship is available in the undergraduate programs office, BA 109. To receive the certificate, students must complete the specified business courses with a grade of "C" (2.00) or higher.

Certificate in International Business Studies. See "Certificate in International Business Studies," page 304, for requirements.

Certificate in Quality Analysis. The program of study leading to the Certificate in Quality Analysis prepares students to perform technical analyses associated with quality measurement and improvement of manufacturing and service processes. Graduates with the ability to implement these analyses are in high demand in the marketplace. This program is not a substitute for the listed areas of business specialization; rather, the courses required for the certificate add quantitative strength and implementation skills for quality tools to the student's chosen field of specialization.

Students are required to complete a minimum of 15 semester hours of approved course work, including the following nine hours:

MGT 450 Changing Business Processes *L* 3
QBA 321 Intermediate Business Statistics 3
QBA 421 Applied Quality Analysis 3

To complete the certificate, the student selects at least six additional hours of course work related to quality analysis approved in advance by the advisor for the certificate program. The student must also complete the 15 hours of course work with a minimum GPA of 2.50.

BIS Concentration. A concentration in quality analysis is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has

academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

Certificate in Healthcare Organizations and Society. The certificate program is designed to allow undergraduate students interested in healthcare and the healthcare industry to access a broad range of disciplinary approaches and issues relevant to the subject.

To complete the certificate, students must take 18 semester hours of course work. Before starting the program students should seek advice and information in the School of Life Sciences Student Services Office in the College of Liberal Arts and Sciences or Business Honors advising in the W. P. Carey School of Business.

The course work must conform to the following structure and must be drawn from the three areas listed below. Additional courses are permissible with the approval of an advisor. In addition, students must meet the following requirements:

1. complete 18 semester hours, 12 of which must be in the upper division;
2. earn a "C" or higher in all upper-division courses taken for the certificate; and
3. complete at least 12 of the semester hours for the certificate in residence at ASU.

Overview of the U.S. Healthcare Industry. HSM 220 Healthcare Organizations is required. HSM 498 PS: Healthcare Economics is required for business students. HSM 561 Biostatistics may be taken by petition. No more than three courses in this area may be taken.

Ethical and Legal Issues in Healthcare. PHI 320 Bioethics is required. A second course is also required, PAF 460 Public Service Ethics or HSM 498 PS: Legal and Ethical Issues in Healthcare. No more than three courses in this area may be taken.

Anthropological, Historical, and Social Perspectives on Healthcare. One course is required. No more than two courses in this area may be taken, from among ASB 462 Medical Anthropology: Culture and Health, HPS 331 History of Medicine, and SOC 427 Sociology of Health and Illness.

For more information, visit the School of Life Sciences in LSC 206, or call 480/727-6277. Or visit the W. P. Carey School of Business.

Business Honors. W. P. Carey School of Business students who have been admitted to the Barrett Honors College are eligible to participate in Business Honors.

Business Honors provides opportunities for academically talented undergraduate business students to interact with other leading students, faculty, and business professionals inside and outside the classroom. The result is a challenging and enriched education experience that is valuable for professional or graduate work.

To be a part of Business Honors, students must be enrolled in the Barrett Honors College and have sufficient time to complete the honors requirements of the Business Honors program and Barrett Honors College.

The honors course work consists of HON 171 and 172 The Human Event or HON 394 Special Topics and the following core business courses: FIN 300, MGT 300, MKT 300, and SCM 300.

All Business Honors students are required to complete at least 18 upper-division honors credits, including the honors thesis project, to graduate from the program. The honors curriculum normally allows students to complete all requirements within the 120 semester hours of credit required for graduation.

Business Honors emphasizes activities beyond the normal classroom setting in order to broaden the educational experience. Such activities include special honors scholarships, student/faculty mixers, professional seminars and panel discussions, and the Global Business Series with the opportunity for international travel.

A specific academic advisor is assigned to assist honors students in course selection, to monitor progress toward honors recognition, and to be actively involved in career and educational guidance upon completion of the degree. Prebusiness students should plan to meet with the honors advisor.

For more information, see "The Barrett Honors College," page 145, visit Business Honors in BA 150, call 480/965-8710, or access the Business Honors Web site at wpcarey.asu.edu/honors. Faxes may be sent to 480/727-7277.

The Rodel Community Scholars. With the establishment of the Rodel Community Scholars Program, the ASU W. P. Carey School of Business greatly expands its effort to produce civic-minded leaders for the Phoenix metropolitan area and Arizona. The program focuses the energy and intellect of talented ASU business, psychology, sociology, education, and family studies students in a collaborative venture to develop and implement strategies directed toward education related concerns that impact high-potential, at risk students in targeted Valley high schools.

Internships. The school encourages students to complement their academic program with career-related work. This practical experience gives students a distinct advantage in the job market when seeking their first full-time professional positions. Additional benefits include industry contacts, a deeper understanding of career options, and monetary compensation that helps students finance their education.

Formal internships and co-ops offer professional work experience and experiential learning opportunities that enrich the student's academic preparation. Students may undertake internships in the summer or part-time during semesters. Co-op positions are full-time and require a one-semester or longer break in school attendance. The school

provides guidelines to companies and encourages them to sponsor internship and co-op positions that benefit the firm and the student. Both benefit because positions are built around projects and challenging responsibilities that enable students to apply learning acquired in advanced business classes.

ASU Career Services and the W. P. Carey School of Business work cooperatively to help students identify and obtain career-related work. The process of obtaining internships and co-ops is a learning opportunity. Students use the same job-search skills and resources used to obtain permanent career positions. Informational materials, workshops, and required class activities help students learn job-search and career-exploration skills and locate internship and co-op opportunities.

Some academic units within the school offer internship courses. Work assignments for these courses must be approved in advance by a designated faculty member, and all internship courses include an academic component. Limited numbers of international internship opportunities are available through the school's foreign partner institutions. Eligibility for these internships may require the student to participate in an exchange with the partner institutions or to pay additional fees.

For more information, visit BAC 119, or meet with faculty advisors in the departments or Career Services. Students interested in international internships should contact the W. P. Carey School of Business coordinator of international programs, in BA 109, or access the Web site at wpcarey.asu.edu/international.

Latin American Studies Center. Students in the W. P. Carey School of Business may pursue a program with an emphasis in Latin American area studies. For more information, visit the Latin American Studies Center, in COOR 4450, or call 480/965-5127.

Prelaw Studies. Prelaw students may pursue a program of study in the W. P. Carey School of Business.

The admission requirements of colleges of law differ considerably. The student should communicate with the admissions office of the law school the student hopes to attend and should plan a program to meet the requirements of that school. Most law schools, including the ASU College of Law, require a baccalaureate degree and completion of the Law School Admission Test (LSAT) for admission.

Students who plan to complete a bachelor's degree before entering law school may follow any field of specialization in the W. P. Carey School of Business. In addition to a student's assigned advisor, a prelaw advisor is available in the undergraduate programs office, BA 109. More information is available on the prelaw Web site at clas.asu.edu/prelaw.

RESEARCH CENTERS

L. William Seidman Research Institute

The school has seven research centers operating under the umbrella of the L. William Seidman Research Institute. These centers provide support for faculty research, give opportunities for advanced graduate students' involvement with faculty, and provide information and assistance to the business community on a wide variety of subjects:

Bank One Economic Outlook Center
Center for Advanced Purchasing Studies
Center for the Advancement of Small Business
Center for Advancing Business through Information Technology
Center for Business Research
Center for Services Leadership
Institute for Manufacturing Enterprise Systems

The institute's mission is to encourage and support applied business research by serving as a public access point to the W. P. Carey School of Business, by supporting faculty and student research, by transferring new knowledge to the public, by encouraging the development of education programs grounded in applied business research, and by conducting high-quality, applied business research.

The institute increases the level of funded research by adding support services to facilitate grant preparation and assistance in grant administration and by facilitating the mission of research centers as liaisons between faculty and businesses. In addition, the institute provides desktop publishing services.

For more details, see "L. William Seidman Research Institute," page 41. For more information, call 480/965-5362, access the institute's Web site at wpcarey.asu.edu/seid, or write

L. WILLIAM SEIDMAN RESEARCH INSTITUTE
PO BOX 874011
TEMPE AZ 85287-4011

SCHOOL OF BUSINESS (WPC)

M WPC 194 Special Topics. (1–4)
selected semesters

M WPC 294 Special Topics. (1–4)
selected semesters

M WPC 301 Business Forum. (1)
fall, spring, summer
Provides professional program business students with information on careers, interviewing, job hunting, and résumé skills. Must be taken in the first semester of the professional program for business students. Prerequisite: professional program business student.

M WPC 380 Small Business Leadership. (3)
fall, spring, summer
Develops leadership skills needed to form, lead, and operate a small business. Emphasizes creating a vision, research, and problem solving. Team teaching, collaborative learning. Prerequisites: 2.00 GPA; 47 hours; nonbusiness major.

M WPC 381 Small Business Accounting and Finance. (3)
fall and spring
Accounting and finance skills needed by small business owners to acquire, allocate, and track monetary resources and evaluate performance. Team teaching, collaborative learning. Prerequisites: WPC 380; 2.00 GPA; 56 hours; nonbusiness major.

M WPC 382 Small Business Sales and Market Development. (3)
fall and spring
Building and maintaining customers, developing a market identity and a niche, and the importance of sales. Team teaching, collaborative learning. Prerequisites: WPC 380; 2.00 GPA; 56 hours; nonbusiness major.

M WPC 383 Small Business Working Relationships. (3)
fall and spring
Addresses communication and the people in a business—clients, employees, suppliers, competitors, governments, family, and self development. Team teaching, collaborative learning. Prerequisites: WPC 380; 2.00 GPA; 56 hours; nonbusiness major.

M WPC 384 Small Business Operations and Planning. (3)
fall and spring
Planning and executing plans—the what, when, where, how, and who from product/service/project idea to pay back or completion. Team teaching, collaborative learning. Prerequisites: WPC 380; 2.00 GPA; 56 hours; nonbusiness major.

M WPC 394 Special Topics. (1–4)
fall and spring

M WPC 492 Honors Directed Study. (2)
fall and spring

M WPC 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Financial Resources
- Honors Research. (1)
- Human Resources

M WPC 497 Honors Colloquium. (1–6)
selected semesters
Topics may include the following:
- Professional Leadership Forum. (3)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

School of Accountancy

wpcarey.asu.edu/acc
480/965-3631
BA 223

Charles W. Christian, Director

Professors: J. R. Boatsman, Christian, Gupta, Johnson, Kaplan, Ohlson, Pany, Pei, Reckers, Schultz

Associate Professors: Golen, Hwang, Regier, Whitecotton

Assistant Professors: Comprix, Lee, Petersen, Robinson, Rowe

Senior Lecturers: Geiger, Goldman, Maccracken

Lecturers: J. L. Boatsman, Levendowski, Munshi, Wigal

ADMISSION

The School of Accountancy follows the W. P. Carey School of Business policies and procedures for admission to its undergraduate professional program in Accountancy.

To be considered for admission to the Accountancy major, a student must meet the W. P. Carey School of Business admission requirements, and have a grade of "C" (2.00) or higher in an introductory computer programming course as specified by the school. CIS 220 or its equivalent is taken in place of CIS 105.

Due to resource limitations, admission to the school's program is very competitive. Applicants are reviewed using a portfolio approach. Among the factors considered are cumulative GPA, skill course GPA, transfer GPA and institution (if applicable), SAT or ACT scores, work experience, demonstrated community involvement and leadership skills, and responses to questions in the professional program application.

ACCOUNTANCY—BS

The major in Accountancy includes the essential academic preparation for students who are

1. pursuing professional careers in public, corporate, and governmental accounting;
2. seeking positions in personal financial planning and portfolio analysis;
3. seeking positions in consulting;
4. planning to operate their own businesses; or
5. planning to pursue a graduate degree or attend law school.

The major in Accountancy consists of the following courses:

ACC	330	Enterprise Process Analysis and Design	3
ACC	340	External Reporting I	3
ACC	350	Internal Reporting	3
ACC	430	Taxes and Business Decisions *L*	3
ACC	440	External Reporting II	3
ACC	450	Principles of Auditing	3
Total			18

As part of the requirements, all Accountancy majors must complete the following courses:

ACC	250	Introductory Accounting Lab	1
CIS	220	Programming Concepts for Accountancy Majors[1]	3
CIS	360	Business Database Concepts	3
COM	100	Introduction to Human Communication *SB*[2]	3
		or COM 230 Small Group Communication *SB*[2] (3)	
COM	259	Communication in Business and the Professions[3]	3
		or COM 225 Public Speaking *L*[3] (3)	
ECN	306	Survey of International Economics *SB, G*[4]	3
Electives[5]			9
Total			25

1 CIS 220 is used in the business core in place of CIS 105.
2 COM 230 is recommended over COM 100.
3 COM 259 is recommended over COM 225.
4 ECN 306 is counted in the business core in place of the international business course.
5 Electives must be selected from a list approved by the School of Accountancy.

MAJOR PROFICIENCY REQUIREMENTS

In addition to school of business and university requirements, Accountancy majors must receive grades of "C" (2.00) or higher in the required upper-division major and major support courses. If a student receives a grade below "C" (2.00) in any required upper-division major course, this course must be repeated before any other upper-division major course can be taken. If a second grade below "C" (2.00) is received in either an upper-division major course

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

already taken or in a different upper-division major course, the student is no longer eligible to take additional upper-division major courses.

GRADUATION REQUIREMENTS

In addition to fulfilling major requirements, students seeking a degree must meet all university and school requirements. See "University Graduation Requirements," page 89, and "School Degree Requirements," page 292.

ACCOUNTANCY (ACC)

For more ACC courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M ACC 230 Uses of Accounting Information I. (3)
fall, spring, summer
Introduces the uses of financial accounting information for decision making from an external perspective within the context of the evolution of the business cycle. Prerequisite: sophomore standing.

M ACC 240 Uses of Accounting Information II. (3)
fall, spring, summer
Introduces the uses of management accounting information for decision making from an internal perspective within the context of an organization's strategy. Prerequisites: ACC 230; sophomore standing.

M ACC 250 Introductory Accounting Lab. (1)
fall, spring, summer
Procedural details of accounting for the accumulation of information and generation of reports for internal and external users. Lab. Fee. Prerequisites: ACC 230; sophomore standing.

M ACC 315 Financial Accounting and Reporting. (3)
fall and spring
Accounting theory and practice related to uses of financial statements by external decision makers. Prerequisite: non-Accountancy major. Prerequisites with a grade of "C" (2.00) or higher: ACC 240, 250.

M ACC 316 Management Uses of Accounting. (3)
fall and spring
Uses of accounting information for managerial decision making, budgeting, and control. Prerequisites: ACC 240; non-Accountancy major.

M ACC 330 Enterprise Process Analysis and Design. (3)
fall, spring, summer
Analysis and design of efficient and effective business processes. Emphasizes taking advantage of new information technologies to improve managerial decision making. Fee. Prerequisites: ACC 230, 240; CIS 105 (or 220); QBA 221; professional program business student majoring in Accountancy or Computer Information Systems.

M ACC 340 External Reporting I. (3)
fall, spring, summer
Financial accounting theory and practice related to external reporting. Prerequisites: CIS 220; FIN 300; professional program business student majoring in Accountancy. Prerequisites with a grade of "C" (2.00) or higher: ACC 230, 240, 250.

M ACC 350 Internal Reporting. (3)
fall, spring, summer
Internal reporting systems for planning, control, and decision making. Prerequisites: SCM 300; professional program business student majoring in Accountancy. Prerequisites with a grade of "C" (2.00) or higher: ACC 250, 330.

M ACC 394 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Accounting and Financial Analysis. (3)
- Financial Analysis and Accounting for Small Businesses. (3)

M ACC 430 Taxes and Business Decisions. (3)
fall, spring, summer
Federal income taxation of sole proprietors, partnerships, corporations, fiduciaries, and individuals with an emphasis on tax consequences of business and investment decisions. Prerequisites: LES 305; professional program business student majoring in Accountancy. Prerequisite with a grade of "C" (2.00) or higher: ACC 340.
General Studies: L

M ACC 440 External Reporting II. (3)
fall, spring, summer
Continuation of ACC 340 with emphasis on the recognition, research, and resolution of financial reporting issues. Prerequisite: professional program business student majoring in Accountancy. Prerequisite with a grade of "C" (2.00) or higher: ACC 340.

M ACC 450 Principles of Auditing. (3)
fall and spring
Standards and procedures in auditing. Planning, evidence gathering and accumulation, and reporting. Ethical and legal considerations. Fee. Prerequisite: professional program business student majoring in Accountancy. Prerequisite with a grade of "C" (2.00) or higher: ACC 440.

M ACC 494 Special Topics. (1–4)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Economics

wpcarey.asu.edu/ecn
480/965-3531
BAC 659

Arthur E. Blakemore, Chair

Regents' Professor: Prescott

Professors: Blakemore, Boyes, Brada, Burgess, DeSerpa, Happel, Hoffman, Kingston, Low, Manelli, Mayer, McDowell, McPheters, Melvin, Méndez, Ormiston, Rogerson, Santos, Schlee, Zhou

Associate Professors: Ahn, Chade, Datta, Herrendorf, Reffett

Senior Lecturer: Roberts

The W. P. Carey School of Business offers a Bachelor of Science (BS) degree in Economics. The BS program of study can be designed for students intending to seek employment in the private or public sector upon completion of their undergraduate studies. Such a program provides students with the typical analytical and quantitative skills employers expect of individuals holding economics degrees. The BS program of study can also be tailored to prepare students for graduate programs in economics, business, or law.

ECONOMICS—BS

Requirements for the W. P. Carey School of Business BS in Economics consist of three parts: university requirements, see "University Graduation Requirements," page 89, for all students at ASU; the requirements of the

W. P. Carey School of Business; and the requirements of the Department of Economics.

DEPARTMENT OF ECONOMICS REQUIREMENTS

The BS program of study consists of 24 semester hours of upper-division course work as shown below. To qualify for upper-division course work in economics, business students must be admitted to the W. P. Carey School of Business professional program or the Barrett Honors College. Only courses in which a student receives a grade of "C" (2.00) or higher may be used to meet the major requirements. Students must meet all prerequisites and course requirements as listed in the catalog:

1. economic theory: ECN 313 and 314;
2. econometrics and statistics: ECN 410 or 425 or QBA 321 or STP 421;
3. a capstone course or honors thesis: ECN 475 or 493; and
4. economics electives at the 300-level or above to fill out the remaining hours. At least two of these courses must be at the 400-level or above. A maximum of three semester hours of ECN 484 Economics Internship can be used to satisfy this requirement. ECN 475 and 493 cannot be used to fulfill this requirement.

SECONDARY EDUCATION—BAE

For more information, see "Secondary Education—BAE," page 536.

GRADUATION REQUIREMENTS

In addition to fulfilling major requirements, students must fulfill university requirements, see "University Graduation Requirements," page 89, and "School Degree Requirements," page 292.

SPECIAL PROGRAMS

Latin American Studies Certificate or Emphasis. Students majoring in Economics may elect to pursue a Latin American Studies Certificate or emphasis, combining courses from the major with selected courses of wholly Latin American content. For more information, see "Latin American Studies Center," page 296.

Certificate in International Business Studies. Students majoring in Economics may elect to pursue a Certificate in International Business Studies, combining courses from the major with selected international business courses. For more information, see "International Business Studies," page 304.

Certificate in Quality Analysis. Students majoring in Economics may elect to pursue a Certificate in Quality Analysis, combining courses from the major with selected technical analysis courses. For more information, see "Certificate in Quality Analysis," page 294.

Nonbusiness Students. A nonbusiness student is eligible to register for upper-division economics courses if the student has met all prerequisites and course requirements as listed in the catalog.

Business Honors. Students admitted to the Barrett Honors College may substitute ECN 213 Honors; Macroeconomics for ECN 211 and 313 and ECN 214 Honors: Microeconomics for ECN 212 and 314. These courses with grades of "C" (2.00) or higher satisfy the prerequisites and/or corequisites for all 400-level economics courses.

ECONOMICS (ECN)

For more ECN courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M ECN Note 1. MAT 211 or 271 with a grade of "C" (2.00) or higher is a prerequisite for all upper-division economics courses except ECN 382 and 384.

M ECN 211 Macroeconomic Principles. (3)
fall, spring, summer
Basic macroeconomic analysis. Economic institutions and factors determining income levels, price levels, and employment levels.
General Studies: SB

M ECN 212 Microeconomic Principles. (3)
fall, spring, summer
Basic microeconomic analysis. Theory of exchange and production, including the theory of the firm.
General Studies: SB

M ECN 213 Honors Macroeconomics. (3)
fall
Introduces modern macroeconomic analysis. Theory of national income, unemployment, inflation, and economic growth and its application to economic policy. Not open to students with credit in ECN 313. Prerequisite: Barrett Honors College student. Pre- or corequisite: MAT 210 or 270 or AP calculus.
General Studies: SB

M ECN 214 Honors Microeconomics. (3)
fall
Introduces modern microeconomic analysis. Theories of consumer behavior, production, and cost. Output and price determination in a variety of market settings. Not open to students with credit in ECN 314. Prerequisite: Barrett Honors College student. Pre- or corequisite: MAT 210 or 270 or AP calculus.
General Studies: SB

M ECN 294 Special Topics. (1–4)
selected semesters

M ECN 306 Survey of International Economics. (3)
fall, spring, summer
Survey of international trade issues, commercial policy, trade theory, customs unions, and international monetary topics. Cross-listed as IBS 306. Credit is allowed for only ECN 306 or IBS 306. See ECN Note 1. Prerequisites: ECN 211, 212.
General Studies: SB, G

M ECN 313 Intermediate Macroeconomic Theory. (3)
fall, spring, summer
Determinants of aggregate levels of employment, output, and income of an economy. Not open to students with credit in ECN 213. See ECN Note 1. Prerequisites: ECN 211, 212.
General Studies: SB

M ECN 314 Intermediate Microeconomic Theory. (3)
fall, spring, summer
Role of the price system in organizing economic activity under varying degrees of competition. See ECN Note 1. Prerequisites: ECN 211, 212.
General Studies: SB

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M ECN 315 Money and Banking. (3)
once a year
Functions of money. Monetary systems, credit functions, banking practices, and central banking policy. See ECN Note 1. Prerequisites: ECN 211, 212.

M ECN 331 Alternative Economic Systems. (3)
once a year
Alternative institutions, past and present, for organizing the social division of labor. Property rights, information, and incentives in industrial societies. See ECN Note 1. Prerequisites: ECN 211, 212.
General Studies: SB, G

M ECN 360 Economic Development. (3)
selected semesters
Theories of economic growth and development. Role of capital formation, technological innovation, population, and resource development in economic growth. See ECN Note 1. Prerequisites: ECN 211, 212.
General Studies: SB, G

M ECN 365 Economics of Russia and Eastern Europe. (3)
selected semesters
Origins and analysis of contemporary institutions. Comparative development and differentiation in the 20th century. See ECN Note 1. Prerequisites: ECN 211, 212.
General Studies: SB, G

M ECN 382 Managerial Economics. (3)
fall, spring, summer
Applies economic analysis to managerial decision making. Market analysis in the context of the socio-legal environment. Does not satisfy Economics major requirements. Prerequisites: minimum ASU 2.00 GPA; junior standing.

M ECN 384 Economics of Social Behavior. (3)
selected semesters
Applies economic analysis to contemporary behavior; discrimination, work versus leisure, crime, medical care, macroeconomic policies. Does not satisfy Economics major requirements. Prerequisites: minimum ASU 2.00 GPA; junior standing.
General Studies: SB

M ECN 394 Special Topics. (3)
selected semesters
Current topics of domestic or international interest. See current *Schedule of Classes* for offerings. See ECN Note 1. Prerequisites: ECN 211, 212.

M ECN 404 History of Economic Thought. (3)
once a year
Development of economic doctrines, theories of mercantilism, physiocracy, classicism, neoclassicism, Marxism, and contemporary economics. Prerequisite: ECN 314. Pre- or corequisite: ECN 313.
General Studies: SB

M ECN 410 Applied Business Forecasting. (3)
once a year
Applies forecasting techniques in business and institutional environments. Fee. Prerequisites: ECN 314; QBA 221 (or STP 226). Pre- or corequisite: ECN 313.

M ECN 421 Earnings and Employment. (3)
once a year
Origins of labor movement, analysis of labor unions, labor markets, collective bargaining, and current policy issues. Prerequisite: ECN 314. Pre- or corequisite: ECN 313.
General Studies: SB

M ECN 425 Introduction to Econometrics. (3)
once a year
Elements of regression analysis: estimation, hypothesis tests, prediction. Emphasizes use of econometric results in assessment of economic theories. Prerequisites: ECN 314; QBA 221 (or STP 226). Pre- or corequisite: ECN 313.
General Studies: CS

M ECN 436 International Trade Theory. (3)
once a year
Comparative-advantage doctrine, including practices under varying commercial policy approaches. Economic impact of international disequilibrium. Prerequisite: ECN 314. Pre- or corequisite: ECN 313.
General Studies: SB, G

M ECN 438 International Monetary Economics. (3)
once a year
History, theory, and policy of international monetary economics. Balance of payments and exchange rates. International financial markets, including Eurocurrency markets. Prerequisite: ECN 313. Pre- or corequisite: ECN 314.
General Studies: SB, G

M ECN 441 Public Finance. (3)
once a year
Public goods, externalities, voting models, public expenditures, taxation, and budget formation with emphasis on the federal government. Prerequisite: ECN 314. Pre- or corequisite: ECN 313.
General Studies: SB

M ECN 450 Law and Economics. (3)
once a year
Economics of the legal system, including analysis of property, contracts, torts, commercial law, and other topics. Prerequisite: ECN 314. Pre- or corequisite: ECN 313.

M ECN 453 Government and Business. (3)
once a year
Development of public policies toward business. Antitrust activity. Economic effects of government policies. Prerequisite: ECN 314. Pre- or corequisite: ECN 313.

M ECN 470 Mathematical Economics. (3)
once a year
Integrates economic analysis and mathematical methods into a comprehensive body of knowledge within contemporary economic theory. Prerequisite: ECN 314. Pre- or corequisite: ECN 313.

M ECN 475 Capstone in Economics. (3)
fall and spring
Capstone course integrating several areas of economics. Prerequisites: ECN 313, 314. Pre- or corequisite: ECN 410 (or 425) or QBA 321 or STP 421.
General Studies: L

M ECN 484 Economics Internship. (3)
fall, spring, summer
Academic credit for professional work organized through the Internship Program. Prerequisite: minimum cumulative ASU 3.00 GPA. Prerequisites: ECN 313, 314.

M ECN 493 Honors Thesis. (3)
fall and spring
General Studies: L

M ECN 494 Special Topics. (1–4)
selected semesters
Current economic topics of domestic or international interest. Analytical emphasis may be macro, micro, or both. See current *Schedule of Classes* for offerings. Prerequisites: ECN 313, 314.

M ECN 498 Pro-Seminar. (3)
selected semesters
Topics chosen from current area of interest. Prerequisites: ECN 313, 314.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

QUANTITATIVE BUSINESS ANALYSIS (QBA)

For more QBA courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M QBA 221 Statistical Analysis. (3)
fall and spring
Methods of statistical description. Applies probability theory and statistical inference in business. Fee. Prerequisite: MAT 211 or 272.
General Studies: CS

M QBA 321 Intermediate Business Statistics. (3)
once a year
Applies advanced statistical methods used in business and economic research. Primary emphasis on regression analysis and modeling. Prerequisite: QBA 221.

M QBA 421 Applied Quality Analysis. (3)
once a year
Applies statistical tools to improve business processes and increase quality. Topics include data analysis tools, experimental design, customer surveys, process control, and process capability. Prerequisite: QBA 221.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Finance

wpcarey.asu.edu/fin
480/965-3131
BAC 519

Jeffrey L. Coles, Chair

Professors: Booth, Coles, Guntermann, Hertzel, Kaufman, Nanda, Sushka, Wahal

Associate Professors: Cesta, Davis, Gallinger, Hoffmeister

Assistant Professors: Aragon, Deli, Dieckmann, Juergens, Lindsey, Martin, Nardari, Strickland

Clinical Assistant Professors: Licon, Simonson

Professor of Practice: Stearns

Lecturer: Hoffman

FINANCE—BS

The study of finance prepares students to understand the financial implications inherent in virtually all business decisions. Students majoring in Finance are prepared for entry-level careers in corporate management, depository institutions, investment management, and financial services. The finance curriculum emphasizes financial markets, evaluation of investments, and efficient allocation of resources. The major in Finance consists of the following courses:

ACC	315	Financial Accounting and Reporting	3
FIN	331	Financial Markets and Institutions	3
FIN	361	Managerial Finance	3
FIN	421	Security Analysis and Portfolio Management	3
FIN	461	Financial Cases and Modeling *L*	3
		One additional approved 400-level FIN course	3
Total			18

As part of the requirements, all Finance majors must complete ACC 250 Introductory Accounting Lab. Finance majors are strongly advised to take ACC 316 Management Uses of Accounting. FIN 484 Finance Internship is available for nonmajor elective credit.

ACC 250 must be completed before taking ACC 315. FIN 300 must be completed before taking FIN 361. FIN 331 and 361 and ACC 315 must be completed before taking 400-level FIN courses.

MAJOR PROFICIENCY REQUIREMENTS

Students must receive grades of "C" (2.00) or higher in upper-division courses for the major. If a student receives a grade below "C" (2.00) in any course in the major, this course must be repeated before taking any further courses for which this course is a prerequisite. If a second grade below "C" (2.00) is received in either an upper-division course in the major already taken or in a different upper-division course in the major, the student is no longer eligible to take additional upper-division courses in that major.

GRADUATION REQUIREMENTS

In addition to fulfilling major requirements, students seeking a degree must meet all university and school requirements. See "University Graduation Requirements," page 89, and "School Degree Requirements," page 292.

FINANCE (FIN)

For more FIN courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M FIN Note 1. In addition to individual course prerequisites, nonbusiness students must have at least a 2.50 ASU cumulative GPA, a 2.50 ASU business GPA, and 56 earned semester hours to register for any upper-division business course unless otherwise noted.

M FIN 300 Fundamentals of Finance. (3)
fall, spring, summer
Theory and problems in financial management of business enterprises. Prerequisites: ACC 240; ECN 212; QBA 221. Pre- or corequisite: SCM 300.

M FIN 331 Financial Markets and Institutions. (3)
fall, spring, summer
Analyzes financial markets and intermediaries. Theory of financial intermediation, interest rate theory, money and capital market instruments, and government regulation. Prerequisite: professional program business student majoring in Finance.

M FIN 361 Managerial Finance. (3)
fall, spring, summer
Theories and problems in resource allocation, cost of capital, CAPM and capital budgeting, asset valuation, capital structure, and financing policy. See FIN Note 1. Prerequisite: professional program business student majoring in Finance.

M FIN 380 Personal Financial Management. (3)
fall, spring, summer
Dynamic analysis of personal financial planning, including time value of money, stock and bond investment, and retirement and estate planning. Prerequisites: minimum cumulative 2.00 GPA; junior standing; non-Finance major.

M FIN 394 Special Topics. (1–4)
selected semesters
See FIN Note 1.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M FIN 421 Security Analysis and Portfolio Management. (3)
fall, spring, summer
Security analysis theory and practice. Selection and management of financial asset portfolios. Securities markets and portfolio risk-return analysis. Lecture, discussion. Prerequisite: professional program business student majoring in Finance. Prerequisites with a grade of "C" (2.00) or higher: ACC 315; FIN 331, 361.

M FIN 427 Derivative Financial Securities. (3)
fall, spring, summer
Study of stock options, index options, convertible securities, financial futures, warrants, subscription rights, and arbitrage pricing theory. Lecture, discussion. Prerequisite: professional program business student majoring in Finance. Prerequisite with a grade of "C" (2.00) or higher: FIN 421.

M FIN 431 Management of Financial Institutions. (3)
fall, spring, summer
Asset/liability and capital management in financial institutions. Influence of market factors and regulatory agencies. Emphasizes commercial banks. Lecture, discussion. Prerequisite: professional program business student majoring in Finance. Prerequisites with a grade of "C" (2.00) or higher: ACC 315; FIN 331, 361.

M FIN 456 International Financial Management. (3)
fall, spring, summer
Exchange rate determination, financial markets, managing multinational corporations, capital budgeting, and hedging currency risk exposure from an international perspective. Prerequisite: professional program business student majoring in Finance. Prerequisites with a grade of "C" (2.00) or higher: ACC 315; FIN 331, 361.
General Studies: G

M FIN 461 Financial Cases and Modeling. (3)
fall and spring
Case-oriented capstone course in managerial finance. Contemporary issues of liquidity management, capital budgeting, capital structure, and financial strategy. Lecture, discussion, group work. Prerequisite: professional program business student majoring in Finance. Prerequisites with a grade of "C" (2.00) or higher: ACC 315; FIN 331, 361 421.
General Studies: L

M FIN 481 Honors Seminar in Finance. (3)
once a year
Honors course covering topics that include theory and applications concerning managerial finance, investments, and financial institutions. Lecture, discussion. Prerequisite: Finance Business Honors program student. Prerequisites with a grade of "C" (2.00) or higher: ACC 315; FIN 331, 361.

M FIN 484 Finance Internship. (3)
fall, spring, summer
Academic credit for field work in finance organized through the internship program. Prerequisites: FIN 331, 361; instructor approval.

M FIN 494 Special Topics. (1–4)
selected semesters
Prerequisite: professional program business student majoring in Finance.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

REAL ESTATE STUDIES (REA)

For more REA courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M REA 380 Real Estate Fundamentals. (3)
fall and spring
Real estate for the student/consumer with an emphasis on the applied aspects of each area of real estate specialization. Not open to Real Estate majors. Prerequisites: 2.00 ASU GPA; junior standing.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

School of Health Management and Policy

wpcarey.asu.edu/hmp
480/965-7778
BA 318

Jeffrey R. Wilson, Director

Professors: Baldwin, Johnson, Kirkman-Liff, Schneller

Associate Professors: Reiser, Wilson

Assistant Professors: Furukawa, Jehn, Ketcham

Research Professors: Patton, Rimsza

Associate Research Professor: Schwenke

While the School of Health Management and Policy does not offer an undergraduate major, a number of courses at the 200 and 400 levels are available to students who have a strong interest in health care, public health, and health policy. Students may enroll in these courses regardless of their undergraduate major. Registration for courses at the 400 level is with permission of the instructor and subject to seat availability.

HEALTH SECTOR MANAGEMENT (HSM)

M HSM Note 1. In addition to individual course prerequisites, nonbusiness students must have at least a 2.50 ASU cumulative GPA, a 2.50 ASU business GPA, and 56 earned semester hours to register for any upper-division business course unless otherwise noted.

M HSM 220 Health Care Organizations. (3)
fall, spring, summer
Overview of United States health care delivery systems; financing, health policy, basic principles of budgeting, cost-benefit analysis, and resource management. Cross-listed as HCR 220. Credit is allowed for only HCR 220 or HSM 220.
General Studies: H

M HSM 498 Pro-Seminar. (1–7)
selected semesters
See HSM Note 1. Topics may include the following:
- Health Care Finance. (3)
- Health Economics. (3)
- Health Service Administration and Policy. (3)
- Legal and Ethical Issues in Healthcare. (3)
- Policy Issues in Health Care. (3)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Information Systems

wpcarey.asu.edu/is
480/965-3252
BA 223

Robert D. St. Louis, Chair

Professors: Goul, Roy, St. Louis, Steinbart, Vinze

Associate Professors: David, Iyer, Keim, Kulkarni, O'Leary, Santanam

Assistant Professors: Corral, Demirkan, Ravindran, Roussinov, Shao

Senior Lecturers: Birney, Hayes, Shrednick

Lecturer: McCarthy

ADMISSION

The Department of Information Systems follows the W. P. Carey School of Business policies and procedures for admission to its undergraduate professional program in Computer Information Systems.

To be considered for admission to the Computer Information Systems major, a student must meet the W. P. Carey School of Business admission requirements and have a grade of "C" (2.00) or higher in an introductory computer science course as specified by the school.

Due to resource limitations, admission to the program is very competitive. Applicants are reviewed using a portfolio approach. Among the factors considered are cumulative GPA, skill course GPA, transfer GPA and institution (if applicable), SAT or ACT scores, work experience, demonstrated community involvement and leadership skills, and responses to questions in the professional program application.

COMPUTER INFORMATION SYSTEMS—BS

Computer Information Systems (CIS) involves the design, development, and maintenance of information systems that support both business operations and managerial decision-making. Students majoring in Computer Information Systems develop familiarity with software application development, database development, and network deployment. Special emphasis is placed on business process workflows, systems integration, and project management. The focus throughout the program is on using information technology to add value to organizations. Specific skills include Java, Visual Basic, SQL, Oracle, Access, network security, and Web services. Students also acquire problem solving, critical thinking, communication, and team-building skills.

A degree in Computer Information Systems offers a diverse range of job opportunities in a variety of industries, including entertainment, national defense, transportation, education, healthcare, and finance. Information systems is also a key component in the success of other functional business areas such as accounting, supply chain, finance, and marketing.

Entry-level information systems positions include database administrator, systems analyst, network administrator, project manager, systems administrator, and consultant. Long-term career aspirations for a student with a CIS degree include chief information officer (CIO), chief technology officer (CTO), chief knowledge officer (CKO), chief security officer (CSO), and chief executive officer (CEO). The average beginning salary is in the mid to high $40,000s.

U.S. News & World Report ranks the ASU CIS program among the nation's top 20 public and private programs.

The major in Computer Information Systems consists of the following courses:

ACC	330	Enterprise Process Analysis and Design	3
CIS	340	Object-Oriented Modeling and Programming	3
CIS	360	Business Database Concepts	3
CIS	425	Electronic Commerce Strategy	3
CIS	430	Networks and Distributed Systems	3
CIS	440	Systems Design and Electronic Commerce *L*	3
Total			18

All Computer Information Systems majors must complete an introductory computer science course as specified by the department, which may be used as a school of business requirement, and CIS 235 Introduction to Information Systems, which is used in the business core.

MAJOR PROFICIENCY REQUIREMENTS

In addition to school of business and university requirements, Computer Information Systems majors must receive grades of "C" (2.00) or higher in the required upper-division major courses. If a student receives a grade below "C" (2.00) in any required upper-division major course, this course must be repeated before any other upper-division major course can be taken. If a second grade below "C" (2.00) is received in either an upper-division major course already taken or in a different upper-division major course, the student is no longer eligible to take additional upper-division major courses.

GRADUATION REQUIREMENTS

In addition to fulfilling major requirements, students seeking a degree must meet all university and school requirements. See "University Graduation Requirements," page 89, and "School Degree Requirements," page 292.

COMPUTER INFORMATION SYSTEMS (CIS)

For more CIS courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

(Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M CIS Note 1. In addition to individual course prerequisites, nonbusiness students must have at least a 2.50 ASU cumulative GPA, a 2.50 ASU business GPA, and 56 earned semester hours to register for any upper-division business course unless otherwise noted.

M CIS 105 Computer Applications and Information Technology. (3)
fall, spring, summer
Introduces business information systems and the uses of business application software with emphasis on database and spreadsheet packages. Fee.
General Studies: CS

M CIS 220 Programming Concepts for Accountancy Majors. (3)
fall, spring, summer
Introduces business computer programming. Uses programming languages such as Visual BASIC to teach proper programming style and practice. Fee. Prerequisite: prebusiness student.

M CIS 235 Introduction to Information Systems. (3)
fall, spring, summer
Survey course introducing the competitive and strategic uses of information systems, how information systems are transforming organizations and their management, and the issues, difficulties, and opportunities facing the technology professional and business manager today. Fee. Prerequisite: MAT 210 or 211. Prerequisite with a grade of "C" (2.00) or higher: CIS 105.

M CIS 300 Web Design and Development. (3)
fall and spring
Focuses on Web site development, including target audience, image presentation, page/content topic organization, site navigational functionality, implementation needs, and future needs. Web site design and development practice using business software products. Prerequisites: junior or senior standing; 2.00 ASU GPA.

M CIS 335 Visual Paradigms for Information Systems Development. (3)
selected semesters
Uses visual programming languages such as Visual BASIC to implement data structures, file structures, and interfaces in business information systems. Fee. See CIS Note 1. Prerequisites: both CSE 100 and professional program business student majoring in Computer Information Systems or both CIS 220 and professional program business student majoring in Accountancy.

M CIS 340 Object-Oriented Modeling and Programming. (3)
fall and spring
Object-oriented modeling of business information systems. Abstract data types and object-oriented programming using a language such as C#. Fee. See CIS Note 1. Prerequisite: professional program business student majoring in Computer Information Systems. Prerequisites with a grade of "C" (2.00) or higher: CIS 235; CSE 181.

M CIS 360 Business Database Concepts. (3)
fall and spring
Database theory, design, and application, including the entity-relationship model; the relational, hierarchical, and network database models; and query languages. Fee. See CIS Note 1. Prerequisite: professional program business student majoring in Computer Information Systems or Accountancy. Prerequisite with a grade of "C" (2.00) or higher: ACC 330.

M CIS 394 Special Topics. (1–4)
selected semesters
See current *Schedule of Classes* for course offerings at Polytechnic campus. See CIS Note 1.

M CIS 425 Electronic Commerce Strategy. (3)
fall and spring
Key business strategies and technology elements of contemporary electronic commerce. Covers Web design and interactions between Web pages and databases. Fee. See CIS Note 1. Prerequisite: professional program business student majoring in Computer Information Systems or Accountancy. Prerequisite with a grade of "C" (2.00) or higher: CIS 360.

M CIS 430 Networks and Distributed Systems. (3)
fall and spring
Advanced topics such as communications protocols, distributed systems, network security and client-server systems; applications based on platforms such as.NET and networked UNIX. Fee. See CIS Note 1. Prerequisites with a grade of "C" (2.00) or higher: ACC 330; CIS 340; professional program business student majoring in Computer Information Systems. Pre- or corequisite with a grade of "C" (2.00) or higher: CIS 360.

M CIS 440 Systems Design and Electronic Commerce. (3)
fall and spring
Systems design for organizational and electronic commerce systems; use of project management and systems analysis and design tools. Fee. See CIS Note 1. Prerequisites with a grade of "C" (2.00) or higher: CIS 360, 430; professional program business student majoring in Computer Information Systems.
General Studies: L

M CIS 494 Special Topics. (1–4)
selected semesters
See CIS Note 1.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

International Business Studies

wpcarey.asu.edu/international
480/965-0596
BA 109

Josef C. Brada, Director

Adela Gasca, Coordinator

Certificate in International Business Studies

The Certificate in International Business Studies is designed to prepare students for positions with multinational firms, banks, government agencies, and international organizations. The certificate is not a substitute for the listed areas of business specialization; rather, the program of study for the certificate enables students to apply business skills in a global environment.

Requirements for the certificate are designed to provide an understanding of international business environments, principles, and operations; to provide an awareness of global social processes and a sensitivity to foreign cultures; and to develop competence in a foreign language. These objectives are met in the following ways: international business principles and operations, global and area studies, foreign language, and GPA proficiency. Students seeking the certificate are strongly encouraged to obtain some international experience through study in a foreign country.

International Business Principles and Operations. At least nine semester hours of approved courses in international business are required. Students must take either IBS 300 Principles of International Business or ECN/IBS 306

Survey of International Economics. Other international business courses from which the remaining hours are selected include

ECN 306 Survey of International Economics *SB, G** 3
or IBS 306 Survey of International Economics *SB, G** (3)
ECN 331 Alternative Economic Systems *SB, G** 3
ECN 360 Economic Development *SB, G** 3
ECN 365 Economics of Russia and Eastern Europe *SB, G** 3
ECN 436 International Trade Theory *SB, G** 3
ECN 438 International Monetary Economics *SB, G** 3
FIN 456 International Financial Management *G** 3
IBS 300 Principles of International Business *G** 3
IBS 394 ST: Economics of Latin America 3
IBS 394 ST: Regional Business Environment of Southeast Asia 3
or IBS 494 ST: Regional Business Environment of Southeast Asia (3)
IBS 400 Cultural Factors in International Business *C, G** 3
or MGT 400: Cultural Factors in International Business *C, G* (3)
IBS 459 International Management *G* 3
or MGT 459 International Management *G* (3)
IBS 484 International Business Internship 3
IBS 493 International Honors Thesis *L** 3
IBS 494 ST: Economics of the European Union 3
IBS 499 Individualized Instruction of International Business 3
MGT 459 International Management *G* 3
or IBS 459: International Management *G* (3)
MGT 494 ST: Applied International Management 3
MKT 394 ST: Global Markets 3
MKT 435 International Marketing 3
MKT 494 ST: Applied International Marketing 3
SCM 463 Global Supply Chain Management 3

* W. P. Carey School of Business students may not use this course to fulfill the 60 semester hours in school degree requirements.

Honors students who select an international business topic for their thesis may use that as part of the 9 hours of international business course work for the certificate.

Global and Area Studies. The global and areas studies requirement can be satisfied either by means of course work or through participation in programs the W. P. Carey School of Business has with foreign schools of business, or by some combination of the two. The course work option requires at least nine semester hours of approved credits in international and area studies.

The W. P. Carey School of Business has academic agreements with universities throughout Europe, Latin America, and Asia. Students who participate and are successful in one of these approved programs abroad for one semester are deemed to have fulfilled the global and area studies requirements of the Certificate in International Business. Students who participate in an approved W. P. Carey School of Business program may satisfy some of the nine semester hours of international and area studies credit.

The requirements for the international business studies concentration in the Bachelor of Interdisciplinary Studies degree are slightly different from those for the certificate. For more information, call 480/965-0596.

Foreign Language. Evidence of competency in a foreign language equivalent to one year of college study is required.

Additional Requirements. Applicants for the Certificate in International Business must earn a "C" (2.00) or higher in each of the courses selected for the certificate, have at least a 2.50 GPA for all course work applied to the certificate, and have completed all of the business course work at the Tempe campus.

Advising. When planning and selecting courses to meet the requirements for the certificate and to take advantage of opportunities for participation in exchanges with foreign schools of business, students should consult with an international business faculty advisor or the coordinator of international programs, in BA 109. For more information, call 480/965-0596, or access the Web site at wpcarey.asu.edu/international.

BIS CONCENTRATION

A concentration in international business studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

INTERNATIONAL BUSINESS STUDIES (IBS)

M IBS Note 1. In addition to individual course prerequisites, nonbusiness students must have at least a 2.50 ASU cumulative GPA, a 2.50 ASU business GPA, and 56 earned semester hours to register for any upper-division business course unless otherwise noted.

M IBS Note 2. MAT 211 or 272 with a grade of "C" (2.00) or higher is a prerequisite for all upper-division economics courses except ECN 382 and 384.

M IBS 300 Principles of International Business. (3)
fall, spring, summer
Multidisciplinary analysis of international economic and financial environment. Operations of multinational firms and their interaction with home and host societies. See IBS Note 1. Prerequisite: ECN 212.
General Studies: G

M IBS 306 Survey of International Economics. (3)
fall, spring, summer
Survey of international trade issues, commercial policy, trade theory, customs unions, and international monetary topics. Cross-listed as ECN 306. Credit is allowed for only ECN 306 or IBS 306. See IBS Notes 1, 2. Prerequisites: ECN 211, 212.
General Studies: SB, G

M IBS 394 Special Topics. (1–4)
fall and spring
See IBS Note 1. Topics may include the following:
- Economics of Latin America. (3)
- Regional Business Environment of Southeast Asia. (3)

Prerequisites: 2.00 ASU GPA; junior standing.

M IBS 400 Cultural Factors in International Business. (3)
fall and spring
Cultural role in international business relations; applied principles of cross-cultural communications, negotiations, and management;

regional approaches to business relations. Cross-listed as MGT 400. Credit is allowed for only IBS 400 or MGT 400. See IBS Note 1. Prerequisites: IBS 300, 306 (or ECN 306); MGT 300 (or 320).
General Studies: C, G

M IBS 459 International Management. (3)
fall and spring
Concepts and practices of multinational and foreign firms. Objectives, strategies, policies, and organizational structures for operating in various environments. Cross-listed as MGT 459. Credit is allowed for only IBS 459 or MGT 459. See IBS Note 1. Prerequisites: IBS 300, 306 (or ECN 306); MGT 300 (or 320 or 380).
General Studies: G

M IBS 484 International Business Internship. (3)
selected semesters
Academic credit for professional work organized through the internship/international program. See IBS Note 1. Prerequisites: IBS 300 or 306 (or ECN 306); professional program business student; senior; minimum cumulative ASU 3.40 GPA; minimum ASU business 3.40 GPA.

M IBS 493 International Honors Thesis. (3)
fall and spring
See IBS Note 1.
General Studies: L

M IBS 494 Special Topics. (1–4)
fall and spring
See IBS Note 1. Topics may include the following:
- Economics of the European Union. (3)
- Regional Business Environment of Southeast Asia. (3)

M IBS 499 Individualized Instruction of International Business. (3)
fall and spring
See IBS Note 1.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Department of Management

wpcarey.asu.edu/mgt
480/965-3431
BA 323

Regents' Professor: Gomez-Mejia

Professors: Ashforth, Cannella, Cardy, Hershauer, Hom, Hoskisson, Keim, Kinicki, Mittelstaedt, Roberson, Tsui

Associate Professors: Boyd, Hillman, Keats, Moorhead, Olivas, Van Hook

Assistant Professors: Corley, Koka, Lee

Lecturers: Beer, Davila

Faculty in the ASU Department of Management are widely recognized for their work in the areas of organizational behavior, human resource management, and strategic management. The faculty's research and instruction emphasize corporate governance, high-tech management, knowledge management, quality, process and project management, strategic alliances, value chain analysis, global supply operations, globalization, diversity, small business and entrepreneurship, change management, organizational identity, and human resource management practices in their research, consulting, and teaching.

The W. P. Carey School of Business management major ranks 24th in the nation by *U.S. News and World Report* (September 2003). Nominated by deans and senior faculty of business schools around the country, the W. P. Carey BS degree in Management is recognized as one of the best programs in this specialty area.

Students at the undergraduate and graduate levels gain the most current and relevant knowledge of management practice and theory from esteemed faculty who are excellent scholars and teachers. ASU faculty rank first place internationally in the number of leading textbooks in all areas of management. In a recent update of a study originally published in the *Academy of Management Journal* (Dennis, et al., 2001), the ASU Department of Management climbed to third place internationally in research performance in top journals, up from 21st place. The department is also ranked third place internationally in the number of most cited management scholars. Faculty members have also won numerous local and international teaching awards, including citations in the prestigious *Business Week*'s listing of the best MBA professors. For more information, access the department's Web site at wpcarey.asu.edu/mgt.

Department of Management faculty take great pride in their teaching excellence and have been very active in continuing to improve collaborative teaching techniques. Eleven management faculty members and teaching assistants have won recent school, university, and international awards for their excellence in teaching effectiveness.

Department of Management faculty excel at developing the latest materials to facilitate student learning. Teaching awards and student evaluations place faculty among the elite at ASU. Faculty members also have the distinction of publishing more leading textbooks on management topics than faculty at any other university worldwide.

MANAGEMENT—BS

Business in the 21st century calls for managers who are dynamic leaders and effective team builders. The leaders of companies that are succeeding in the new marketplace possess excellent written and oral communication skills and extensive experience in guiding collaborative teams. After analyzing surveys of students, graduates, and their employers and after many insightful discussions with executives and recruiters, the department concluded that the Management major should have a strong emphasis on collaboration, leadership, communication, team building, and major group projects with the community in not-for-profit and for-profit business settings. The newly revised curriculum begins with the global supply operations course—an immersion in the fundamentals of the global economy, the world of e-business, and collaborative teams. Students are encouraged to concurrently enroll in the introductory courses on collaborative team skills and managing people in organizations during their first semester. Throughout the program, understanding of theory and concepts of management are enhanced by experiencing and testing these concepts in skill-based exercises, case discussions, and team-based project work in the classroom and in the community.

The Management major prepares men and women for managerial leadership in a world characterized by the fast pace of e-business; demands for continuous process improvements to enhance the value chain; growing technological sophistication; racial, cultural, and gender diversity in the workforce; and the need for skills in communicating and working with people, managing projects, and managing change. Graduates with these skills are likely to be recruited by management consulting firms, high-tech firms, service and manufacturing firms, for-profit and not-for-profit organizations, and large and small organizations. These employers recruit Management graduates for challenging trainee positions or entry-level management positions and immediately benefit from their preparation.

Program Requirements

The major in Management consists of the following courses:

MGT	320	Managing People in Organizations	3
MGT	410	Responsible Leadership	3
MGT	420	Performance Management	3
MGT	450	Changing Business Processes *L*	3
MGT	460	Strategic Leadership *L*	3
Management electives*			6
Total			21

* Management electives must be selected from the approved list.

All Management majors must complete the following specific courses that fulfill other pre-business or professional program requirements:

ENG	301	Writing for the Professions *L*	3
COM	225	Public Speaking *L*	3
		or COM 259 Communication in Business and the Professions[1] (3)	
IBS	300	Principles of International Business[2] *G*	3
MGT	310	Collaborative Team Skills[3]	3
Total			12

[1] COM 225 is recommended over COM 259. Either is counted in the school communication requirement.

[2] IBS 300 is counted in the business core in place of the international business course.

[3] MGT 310 is counted in place of MGT 300 in the business core.

Approved Electives for Management. The following electives have been approved for the management major.

ACC	316	Management Uses of Accounting	3
MGT	400	Cultural Factors in International Business *C*, *G*	3
MGT	440	Small Business and Entrepreneurship	3
MGT	445	Business Plan Development	3
MGT	459	International Management *G*	3
MGT	484	Management Internship	3
MGT	494	Special Topics	3
MKT	302	Fundamentals of Marketing Management *L*	3

Undergraduate Internships in Management. The Department of Management strongly supports the concept of student internships, believing all students can benefit from the experience. Undergraduate internships in management provide an opportunity for students to gain on-the-job work experience related to their academic preparation and to increase their employment potential at graduation. For more information about the management internship program and the application process, access the department internship Web site at www.wpcarey.asu.edu/mgt/internships.cfm. Management majors may use a maximum of three semester hours of MGT 484 for the major. Any additional internship credits may be used for nonmanagement electives.

Certificates. The Department of Management also strongly supports certification in key areas that strengthen the Management degree and help to differentiate individual students for recruiters. The certificates allow students to gain particular analytical skills related to their education and to increase their employment prospects. These certificates are particularly relevant to students majoring in Management:

1. the Certificate for Automotive Entrepreneurs and Leaders (see wpcarey.asu.edu/up/certificates/cael.cfm);
2. the International Business Certificate (see wpcarey.asu.edu/up/ipo/ibc.cfm);
3. the Certificate in Quality Analysis (see wpcarey.asu.edu/up/qa_certificate.cfm); and
4. the Certificate in Small Business and Entrepreneurship (see wpcarey.asu.edu/up/smallbusiness.cfm).

Major in Management. More information, links to courses and faculty, and any updates on the undergraduate major in Management can be found on the Web at wpcarey.asu.edu/mgt.

Major Proficiency Requirements

Students must receive grades of "C" (2.00) or better in upper-division courses for the major. If a student receives a grade below "C" (2.00) in any course in the major, the course must be repeated. If a second grade below "C" (2.00) is received in either an upper-division course in the major already taken or in a different upper-division course in the major, the student is no longer eligible to take additional upper-division courses in that major.

Graduation Requirements

In addition to fulfilling major requirements, students seeking a degree must meet all university and school requirements. See "University Graduation Requirements," page 89, and "School Degree Requirements," page 292.

GRADUATE PROGRAMS

The Department of Management participates actively in several master's and PhD programs, particularly the technology MBA and executive MBA. For a detailed description of these programs, see the *Graduate Catalog*.

The Department of Management has adopted a modular approach to PhD education to improve our ability to deliver focused, high-quality seminars, give students more flexibility in defining their areas of expertise, increase their rate of quality publications, and enhance the quality of PhD placements.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Graduate Programs. For additional information, links to courses and faculty, and general information about ASU MBA programs, access the Web at wpcarey.asu.edu/mba.

More information, application procedures, links to faculty, and any updates on the PhD program in Management can be found on the Web at wpcarey.asu.edu/mgt/degree/phd-program-description.cfm.

MANAGEMENT (MGT)

For more MGT courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M MGT Note 1. In addition to individual course prerequisites, nonbusiness students must have at least a 2.50 ASU cumulative GPA, a 2.50 ASU business GPA, and 56 earned semester hours to register for any upper-division business course unless otherwise noted.

M MGT 300 Organizational Management and Leadership. (3)
fall, spring, summer
Analyzes strategic, behavioral, and human resource management perspectives, including principles of strategic management and leadership of human resources. Fee. See MGT Note 1. Prerequisites: a course in psychology (social and behavioral) and a course in sociology. Pre- or corequisite: SCM 300.

M MGT 310 Collaborative Team Skills. (3)
fall, spring, summer
Development of skills in managing and working in collaborative environments. Theories and applications in small group dynamics and team facilitation. Interactive, learner-centered. See MGT Note 1. Prerequisite: professional program business student majoring in Management. Prerequisite for nonmajors: instructor approval. Pre- or corequisites: MGT 320; SCM 300 (recommended as corequisites).

M MGT 320 Managing People in Organizations. (3)
fall, spring, summer
Management processes, fundamentals of business-level strategy, individual difference issues, motivation and leadership of people in organizations. Lecture, discussion, interactive, learner-centered. See MGT Note 1. Prerequisite: professional program business student majoring in Management. Prerequisite for nonmajors: instructor approval. Pre- or corequisites: MGT 310; SCM 300 (recommended as corequisites).

M MGT 350 Seminar in International Business. (3)
summer
Broad exposure to global business; cross-cultural differences across business disciplines; European Union history and future; impact of exchange rates. Lecture, discussion, on- and off-campus business visits. Cross-listed as MKT 350. Credit is allowed for only MGT 350 or MKT 350. See MGT Note 1. Prerequisites for business majors: SCM 300; professional program admission. Prerequisites for nonmajors: MGT 380; completion of at least 56 hours with at least 2.00 GPA.

M MGT 380 Management and Strategy for Nonmajors. (3)
fall, spring, summer
Introduces the functions and applications of management in organizations, including controlling, decision making, leadership, motivation, planning, and social responsibility. Not open to business majors. Prerequisites: 2.00 ASU GPA; junior standing.

M MGT 394 Special Topics. (3)
selected semesters
See MGT Note 1.

M MGT 400 Cultural Factors in International Business. (3)
fall and spring
Cultural role in international business relations; applied principles of cross-cultural communications, negotiations, and management; regional approaches to business relations. Cross-listed as IBS 400. Credit is allowed for only IBS 400 or MGT 400. See MGT Note 1. Prerequisites: IBS 300, 306 (or ECN 306); MGT 300 (or 320).
General Studies: C, G

M MGT 410 Responsible Leadership. (3)
fall, spring, summer
Values, core beliefs, legal and ethical mandates and cultural norms as they apply to the conduct of organizations; application through a Service Learning project. Interactive, learner-centered. See MGT Note 1. Prerequisites: MGT 310, 320.

M MGT 420 Performance Management. (3)
fall, spring, summer
Development of skills and knowledge to lead associates effectively: hiring, developing, evaluating, retaining, and rewarding employees. Preparation for leadership roles. Lecture, discussion, interactive, learner-centered. See MGT Note 1. Prerequisites: MGT 310, 320.

M MGT 440 Small Business and Entrepreneurship. (3)
fall and spring
Opportunities, risks, and problems associated with small business development and operation. See MGT Note 1.

M MGT 445 Business Plan Development. (3)
fall and spring
Develops a complete strategic business plan emphasizing the planning process undertaken by successful small business owners and entrepreneurs. Lecture, discussion, experiential exercise. See MGT Note 1. Prerequisite: MGT 440.

M MGT 450 Changing Business Processes. (3)
fall and spring
Describes and analyzes business processes. Generates and evaluates alternatives. Creates improvement and implementation plans. Fee. See MGT Note 1. Prerequisite: completion of 100 hours, including all business administration core requirements. Pre- or corequisite: FIN 461 or MGT 460 or MKT 460 or SCM 479 or any other recommended business integrative course.
General Studies: L

M MGT 459 International Management. (3)
fall and spring
Concepts and practices of multinational and foreign firms. Objectives, strategies, policies, and organizational structures for operating in various environments. Cross-listed as IBS 459. Credit is allowed for only IBS 459 or MGT 459. See MGT Note 1. Prerequisites: IBS 300, 306 (or ECN 306); MGT 300 (or 320 or 380).
General Studies: G

M MGT 460 Strategic Leadership. (3)
fall, spring, summer
Systems theory of organizations, strategy formulation and administration in organizations, creating organizational cohesiveness, and leading change within organizations. Lecture, cases, exercises. See MGT Note 1. Prerequisites: MGT 410, 420; completion of 100 hours, including all business administration core requirements. Pre- or corequisite: MGT 450 (recommended as corequisite).
General Studies: L

M MGT 464 Collaborative Design Development I. (5)
fall
Team-based product development course featuring applied projects. Open to senior students from business, engineering, design, and other disciplines. Cross listed as IND 464. Credit is allowed for only IND 464 or MGT 464. Lecture, lab. See MGT Note 1. Prerequisites: instructor approval; application process (www.innovationspace.org).

M MGT 465 Collaborative Design Development II. (5)
spring
Team-based product development course featuring applied projects. Open to senior students from business, engineering, design, and other disciplines. Cross listed as IND 465. Credit is allowed for only IND 465 or MGT 465. Lecture, lab. See MGT Note 1. Prerequisites: instructor approval; application process (www.innovationspace.org).

M MGT 484 Management Internship. (3)
fall and spring
Internships are strongly recommended to improve employment potential. The Department of Management internship coordinator must approve all internships to receive credit. See MGT Note 1.

M MGT 494 Special Topics. (1–4)
selected semesters
Current topics in management, primarily designed for business majors. See the *Schedule of Classes* for current offerings of courses. Topics may include the following:
- Applied International Management. (3)
- Cultural Factors in International Business. (3)

Prerequisite: IBS 300 (or 459) or MGT 300 (or 459).
- Dealership Management. (3)
- Strategic Management. (3)

M MGT 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Marketing

wpcarey.asu.edu/mkt
480/965-3621
BAC 460

Michael P. Mokwa, Chair

Professors: Bitner, Bolton, Brown, Hutt, Jackson, Kumar, Lastovicka, Mokwa, Nowlis, L. Ostrom, Reingen, Walker, Ward

Associate Professors: Blasko, A. Ostrom, Sinha, Stephens

Assistant Professors: Jarvis, Mandel, Morales

Clinical Assistant Professor: Peloso

Senior Lecturer: Spiers

Study in the field of marketing involves analysis of how organizations plan, organize, deploy, and control their resources to achieve market objectives. Focus is placed on market forces, growth, and the deployment of firms in competitive markets and on the marketing strategy and tactics of the firm. Through the proper selection of courses, a student may prepare for a career in

1. selling and sales management;
2. services and retail marketing;
3. promotion and advertising management;
4. business to business marketing;
5. international marketing;
6. market research and planning;
7. general marketing management; or
8. retail management.

MARKETING—BS

The major in Marketing consists of 18 semester hours. The following courses must be included:

MKT	302	Fundamentals of Marketing Management *L* 3
MKT	304	Consumer Behavior 3
MKT	351	Marketing Research *L* 3
MKT	460	Strategic Marketing 3
Total		12

To complete the major, students, in consultation with their faculty advisors, select six additional hours from among the following list of courses:

MKT	301	Principles of Advertising 3
MKT	310	Principles of Selling 3
MKT	411	Sales Management 3
MKT	412	Promotion Management 3
MKT	424	Retail Management 3
MKT	430	Marketing for Service Industries 3
MKT	434	Business-to-Business Marketing 3
MKT	435	International Marketing 3
MKT	484	Internship 3
MKT	494	Special Topics 1–4
MKT	499	Individualized Instruction 1–3

Major Proficiency Requirements

Students must receive grades of "C" (2.00) or higher in upper-division courses for the major. If a student receives a grade below "C" (2.00) in any course in the major, this course must be repeated. If a second grade below "C" (2.00) is received in either an upper-division course in the major already taken or in a different upper-division course in the major, the student is no longer eligible to take additional upper-division courses in the major.

GRADUATION REQUIREMENTS

In addition to fulfilling major requirements, students seeking a degree must meet all university and school requirements. See "University Graduation Requirements," page 89, and "School Degree Requirements," page 292.

GRADUATE PROGRAMS

The department offers a distinctive MBA curriculum in services marketing and management. For more information, see the *Graduate Catalog*.

MARKETING (MKT)

For more MKT courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M MKT Note 1. In addition to individual course prerequisites, nonbusiness students must have at least a 2.50 ASU cumulative GPA, a 2.50 ASU business GPA, and 56 earned semester hours to register for any upper-division business course unless otherwise noted.

M MKT 300 Principles of Marketing. (3)
fall, spring, summer
Role and process of marketing within the society, economy, and business organization. See MKT Note 1. Prerequisite: ECN 212. Pre- or corequisite: SCM 300.

M MKT 301 Principles of Advertising. (3)
fall, spring, summer
Advertising as a communications tool in marketing and business management. Survey of market segmentation, creative strategy, media, and effectiveness measures. See MKT Note 1. Prerequisite: MKT 300.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M MKT 302 Fundamentals of Marketing Management. (3)
fall, spring, summer
Marketing planning, implementation, and control by organizations, with special emphasis on identifying market opportunities and developing marketing programs. See MKT Note 1. Prerequisites: MKT 300; professional program Marketing major.
General Studies: L

M MKT 304 Consumer Behavior. (3)
fall, spring, summer
Applies behavioral concepts in the analysis of consumer behavior and the use of behavioral analysis in marketing strategy formulation. See MKT Note 1. Prerequisite: MKT 300.

M MKT 310 Principles of Selling. (3)
once a year
Basic principles underlying the selling process and their practical application in the sale of industrial goods, consumer goods, and intangibles. See MKT Note 1. Prerequisite: MKT 300.

M MKT 350 Seminar in International Business. (3)
summer
Broad exposure to global business; cross-cultural differences across business disciplines; European Union history and future; impact of exchange rates. Lecture, discussion, on- and off-campus business visits. Cross-listed as MGT 350. Credit is allowed for only MKT 350 or MGT 350. See MKT Note 1. Prerequisites for business majors: SCM 300; professional program admission. Prerequisites for nonmajors: MGT 380; completion of at least 56 hours with at least 2.00 GPA.

M MKT 351 Marketing Research. (3)
fall, spring, summer
Integrated treatment of methods of market research and analysis of market factors affecting decisions in the organization. Fee. See MKT Note 1. Prerequisite with a grade of "C" (2.00) or higher: QBA 221. Pre- or corequisite: MKT 302.
General Studies: L

M MKT 382 Advertising and Marketing Communication. (3)
fall and spring
Introduction for nonbusiness majors to the communication process within marketing and advertising. Creation and presentation of an ad campaign. Not open to business majors. Prerequisites: junior or senior standing; 2.00 ASU GPA.

M MKT 394 Special Topics. (1–4)
fall
Not open to Marketing majors. See MKT Note 1. Topics may include the following:
- Applied International Marketing. (1–3)
- Global Markets. (3)
- Marketing and Selling. (3)

M MKT 411 Sales Management. (3)
once a year
Applies management concepts to the administration of the sales operation. See MKT Note 1. Prerequisite: MKT 302.

M MKT 412 Promotion Management. (3)
once a year
Integrates the promotional activities of the firm, including advertising, personal selling, public relations, and sales promotion. See MKT Note 1. Prerequisite: MKT 302.

M MKT 424 Retail Management. (3)
selected semesters
Role of retailing in marketing. Problems and functions of retail managers within various retail institutions. See MKT Note 1. Prerequisite: MKT 300.

M MKT 430 Marketing for Service Industries. (3)
once a year
Concepts and strategies for addressing distinctive marketing problems and opportunities in service industries. Current issues and trends in the service sector. See MKT Note 1. Prerequisites: MKT 300, professional program business student.

M MKT 434 Business-to-Business Marketing. (3)
once a year
Strategies for marketing products and services to commercial, institutional, and governmental markets. Changing industry and market structures. See MKT Note 1. Prerequisite: MKT 302 or instructor approval.

M MKT 435 International Marketing. (3)
once a year
Analyzes marketing strategies developed by international firms to enter foreign markets and to adapt to changing international environments. See MKT Note 1. Prerequisites: MKT 302 (or instructor approval); professional program business student.

M MKT 460 Strategic Marketing. (3)
fall, spring, summer
Policy formulation and decision making by the marketing executive. Integrates marketing programs and considers contemporary marketing issues. Prerequisite: professional program business student. See MKT Note 1. Prerequisites with a grade of "C" (2.00) or higher: MKT 302, 304, 351.

M MKT 484 Internship. (3)
fall, spring, summer
See MKT Note 1. Prerequisite with a grade of "B" (3.00) or higher: MKT 302.

M MKT 494 Special Topics. (1–4)
fall, spring, summer
Chosen from topics in the marketing and international marketing arenas to include seminars in international marketing in Europe and Asia. See MKT Note 1. Topics may include the following:
- Applied International Marketing
- Dealership Management

M MKT 499 Individualized Instruction. (1–3)
fall, spring, summer
Topics of special interest chosen by students and agreed to by the departments to do independent studies with a professor acting as a guide. See MKT Note 1.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Supply Chain Management

wpcarey.asu.edu/scm
480/965-6044
BA 446

Joseph R. Carter, Chair

Professors: J. Carter, P. Carter, Choi, Dooley, Ellram, Jennings, Kirkwood, Pearson, Roth, V. Smith-Daniels

Associate Professors: Brooks, Callarman, Keefer, Krause, Maltz, Rungtusanatham, Siferd, D. Smith-Daniels, Verdini

Assistant Professors: Barratt, Rabinovich

Clinical Assistant Professor: Pfund

Research Professor: Monczka

Senior Lecturers: Brown, Koretz

The faculty in the Department of Supply Chain Management offer courses in two separate areas: legal and ethical studies and supply chain management.

Legal and Ethical Studies

The legal and ethical studies faculty offer the undergraduate and the Master of Business Administration core requirements in legal and ethical studies. In addition, the faculty offer specialized courses in law and ethics relating to health care, insurance, real estate, and professional sports.

SUPPLY CHAIN MANAGEMENT—BS

A "supply chain" consists of all of the entities necessary to transform ideas into delivered products and services. Supply chain management directs and transforms a firm's resources in order to design, purchase, produce, and deliver high-quality goods and services. As goods and services flow from supplier to producer to customer to final user, supply chain management is particularly concerned with the interfaces between organizations. One way to view supply chain management is as managing linkages between organizations.

The competitive and global nature of today's business environment dictates that this direction and transformation take place in a way that is as efficient and effective as possible. Continuing emphases on time, cost, and quality improvements have sharpened the need to coordinate and cooperate with trading partners around the world to achieve results that allow customers to be successful. Supply chain management focuses on the integration of activities across several companies to manage the flow of products, services, people, equipment, facilities, and other resources. Supply chain management is also concerned with recycling, reuse, and final disposal of products.

The major in Supply Chain Management consists of the following courses:

SCM	345	Logistics Management 3
SCM	355	Supply Management 3
SCM	432	Planning and Control Systems for Supply Chain Management *L* 3
SCM	440	Quality Management and Measurement 3
SCM	455	Research and Negotiation 3
SCM	479	Supply Chain Strategy 3
Total		 18

MAJOR PROFICIENCY REQUIREMENTS

Students must receive grades of "C" (2.00) or higher in upper-division courses for the major. If a student receives a grade below "C" (2.00) in any course in the major, this course must be repeated. If a second grade below "C" (2.00) is received in either an upper-division course in the major already taken or in a different upper-division course in the major, the student is no longer eligible to take additional upper-division courses in that major.

GRADUATION REQUIREMENTS

In addition to fulfilling major requirements, students seeking a degree must meet all university and school requirements. See "University Graduation Requirements," page 89, and "School Degree Requirements," page 292.

LEGAL AND ETHICAL STUDIES (LES)

For more LES courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M LES Note 1. In addition to individual course prerequisites, nonbusiness students must have at least a 2.50 ASU cumulative GPA, a 2.50 ASU business GPA, and 56 earned semester hours to register for any upper-division business course unless otherwise noted.

M LES 305 Legal, Ethical, and Regulatory Issues in Business. (3)
fall, spring, summer
Legal theories, ethical issues, and regulatory climate affecting business policies and decisions. Lecture, Web-based delivery. See LES Note 1.

M LES 380 Consumer Perspective of Business Law. (3)
fall and spring
Role of law as it affects society. Uses case studies to present principles that govern business and consumers. Lecture, television. See LES Note 1. Prerequisites: 2.00 GPA; junior standing.

M LES 411 Real Estate Law. (3)
once a year
Legal and ethical aspects of land ownerships, interests, transfer, finance development, and regulations of the real estate industry. See LES Note 1.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Students on the plaza outside the Business Administration building

Tim Trumble photo

SUPPLY CHAIN MANAGEMENT (SCM)

M SCM Note 1. In addition to individual course prerequisites, nonbusiness students must have at least a 2.50 ASU cumulative GPA, a 2.50 ASU business GPA, and 56 earned semester hours to register for any upper-division business course unless otherwise noted.

M SCM 300 Global Supply Operations. (3)
fall, spring, summer
Resources and information to create and deliver products globally. Interfirm systems and industry supply chains. Customer, producer, and employee perspectives. Lecture, discussion. Fee. See SCM Note 1. Prerequisites: ACC 240; CIS 105; QBA 221.

M SCM 301 Supply Chain Management. (3)
selected semesters
Examines the purchasing, materials, and logistics management areas. Presents techniques for acquiring, storing, processing, and moving material inventory. See SCM Note 1. Prerequisite: professional program business student.

M SCM 345 Logistics Management. (3)
fall and spring
Logistics and supply chain activities emphasizing integration of transportation, inventory, warehousing, facility location, customer service, packaging, and materials handling. See SCM Note 1. Prerequisite: professional program business student majoring in Supply Chain Management. Pre- or corequisite: SCM 300.

M SCM 355 Supply Management. (3)
fall and spring
Management of the supply function, including organization, procedures, supplier selection, quality, inventory decisions, and price determination. See SCM Note 1. Prerequisites: SCM 300; professional program business student majoring in Supply Chain Management.

M SCM 405 Urban Transportation. (3)
selected semesters
Economic, social, political, and business aspects of passenger transportation. Public policy and government aid to urban transportation development. See SCM Note 1. Prerequisites: both SCM 345 and upper-division standing or only instructor approval.

M SCM 432 Planning and Control Systems for Supply Chain Management. (3)
fall and spring
Planning and control systems for product and service flows in supply chain: production planning, master scheduling, MRP, ERP, inventory management. Lab. Fee. See SCM Note 1. Prerequisites: SCM 300, 345; professional program business student majoring in Supply Chain Management. Pre- or corequisite: SCM 355.
General Studies: L

M SCM 440 Quality Management and Measurement. (3)
fall and spring
Quality management and measurement, relationships with suppliers and customers, quality awards, certifications, programs, tools for process improvement and cost analyses. See SCM Note 1. Prerequisites: SCM 300; professional program business student majoring in Supply Chain Management. Pre- or corequisites: SCM 345, 355.

M SCM 455 Research and Negotiation. (3)
fall and spring
Current philosophy, methods, techniques for conducting strategic and tactical supply chain research and negotiations. Includes supplier price and cost analysis. See SCM Note 1. Prerequisite: professional program business student majoring in Supply Chain Management. Prerequisite with a grade of "C" (2.00) or higher: SCM 355.

M SCM 460 Carrier Management. (3)
selected semesters
Analyzes carrier economics, regulation, management, and rate-making practice; evaluates public policy issues related to carrier transportation. See SCM Note 1. Prerequisites: both SCM 345 and upper-division standing or only instructor approval.

M SCM 463 Global Supply Chain Management. (3)
once a year
Supply chain activities in international business with special emphasis on management of transportation, global sourcing, customs issues, and facility location in a global environment. See SCM Note 1. Prerequisite: upper-division standing.

M SCM 479 Supply Chain Strategy. (3)
fall and spring
Integrated supply chain strategies synthesizing supply management, production, logistics, and enterprise systems. Provides a comprehensive perspective of supply chain management. Fee. See SCM Note 1. Prerequisite: professional program business student majoring in Supply Chain Management. Prerequisites with a grade of "C" (2.00) or higher: SCM 345, 355, 432.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

College of Design

www.asu.edu/caed

Wellington Reiter, MArch, Dean

PURPOSE

The practice of architecture and environmental design is the culturally responsible shaping of our environment—from the scale of the cities in which we live to the buildings and interiors we inhabit and the artifacts and products we use. What we design must be durable, useful, beautiful, appropriate to its context, and not a waste of resources, energy, or materials. Designing our environment is an art, a technology, and a social science that has a history as long as human culture. The goals of the faculty include offering students an education that becomes the basis for life-long growth and improvement as professionals, advancing the discipline in both theory and practice, and improving the quality of the environment by making the expertise and knowledge of the faculty available to other professionals and to the public.

ORGANIZATION

Academic Organization. The college is composed of five academic units:

Department of Industrial Design
Department of Interior Design
Department of Visual Communication Design
School of Architecture and Landscape Architecture
School of Planning

Administration of the college is the responsibility of the dean, who in turn is responsible to the president of the university through the executive vice president and provost of the university.

College Facilities. Most of the College of Design's programs are housed in a single complex. Facilities include the Architecture and Environmental Design Library; computer laboratories; design studios; the Gallery of Design; lecture and seminar rooms; the Media Center; offices for faculty, the administration, and student organizations; the shop; the slide collection; Materials Resource Center; and technology laboratories. The bridge between the original building and the expansion places the college's review and display space at the heart of the complex.

Architecture and Environmental Design Library. As a branch of the University Libraries, the Architecture and Environmental Design Library provides easy access to more than 50,000 books, periodicals, and reference materials for students, faculty, and the professional community. The library's special collections include archives of Blaine Drake, Victor Olgyay, Calvin Straub, Will Bruder, and others, as well as research materials on Paolo Soleri and Frank Lloyd Wright. The Alternative Energy Collection and the Materials Resource Center provide additional sources for research.

Gallery of Design. The Gallery of Design in the College of Design focuses exhibitions on architecture; landscape architecture; planning; and graphic, industrial, and interior design. Changing exhibitions feature top student work for each semester; faculty research and design projects; and special exhibitions from local, national, and international designers. A flat projection monitor provides a changing mural of design projects, college information, and announcements. Additional space for College of Design student projects is located throughout the Design buildings. The gallery is open Monday through Friday from 8 A.M. to 5 P.M. For more information, call 480/965-6384.

Special Facilities. College programs are supplemented by several special laboratories, including the Phoenix Urban Research Lab (PURL), which is an information-rich environment for researchers, decision makers, industry professionals and students to seek new solutions to the most pressing design problems facing cities today. Other facilities include the computer-aided design and graphics lab; the high-bay research lab; the lighting lab; the solar research lab; the solar roofdeck work area; an extensive shop equipped to handle wood, plastic, and metal; the Herberger Center for Design Research; InnovationSpace, an interdisciplinary product development laboratory; and the Community Design Studio, which is located at PURL in downtown Phoenix. The Media Center includes traditional graphics and audiovisual equipment as well as portable gear. The slide collection, with more than 100,000 images, is available for instructional use, and the college maintains an array of materials testing equipment.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

College of Design Baccalaureate Degrees and Majors

Major	Degree	Concentration	Administered By
Architectural Studies	BSD	—	School of Architecture and Landscape Architecture
Design Science*	BSD	—	College of Design
Graphic Design	BSD	—	Department of Visual Communication Design
Housing and Urban Development	BSD	—	School of Planning
Industrial Design	BSD	—	Department of Industrial Design
Interior Design	BSD	—	Department of Interior Design
Landscape Architecture	BSLA	—	School of Architecture and Landscape Architecture
Urban Planning	BSP	—	School of Planning

* Applications for this program are not being accepted at this time.

ADMISSION

Lower-Division Programs. A new or transfer student who has been admitted to the university and has selected a college major is admitted to the lower-division program of his or her choice. A separate application procedure is required for entry to upper-division programs and graduate programs. Acceptance into lower-division programs does not guarantee acceptance to upper-division programs. Acceptance into lower-division programs requires a TOEFL score of 500 or higher for international students whose native language is not English.

Transfer Credits. While the university accepts credits transferred from other accredited institutions, transfer credits are not applied to specific degree programs until reviewed and accepted by the appropriate academic units. Transfer course work must be equivalent in both content and level of offering. In addition, a review of samples of work (portfolio format) from previous studio classes is required. Students who change majors to transfer into the college or one of its program areas must have a minimum cumulative GPA of 2.50.

Change of Major. Current ASU students who wish to change majors to one of the college's professional degrees must have a cumulative ASU GPA of 2.50 or higher.

Upper-Division Programs. Admission to upper-division programs is competitive. Consult the requirements of each major for details. Students applying to more than one program must make a separate application to each and must submit separate portfolios. Students not enrolled at ASU when they apply to upper-division programs must also make a separate application to the university. Transfers into upper-division programs are considered only if vacancies occur, and such transfers are limited to students with equivalent course work who are competitive with continuing students. Students not admitted to an upper-division program are not dismissed from the university and may reapply or transfer to other programs. Students who plan to reapply should contact a college academic advisor. Acceptance into some upper-division programs requires a TOEFL score of 500 or higher for international students whose native language is not English.

ADVISING

While the college and its academic units provide academic advising, *it is ultimately the responsibility of each student to fulfill academic and program requirements*. Advising and record keeping for lower-division programs are the responsibility of a college academic advisor (located in ARCH 115). Records for upper-division program students are kept in the appropriate academic units, and advising is provided by the academic unit's curriculum advisor. General career advising is available from all faculty members. Administration of program requirements is the responsibility of the head of the academic unit and the dean.

Appeals Procedures. Academic appeals and requests for variances are typically made first to the student's advisor and then, if necessary, to the head of the appropriate academic unit, the College Standards and Appeals Committee, and, finally, the dean. A student who feels unjustly treated in academic or other matters relating to his or her career as a student may contact a college academic advisor or may take the grievance to the college ombudsperson.

DEGREES

Undergraduate. The college offers curricula for four year degree programs: the Bachelor of Science in Design (BSD) degree in Architectural Studies, Housing and Urban Development, Industrial Design, Interior Design, and Graphic Design; the Bachelor of Science in Landscape Architecture (BSLA) degree; and the Bachelor of Science in Planning (BSP) degree in Urban Planning. Applications for the BSD degree in Design Science are not being accepted at this time. For more information, see the "College of Design Baccalaureate Degrees and Majors" table, on this page.

Each undergraduate program is divided into lower-division and upper-division programs. Completion of a lower-division program does not guarantee advancement to an upper-division program.

College of Design Graduate Degrees and Majors

Major	Degree	Concentration*	Administered By
Architecture	MArch	—	School of Architecture and Landscape Architecture
Building Design	MS	Design knowledge and computing, energy performance and climate-responsive architecture, or facilities development and management	School of Architecture and Landscape Architecture
Design	MSD	Graphic design, industrial design, or interior design	College of Design
Environmental Design and Planning	PhD	Design; history, theory, and criticism; or planning	College of Design
Urban and Environmental Planning	MUEP	—	School of Planning

* If a major offers concentrations, one must be selected unless noted as optional.

GRADUATE PROGRAMS

The faculty in the College of Design offer the National Architectural Accrediting Board-accredited Master of Architecture (MArch) professional degree; Planning Accreditation Board-accredited Master of Urban and Environmental Planning (MUEP) professional degree; MS degree in Building Design; Master of Science in Design (MSD) degree; and PhD degree in Environmental Design and Planning. For more information, see the "College of Design Graduate Degrees and Majors" table, on this page, and the *Graduate Catalog*.

MINORS

The faculty in the School of Architecture and Landscape Architecture offer two minors: Architectural Studies, see "Architectural Studies Minor," page 322, and "Landscape Studies Minor," page 322. The faculty in the Departments of Industrial, Interior, and Visual Communication Design offer a minor in Design Studies; see the individual department listings for more information. The faculty in the Department of Interior Design offer a minor in Interior Design History, see "Minors," page 327. The faculty in the School of Planning offer a minor in Urban Planning. See "Minor," page 337, for more information.

SCHOOL OF EXTENDED EDUCATION

The university-wide School of Extended Education provides an interactive link between ASU and the diverse communities it serves. The school assesses lifelong learning requirements and works in partnership with campuses, other colleges, and the community to serve learners, using a network of locations, programs, schedules, and technologies.

For more information, see "School of Extended Education," page 134, or access the Web site at www.asu.edu/xed.

UNIVERSITY GRADUATION REQUIREMENTS

In addition to fulfilling college and major requirements, students seeking a bachelor's degree must meet all university graduation requirements. See "University Graduation Requirements," page 89.

General Studies Requirement

All students enrolled in a baccalaureate degree program must satisfy the university requirement of a minimum of 35 semester hours of approved course work in General Studies, as described under "General Studies," page 93. General Studies courses are listed in the "General Studies Courses" table, page 96, in the course descriptions, in the *Schedule of Classes,* and in the *Summer Sessions Bulletin*.

COLLEGE DEGREE REQUIREMENTS

College of Design degree requirements supplement the General Studies requirement. Each curriculum offered by the college includes sufficient approved course work to fulfill the General Studies requirement.

To be eligible for the Bachelor of Arts (BA), Bachelor of Science in Design (BSD), Bachelor of Science in Landscape Architecture (BSLA), or Bachelor of Science in Planning (BSP) degrees in the College of Design, a student must have

1. attained a cumulative GPA of 2.00 or higher for all course work taken at ASU;
2. earned a "C" (2.00) or higher in each studio course; and
3. met all university degree requirements.

MAJOR REQUIREMENTS

A student seeking the BA, BSD, BSLA, or BSP must satisfactorily complete a curriculum of 120 semester hours.

Special Honors at Graduation. At the time of graduation, students with academic distinction are awarded the respective designation *cum laude, magna cum laude,* or *summa cum laude*. For more information, see "Graduation with Academic Recognition," page 92.

ACADEMIC STANDARDS

Lower-Division Retention Standards. A student in any of the college's lower-division programs is placed on probation when he or she fails to maintain a cumulative GPA of 2.00.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Students on probation must observe rules or limitations the college imposes on their probation as a condition of retention. If, after one semester on probation, the overall GPA is not at least 2.00 and the conditions of probation have not been met, the student is disqualified for a minimum of two full academic semesters. A disqualified student may attend summer sessions at ASU to raise their cumulative GPA; if a 2.00 or higher cumulative GPA is achieved upon completion of summer course work, the student may petition the college for early reinstatement. Appeals may be made to the college Standards and Appeals Committee; see a college advisor for the necessary appeals forms. There are also other options available for immediate reinstatement for qualified students; see an academic advisor to discuss these options. For more information, see "Retention and Academic Standards," page 86.

Upper-Division Retention Standards. Students in upper-division programs are placed on probation when *any* of the following occurs:

1. failure, incomplete, or withdrawal from any required course;
2. a semester GPA below 3.00;
3. a grade of "D" (1.00) or "E" (0.00) in a design studio, a design laboratory, or a design lecture; or
4. violation of the university's *Code of Student Conduct* or any admission agreement.

Students on probation must observe rules or limitations that the college or academic unit places on their probation as a condition of continuation. Students may be removed from a program (but not necessarily the university) if

1. the requirements imposed are not met or the probationary semester GPA is below 3.00 after one semester on probation;
2. failures or withdrawals in required courses are not resolved at the next offering of the course;
3. they fail or withdraw from required sequential courses; or
4. incompletes in required sequential courses are not completed before the first day of class of the next semester.

A student removed from a program is not guaranteed reinstatement in the program even if probation requirements or requirements placed on readmission are fulfilled. Appeals may be made first to the appropriate academic unit and, if necessary, to the college Governance and Grievance Committee. For more information, see "Retention and Academic Standards," page 86.

Incompletes. Students are responsible for contacting the instructor regarding the process of requesting and fulfilling an incomplete. Tardiness in contacting the instructor may result in a failing grade. Students must obtain official "Request for Grade of Incomplete" forms from their academic unit. The completed form must include a justification, a listing of requirements that have not been fulfilled, and a proposed schedule of completion. The instructor reviews the request, proposes modifications if necessary, and submits a copy of the request to the appropriate school office. An incomplete in any course that is a prerequisite for sequential courses automatically denies enrollment in subsequent courses. For more information, see "Incomplete," page 83.

Withdrawals. University withdrawal regulations apply to all courses. In addition, because the college's upper-division curricula are modular and sequential and because space in the programs is limited, a student is expected to progress through the curriculum with his or her class. Withdrawal from a required upper-division course automatically places a student on probation. Withdrawal from a required upper-division course in a required sequence automatically removes the student from the program beginning the subsequent semester. For more information, see "Grading System," page 82.

Pass/Fail or Credit/No Credit. The only courses accepted toward graduation with a grade of pass/fail or credit/no credit are internships and field studies.

Foreign Study. The College of Design maintains active communications with several foreign institutions offering professional course work similar to the programs of the college. This opportunity is available for students who wish to pursue professional studies at a foreign institution in lieu of resident course work for up to one academic year. Any interested student is encouraged to inform the head of his or her academic unit at the earliest possible date of any intentions for foreign study. The student must petition the academic unit regarding course equivalency for any exchange programs.

Exchange programs currently exist with Stuttgart University, Germany; Wageningen University, the Netherlands; the University of Valladolid, Spain; the University of British Columbia, Canada; and the Autonomous University of Guadalajara, Mexico. Foreign study programs in France, Italy, and Spain and summer and winter break off-campus courses are also offered.

Students are also encouraged to consider foreign travel for either a semester or an entire academic year. A leave of absence must be requested for foreign study and foreign travel. Each academic unit reserves the right to evaluate the content and the student's competency in each of the courses completed at foreign institutions.

Internship. Upper-division students majoring in Architectural Studies, Industrial Design, Interior Design, Landscape Architecture, or Graphic Design are required to complete an internship program as part of their curriculum between the third and fourth years of study. Internships are optional for Housing and Urban Development and Urban Planning majors.

Attendance. Attendance is expected at all classes, laboratories, and seminars and is a criterion for evaluating performance. Absences and missing work due to absences may result in failure of a course or academic probation. A student may not be excused from attending a class except for medical reasons or other serious personal conditions beyond his or her control. Requests for special consideration must be submitted in writing to the instructor. If accepted, a student may be allowed to take a late or special examination or to submit missing work. Tardiness in

contacting the instructor is cause for denying acceptance. For university policy regarding religious holidays, see "Equal Opportunity and Affirmative Action," page 28.

Employment. It is difficult for students in the college to work while in school. Acceptance to any of the college's upper-division programs presumes a commitment of a minimum of eight hours a day for professional studies. If students must work to help pay for educational or living expenses, it is recommended that they do not work more than 20 hours per week. Prior work experience is not a requirement for admission to upper-division programs.

Retention of Student Work. The college reserves the right to retain any or all projects or work submitted to meet course requirements for the college's future use in instruction, publication, and exhibition.

Student Leave of Absence. Upper-division students who withdraw from classes or do not continue sequentially in enrollment must request both a leave of absence and readmission in writing from the head of the appropriate academic unit. Leaves of absence are for one-year increments and may be approved for personal reasons, travel, work, or additional study in other disciplines. Students on leave must make the written request for readmission before April 15 for the fall semester of the year of return or before November 1 for the spring semester so that a space may be reserved. Failure to request a leave of absence may result in removal from the program and deferrals are not allowed.

STUDENT RESPONSIBILITY

The purpose of this code is to promulgate standards of conduct for students of the university and to establish procedures for reviewing violations. Students are expected to support and maintain the highest professional standards with regard to their individual conduct and their personal and common environments in the university. Copies of the *Code of Student Conduct* are available from the Office of the Dean or from a college academic advisor.

SPECIAL PROGRAMS

The college and its academic units regularly sponsor lecture series, symposia, and exhibits. In addition, faculty and students attend regional and national meetings of educators and professionals. Academic units sponsor student awards programs and regularly invite professionals and critics to reviews of student projects. The college also participates with the Barrett Honors College, offering a wide range of courses for honors credit.

GENERAL INFORMATION

Accreditation. Most states require that an individual intending to become an architect hold an accredited degree. There are two types of degrees that are accredited by the National Architectural Accrediting Board (NAAB): (1) the Bachelor of Architecture (not offered by ASU), which requires a minimum of five years of study, and (2) the Master of Architecture, which requires a minimum of two years of study following a related preprofessional bachelor's degree or three years following an unrelated bachelor's degree. These professional degrees are structured to educate those who aspire to registration/licensure as architects.

The four-year preprofessional degree, where offered, is not accredited by NAAB. The preprofessional degree is useful for those desiring a foundation in the field of architecture, as preparation for either continued education in a professional degree program or for employment options in architecturally related areas. For more information, see "Accreditation and Affiliation," page 855.

Dean's List. Undergraduate students who earn 12 or more graded semester hours ("A" [4.00], "B" [3.00], "C" [2.00], "D" [1.00], or "E" [0.00]) during a semester in residence at ASU with a GPA of 3.50 or higher are eligible for the Dean's List. A notation of achieving the distinction of being listed on the Dean's List appears on the final grade report for that semester.

College of Design Alumni Chapter. The College of Design Alumni Chapter encourages graduates to contribute to the college by acting as liaisons among the college community, students, and practicing professionals. Each year, the College of Design Alumni Chapter sponsors a mentoring program to match local professionals with student designers.

Council for Design Excellence. The Council for Design Excellence has been created to consolidate a partnership between the College of Design and key community leaders who share a vital interest in the development of high quality in the built environment of the Phoenix metropolitan area. By joining together professionals, business and civic leaders, students, and faculty in a common pursuit of design excellence, the council seeks to make a profound difference in the quality of the natural and built environments and the education of students.

Affiliations. For information on affiliations maintained by the college, see "Accreditation and Affiliation," page 855.

Student Professional Associations. The purpose of the student associations is to assist students with the transition into professional life and to acquaint them with the profession relating to their program of study. These include the following associations:

Alpha Rho Chi-Satyros Chapter
American Indian Council of Architects and Engineers
American Institute of Architecture Students
Student Association of Interior Designers
Student Chapter/American Planning Association
Student Chapter/American Society of Landscape Architects
Student Chapter/Industrial Designers Society of America
Student Chapter/American Institute of Graphic Artists

DESIGN (DSC)

M DSC 100 Introduction to Environmental Design. (3)
fall and spring
Survey of environmental design: includes historic examples and the theoretical, social, technical, and environmental forces that shape them.
General Studies: HU, G, H

M DSC 101 Design Awareness. (3)
fall and spring
Survey of cultural, global, and historical context for the design professions.
General Studies: HU, G

M DSC 236 Introduction to Computer Modeling. (3)
fall and spring
Computers in design, including software concepts, specific packages, and problem solving, illustration, typography, modeling, and animation. Lab. Prerequisite: Design major.
General Studies: CS

M DSC 484 Internship. (1–3)
summer
Full-time summer internship under supervision of practitioners in the Phoenix area or other locales. Prerequisite: instructor approval.

M DSC 494 Special Topics. (1–4)
fall and spring

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

ENVIRONMENTAL DESIGN AND PLANNING (EPD)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

School of Architecture and Landscape Architecture

www.asu.edu/caed/sala
480/965-3536
AED 162

Darren Petrucci, Director

Professors: Brooks, Bryan, Hoffman, McCoy, Meunier, Ozel, Reiter, Rotondi, Underhill, Underwood

Associate Professors: Cook, Ellin, Ewan, Fish Ewan, Hartman, Loope, Petrucci, Spellman, Steele, Zygas

Assistant Professors: Burnette, Hejduk, Kobayashi, Lerum, Morton, Vekstein

Clinical Associate Professors: Addison, Murff

PURPOSE

The architecture and landscape architecture programs at ASU offer an integrated curriculum of professional courses and focus on the design laboratory. The programs reflect an awareness of the complex factors affecting the quality of the built environment. The programs seek through scholarship, teaching, research, design, and community service to develop the discipline and the knowledge necessary to address the important environmental and design issues faced by society.

In addition to developing knowledge and skills in architectural design, building technology, landscape architecture, and professional practice, students are encouraged to select electives from a broad range of approved courses both within the college and across the university. These electives may be selected to devise a minor, to further professional study, or in some other fashion to enrich the student's academic experience.

ORGANIZATION

The School of Architecture and Landscape Architecture programs are organized by the faculty under the direction and administration of the director and standing committees of the faculty.

DEGREES

The faculty in the School of Architecture and Landscape Architecture offer the Bachelor of Science in Design (BSD) degree with a major in Architectural Studies and a Bachelor of Science in Landscape Architecture (BSLA) degree.

The program in architecture culminates with the professional degree Master of Architecture (MArch), which is accredited by the National Architectural Accrediting Board (NAAB). Completion of the program is intended to take six years.

In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The NAAB, which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes two types of degrees: the Bachelor of Architecture and the Master of Architecture. A program may be granted a five-year, three-year, or two-year term of accreditation, depending on its degree of conformity with established educational standards.

Master's degree programs may consist of a preprofessional undergraduate degree and a professional graduate degree, which, when earned sequentially, compose an accredited professional education. However, the preprofessional degree is not, by itself, recognized as an accredited degree.

Admission to the professional program in architecture is competitive and begins after completion of lower-division requirements, as described in "Admission," page 319 and "Degree Requirements," page 320. The professional program includes two years of upper-division study leading to the BSD and two years of graduate study leading to the MArch, as described in "Upper-Division Professional Program," page 319.

Applicants who already hold a bachelor's degree in another field should apply to the 3+ year MArch degree program. See the *Graduate Catalog* for more information.

The BSLA degree prepares students to be professional landscape architects. Students explore the reasons for and

the techniques involved in the analysis, planning, and design of the environment, both natural and built. The BSLA is a professional degree accredited by the American Society of Landscape Architects (ASLA) Landscape Architectural Accreditation Board (LAAB).

In cooperation with the Barrett Honors College, the school offers a special honors curriculum for students with Barrett Honors College standing. Consult the advising officers in the college for information.

ADMISSION

Lower-Division Program. New and transfer students who have been admitted to the university and who have selected Architectural Studies or Landscape Architecture Studies as their major are admitted to the lower-division architecture program without separate application to the School of Architecture and Landscape Architecture. Completion of lower-division requirements does not ensure acceptance to the upper-division professional program.

Transfer credits for the lower-division program are reviewed by the college faculty. To be admissible to this curriculum, transfer courses must be equivalent in both content and level of offering. A review of samples of work is required for studio classes. Consult a college academic advisor for additional information.

Entering lower-division students who are not prepared to enroll in some of the required courses are required to complete additional university course work. These additional prerequisite courses do not apply to the Bachelor of Science in Design or the Bachelor of Science in Landscape Architecture degree requirements.

Upper-Division Professional Program. Admission to the upper-division professional program is competitive and limited by available resources. Admission is awarded to those applicants demonstrating the highest promise for professional success.

Transfer students who have completed the equivalent required lower-division course work may apply to the upper-division program. Prior attendance at ASU is not required for application to the upper-division program.

To be eligible for admission to the upper-division program, the following requirements must be met:

1. admission to ASU (note that application and admission to the upper-division program are separate from application and admission to ASU);
2. completion of lower-division requirements or equivalents as approved by a college academic advisor and the faculty of the school;
3. a minimum university cumulative GPA of 3.00
4. a minimum grade of "C" (2.00) or higher in all architecture and landscape architecture core courses or equivalents as approved by a college academic advisor and the faculty of the school; and
5. submission of a portfolio (for detailed information about this requirement, see "Portfolio Format Requirements," page 320).

In an unusual circumstance, when the admission standard deficiency is slight, written evidence of extenuating circumstances is convincing, and promise for success is evident, a student may be granted admission to the upper division on a *provisional* basis.

Students not admitted to the upper-division program are not dismissed from the school and may reapply or may transfer to other programs. Students who intend to reapply should meet with a college academic advisor.

Applications for transfer into the upper-division professional program are considered only if transfer students have met the eligibility requirements above. Transfer applicants must demonstrate that equivalent course work has been completed, and applicants must be academically competitive with continuing students.

Students who successfully complete the upper-division requirements receive the Bachelor of Science in Design degree in Architectural Studies. This is not a professional degree. To complete the professional architecture program, students must attain the NAAB-accredited Master of Architecture degree. Students who receive the BSD are eligible to apply for the graduate program and should see the *Graduate Catalog* for proper application procedures. This application process is competitive and based on a thorough review of a student's undergraduate preparation and performance.

Students with the four-year Bachelor of Science in Design degree (with a major in Architectural Studies or an equivalent degree from another school that offers an accredited professional degree in architecture) should apply directly to the graduate program.

Students who successfully complete the upper-division BSLA requirements receive the Bachelor of Science in Landscape Architecture. This is the LAAB-accredited program.

APPLICATION TO UPPER-DIVISION PROGRAMS

Upper-Division Application Procedures. Students should access the Web site at www.asu.edu/caed/sala for the application form well in advance of the application deadline. The following dates and procedures are for students applying to 2007–2008 upper-division programs.

Upper-Division Application Deadlines. *May 2, 2007 (last day of classes).* Portfolio and application documents are due in the school office by 5 P.M. Applications received after the deadline are not accepted.

June 1, 2007. If the spring 2007 semester includes transfer course work (i.e., course work taken at an institution other than ASU), a student must submit his or her transcripts to the school no later than June 1. These transcripts may be unofficial copies. A second set of official transcripts must be sent to the University Registrar's office. The application is not complete until the university receives official transcripts for transfer course work. For those transfer students whose academic term ends in June rather than May, this deadline may be extended upon the written request of the applicant.

July 2, 2007. Acceptance notices are mailed no later than July 2.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Return of Letter of Acceptance. A signed receipt of acceptance of admission must be received by the school by the date indicated on the Notice of Acceptance. Alternates may be accepted at a later date if space becomes available.

Matriculation. An accepted student is expected to begin his or her upper-division professional program at the beginning of the immediate fall term. There is no spring admission to the upper-division program and deferrals are not allowed.

Portfolio Format Requirements. Application materials must be submitted at one time in a presentation binder (portfolio).

Students should present work sufficient to demonstrate the depth and breadth of their creative activity. This work should include (but is not limited to) examples of two- and three-dimensional design and graphics. Each project should be clearly identified (course, length of project, etc.), with a concise accompanying description of the assignment. Students should consult the School of Architecture and Landscape Architecture Web site at www.asu.edu/caed/sala for specific application information.

Students are encouraged to include additional materials, written or pictorial, that provide additional evidence of skills, abilities, aptitude, and commitment to the major. When any work submitted is not completely original, the source must be given. When work is of a team nature, the applicant's role should be clearly indicated. Original examples or slides must not be submitted. All examples must be photographs or other reproduction graphic media.

Return of Portfolios. The application remain the property of the College of Design. However, the remaining portfolio is returned after the admissions review, provided the applicant encloses a self-addressed return mailer with sufficient prepaid postage. Portfolios may be claimed in person after July 2, 2007. If the applicant provides written permission, another person may claim the portfolio. After one year, unclaimed portfolios are discarded. While care is taken in handling the portfolios, no liability for lost or damaged materials is assumed by the college or school.

ADVISING

Advising for the lower-division curriculum is through the college Academic Advising Office. Advising for upper-division is provided by the academic unit's curriculum advisor.

DEGREE REQUIREMENTS

The Bachelor of Science in Design degree in Architectural Studies requires a minimum of 120 semester hours of course work.

GENERAL STUDIES REQUIREMENT

The following curriculum includes sufficient approved course work to fulfill the General Studies requirement. See "General Studies," page 93, for requirements and a list of approved courses. Note that all three General Studies awareness areas are required.

GRADUATION REQUIREMENTS

In addition to fulfilling college and major requirements, students must meet all university graduation and college degree requirements. See "University Graduation Requirements," page 89, and "College Degree Requirements," page 315.

The accredited professional degree Master of Architecture requires an additional 56 hours of approved graduate-level course work. For more information, see the *Graduate Catalog*.

Architectural Studies—BSD[1]
Lower-Division Requirements

First Year

Fall

ALA	100	Introduction to Environmental Design[2] *HU, G, H*	3
		or ALA 120 Design Fundamentals I[3] (3)	
ENG	101	First-Year Composition	3
MAT	170	Precalculus *MA*	3
Elective[4]			3
SB elective			3
Total			15

Spring

ALA	120	Design Fundamentals I[3]	3
		or ALA 100 Introduction to Environmental Design *HU, G, H* [2] (3)	
ENG	102	First-Year Composition	3
Elective[4]			3
C elective[2]			3
SB elective[2]			3
Total			15

Second Year

Fall

ALA	200	Introduction to Architecture *HU, G*[2]	3
ALA	221	Design Fundamentals II[3]	3
ALA	223	Design Fundamentals II Lecture	1
ALA	236	Introduction to Computer Modeling *CS*[2]	3
PHY	101	Introduction to Physics *SQ*[2]	4
Total			14

Spring

ALA	222	Design Fundamentals III[3]	3
ALA	224	Design Fundamentals III Lecture	1
ALA	240	Architectural and Landscape Architectural Construction	3
L elective			3
SG or SQ elective[2, 5]			4
Total			14
Option A lower-division total			58

1 Transfer credits are reviewed by the college and evaluated for applicability to this curriculum. To be applicable, transfer courses must be equivalent in both content and level of offering.

2 This course satisfies a general studies requirement.

3 Portfolio review is required for transfer studio work. Submit the portfolio to the Academic Advising Office, ARCH 115.

4 Students considering application to both Architecture and Landscape Architecture upper-division programs, see the BSLA lower-division requirements. The suggested elective is PLA 101.

5 Students considering application to both Architecture and Landscape Architecture upper-division programs, see the BSLA lower division requirements. The suggested elective is GPH 111.

Architectural Studies—BSD
Upper-Division Requirements

Third Year

Fall

ADE	321	Architectural Studio I	5
APH	313	History of Architecture I *L/HU, G, H*	3
ATE	361	Building Structures I	3
Elective*			3
Total			14

Spring

ADE	322	Architectural Studio II	5
APH	314	History of Architecture II *L/HU, G, H* *	3
ATE	362	Building Structures II	3
Elective*			3
Total			14

Summer

ARP	484	Clinical Internship	3
Total			3

Fourth Year

Fall

ADE	421	Architectural Studio III	5
ANP	431	Programming for Architecture	3
ATE	451	Building Systems I	3
Elective*			3
Design Professional elective*			3
Total			17

Spring

ADE	422	Architectural Studio IV	5
ATE	452	Building Systems II	3
Design history elective*			3
Elective*			3
Total			14
Option A upper-division total			62
BSD option A minimum total			120

* These courses may be completed before admission into the upper division.

Landscape Architecture—BSLA
Lower-Division Requirements

First Year

Fall

ALA	120	Design Fundamentals I[1, 2]	3
		or ALA 100 Introduction to Environmental Design *HU, G, H* [1] (3)	
ENG	101	First-Year Composition	3
		or ENG 105 Advanced First-Year Composition if qualified (3)	
MAT	170	Precalculus *MA*	3
Social/Behavioral Science Elective *SB*			3
Elective[3]			3
Total			15

Spring

ALA	100	Introduction to Environmental Design *HU, G, H*	3
		or ALA 120 Design Fundamentals I[1, 2] (3)	
ENG	102	First-Year Composition	3
PLA	101	Landscape and Society *HU, G*	3
Social/Behavioral Science Elective *SB*			3
Cultural Diversity Elective *C*			3
Total			15

Second Year

Fall

ALA	221	Design Fundamentals II[1, 2]	3
ALA	223	Design Fundamentals II Lecture	1
ALA	236	Introduction to Computer Modeling *CS*[1, 2]	3
GPH	111	Introduction to Physical Geography *SQ*	4
Elective[3]			3
Total			14

Spring

ALA	222	Design Fundamentals III[1, 2]	3
ALA	224	Design Fundamentals III Lecture	1
ALA	240	Architectural and Landscape Architectural Construction	3
L elective			3
SG or SQ elective[4]			4
Total			14
Option A lower-division total			58

1 Transfer credits are reviewed by the college and evaluated for applicability to this curriculum. To be applicable, transfer courses must be equivalent in both content and level of offering.

2 Portfolio review is required for transfer studio work. Submit portfolio to the Academic Advising Office, ARCH 115.

3 Students considering application to both Architecture and Landscape Architecture upper-division programs, see the BSD lower-division requirements. The suggested elective is ALA 200.

4 Students considering application to both Architecture and Landscape Architecture upper-division programs, see the BSD lower division requirements. The suggested elective is PHY 101.

Landscape Architecture—BSLA
Upper-Division Requirements

Third Year

Fall

PLA	310	History of Landscape Architecture *H*[1]	3
PLA	343	Landscape Construction I	3
PLA	361	Landscape Architecture III	4
PLA	494	ST: Plant Materials	3
Total			13

Spring

PLA	311	Contemporary Landscape Architecture *HU*	3
PLA	344	Landscape Construction II	4
PLA	345	Professional Practice Seminar	1
PLA	362	Landscape Architecture IV	4
PLA	363	Landscape Planting Design	4
Total			16

Summer

PLA	484	Clinical Internship[2]	2
Total			2

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Fourth Year

Fall

PLA	411	Landscape Architecture Theory and Criticism *L*	3
PLA	461	Landscape Architecture V	4
Electives[1]			6
Upper-division HU or SB Elective			3
Total			16

Spring

PLA	446	Landscape Construction III	3
PLA	462	Landscape Architecture VI	4
Design Professional elective[1, 3]			3
Design history elective[1, 3]			3
Total			13

Upper-division total	62
BSLA program total	120

1 These courses may be completed before admission to the upper-division.

2 Students complete the internship over the summer, but register for the credit during the fall of the fourth year, with the exception of international students, who are required to register for the internship during the summer.

3 Professional elective is a 300 or higher level course, taken within College of Design (Architecture, Design, and/or Planning). The history elective is a 300 or higher level course also taken within the college and must have historical/theoretical content.

ARCHITECTURAL STUDIES MINOR

The Architectural Studies minor is available to nonarchitecture majors interested in this field. A minimum of 18 semester hours are required for the minor. The courses are designed to provide an overview of architecture throughout history while focusing on architectural design with the intention to explore the process of design thinking.

Required Courses

ALA	200	Introduction to Architecture *HU, G*	3
APH	300	World Architecture I/Western Cultures *HU, G*	3
APH	313	History of Architecture I *L/HU, G, H*	3
APH	314	History of Architecture II *L/HU, G, H*	3
Total			12

Six additional semester hours of electives in the architectural history and theory concentration must be selected from the following list for a total of 18 semester hours of which 12 hours must be upper-division credit:

APH	394	ST: Special Topics	3
APH	411	History of Landscape Architecture *H*	3
APH	414	History of the City *H*	3
APH	446	20th-Century Architecture I *HU*	3
APH	447	20th-Century Architecture II *HU*	3
APH	494	ST: Special Topics	3
APH	499	Individualized Instruction*	3

* These courses require a petition to the School of Architecture and Landscape Architecture.

A minimum GPA of 3.00 is required to pursue the minor in Architectural Studies.

LANDSCAPE STUDIES MINOR

The minor in Landscape Studies is designed for students who have an interest in landscape aesthetics, but are pursuing a major in another field. The course selection is intended to provide greater understanding of landscape issues that may be relevant in related professional disciplines and to broaden knowledge about the landscape in which we live.

Students must complete a minimum of 18 semester hours from the following list of courses of which 12 hours must be upper-division credit.

Required Courses

PLA	101	Landscape and Society	3
PLA	310	History of Landscape Architecture *H*	3
PLA	311	Contemporary Landscape Architecture *HU*	3

Nine additional semester hours of electives in the landscape architectural history and theory concentration must be selected from the following list for a total of 18. Consult the catalog for necessary prerequisites.

PLA	394	Special Topics	3
PLA	410	Social Factors in Landscape and Urban Planning	3
PLA	411	Landscape Architecture Theory and Criticism *L*	3
PLA	412	Landscape Ecology and Planning	3
PLA	413	Southwest Landscape Interpretation	3
PLA	420	Theory of Urban Design *HU*	3
PLA	485	International Field Studies in Planning	3
PLA	494	Special Topics	3
PLA	499	Individualized Instruction*	3

* This course requires a petition to the School of Architecture and Landscape Architecture.

The minor is open to students of all majors. Students must, however, have an overall GPA of 3.00 or higher and achieve a minimum 3.00 GPA in minor classes to be awarded the minor.

BIS CONCENTRATION

Concentrations in architectural studies and landscape studies are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

INQUIRIES

For more information, call a college academic advisor at 480/965-3584, e-mail caed.advising@asu.edu, or write

ACADEMIC ADVISING/STUDENT SERVICES OFFICE
COLLEGE OF DESIGN
ARIZONA STATE UNIVERSITY
PO BOX 871905
TEMPE AZ 85287-1905

COURSES

Subject matter within the school is categorized in the following instructional areas.

Architectural Administration and Management. AAD courses focus on the organizational and management aspects of architectural practice, including management coordination, administrative procedures, ethics, legal constraints, and the economics of practice.

Architectural Design and Technology Studios. ADE courses require the synthesis of knowledge and understanding gained from other course work and develop an understanding of design theory and design skill through a series of comprehensive design projects. Students apply analytical methods, compare alternative solutions, and develop sophisticated technical and conceptual results.

Architecture and Landscape Architecture. ALA courses provide lower-division students an introduction to basic knowledge and skills of architecture and landscape architecture.

Environmental Analysis and Programming. ANP courses develop the ability to analyze and program environmental and human factors as preconditions for architectural design using existing and emerging methods of evaluation and analysis.

Architectural Philosophy and History. APH courses develop an understanding of architecture as both a determinant and a consequence of culture, technology, needs, and behavior in the past and present. Studies are concerned with the theory as well as the rationale behind methods and results of design and construction. Case studies are both domestic and international.

Architecture Professional Studies. ARP courses provide students with off-campus opportunities, educational experience in group and individual studies relative to specific student interests, and faculty expertise, including summer internships and field trips.

Architectural Technology. ATE courses develop knowledge of the technical determinants, resources, and processes of architecture. These studies focus on the science and technology of design and construction, including materials, building systems, acoustics, lighting, structural systems, environmental control systems, computer applications to design and technology, and both passive and active solar systems. Emphasis is on measurable and quantifiable aspects.

Architectural Communication. AVC courses develop the student's understanding of communication theory as it applies to architectural design and practice as well as skills in drawing, graphics, photography, presentation design, and the design process.

The courses required in the upper-division and graduate levels of the professional program are not open to nonmajors and students not admitted to the upper-division program.

Landscape Architectural Technology. LTC courses develop knowledge of the technical determinants, resources, and processes of landscape architecture. These studies focus on the science and technology of design and construction, including materials, building systems, acoustics, lighting, structural systems, environmental control systems, computer applications to design and technology, and both passive and active solar systems. Emphasis is on measurable and quantifiable aspects.

GRADUATE PROGRAMS

The faculty of the School of Architecture and Landscape Architecture offer a Master of Architecture and a MS degree in Building Design. Concurrent application to both degree programs is possible, and each application is evaluated by the respective admission committees separately. Also, a dual career program, Master of Architecture/Master of Business Administration, has been established in cooperation with the W. P. Carey School of Business. Also offered is a collegewide, interdisciplinary PhD degree in Environmental Design and Planning with concentrations in design; history, theory, and criticism; and planning. For more information, see the *Graduate Catalog*.

ARCHITECTURAL ADMINISTRATION AND MANAGEMENT (AAD)

M AAD 494 Special Topics. (1–4)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog,* or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

ARCHITECTURAL DESIGN AND TECHNOLOGY STUDIOS (ADE)

M ADE 321 Architectural Studio I. (5)
fall
Introductory building design problems. Emphasizes design process, communication methods, aesthetics, construction, and technology. Lecture, studio, field trips. Fee. Prerequisite: admission to upper division.

M ADE 322 Architectural Studio II. (5)
spring
Site and building design problems. Emphasizes programmatic and environmental determinants and building in natural and urban contexts. Lecture, studio, field trips. Fee. Prerequisite with a grade of "C" (2.00) or higher: ADE 321.

M ADE 421 Architectural Studio III. (5)
fall
Topical design problems of intermediate complexity, including interdisciplinary problems. Lecture, studio, field trips. Fee. Prerequisite with a grade of "C" (2.00) or higher: ADE 322. Corequisite: ARP 484.

M ADE 422 Architectural Studio IV. (5)
spring
Topical design problems of advanced complexity, including interdisciplinary problems. Lecture, studio, field trips. Fee. Prerequisite with a grade of "C" (2.00) or higher: ADE 421.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

ARCHITECTURE AND LANDSCAPE ARCHITECTURE (ALA)

M ALA 100 Introduction to Environmental Design. (3)
fall and spring
Survey of environmental design: includes historic examples and the theoretical, social, technical, and environmental forces that shape them. Cross-listed as PUP 100. Credit is allowed for only ALA 100 or PUP 100.
General Studies: HU, G, H

M ALA 120 Design Fundamentals I. (3)
fall, spring, summer
Development of visual literacy. Introduces drawing and graphic representation as methods of seeing and problem solving. Studio. Prerequisite: major in College of Design.

M ALA 200 Introduction to Architecture. (3)
fall and summer
Survey of issues and polemics affecting current architectural theory and practice. Lecture, discussion.
General Studies: HU, G

M ALA 221 Design Fundamentals II. (3)
fall
Exercises in basic design, stressing creative problem-solving methods, principles of composition, and aesthetic evaluation. Development of vocabulary for environmental design. Lecture, studio. Prerequisite with a grade of "C" (2.00) or higher: ALA 120. Corequisite: ALA 223.

M ALA 222 Design Fundamentals III. (3)
spring
Applies design fundamentals with an emphasis on architectural issues. Lecture, studio. Prerequisite: ALA 200. Prerequisite with a grade of "C" (2.00) or higher: ALA 221. Corequisite: ALA 224.

M ALA 223 Design Fundamentals II Lecture. (1)
fall
Theory and applications of basic design principles, history and theory of how architecture design is impacted by basic design. Lecture, discussion. Corequisite: ALA 221.

M ALA 224 Design Fundamentals III Lecture. (1)
spring
History and theory of design fundamentals with an emphasis on architectural issues. Lecture, discussion. Corequisite: ALA 222.

M ALA 236 Introduction to Computer Modeling. (3)
fall
Fundamentals of computer operation, geographic information systems, geometric modeling of 3-D forms and rendering of light, mathematical modeling of processes using spreadsheets. Lab. Prerequisite: major in the School of Architecture and Landscape Architecture.
General Studies: CS

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

ENVIRONMENTAL ANALYSIS AND PROGRAMMING (ANP)

M ANP 331 Programming for Design. (3)
spring
Theory and methods for refracting "constraints" into opportunities for design excellence. Corequisite: ADE 322.

M ANP 475 Computer Programming in Architecture. (3)
fall and spring
Computer programming for architectural problems and applications. Lecture, lab.

M ANP 494 Special Topics. (1–4)
fall, spring, summer

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

ARCHITECTURAL PHILOSOPHY AND HISTORY (APH)

M APH 300 World Architecture I/Western Cultures. (3)
fall
Historical and contemporary built environments of Western civilizations: Mediterranean, Europe, and the Americas as manifestations of cultural history and responses to environmental determinants. Prerequisite: nonmajor.
General Studies: HU, G

M APH 305 Contemporary Architecture. (3)
selected semesters
Europe and America from the foundations of the modern movement to the present. Prerequisite: nonmajor.
General Studies: HU, H

M APH 313 History of Architecture I. (3)
fall
Survey of the monuments, buildings, and cities of Europe and Africa from the earliest human settlements to the present day. Prerequisite: junior standing or instructor approval.
General Studies: L/HU, G, H

M APH 314 History of Architecture II. (3)
spring
Survey of the monuments, buildings, and cities of Asia and the Americas from the earliest human settlements to the present day. Prerequisite: APH 313.
General Studies: L/HU, G, H

M APH 394 Special Topics. (1–4)
selected semesters

M APH 411 History of Landscape Architecture. (3)
fall
Physical record of human attitudes toward the land. Ancient through contemporary landscape planning and design. Cross-listed as PLA 310. Credit is allowed for only APH 411 or PLA 310.
General Studies: H

M APH 414 History of the City. (3)
fall
The city from its ancient origins to the present day. Emphasizes European and American cities during the last five centuries. Cross-listed as PUP 412. Credit is allowed for only APH 414 or PUP 412. Prerequisite: College of Design junior standing.
General Studies: H

M APH 444 Baroque Architecture. (3)
selected semesters
Selected examples of Baroque architecture and urbanism with emphasis on relationships between architecture and other arts. Prerequisite: APH 314.
General Studies: HU

M APH 446 20th-Century Architecture I. (3)
fall
Architecture in Europe and America from the foundations of the modern movement to the culmination of the international style. Prerequisite: instructor approval.
General Studies: HU

M APH 447 20th-Century Architecture II. (3)
spring
Developments in architecture since the international style. Prerequisite: APH 446.
General Studies: HU

M APH 494 Special Topics. (1–4)
once a year

M APH 499 Individualized Instruction. (1–3)
selected semesters

M APH 505 Foundation Theory Seminar. (3)
fall
Foundation of conceptual architectural inquiry, stressing the reciprocal and interdependent relationship between design and theory. Lecture, seminar. Corequisite: ADE 521.

M APH 509 Foundation Seminar. (3)
summer
Historical, technical, theoretical, environmental, and professional issues in architecture. Lecture, seminar, field trips. Corequisite: ADE 510.

M APH 511 Energy Environment Theory. (3)
fall
Solar and other energy sources in designed and natural environments; architectural, urban, and regional implications of strategies using other renewable resources.

M APH 515 Current Issues and Topics. (3)
spring
Critical examination of current architectural issues, topics, and discourse. Prerequisite with a grade of "C" (2.00) or higher: APH 505. Corequisites: ADE 522; ATE 556.

M APH 581 Contemporary Urban Design. (3)
spring
Explores contemporary city and urban design issues related to contemporary cities. Seminar, lecture, discussion.

M APH 598 Special Topics. (1–4)
fall or spring

M APH 683 Critical Regionalism. (3)
spring
Critical inquiry in cultural grounding; the definition of place in architectural theory and practice. Lecture, field studies.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

ARCHITECTURE PROFESSIONAL STUDIES (ARP)

M ARP 451 Architecture Field Studies. (1–6)
selected semesters
Organized field study of architecture in specified national and international locations. May be repeated for credit with director approval. Field trips, study abroad.

M ARP 484 Clinical Internship. (1–3)
fall
Full-time internship under the supervision of practitioners in the Phoenix area or other locales. Credit/no credit. Corequisite: ADE 421.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

ARCHITECTURAL TECHNOLOGY (ATE)

M ATE 353 Architectural Construction. (3)
fall
Materials and methods of construction. Aesthetic, code, and cost considerations. Lecture, lab. Corequisite: ADE 321 or 511.

M ATE 361 Building Structures I. (3)
spring
Introduces load distribution on structures. Static analysis of determinant beams, trusses, arches, and rigid frames. Computer applications. Lecture, lab. Prerequisite: admission to upper division or Master of Architecture program.

M ATE 451 Building Systems I. (3)
fall
Principles of solar radiation, heat and moisture transfer, and environmental control systems as form influences. Energy-conscious design. Lecture, lab. Prerequisite: admission to upper division or Master of Architecture program.

M ATE 452 Building Systems II. (3)
spring
Architectural design implications of heating, ventilation, and air conditioning systems. Principles of lighting, daylighting, and acoustics, and their applications. Lecture, lab. Prerequisite: ATE 451.

M ATE 462 Building Structures II. (3)
fall
Strength of materials. Stresses in beams and columns. Thermal effects on structures. Analysis, design, and detailing of wood structural systems. Lecture, lab. Prerequisite: ATE 361.

M ATE 494 Special Topics. (1–4)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

ARCHITECTURAL COMMUNICATION (AVC)

M AVC 494 Special Topics. (1–4)
once a year

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

LANDSCAPE ARCHITECTURE (PLA)

M PLA 101 Landscape and Society. (3)
fall
Examines interrelationship between society and the landscape with emphasis on human involvement in shaping the landscape.
General Studies: G

M PLA 161 Graphic Communication. (3)
fall or spring
Develops drawing skills and understanding of the graphic communication systems used by planning, homebuilding, and landscape architecture professions. Studio. Cross-listed as HUD 161/PUP 161. Credit is allowed for only HUD 161 or PLA 161 or PUP 161.

M PLA 194 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Presentation Graphics. (3)

M PLA 222 Computers in Landscape Architecture. (3)
fall
Computer applications in landscape architecture, including CAD, GIS, graphics, and visualization. Lab.

M PLA 240 Landscape Survey Techniques. (3)
spring
Develops landscape survey skills, including aerial photography, satellite images, geo-referencing, landscape surveys, and field data collection. Lecture, lab.

M PLA 242 Landscape Construction I. (4)
fall
Landscape constructions focusing on landform transformations. Topics include landform analysis, grading, and earthwork. Studio. Prerequisite: admission to professional program.

M PLA 261 Landscape Architecture I. (4)
fall
Landscape communication: communication techniques for urban planning and landscape architecture. Credit is allowed for only PLA 261 or PUP 261. Studio. Prerequisites: ALA 120; GPH 111.

M PLA 262 Landscape Architecture II. (4)
spring
Reading the landscape: observing, experiencing, and graphically expressing the symbolic and aesthetic significance of natural landscapes. Prerequisites: ALA 120; PLA 261; admission to professional program.

M PLA 310 History of Landscape Architecture. (3)
fall
Physical record of human attitudes toward the land. Ancient through contemporary landscape planning and design. Cross-listed as APH 411. Credit is allowed for only APH 411 or PLA 310.
General Studies: H

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M PLA 311 Contemporary Landscape Architecture. (3)
spring
Explores concerns, projects, and movements in landscape architecture of late 20th-century understanding; social, ecological, regional, and historical influences.
General Studies: HU

M PLA 344 Landscape Construction II. (4)
spring
Characteristics of materials and methods used in landscape architectural construction. Studio. Prerequisite: PLA 242 or instructor approval.

M PLA 345 Professional Practice Seminar. (1)
spring
Landscape architecture practice, including contracts, project and office management, liability, licensing, and professional development.

M PLA 361 Landscape Architecture III. (4)
fall
Site planning: analysis of natural and cultural features; site systems and implications for plan making and design. Studio. Fee. Prerequisite: admission to professional program.

M PLA 362 Landscape Architecture IV. (4)
spring
Site design: site-specific design of configured space by the creative development of form. Studio. Fee. Prerequisite: admission to professional program.

M PLA 363 Landscape Planting Design. (4)
spring
Functional and aesthetic use of plants in arid-region landscape design. Explores design philosophies through planting design problems. Studio. Prerequisite: admission to professional program.

M PLA 394 Special topics. (1–4)
Selected semesters

M PLA 410 Social Factors in Landscape and Urban Planning. (3)
fall
Examines the influence of social factors in landscape architecture and urban planning.

M PLA 411 Landscape Architecture Theory and Criticism. (3)
spring
Critically analyzes landscape architecture theories and projects to evaluate validity of design and contribution to society. Prerequisites: PLA 310, 361, 362, 420, 461.
General Studies: L

M PLA 412 Landscape Ecology and Planning. (3)
selected semesters
Reviews the evolution of landscape ecology and landscape planning and examines use and value.

M PLA 413 Southwest Landscape Interpretation. (3)
selected semesters
Explores methods and implications of landscape interpretation within the American Southwest.

M PLA 420 Theory of Urban Design. (3)
spring
Analyzes the visual and cultural aspects of urban design. Theories and techniques applied to selected study models. Prerequisite: junior standing.
General Studies: HU

M PLA 446 Landscape Construction III. (3)
spring
Landscape construction focusing on low-technology, biotechnical, regional, and experimental techniques or systems. Lecture, studio.

M PLA 461 Landscape Architecture V. (4)
fall
Landscape ecological planning: collection and application of ecological data relevant to planning and design at landscape scale. Studio. Fee. Prerequisite: PLA 362.

M PLA 462 Landscape Architecture VI. (4)
spring
Advanced landscape architecture: integrative capstone studio with multifaceted design problems. Fee. Prerequisite: PLA 461.

M PLA 484 Internship. (3)
fall, spring, summer session 1
Full-time internship under the supervision of practitioners in the Phoenix area or other locales. Credit/no credit. Prerequisite: school major or instructor approval.

M PLA 485 International Field Studies in Planning. (1–12)
summer
Organized field study of planning in specified international locations. May be repeated for credit with school approval. Study abroad, field trip. Cross-listed as PUP 485. Credit is allowed for only PLA 485 or PUP 485.
General Studies: G (3 hours must be taken to secure G credit.)

M PLA 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Plant Materials. (3)

M PLA 498 Pro-Seminar. (1–7)
spring
Topics may include the following:
- Professional Senior Seminar. (1)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Department of Industrial Design

www.asu.edu/caed/SOD
480/965-1767
AED 162

Lauren McDermott, Chair

Professor: Giard

Associate Professor: McDermott

Assistant Professors: Boradkar, Shin, White

Clinical Associate Professor: Herring

Faculty Associates: Shigo, Velasquez

ORGANIZATION

Programs in the Department of Industrial Design are organized by the faculty of the department under the direction and administration of the chair, and standing committees of the faculty.

DEGREES

The faculty in the Department of Industrial Design offers the Bachelor of Science in Design degree with a major in Industrial Design.

Industrial Design. The Industrial Design program is an accredited institutional member of the National Association of Schools of Art and Design (NASAD). The curriculum prepares individuals for a professional career in product design and development, especially in the area of manufactured objects used by people on a daily basis. By developing products that are innovative, useful, safe, aesthetically appropriate, and socially, culturally, and environmentally

sensitive, the industrial design profession serves the needs of society, consumers, and manufacturers.

The Industrial Design Program at ASU focuses on a new model of interdisciplinary product development called integrated innovation. The primary goal of integrated innovation is to produce design solutions that 1) meet user needs in unexpected ways, 2) create value in the marketplace, and 3) improve society and the environment. This unique focus has led the program to form strong academic partnerships with visual communication design and the schools of engineering and business at ASU. Students graduating with this experience can expect to possess an acute understanding of the potential that industrial design brings to the social, commercial, and environmental challenges facing the twenty-first century.

To support integrated innovation, the Industrial Design program at ASU teaches both traditional and cutting-edge design skills and knowledge, including a strong visual acumen; technological aptitude; a practical knowledge of manufacturing, sustainability, and ergonomics; critical comprehension of design history; and a clear understanding of how to identify, evaluate, and respond to the physical and psychological needs of users. By way of studio projects, students learn to research problems and opportunities; visualize and communicate ideas; and to refine their skills in freehand sketching, computer-aided design, and model simulation. Assignments are a balance of conceptual challenges and practical techniques. Typical design projects (some of which are conducted with external partners) feature product planning and user experience along with exercises dealing with the design of electronic devices, housewares, sports equipment, and medical equipment. Focus is placed on the role of the industrial designer as a member of a team. Third-year students perform internships in either a corporation or a consulting firm. The program also has very close ties with the Industrial Designers Society of America.

MINORS

Design Studies

Students interested in design who do not wish to major in industrial design can earn a minor in Design Studies. The courses may also appeal to students not accepted to the upper-division of industrial design but who wish to pursue the study of design within the Bachelor of Interdisciplinary Studies degree.

Courses selected must satisfy the minimum requirement of 18 semester hours for the minor. In addition, students must take 12 semester hours in upper-division course work.

To enhance understanding of the subject matter, some of the designated courses are sequential in nature and require certain prerequisites. Consequently, students should carefully note the semester in which these particular courses are offered. All designated courses for the minor in design studies are lecture courses.

To pursue the minor in Design Studies, students must have a minimum cumulative GPA of 2.50.

Designated Courses for the Minor

Design

DSC 101 Design Awareness *HU, G* 3
GRA 440 Finding Purpose 3

Graphic Design

GRA 111 Graphic Design History I *HU* 3
GRA 112 Graphic Design History II 3
GRA 225 Communication/Interaction Design Theory 3

Industrial Design

IND 242 Materials and Design 3
IND 243 Process and Design 3
IND 316 20th-Century Design I *HU, H* 3
IND 317 20th-Century Design II *HU, H* 3
IND 344 Human Factors in Design 3
IND 354 Principles of Product Design 3
IND 470 Professional Practice for Industrial Design *L* 3

Interior Design

INT 111 Interior Design Issues and Theories *HU* 3
INT 121 Introduction to Computer Modeling for Interior Design *CS* 3
INT 131 Design and Human Behavior *SB* 3
INT 238 Introduction to Computer-Aided Design of Built Environments 3
INT 310 History of Interior Design I *HU, H* 3
INT 311 History of Interior Design II *HU, H* 3
INT 412 History of Decorative Arts in Interiors *HU* 3
INT 413 History of Textiles in Interior Design 3

BIS CONCENTRATIONS

A concentration in design studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

GRADUATE PROGRAMS

The College of Design offers a Master of Science in Design (MSD) degree with concentrations in industrial design, interior design, and graphic design. The faculty also participates in a collegewide, interdisciplinary PhD degree in Environmental Design and Planning with concentrations in design; history, theory, and criticism; and planning. For more information, see the *Graduate Catalog*.

ADMISSION

Lower-Division Program. New and transfer students who have been admitted to the university and who have selected Industrial Design as a major are admitted to the lower-division program. Transfer credits for the lower-division program are reviewed by the college and evaluated for applicability to this curriculum. To be applicable, transfer courses must be equivalent in both content and level of offering. A review of samples of work is required for studio classes. Consult a college academic advisor for further information.

Lower-division students entering the program who are not prepared for certain courses in the curriculum (for example, algebra and trigonometry or a second course in

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

computer programming) are required to take additional courses that do not apply to the Bachelor of Science in Design degree. If such courses are required, an additional year of study may be necessary to complete the lower-division program.

Completion of lower-division requirements does not ensure acceptance to an upper-division professional program.

Upper-Division Program. When students have completed the lower-division curriculum requirements, they may apply for acceptance to the upper-division program in Industrial Design. The limited spaces available each year are awarded to applicants with the highest promise for professional success, as determined by each program. The faculty of the Department of Industrial Design retains the right to admit any meritorious student who may be deficient in a published department criterion. Such admission requires an extraordinary review of the applicant by the program's admissions committee. Should the faculty choose to admit such an applicant, the student is placed automatically on a provisional admission status with stipulations as to what is required to be removed from probation. See "Application to Upper-division Programs," on this page.

Students not admitted to upper-division programs are not dismissed from the university and may reapply or transfer to other programs. Students who intend to reapply should meet with a college academic advisor.

APPLICATION TO UPPER-DIVISION PROGRAMS

Upper-Division Application Procedures. Students should write to a college academic advisor for the application form well in advance of the application deadline. For more information on portfolios, students should ask a college academic advisor for a copy of the application and portfolio guidelines. The following dates and procedures are for students applying to 2007–2008 upper-division programs.

Upper-Division Application Deadlines. The following dates and procedures apply to the Industrial Design program.

April 16, 2007. Portfolio and application documents are due in AED 162 by 5 P.M.

June 1, 2007. If the spring 2007 semester includes transfer course work (i.e., course work taken at an institution other than ASU), a student must submit his or her transcripts to the Academic Advising/Student Services office, ARCH 115, no later than June 1. These transcripts may be unofficial copies. A second set of official transcripts must be sent to the University Registrar's office. Application is not complete until the university receives official transcripts for transfer course work. For those transfer students whose academic term ends in June rather than May, this deadline may be extended upon the written request of the applicant.

July 2, 2007. Acceptance notices are mailed no later than July 2.

Return of Letter of Acceptance. A signed receipt of acceptance of admission must be received by the school by the date indicated on the Notice of Acceptance. Alternates may be accepted at a later date if space becomes available.

Matriculation. An accepted student is expected to begin his or her upper-division professional program at the beginning of the immediate fall term. There is no spring admission to the upper-division program, and deferrals are not allowed.

Industrial Design Portfolio Format Requirements. Each applicant is responsible for obtaining the following documents and including them in the portfolio. Application materials are submitted at one time in a presentation binder (portfolio); 8.5" x 11" format only. The student's name must be affixed to the outside. Items must appear in the following order:

Page 1. The application form should be completely filled out with the first page visible. Application forms are available from the college Academic Advising Office, ARCH 115.

Page 2. An application essay.

Page 3. All college transcripts for both ASU and transfer work should be included through the fall 2006 semester. Copies are acceptable. An academic advisor forwards spring 2007 ASU transcripts. Applicants wishing to transfer spring semester 2007 work are responsible for submitting these transcripts by June 1 so that they may be added to their portfolios. The student is also responsible for getting an official transfer transcript sent directly to the Office of the Registrar.

Page 4. A certificate of admission to ASU is necessary only for those students who have been newly admitted for fall 2007 and who are applying directly into an upper-division program. The certificate is not required for students currently attending ASU.

Following Pages (Usually from 10 to 20 Sheets). Students should present sufficient work to demonstrate the depth and breadth of their creative activity. This work should include (but is not limited to) examples of two- and three-dimensional design and graphics. Each project should be clearly identified (course, length of project, etc.), with a concise accompanying description of the assignment.

Students should obtain an application and a portfolio guidelines form for their major from the college's Academic Advising Office, ARCH 115, at the beginning of the academic year in which they intend to apply to the upper-division program. Requirements or instructions indicated in the guidelines for that academic year take precedence over any other printed material.

Students are encouraged to include additional materials, written or pictorial, that provide further evidence of skills, abilities, aptitude, and commitment to the major. When any work submitted is not completely original, the source must be given. When work is of a team nature, the applicant's role must be clearly indicated. Original examples or slides must not be submitted unless specified in the guidelines. All examples must be photographs or other reproduction graphic media.

Return of Portfolios. Application documents (pages 1 to 4) remain the property of the College of Design. However, the remainder of the portfolio is returned after the admissions review, provided the applicant encloses a self-addressed return mailer with sufficient prepaid postage. Portfolios may be claimed in person after July 2, 2007. If the applicant provides written permission, another person may claim the

portfolio. After one year, unclaimed portfolios are discarded. While care is taken in handling the portfolios, no liability for lost or damaged materials is assumed by the college or department.

ADVISING

Advising for the lower-division curricula is through a college academic advisor in ARCH 115. Advising for the upper-division curricula is provided by the department's academic advisor in AED 162.

DEGREE REQUIREMENTS

The Bachelor of Science in Design degree requires a minimum of 120 semester hours for a major in Industrial Design. The program may include required field trips. Students are responsible for these additional costs. An internship is a required part of the program.

Industrial Design. The curriculum in Industrial Design is divided into a preprofessional (first and second years) and a professional program (third and fourth years):

Preprofessional program	61
Professional program	59
Total	120

The preprofessional curriculum balances a foundation in academic subjects such as English, algebra and trigonometry, computing, and physics with design courses that include history as well as studio courses in drawing, design fundamentals, human factors, and materials and processes.

The professional curriculum includes studio and laboratory work in industrial design, graphics, project development, and professional practice. Students also take a number of approved program electives. A supervised summer internship is part of the curriculum.

Upper-division studios emphasize projects that promote an interdisciplinary approach to solving problems and that develop the student's intellectual understanding of the philosophy, methodology, and theories related to industrial design. Problems proceed from small consumer products with simple task functions to larger and more complex problems and systems. Studio projects also emphasize the design processes: problem resolution through concept ideation, dialogue with specialists in related areas, and product development, presentation, and marketing.

Graduates of the program accept positions in industry and with firms involved in industrial design. Designers may focus on consumer products, electronics, medical devices, health products, or recreational products, among others. Designers may also choose to continue their education with graduate studies to enrich their design knowledge, to specialize, or to prepare for college-level teaching.

General Studies Requirement. The following curriculum includes sufficient approved course work to fulfill the General Studies requirement. See "General Studies," page 93, for requirements and a list of approved courses. Note that all three General Studies awareness areas are required. Consult an advisor for an approved list of courses.

Graduation Requirements. In addition to fulfilling college and major requirements for this degree, students must meet all university graduation and college degree requirements. See "University Graduation Requirements," page 89, and "College Degree Requirements," page 315.

Industrial Design—BSD
Preprofessional Program Requirements[1]

First Year

Fall			
DSC	101	Design Awareness *HU, G*	3
ENG	101	First-Year Composition or ENG 105 Advanced First-Year Composition (if qualified) (3)	3
IND	120	Drawing for Industrial Design[1]	3
MAT	170	Precalculus *MA*	3
Elective			3
Total			15
Spring			
ENG	102	First-Year Composition or elective if ENG 105 is taken (3)	3
IND	121	Principles for Industrial Design I[1]	3
IND	122	Principles for Industrial Design II[1]	3
PGS	101	Introduction to Psychology *SB*	3
PHY	111	General Physics *SQ*[2]	3
PHY	113	General Physics Laboratory *SQ*[2]	1
Total			16

Second Year

Fall			
IND	227	Visual Methods for Problem Solving	3
IND	236	Introduction to Computer Modeling for Industrial Design	3
IND	242	Materials and Design	3
IND	260	Industrial Design I	3
IND	316	20th-Century Design I *HU, H*	3
Total			15
Spring			
ECN	212	Microeconomic Principles *SB*	3
IND	228	Imaging and Visualization	3
IND	243	Process and Design	3
IND	261	Industrial Design II	3
IND	317	20th-Century Design II *HU, H*	3
Total			15
Preprofessional program total			61

[1] Transfer credits for the lower-division program must be equivalent in both content and level of offering. Samples of studio work to be accepted for credit must be submitted for evaluation through the college's Academic Advising Office, ARCH 115. Most studio courses and some lecture courses are sequential. They must be taken in, and may be offered only during, the semester noted.

[2] Both PHY 111 and 113 must be taken to secure SQ credit.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Industrial Design—BSD
Professional Program Requirements

Third Year

Fall

IND 327 Presentation Graphics	3
IND 344 Human Factors in Design	3
IND 354 Principles of Product Design	3
IND 360 Industrial Design III	5
Total	14

Spring

IND 328 Graphics for Industrial Design	3
IND 361 Industrial Design IV	5
MKT 382 Advertising and Marketing Communication	3
Elective	3
Total	14

Summer

IND 484 Internship: Industrial Design	2
Total	2

Fourth Year

Fall

ENG 301 Writing for the Professions *L*	3
IND 460 Design Project I	5
IND 470 Professional Practice for Industrial Design *L*	3
Elective	3
Total	14

Spring

IND 461 Design Project II	5
Elective	3
C elective	3
SQ, SG elective with approved laboratory	4
Total	15

Professional program total	59
BSD minimum total	120

INQUIRIES

For more information, call a college academic advisor at 480/965-3584, send e-mail to caed.advising@asu.edu, or write

ACADEMIC ADVISING/STUDENT SERVICES OFFICE
COLLEGE OF DESIGN
ARIZONA STATE UNIVERSITY
PO BOX 871905
TEMPE AZ 85287-1905

INDUSTRIAL DESIGN (IND)

M IND Note 1. In addition to individual course prerequisites, nonbusiness students must have at least a 2.50 ASU cumulative GPA, a 2.50 ASU business GPA, and 56 earned semester hours to register for any upper-division business course unless otherwise noted.

M IND 120 Drawing for Industrial Design. (3)
fall
Drawing as language to explore and communicate ideas. Development of drawing aptitude as language and process for industrial design thinking. Studio. Prerequisite: Industrial Design major.

M IND 121 Principles for Industrial Design I. (3)
spring
Industrial design as a language and process for creative thinking and realization. Studio. Prerequisite: Industrial Design major. Corequisite: IND 122.

M IND 122 Principles for Industrial Design II. (3)
spring
Continued exploration of industrial design as a language and process for creative thinking and realization. Studio. Prerequisite: Industrial Design major. Corequisite: IND 121.

M IND 194 Special Topics. (1–4)
selected semesters

M IND 227 Visual Methods for Problem Solving. (3)
fall
Introduces conceptual design activity based on the mind-eye-media feedback loop. Graphic language used to represent conjecture, analysis, synthesis of objects, and their contexts. Seminar, studio. Prerequisite: IND 122.

M IND 228 Imaging and Visualization. (3)
spring
Design activities stressing graphic language abstraction practiced for presentation. Discusses structure of criticism, including description, interpretation, and evaluation. Seminar, studio. Prerequisite: IND 227.

M IND 236 Introduction to Computer Modeling for Industrial Design. (3)
fall and spring
Computers in industrial design, including software concepts, specific packages, and problem solving, illustration, typography, modeling, and animation. Lab. Prerequisite: Industrial Design major.

M IND 242 Materials and Design. (3)
fall
Materials application in design. Introduces characteristics and properties of metals and organic materials, including plastics, and inorganic materials.

M IND 243 Process and Design. (3)
spring
Influences of industrial processing on design. Introduces basic materials processing and post-forming processes. Emphasizes appearance enhancement and design constraints of material processing. Prerequisite: IND 242.

M IND 260 Industrial Design I. (3)
fall
Introduces the method and process of the industrial designer. Determinants necessary in small product design. 1 hour lecture, 2 hours studio. Prerequisite: IND 122.

M IND 261 Industrial Design II. (3)
spring
Issues of physical form development related to product and design; form development properties of paper, fibers, wood, metal, and plastics. 1 hour lecture, 2 hours studio. Prerequisite: IND 260 (or its equivalent).

M IND 316 20th-Century Design I. (3)
fall
Modern European and American design from 1900 to 1940. Emphasizes transportation, product, furniture, exhibition, and graphic design.
General Studies: HU, H

M IND 317 20th-Century Design II. (3)
spring
Modern European, Asian, and American design since 1940. Emphasizes transportation, product, furniture, exhibition, and graphic design.
General Studies: HU, H

M IND 327 Presentation Graphics. (3)
fall
Studies methods for portfolio and professional product presentation using graphic media for information transfer. Stresses aesthetic judgment, organization, and craftsmanship. Seminar, studio. Prerequisite: acceptance into Industrial Design professional program.

M IND 328 Graphics for Industrial Design. (3)
spring
Investigates and applies packaging applications and planning to the development of an identity for a product line structured as a system. Lab. Prerequisite: IND 327.

M IND 344 Human Factors in Design. (3)
fall
Man-machine environment systems; human characteristics and behavior applied to design of products, systems, and their operating environment.

M IND 354 Principles of Product Design. (3)
fall
Influences of physical and mechanical concepts in product design; mechanisms, kinematics, and fastening systems. Concepts of analysis for product design. Influences of concepts on aesthetics. Prerequisites: PHY 111; Industrial Design major.

M IND 360 Industrial Design III. (5)
fall
Methods of visual thinking, conceptualization, and ideation related to building skill levels in professional design presentation techniques. 10 hours studio. Fee. Prerequisite: school approval.

M IND 361 Industrial Design IV. (5)
spring
Emphasizes developing ideas into a complete functional product, including survey and application of aesthetics, human factors, materials, and manufacturing. 10 hours studio. Fee. Prerequisite: IND 360.

M IND 460 Design Project I. (5)
fall
Complete analysis of the product unit as an element of mass production, featuring marketing, technology, human factors, and visual design. Emphasizes professional standards. 10 hours studio. Fee. Prerequisites: DSC 484; IND 361.

M IND 461 Design Project II. (5)
spring
Product design, with emphasis in systems interaction. Culmination of design process and technique. Encourages individual project direction. 10 hours studio. Fee. Prerequisite: IND 460.

M IND 464 Collaborative Design Development I. (5)
fall
Team-based product development course featuring applied projects. Open to senior students from business, engineering, design, and other disciplines. Cross listed as MGT 464. Credit is allowed for only IND 464 or MGT 464. Lecture, lab. See IND Note 1. Prerequisites: instructor approval; application process (www.innovationspace.org).

M IND 465 Collaborative Design Development II. (5)
spring
Team-based product development course featuring applied projects. Open to senior students from business, engineering, design, and other disciplines. Cross listed as MGT 465. Credit is allowed for only IND 465 or MGT 465. Lecture, lab. See IND Note 1. Prerequisites: instructor approval; application process (www.innovationspace.org).

M IND 470 Professional Practice for Industrial Design. (3)
fall
Business procedures, management techniques, accounting systems, ethics, and legal responsibilities of the design professions. May be repeated for credit. Prerequisite: senior standing.
General Studies: L

M IND 474 Design Seminar. (3)
spring
Manufacturer's liability, statutes, regulations, and common law rules; role of expert witnesses; insurance and product safety programs. Seminar. Prerequisite: senior standing.

M IND 484 Internship: Industrial Design. (1–3)
summer
Full-time summer internship under supervision of practitioners in the Phoenix area or other locales. Students must register for IND 484 in the fall semester following their summer internship. Prerequisite: IND 361.

M IND 494 Special Topics. (3)
selected semesters
Applies mechanical drafting knowledge and skills. Manual drafting principles and techniques with transition to computer-aided industrial design.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Department of Interior Design

www.asu.edu/caed/SOD
480/965-3571
AED 162

Lorraine M. Cutler, Chair

Professor: Brandt

Associate Professors: Bernardi, Cutler, Johnson, Witt

Assistant Professors: Bender, Thibeau Catsis

Faculty Associates: Johannes, Jones, Patsy, Sola

PURPOSE

The mission of the Interior Design program is to prepare students for "Leading in Context." As leaders in design education and research, faculty constructs courses that encourage the development of leadership qualities. Courses examine the context in which individuals and groups live and work. Contextual issues identify and promote environments that sustain human health and development of professionals that are physically, socially, and culturally aware. This leadership focus is further conditioned by the belief that designers have responsibility to their communities and the public to solve problems at the global level of sustainability and at the professional level of responsibility and integrity. Students are immersed in a full-breadth learning experience that includes courses in design history, human behavior, design theories, and the rigor of design studio. Aesthetics, functionality, ambient influences, and technical expertise assist the students in the program to excel in the profession of interior design.

ORGANIZATION

Programs in the Department of Interior Design are organized by the faculty of the department under the direction and administration of the chair, and standing committees of the faculty.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

DEGREES

The faculty in the Department of Interior Design offers the Bachelor of Science in Design degree with a major in Interior Design.

Interior Design. The Interior Design program is accredited by the Foundation for Interior Design and Research (FIDER), the national interior design accrediting agency. The four-year curriculum emphasizes design process, problem solving, technical skill development, and management. Computer technology is integrated into each level of the curriculum. The program offers an excellent environment for experimenting with sophisticated software for presentation and simulation. Studios provide a unique learning environment and opportunities for application of concepts learned in lecture courses. Studio work examines human interaction with the built environment along with sustainable design issues allowing preservation of the natural environment for future generations. Assignments offer conceptual and practical problem solving challenges. Between the third and fourth year, students perform summer internships with well-known design companies in the United States. This offers students the opportunity to work with leaders in the interior design profession.

The interior design program offers a multidisciplinary approach to design education facilitated by its location with allied design disciplines: architecture, planning, housing and urban development, graphic design, and industrial design. This environment provides a living laboratory for the program's focus upon the context of design. Graduates of the program can expect to work in the profession as residential, corporate, retail, hospitality or health care designers. With their understanding of contextual issues affecting design, graduates will often find themselves in leadership roles within the profession.

MINORS

Design Studies

Students interested in design who do not wish to major in interior design can earn a minor in Design Studies. The courses may also appeal to students not accepted to the upper-division of interior design but who wish to pursue the study of design within the Bachelor of Interdisciplinary Studies degree.

Courses selected must satisfy the minimum requirement of 18 semester hours for the minor. In addition, students must take 12 semester hours in upper-division course work. To enhance understanding of the subject matter, some of the designated courses are sequential in nature and require certain prerequisites. Consequently, students should carefully note the semester in which these particular courses are offered. All designated courses for the minor in design studies are lecture courses.

To pursue the minor in Design Studies, students must have a minimum cumulative GPA of 2.50.

Designated Courses for the Minor

Design

DSC 101 Design Awareness *HU, G* 3
GRA 440 Finding Purpose 3

Graphic Design

GRA 111 Graphic Design History I *HU* 3
GRA 112 Graphic Design History II 3
GRA 225 Communication/Interaction Design Theory 3

Industrial Design

IND 242 Materials and Design 3
IND 243 Process and Design 3
IND 316 20th-Century Design I *HU, H* 3
IND 317 20th-Century Design II *HU, H* 3
IND 344 Human Factors in Design 3
IND 354 Principles of Product Design 3
IND 470 Professional Practice for Industrial Design *L* 3

Interior Design

INT 111 Interior Design Issues and Theories *HU* 3
INT 121 Introduction to Computer Modeling for Interior Design *CS* 3
INT 131 Design and Human Behavior *SB* 3
INT 238 Introduction to Computer-Aided Design of Built Environments 3
INT 310 History of Interior Design I *HU, H* 3
INT 311 History of Interior Design II *HU, H* 3
INT 412 History of Decorative Arts in Interiors *HU* 3
INT 413 History of Textiles in Interior Design 3

Interior Design History

The minor in Interior Design History is available to students interested in design and culture. The courses designated for the minor are part of the professional studies in interior design within the School of Interior Design. Moreover, the courses serve to inform the students about the importance of the global community, especially sociocultural groups, and the impact of the global community on the design of the interior environment.

The selected courses satisfy the minimum requirement (18 semester hours, 12 of which must be from the upper division) for the minor. To enhance the understanding of the subject matter, the selected courses are sequential in nature and require certain prerequisites. Consequently, students should carefully note the semester in which any of these courses are offered.

Required Courses

DSC 101 Design Awareness *HU, G* 3
INT 111 Interior Design Issues and Theories *HU* 3
INT 310 History of Interior Design I *HU, H* 3
INT 311 History of Interior Design II *HU, H* 3
INT 412 History of Decorative Arts in Interiors *HU* 3
INT 413 History of Textiles in Interior Design 3

Total 18

The minor in Interior Design History is open to students majoring in Architectural Studies, Art, Communication, Psychology, or Sociology, and students in any W. P. Carey School of Business major or the Bachelor of Interdisciplinary Studies program. All other majors are considered on an individual basis and approved by the chair of the Department of Interior Design. To pursue the minor in Interior Design History, students must have a minimum cumulative GPA of 2.50.

BIS CONCENTRATIONS

Concentrations in design studies and interior design history are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student

who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

GRADUATE PROGRAMS

The College of Design offers a Master of Science in Design (MSD) degree with concentrations in industrial design, interior design, and graphic design. The faculty also participates in a collegewide, interdisciplinary PhD degree in Environmental Design and Planning with concentrations in design; history, theory, and criticism; and planning. For more information, see the *Graduate Catalog*.

ADMISSION

Lower-Division Program. New and transfer students who have been admitted to the university and who have selected Interior Design as a major are admitted to the lower-division program. Transfer credits for the lower-division program are reviewed by the college and evaluated for applicability to this curriculum. To be applicable, transfer courses must be equivalent in both content and level of offering. A review of samples of work is required for studio classes. Consult a college academic advisor for further information.

Lower-division students entering the program who are not prepared for certain courses in the curriculum (for example, algebra and trigonometry or a second course in computer programming) are required to take additional courses that do not apply to the Bachelor of Science in Design degree. If such courses are required, an additional year of study may be necessary to complete the lower-division program.

Completion of lower-division requirements does not ensure acceptance to an upper-division professional program.

Upper-Division Program. When students have completed the lower-division curriculum requirements, they may apply for acceptance to the upper-division program in interior design. The limited spaces available each year are awarded to applicants with the highest promise for professional success. The faculty of the Department of Interior Design retain the right to admit any meritorious student who may be deficient in a published department criterion. Such admission requires an extraordinary review of the applicant by the program's admissions committee. Should the faculty choose to admit such an applicant, the student is placed automatically on a provisional admission status with stipulations as to what is required to be removed from probation. See "Application to Upper-Division Programs," on this page.

Students not admitted to upper-division programs are not dismissed from the university and may reapply or transfer to other programs. Students who intend to reapply should meet with a college academic advisor.

APPLICATION TO UPPER-DIVISION PROGRAMS

Upper-Division Application Procedures. Students should write to a college academic advisor for the application form well in advance of the application deadline. For more information on portfolios, students should ask a college academic advisor for a copy of the application and portfolio guidelines. The following dates and procedures are for students applying to 2007–2008 upper-division programs.

Upper-Division Application Deadlines. The following dates and procedures apply to the Interior Design program.

April 16, 2007. Portfolio and application documents are due in AED 162 by 5 P.M.

June 1, 2007. If the spring 2007 semester includes transfer course work (i.e., course work taken at an institution other than ASU), a student must submit his or her transcripts to the Academic Advising/Student Services office, ARCH 115, no later than June 1. These transcripts may be unofficial copies. A second set of official transcripts must be sent to the University Registrar's office. Application is not complete until the university receives official transcripts for transfer course work. For those transfer students whose academic term ends in June rather than May, this deadline may be extended upon the written request of the applicant.

July 2, 2007. Acceptance notices are mailed no later than July 2.

Return of Letter of Acceptance. A signed receipt of acceptance of admission must be received by the department by the date indicated on the Notice of Acceptance. Alternates may be accepted at a later date if space becomes available.

Matriculation. An accepted student is expected to begin his or her upper-division professional program at the beginning of the immediate fall term. There is no spring admission to the upper-division program, and deferrals are not allowed.

Interior Design Portfolio Format Requirements. Each applicant is responsible for obtaining the following documents and including them in the portfolio. Application materials are submitted at one time in a presentation binder (portfolio); 8.5" x 11" format only. Items must appear in the following order:

Page 1. The application form should be completely filled out with the first page visible. Application forms are available from the college Academic Advising Office, ARCH 115.

Page 2. Application Essay or Letter of Intent.

Page 3. All college transcripts for both ASU and transfer work should be included through the fall 2006 semester. Copies are acceptable An academic advisor forwards spring 2007 ASU transcripts. (Applicants wishing to transfer spring semester 2007 work are responsible for submitting these transcripts by June 1 so that they may be added to their portfolios. The student is also responsible for getting an official transfer transcript sent directly to the Office of the Registrar.)

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Page 4. A certificate of admission to ASU is necessary only for those students who have been newly admitted for fall 2007 and who are applying directly into an upper-division program. The certificate is not required for students currently attending ASU.

Following Pages (Usually from 10 to 20 Sheets). Students should present sufficient work to demonstrate the depth and breadth of their creative activity. This work should include (but is not limited to) examples of two- and three-dimensional design and graphics. Each project should be clearly identified (course, length of project, etc.), with a concise accompanying description of the assignment.

Students should obtain an application and a portfolio guidelines form for their major from the college's Academic Advising Office, ARCH 115, at the beginning of the academic year in which they intend to apply to the upper-division program. Requirements or instructions indicated in the guidelines for that academic year take precedence over any other printed material.

Students are encouraged to include additional materials, written or pictorial, that provide further evidence of skills, abilities, aptitude, and commitment to the major. When any work submitted is not completely original, the source must be given. When work is of a team nature, the applicant's role should be clearly indicated. Original examples or slides must not be submitted unless specified in the guidelines. All examples must be photographs or other reproduction graphic media.

Return of Portfolios. Application documents (pages 1 to 4) remain the property of the College of Design. However, the remainder of the portfolio is returned after the admissions review, provided the applicant encloses a self-addressed return mailer with sufficient prepaid postage. Portfolios may be claimed in person after July 2, 2007. If the applicant provides written permission, another person may claim the portfolio. After one year, unclaimed portfolios are discarded. While care is taken in handling the portfolios, no liability for lost or damaged materials is assumed by the college or department.

ADVISING

Advising for the lower-division curricula is through a college academic advisor in ARCH 115. Advising for the upper-division curricula is provided by the department's academic advisor in AED 162.

DEGREE REQUIREMENTS

The Bachelor of Science in Design degree requires a minimum of 120 semester hours for a major in Interior Design. The program may include required field trips. Students are responsible for these additional costs. Foreign study opportunities are available for students. An internship is a required part of the program.

Interior Design

The curriculum in Interior Design is divided into a preprofessional program (first and second year) and a professional program (third and fourth year):

Preprofessional program	60
Professional program	60
Total	120

The preprofessional curriculum balances a foundation in academic subjects such as English, algebra and trigonometry, computer technology, and physics with design courses that include history and theory, as well as studio courses in drawing, design fundamentals, and conceptual design.

The professional curriculum includes studio work in interior design, construction methods/structures, codes as related to materials and finishes, environmental control systems, as well as lecture courses in the history of interior design. An eight-week supervised summer internship is part of the curriculum.

Graduates from the program accept entry-level professional positions in a variety of settings, including interior design firms, departments of space planning, architectural firms, public institutions, and industry. Students may also choose to continue their education through graduate studies, which provide greater enrichment in studio disciplines and contribute to the possibility for postsecondary-level academic appointments.

General Studies Requirement. The following curriculum includes sufficient approved course work to fulfill the General Studies requirement. See "General Studies," page 93, for requirements and a list of approved courses. Note that all three General Studies awareness areas are required. Consult an advisor for an approved list of courses.

Graduation Requirements. In addition to fulfilling college and major requirements for this degree, students must meet all university graduation and college degree requirements. See "University Graduation Requirements," page 89, and "College Degree Requirements," page 315.

Interior Design—BSD
Preprofessional Program Requirements[1]

First Year

Fall			
DSC	101	Design Awareness *HU, G*	3
ENG	101	First-Year Composition	3
		or ENG 105 Advanced First-Year Composition (3)	
INT	111	Interior Design Issues and Theories *HU*	3
INT	121	Introduction to Computer Modeling for Interior Design *CS*[1]	3
MAT	170	Precalculus *MA*	3
Total			15
Spring			
ENG	102	First-Year Composition	3
INT	120	Design Drawing and Media[1]	3
INT	131	Design and Human Behavior *SB*	3
INT	238	Introduction to Computer-Aided Design of Built Environments	3
PHY	111	General Physics *SQ*[2]	3
PHY	113	General Physics Laboratory *SQ*[2]	1
Total			16

Second Year

Fall			
INT	221	Principles of Design[1]	3
INT	222	Principles of Design Lecture[1]	1

INT 223 Drafting for Interior Design[1] 3
L elective.....3
SB elective 3
Elective.....3
Total 16

Spring
ARS 102 Art from Renaissance to Present *HU, H* 3
INT 261 Interior Design Studio 1: Residential[1] 3
Elective.....3
SQ or SG elective.....4
Total 13

Lower-division total 60

[1] Transfer credits for the lower-division program must be equivalent in both content and level of offering. Samples of studio work to be accepted for credit must be submitted for evaluation through the college's Academic Advising Office, ARCH 115. Most studio courses and some lecture courses are sequential. They must be taken in, and may be offered only during, the semester noted.

[2] Both PHY 111 and 113 must be taken to secure SQ credit.

Interior Design—BSD
Professional Program Requirements*

Third Year

Fall
INT 310 History of Interior Design I *HU, H* 3
INT 321 Concepts for Interior Design.....3
INT 352 Construction Methods in Interior Design 3
INT 362 Interior Design Studio II: Hospitality and Retail 5
INT 381 Preinternship Seminar.....1
Total 15

Spring
INT 311 History of Interior Design II *HU, H*.....3
INT 351 Ambient Environment.....3
INT 353 Interior Materials, Finishes, and Specifications.....3
INT 363 Interior Design Studio III: Poetics and Materiality.....5
Total 14

Summer
INT 484 Internship: Interior Design.....2
Total 2

Fourth Year

Fall
INT 341 Interior Codes: Public Welfare and Safety.....2
INT 464 Interior Design Studio IV: Work Environments.....5
INT 471 Facilities Management 3
Elective.....3
L upper-division elective.....3
Total 16

Spring
INT 465 Interior Design Studio V: Institutional Design.....5
INT 472 Professional Practice for Interior Design 2
Electives 6
Total 13

Upper-division total 60

BSD minimum total 120

* Transfer credits for the lower-division program must be equivalent in both content and level of offering. Samples of studio work to be accepted for credit must be submitted for evaluation through the college's Academic Advising Office, ARCH 115. Most studio courses and some lecture courses are sequential. They must be taken in, and may be offered only during, the semester noted.

INQUIRIES

For more information, call a college academic advisor at 480/965-3584, send e-mail to caed.advising@asu.edu, or write

ACADEMIC ADVISING/STUDENT SERVICES OFFICE
COLLEGE OF DESIGN
ARIZONA STATE UNIVERSITY
PO BOX 871905
TEMPE AZ 85287-1905

INTERIOR DESIGN (INT)

M INT 111 Interior Design Issues and Theories. (3)
fall
Interiors issues, theories, and philosophies. Emphasizes unique social and cultural factors that shape 20th-century design concepts.
General Studies: HU

M INT 120 Design Drawing and Media. (3)
spring
Visual thinking: Development of freehand drawing techniques as a language and tool to explore, communicate, and process ideas. Studio. Prerequisite: Interior Design major.

M INT 121 Introduction to Computer Modeling for Interior Design. (3)
fall and spring
Computers in interior design, including software concepts, specific packages, and problem solving, illustration, typography, modeling, and animation. Lab. Prerequisite: Interior Design major.
General Studies: CS

M INT 131 Design and Human Behavior. (3)
spring
Applies conceptual design to issues of programming and space planning, user needs, and behavior.
General Studies: SB

M INT 194 Special Topics. (1–4)
fall
Topics may include the following:
- Drafting for Interior Design. (3)

M INT 221 Principles of Design. (3)
fall
Applied visual vocabulary: studio experience exploring applications, process, and conceptual development of the principles of order and composition. Studio. Prerequisite: INT 120. Corequisite: INT 222.

M INT 222 Principles of Design Lecture. (1)
fall
Applications of the visual vocabulary: explores the principles of organization through examination of historical precedence and contemporary interior design. Corequisite: INT 221.

M INT 223 Drafting for Interior Design. (3)
fall
Orthographic, paraline, axonometric, and perspective projection; shades and shadows; and basic descriptive geometry for interior designers. Studio. Prerequisite: Interior Design major.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M INT 238 Introduction to Computer-Aided Design of Built Environments. (3)
fall and spring
Introduces AutoCAD computer-aided design principles and strategies for designers of the built environment. Lecture, lab.

M INT 261 Interior Design Studio I: Residential. (3)
spring
Studio problems in interior design related to behavioral response in personal and small-group spaces. Studio. Prerequisite: INT 221.

M INT 294 Special Topics. (1–4)
selected semesters
Topics may include the following:
- AutoCAD. (3)

M INT 310 History of Interior Design I. (3)
fall
Design of interior spaces as an expression of cultural influences to 1835. Prerequisite: ARS 102.
General Studies: HU, H

M INT 311 History of Interior Design II. (3)
spring
Design of interiors as an expression of cultural influences from 1835 to the present. Prerequisite: INT 310 or instructor approval.
General Studies: HU, H

M INT 321 Concepts for Interior Design. (3)
spring
Conceptual design development, including scale and proportion, light, texture, form, volume, and spatial hierarchy; passage and repose. 1 hour lecture, 4 hours lab. Prerequisites: INT 261; admission to upper-division program. Corequisites: INT 341, 362, 381.

M INT 341 Interior Codes: Public Welfare and Safety. (2)
fall
Codes and regulations as performance criteria for interior design. Prerequisite: admission to upper-division program. Corequisites: INT 352, 362, 381.

M INT 351 Ambient Environment. (3)
spring
Surveys environmental control systems, acoustics, and lighting issues. Lecture, field trips. Prerequisite: admission to upper-division program. Corequisites: INT 353, 363.

M INT 352 Construction Methods in Interior Design. (3)
fall
Design theory related to analysis, materials, and building techniques of horizontal and vertical construction in interior design. Lecture, field trips. Prerequisite: admission to upper-division program. Corequisites: INT 341, 362, 381.

M INT 353 Interior Materials, Finishes, and Specifications. (3)
spring
Survey, evaluation, and specification of materials, finishes, and performance criteria for interiors. Prerequisite: admission to upper-division program. Corequisites: INT 351, 363.

M INT 362 Interior Design Studio II: Hospitality and Retail. (5)
fall
Investigates interior design issues in hospitality and retail environments. 10 hours studio. Fee. Prerequisite: admission to upper-division program. Corequisites: INT 341, 352, 381.

M INT 363 Interior Design Studio III: Poetics and Materiality. (5)
spring
Explores the poetics of materials and their assemblage in the design of public and private spaces. 10 hours studio. Fee. Prerequisite: INT 362. Corequisites: INT 351, 353.

M INT 381 Preinternship Seminar. (1)
fall
Preparation of internship materials that produce and enhance a successful internship experience. Seminar. Prerequisite: 3rd-year major in the College of Design.

M INT 412 History of Decorative Arts in Interiors. (3)
fall
Design of decorative arts as an expression of cultural influences and as an extension of interior spaces. Prerequisite: INT 311 or instructor approval.
General Studies: HU

M INT 413 History of Textiles in Interior Design. (3)
spring
Cultural and historical expression of textiles as related to interiors. Possible field trips. Prerequisite: INT 412 or instructor approval.

M INT 446 Furniture Design and Production. (3)
selected semesters
Design, construction, cost estimating, and installation in interior furniture and millwork. 1 hour lecture, 4 hours studio. Prerequisite: acceptance into Interior Design professional program or instructor approval.

M INT 464 Interior Design Studio IV: Work Environments. (5)
fall
Studio problems in interior design-related issues in work environments. 10 hours studio. Fee. Prerequisite: INT 363.

M INT 465 Interior Design Studio V: Institutional Design. (5)
spring
Advanced interior design problem solving related to institutional facilities. 10 hours studio. Fee. Prerequisite: INT 464.

M INT 466 Interior Design Studio. (5)
fall
Advanced interior design problem solving, design theory, and criticism. Thesis project development based upon the major's concentration. 10 hours studio. Fee. Prerequisite: INT 465.

M INT 467 Interior Design Studio. (5)
spring
Advanced series of specialized projects or continuation of thesis project based upon the major's concentration. 10 hours studio. Fee. Prerequisite: INT 466.

M INT 471 Facilities Management. (3)
fall
Facility management process in large-scale organizations. Planning, long-range forecasting, and productivity. Project management methodologies using micro-based software programs. Prerequisite: admission to upper-division program.

M INT 472 Professional Practice for Interior Design. (2)
spring
Business procedures, project control, fee structures, and professional product liabilities. Prerequisite: admission to upper-division program.

M INT 484 Internship: Interior Design. (2)
summer
Full-time summer internship under supervision of practitioners in the Phoenix area or other locales. Students must register for INT 484 in the fall semester following their summer internship. Prerequisite: INT 363.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

School of Planning

www.asu.edu/caed/sop
480/965-7167
AED 162

Hemalata Dandekar, Director

Professors: Dandekar, Kihl, Lai, Pijawka

Associate Professors: Cameron, Crewe, Guhathakurta, Kim, Yabes

Assistant Professors: Balsas, Kamel, Lara-Valencia

Professor of Practice: Tiger

Faculty Associates: Abele, Adhikari, Boozer, Borushko, Brennan, Cromarty, Decker, Dollin, Dworkin, Gammage, Hartman, Holway, Keane, Kulaga, Moya, Newcombe, Pearce, Sender, Starkey, Stephenson, Sumner

PURPOSE

The faculty in the School of Planning offer curricula that provide an education for careers in environmental planning, housing and urban development, urban and regional planning, and urban design. The goal of the faculty is to advance the profession of planning through scholarship, teaching, research, and community service.

Planners work on projects that range in scale from site development to the design of entire communities and the formulation of policies that shape urban and regional growth. Planning graduates work for private firms, government agencies, and nonprofit organizations. Their work typically involves fields such as land-use planning, housing, natural resource management, urban transportation, development controls, and environmental impact assessment.

ORGANIZATION

The programs are organized by the faculty of the school under the direction and administration of the program coordinators and the school director.

DEGREES

The faculty in the School of Planning offer the Bachelor of Science in Planning degree in Urban Planning, and the Bachelor of Science in Design degree in Housing and Urban Development.

Bachelor of Science in Planning (BSP)

The BSP degree prepares students for careers in urban planning. Students take courses that include comprehensive planning, socioeconomic and environmental analysis, computer and analytical methods, planning law, site planning, landscape architecture, urban design, and public-policy formulation and administration. An internship or an approved elective is required between the third and fourth years. Many students continue to specialize in planning at the graduate level. Students in planning are exposed to the theories, methods, and practices of the profession of planning.

Bachelor of Science in Design (BSD)

A BSD degree with a major in Housing and Urban Development (HUD) educates and trains professionals to lead in the production of high-quality affordable housing, in the development of creatively designed and soundly planned neighborhoods and communities, in the revitalization of communities, and in the exemplification of social inclusiveness and environmental sensitivity in responsible land development. HUD graduates may pursue careers in the private home development industry, in publicly sponsored housing and community redevelopment, with nonprofit housing agencies, or in postgraduate housing and urban development research and education. The BSD degree with a major in Housing and Urban Development is offered in conjunction with the School of Extended Education.

MINOR

Urban Planning

The minor in Urban Planning is designed for students who are interested in the field but who wish to pursue other majors. The course selection is designed to provide an overview of the field and offer information of broad appeal.

All students must complete PUP 301 Introduction to Urban Planning plus a minimum of 15 semester hours, of which nine semester hours must be from upper-division courses (for a total of 12 semester hours of upper-division course work) from the following courses:

PUP	100	Introduction to Environmental Design *HU, G, H*	3
PUP	190	Sustainable Cities *HU/SB, G*	3
PUP	200	The Planned Environment *HU, H*	3
PUP	363	History of Planning	3
PUP	420	Theory of Urban Design *HU*	3
PUP	425	Urban Housing Analysis	3
PUP	430	Transportation Planning and the Environment	3
PUP	432	Planning and Development Control Law	3
PUP	433	Zoning Ordinances, Subdivision Regulations, and Building Codes	3
PUP	434	Urban Land Economics	3
PUP	442	Environmental Planning	3
PUP	444	Preservation Planning	3
PUP	445	Women and Environments *C*	3
PUP	452	Ethics and Theory in Planning *L*	3
PUP	475	Environmental Impact Assessment	3
PUP	485	International Field Studies in Planning *G*	3
PUP	510	Citizen Participation	3

The minor is open to students of all majors. Students must, however, have an overall GPA of 2.50 or higher and achieve a minimum 2.50 GPA in minor classes to be awarded the minor. Students seeking admission to the minor in Urban Planning must submit a minor verification form to the student coordinator in the School of Planning.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

BIS CONCENTRATIONS

A concentration in urban planning is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

GRADUATE PROGRAMS

School of Planning faculty offer a Master of Urban and Environmental Planning (MUEP) degree. This is an interdisciplinary, professional degree designed to prepare students for leadership roles in planning within both the public and private sectors and from local to international organizations. Four specializations are offered: community and urban development, environmental planning, international planning, and transportation planning. The community and urban development specialization provides students with knowledge and skills in areas such as housing, economic and community development, public policy analysis, transportation, land use planning, urban design, and historic preservation. The environmental planning specialization provides students with knowledge and skills in such areas as sustainable design, environmental resources, growth management, environmental policy analysis, open space design, and conservation. The international planning specialization prepares students to work in the diverse and changing urban fabric of developing nations and in U.S. cities, with their growing multinational and multicultural populations. Transportation planning focuses on: nonmotorized transportation, economic development, border issues, and the environment. Faculty also participate in offering a collegewide, interdisciplinary PhD degree in Environmental Design and Planning with concentrations in design; history, theory, and criticism; and planning. For more information, see the *Graduate Catalog*.

ADMISSION

Lower-Division Program. New and transfer students who have been admitted to the university and who have selected a program in the School of Planning are admitted to the lower-division program. Transfer credits for the lower-division program are reviewed by the college and evaluated for applicability to this curriculum. To be applicable, transfer courses must be equivalent in both content and level of offering. See a college academic advisor for an appointment.

Completion of lower-division requirements does not ensure acceptance to the upper-division professional program. Admission to the upper division is competitive and limited to the space available. Admission requires formal application and acceptance.

Upper-Division Program. Admission to the upper-division programs of the School of Planning is limited to applicants who have completed the lower-division program requirements and who are determined by the admissions committee to have the best potential for academic success. Spaces in the program are limited by available facilities, faculty, and qualified applicants. A minimum lower-division program GPA of 3.00 may be required. See "Application to Upper-Division Programs," on this page.

Students not admitted to upper-division programs are not dismissed from the university and may reapply later or may transfer to other programs. Students who plan to reapply should meet with a college academic advisor.

APPLICATION TO UPPER-DIVISION PROGRAMS

Upper-Division Application Procedures. Students should see a college academic advisor for the application form well in advance of the application deadline.

Urban Planning, and Housing and Urban Development students in good standing who will complete all required lower-division courses by the end of the spring semester of their sophomore year may apply for admission to the upper-division in April of their sophomore year.

Upper-Division Application Deadlines. *April 16, 2007.* Urban Planning, and Housing and Urban Development application and optional portfolio documents due in the school office by 5 P.M.

June 1, 2007. Urban Planning, and Housing and Urban Development students must submit transcripts of non-ASU course work if their spring semester includes course work taken at another institution. These transcripts may be unofficial copies.

Official Transcripts. A second set of official transcripts must be sent to the university's Office of the Registrar. An application is not complete until the university receives official transcripts for transfer course work.

July 2, 2007. Acceptance notices are mailed no later than July 2.

Return of Letter of Acceptance. A signed receipt of acceptance of admission must be received by the school by the date indicated on the Notice of Acceptance. Alternates may be accepted at a later date if space becomes available.

Matriculation. An accepted student is expected to begin his or her upper-division professional program at the beginning of the immediate fall term for Urban Planning, and Housing and Urban Development. Deferrals are not allowed.

Admission Requirements. Each applicant is responsible for obtaining the following documents:

1. a statement of intent describing the applicant's specific background and interest in the major;
2. latest college-level transcript(s) (no high school transcripts are required);
3. one example of written work (e.g., a class paper); and
4. samples of individual work; team work can be included, but the contribution of the candidate must be clarified.

Students are also strongly encouraged to submit evidence of other endeavors related to the major. The applicant's GPA based on required courses and cumulative GPA is evaluated. Housing and Urban Development students completing the

Phoenix Community College (PCC) articulation program with the BSD-HUD program should submit similar material from PCC.

ADVISING

Advising for the lower-division curriculum is provided through a college academic advisor. Advising for the upper-division curriculum is provided by the school's faculty and advisor.

DEGREE REQUIREMENTS

Urban Planning

The Bachelor of Science in Planning degree requires a total of 120 semester hours.

Preprofessional program courses	60
Professional program courses	60
Total	120

General Studies Requirement. The following curriculum includes sufficient approved course work to fulfill the General Studies requirement. See "General Studies," page 93, for requirements and a list of approved courses. Note that all three General Studies awareness areas are required. Consult an advisor for an approved list of courses.

Graduation Requirements. In addition to fulfilling college and major requirements for this degree, students must meet all university graduation and college degree requirements. See "University Graduation Requirements," page 89, and "College Degree Requirements," page 315.

Bachelor of Science in Planning,
Major in Urban Planning
Preprofessional Program Requirements*

First Year

Fall

ENG	101	First-Year Composition or ENG 105 Advanced First-Year Composition (3)	3
PUP	100	Introduction to Environmental Design *HU, G, H*	3
G electives			6
MA elective			3
Total			15

Spring

ENG	102	First-Year Composition or elective if ENG 105 is taken (3)	3
C elective			3
Elective			3
SB elective			3
SQ elective			4
Total			16

Second Year

Fall

PUP	190	Sustainable Cities *HU/SB, G*	3
PUP	200	The Planned Environment *HU, H* or any HU elective (3)	3
Electives			6
SB elective			3
Total			15

Spring

PUP	301	Introduction to Urban Planning *L* or elective	3
Electives			6
Free elective			1
SQ or SG elective			4
Total			14
Preprofessional program total			60

* Transfer credits are reviewed by the college and evaluated as applicable to this curriculum. To be applicable, transfer courses must be equivalent in both content and level of offering.

The first round of admission to the upper-division takes place after the spring semester of the second year. The second round, if needed, takes place after the summer semester.

Bachelor of Science in Planning,
Major in Urban Planning
Professional Program Requirements

Third Year

Fall

PUP	301	Introduction to Urban Planning *L* or Elective (if PUP 301 already taken)	3
PUP	361	Introductory Urban Planning Studio	4
PUP	424	Planning Methods	4
Approved statistics or quantitative reasoning *CS*			3
Minimum total			14

Spring

PUP	363	History of Planning	3
PUP	420	Theory of Urban Design *HU*	3
PUP	436	City Structure and Planning	3
Approved program electives*			6
Total			15

Summer

PUP	484	Internship or PUP 484 Study Abroad (3) or PUP 485 International Field Studies in Planning *G* (3) or approved program elective* (3)	3
Total			3

Fourth Year

Fall

PUP	432	Planning and Development Control Law	3
PUP	433	Zoning Ordinances, Subdivision Regulations, and Building Codes	3
PUP	442	Environmental Planning	3
PUP	452	Ethics and Theory in Planning *L*	3
Approved program elective*			3
Total			15

Spring

PUP	434	Urban Land Economics	3
PUP	462	Advanced Urban Planning Studio	4
PUP	510	Citizen Participation	3

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Approved program elective* 3
Total 13
Professional program total 60
BSP minimum total 120

* Approved program elective: Select a minimum of four classes (12 semester hours) from the approved SOP list.

Housing and Urban Development

The Bachelor of Science in Design degree in Housing and Urban Development requires a total of 120 semester hours.

Preprofessional program courses 60
Professional program courses core 60
Total 120

General Studies Requirements. The following curriculum includes sufficient approved course work to fulfill the General Studies requirement. See "General Studies," page 93, for requirements and a list of approved courses.

Graduation Requirements. In addition to fulfilling college and major requirements, students must meet all university graduation and college degree requirements. See "University Graduation Requirements," page 89, and "College Degree Requirements," page 315.

Bachelor of Science in Design,
Major in Housing and Urban Development
Preprofessional Program Requirements[1]

First Year

Fall

ENG 101 First-Year Composition 3
or ENG 105 Advanced First-Year Composition (3)
HUD 161 Graphic Communication 3
Elective 3
MA elective 3
SB elective 3
Total 15

Spring

ENG 102 First-Year Composition 3
HUD 201 Introduction to Housing and Urban Development 3
HU, H elective 3
SB elective 3
SG or SQ elective 4
Total 16

Second Year

Fall

ALA 200 Introduction to Architecture *HU, G* 3
or any CAED history course (3)[2]
CON 252 Building Construction Methods, Materials, and Equipment 3
Elective 3
C elective 3
CS statistics elective 3
Total 15

Spring

ACC 230 Uses of Accounting Information I 3
Free elective 1
HU or SB upper-division elective 3
L elective 3
SQ elective 4
Total 14

Preprofessional program total 60

[1] Transfer credits are reviewed by the college and evaluated as admissible to this curriculum. To be admissible, transfer courses must be equivalent in both content and level of offering.

[2] See "College of Design History Courses," on this page. If the selected course does not also satisfy the G requirement, the student must select a course that does satisfy the G requirement either as an elective, or in conjunction with another General Studies course.

College of Design History Courses. These College of Design history courses also fulfill HU. See the course listings for prerequisites.

APH 300 World Architecture I/Western Cultures *HU, G* 3
APH 305 Contemporary Architecture *HU, H* 3
APH 313 History of Architecture I *L/HU, G, H* 3
APH 446 20th-Century Architecture I *HU* 3
DSC 101 Design Awareness *HU, G* 3
GRA 111 Graphic Design History I *HU* 3
GRA 112 Graphic Design History II 3
IND 316 20th-Century Design I *HU, H* 3
IND 317 20th-Century Design II *HU, H* 3
INT 111 Interior Design Issues and Theories *HU* 3
INT 310 History of Interior Design I *HU, H* 3
INT 311 History of Interior Design II *HU, H* 3
INT 412 History of Decorative Arts in Interiors *HU* 3
PUP 200 The Planned Environment *HU, H* 3
PUP 420 Theory of Urban Design *HU* 3

Bachelor of Science in Design,
Major in Housing and Urban Development
Professional Program Requirements

Third Year

Fall

CON 383 Construction Estimating 4
HUD 301 Housing and Community Design and Development 3
HUD 361 Housing and Urban Development Studio I: Residential Design and Development 2
HUD 363 Housing and Urban Development Seminar I: Residential Design and Development 3
REA elective course 3
Total 15

Spring

CON 389 Construction Cost Accounting and Control *CS* 3
HUD 302 Housing Production Process 3
HUD 362 Housing and Urban Development Studio II: Community Design and Development 2
HUD 364 Housing and Urban Development Seminar II: Community Design and Development 3
HUD 403 Advanced Topics in Housing and Urban Development 3
Elective 3
Total 17

Fourth Year

Fall

CON 495 Construction Planning and Scheduling *CS* 3
HUD 401 Assisted Housing 3

HUD 461 Housing and Urban Development Studio III: Comprehensive Housing Development Process 2
HUD 463 Housing and Urban Development Seminar III: Comprehensive Housing Development Process 3
PUP 452 Ethics and Theory in Planning *L*.....3
Total 14

Spring
HUD 402 Community Revitalization: Problems and Strategies 3
HUD 462 Housing and Urban Development Studio IV: Neighborhood Revitalization Process.....2
HUD 464 Housing and Urban Development Seminar IV: Neighborhood Revitalization Process.....3
PUP 433 Zoning Ordinances, Subdivision Regulations, and Building Codes 3
or PUP 432 Planning and Development Control Law (3)
Elective.....3
Total 14
Professional program total 60
BSD-HUD minimum total 120

INQUIRIES

For more information, call a college academic advisor at 480/965-3584, send e-mail to caed.advising@asu.edu, or write

ACADEMIC ADVISING/STUDENT SERVICES OFFICE
COLLEGE OF DESIGN
ARIZONA STATE UNIVERSITY
PO BOX 871905
TEMPE AZ 85287-1905

HOUSING AND URBAN DEVELOPMENT (HUD)

M HUD 161 Graphic Communication. (3)
fall or spring
Develops drawing skills and understanding of the graphic communication systems used by planning, homebuilding, and landscape architecture professions. Studio. Cross-listed as PLA 161/PUP 161. Credit is allowed for only HUD 161 or PLA 161 or PUP 161.

M HUD 201 Introduction to Housing and Urban Development. (3)
spring
Perspectives and issues concerning HUD. Guest lectures by interdisciplinary faculty and private, public, and nonprofit practitioners.

M HUD 301 Housing and Community Design and Development. (3)
fall
Single- and multifamily housing, residential neighborhoods, and planned communities. Affordability in owner-occupied and rental housing. First-time, move-up, and adult markets.

M HUD 302 Housing Production Process. (3)
spring
Development feasibility analysis, finance, contracts, land acquisition, community and permit presentation and negotiation, scheduling, cost control, marketing, and sales.

M HUD 361 Housing and Urban Development Studio I: Residential Design and Development. (2)
fall
Affordable residential design, development, and production process. Studio. Pre- or corequisites: HUD 301, 363; upper-division HUD major.

M HUD 362 Housing and Urban Development Studio II: Community Design and Development. (2)
spring
Neighborhood and new community design and development process. Studio. Pre- or corequisites: HUD 301, 361, 363, 364; upper-division HUD major.

M HUD 363 Housing and Urban Development Seminar I: Residential Design and Development. (3)
fall
Affordable residential design, development, and production process. Seminar. Pre- or corequisites: HUD 301, 361; upper-division HUD major.

M HUD 364 Housing and Urban Development Seminar II: Community Design and Development. (3)
spring
Neighborhood and new community design and development process. Seminar. Pre- or corequisites: HUD 301, 361, 362, 363; upper-division HUD major.

M HUD 401 Assisted Housing. (3)
fall
Publicly subsidized and nonprofit housing. Policy, implementation, and administration. FHA, Section 8, FmHA, projects and scatter site, and tax considerations.

M HUD 402 Community Revitalization: Problems and Strategies. (3)
spring
Public policy and strategies for neighborhood revitalization and community renewal. Preservation and adaptive reuse, gentrification, neighborhood safety, and related socioeconomic concerns.

M HUD 403 Advanced Topics in Housing and Urban Development. (3)
fall and spring
Varying topics, such as manufactured housing, homelessness, mortgage and finance in housing, housing abroad, marketing housing, and sustainable community development.

M HUD 461 Housing and Urban Development Studio III: Comprehensive Housing Development Process. (2)
fall
Comprehensive development process simulation. Feasibility analysis, finance, design, community and permit presentation, construction, cost management, and marketing. Studio. Pre- or corequisites: HUD 302, 463; upper-division HUD major.

M HUD 462 Housing and Urban Development Studio IV: Neighborhood Revitalization Process. (2)
spring
Housing rehabilitation, neighborhood revitalization, and urban infill. CDBG, empowerment-enterprise zoning, code enforcement, citizen participation, etc. Studio. Pre- or corequisites: HUD 401, 402, 464; upper-division HUD major.

M HUD 463 Housing and Urban Development Seminar III: Comprehensive Housing Development Process. (3)
fall
Comprehensive development process simulation. Feasibility analysis, finance, design, community and permit presentation, construction and cost management, and marketing. Seminar. Pre- or corequisites: HUD 302, 461; upper-division HUD major.

M HUD 464 Housing and Urban Development Seminar IV: Neighborhood Revitalization Process. (3)
spring
Housing rehabilitation, neighborhood revitalization, and urban infill. CDBG, empowerment-enterprise zoning, code enforcement, citizen participation, etc. Seminar. Pre- or corequisites: HUD 401, 402, 462; upper-division HUD major.

M HUD 484 Internship. (1)
summer

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

URBAN AND ENVIRONMENTAL PLANNING (PUP)

M PUP 100 Introduction to Environmental Design. (3)
fall and spring
Survey of environmental design: includes historic examples and the theoretical, social, technical, and environmental forces that shape

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

them. Cross-listed as ALA 100. Credit is allowed for only ALA 100 or PUP 100.
General Studies: HU, G, H

M PUP 161 Graphic Communication. (3)
fall or spring
Develops drawing skills and understanding of the graphic communication systems used by planning, home building, and landscape architecture professions. Studio. Cross-listed as HUD 161/ PLA 161. Credit is allowed for only HUD 161 or PLA 161 or PUP 161.

M PUP 190 Sustainable Cities. (3)
fall
Introduces technological, social, and cultural principles and innovations for cities under the notion of sustainability and sustainable development within the global, regional, and local contexts. Lecture, online.
General Studies: HU/SB, G

M PUP 200 The Planned Environment. (3)
fall
Environmental, aesthetic, social, economic, political, and other factors influencing urban development.
General Studies: HU, H

M PUP 261 Urban Planning I. (4)
fall
Planning communication: communication techniques for urban planning and landscape architecture communication. Credit is allowed only for PUP 261 or PLA 261. Prerequisite: PUP 161 (or its equivalent).

M PUP 262 Urban Planning II. (4)
spring
Reading the landscape: observing, experiencing, and graphically expressing the symbolic and aesthetic significance of natural landscapes. Studio. Prerequisite: PUP 261.

M PUP 301 Introduction to Urban Planning. (3)
fall, spring, summer
Theoretical and practical aspects of city planning. Interrelationships among physical planning, environment, government, and society.
General Studies: L

M PUP 322 Computers in Planning. (3)
fall
Planning methods using Geographic Information Systems, database, spreadsheet, image manipulation, and desktop publishing computer software packages. Lecture, lab.

M PUP 361 Introductory Urban Planning Studio. (4)
fall
Basic site planning and design techniques. Collection and analysis of information and basic planning research. Report writing and public presentation skills. Studio. Fee. Prerequisite: upper-division BSP majors.

M PUP 362 Urban Planning III. (4)
spring
Neighborhood planning: local community plan making; urban development and neighborhood improvement. Studio. Fee. Prerequisite: PUP 361 or instructor approval.

M PUP 363 History of Planning. (3)
spring
Historical overview of western urban and regional planning and planning theory, focusing on the 19th and 20th centuries. Prerequisite: College of Design junior standing.

M PUP 412 History of the City. (3)
fall
The city from its ancient origins to the present day. Emphasizes European and American cities during the last five centuries. Cross-listed as APH 414. Credit is allowed for only APH 414 or PUP 412. Prerequisite: College of Design junior standing.
General Studies: H

M PUP 420 Theory of Urban Design. (3)
spring
Analyzes the visual and cultural aspects of urban design. Theories and techniques applied to selected study models. Prerequisite: junior standing.
General Studies: HU

M PUP 424 Planning Methods. (4)
fall
Methods for urban planning research. Emphasizes research design, quantitative and qualitative methods, survey research, and data analysis. Studio. Pre- or corequisites: PUP 301; junior standing.

M PUP 425 Urban Housing Analysis. (3)
fall
Methods for urban planning research. Emphasizes research design, quantitative and qualitative methods, survey research, and data analysis. Prerequisite: junior standing. Pre- or corequisite: PUP 301.

M PUP 430 Transportation Planning and the Environment. (3)
spring
Overview of transportation planning from the perspective of land use planning, economic development, environmental planning, and social needs. Lecture, discussion. Prerequisite: junior standing or instructor approval.

M PUP 432 Planning and Development Control Law. (3)
fall
Case studies on police power, eminent domain, zoning, subdivision controls, exclusion, preservation, urban redevelopment, and aesthetic and design regulation. Prerequisite: admission to upper division or Construction major or instructor approval.

M PUP 433 Zoning Ordinances, Subdivision Regulations, and Building Codes. (3)
fall and spring
Analyzes zoning ordinances, subdivision regulations, building codes, and other planning implementation techniques relative to local development. Prerequisite: upper-division BSP, HUD, or Environmental Planning major.

M PUP 434 Urban Land Economics. (3)
spring
Interaction between space and economic behavior. Examines the use and value of land through economic theories. Prerequisite: admission to upper division or instructor approval.

M PUP 436 City Structure and Planning. (3)
spring
Political structure and organization of government as it relates to planning. Prerequisites: PUP 301; junior standing.

M PUP 442 Environmental Planning. (3)
fall
Environmental planning problems, including floodplains, water quality and quantity, solid and hazardous waste, air quality, landslides, and noise. Field trips. Prerequisites: PUP 301; junior standing.

M PUP 444 Preservation Planning. (3)
spring
History, theory, and principles of historic preservation. Emphasizes legal framework and methods practiced. Prerequisite: junior standing.

M PUP 445 Women and Environments. (3)
fall
Examines the role women play in shaping the built environment; ways built/natural forms affect women's lives. Focuses on contemporary U.S. examples. Prerequisite: junior standing.
General Studies: C

M PUP 452 Ethics and Theory in Planning. (3)
fall
Ethics and theory of professional planning practice in urban and regional communities. Prerequisite: admission to upper division or instructor approval.
General Studies: L

M PUP 461 Urban Planning IV. (4)
fall
Comprehensive planning: collection and analysis of economic, social, and environmental data relevant to urban planning; development of land-use plans. Studio. Fee. Prerequisite: PLA 362 or PUP 362 or instructor approval.

M PUP 462 Advanced Urban Planning Studio. (4)
spring
Comprehensive planning. Synthesis of complex data- and community-based analyses. Advanced report writing and public presentation skills. Studio. Fee. Prerequisite: upper-division BSP. Prerequisite with a grade of "C" or higher: PUP 361.

M PUP 475 Environmental Impact Assessment. (3)
spring
Criteria and methods for compliance with environmental laws; development of skills and techniques needed to prepare environmental impact statements/assessments.

M PUP 484 Internship. (1–12)
fall, spring, summer session 1
Full-time internship under the supervision of practitioners in the Phoenix area or other locale. Credit/no credit. Topics may include the following:
• Study Abroad. (3)
Prerequisite: school major or instructor approval.

M PUP 485 International Field Studies in Planning. (1–12)
summer
Organized field study of planning in specified international locations. May be repeated for credit with school approval. Study abroad, field trip. Cross-listed as PLA 485. Credit is allowed for only PLA 485 or PUP 485.
General Studies: G (3 hours must be taken to secure G credit.)

M PUP 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
• Environmental Planning Economics. (3)
Prerequisite: junior standing.

M PUP 498 Pro-Seminar. (1–7)
fall
Topics may include the following:
• Senior Pro-Seminar. (1)

M PUP 501 The Idea of Planning. (3)
fall
Comprehensive review of planning profession within a political, governmental, multicultural, and gender framework.

M PUP 510 Citizen Participation. (3)
spring
Theory and practice of citizen participation in planning. Examines and critiques participation techniques and roles of planners. Prerequisite: upper-division BSP, HUD, or Master of Urban and Environmental Design major.

M PUP 520 Planning Theories and Processes. (3)
fall
Reviews past and current theoretical developments related to social change perspectives, the role and ethics of planners. Prerequisite: instructor approval.

M PUP 524 Planning Methods I. (3)
fall
Methods for urban planning research. Emphasizes research design, demographic analysis, forecasting, and survey research. Pre- or corequisite: PUP 501.

M PUP 525 Urban Housing Analysis. (3)
fall
Nature, dimensions, and problems of urban housing, government policy environment, and underlying economics of the housing market.

M PUP 526 Historic Preservation Planning Practice. (3)
spring
In-depth study of practical applications of historic preservation theory and methods. Overview of the professional work of the preservation field. Prerequisite: PUP 444 recommended.

M PUP 531 Planning and Development Control Law. (3)
spring
Case studies on police power, eminent domain, zoning, subdivision controls, exclusion, preservation, urban redevelopment, and aesthetic and design regulation.

M PUP 532 Advanced Urban Planning Law. (3)
spring
Advanced study on selected issues in planning law, such as urban design controls, exclusionary practices, compensable regulation, and tax policy. Prerequisite: PUP 432 or instructor approval.

M PUP 535 Water Law and Planning. (3)
spring
In-depth study of legal materials providing substantive knowledge of water law, water management issues, and land use planning options. Cross-listed as GPH 535. Credit is allowed for only PUP 535 or GPH 535.

M PUP 541 Economics of Environmental Planning. (3)
spring
Application and limitations of economics in environmental planning and policy making in the United States and internationally. Prerequisite: economics or microeconomics course recommended.

M PUP 542 Environmental Administration and Planning. (3)
spring
Environmental administration of policies and their relationship to environmental planning practices. Prerequisite: PUP 442.

M PUP 544 Urban Land Use Planning. (3)
spring
Theory and methods of urban land use planning, including the rational planning process, comprehensive, functional, and neighborhood plans. Pre- or corequisite: PUP 501 or instructor approval.

M PUP 546 Urban Design Policy. (3)
selected semesters
Advanced study of local, state, and federal urban design policy. Prerequisite: PLA 420 or PUP 420.

M PUP 548 Planning for Urban Environmental Sustainability. (3)
fall
Theory and applications connecting sustainability sciences and practice to urban environmental planning. Sustainable urban development, restoration, and preservation.

M PUP 550 Transportation and the Environment. (3)
spring
Examines transportation planning from the perspectives of land use planning, economic development, environmental planning, and social needs.

M PUP 561 Urban Design Studio. (4)
selected semesters
Current urban form and urban landscape design problems within the Phoenix-centered region. Studio.

M PUP 572 Planning Studio I: Data Inventory and Analysis. (4)
fall
Comprehensive planning workshop dealing with real community problems. Focuses on the data gathering and analysis steps of the planning process. Fee. Prerequisite: Master of Environmental Planning major or instructor approval.

M PUP 574 Planning Studio II: Options and Implementation. (4)
spring
Comprehensive planning workshop dealing with real community problems. Focuses on the development of options, plan making, and plan implementation. Studio. Fee. Prerequisite: PUP 572 or instructor approval.

M PUP 575 Environmental Impact Assessment. (3)
spring
Criteria and methods for compliance with environmental laws; develops skills and techniques needed to prepare environmental impact statements/assessments.

M PUP 576 GIS Studio. (3)
spring
GIS as a tool to address large, multifaceted planning problems. Prerequisites: a combination of GPH 373 (or 598) and PAF 591 and PUP 322 or only instructor approval.

M PUP 580 Practicum. (1–12)
fall, spring, summer
Topics may include the following:
• Capstone Studio/Workshop. (5)
Comprehensive planning workshop dealing with real community problems. Focuses on integrative real-world planning applications culminating in a professional report.

M PUP 584 Internship. (3)
fall, spring, summer session 1
Internship under the supervision of practitioners in the Phoenix area or other locales. Credit/no credit.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M PUP 591 Seminar. (1–12)
fall and spring
Topics may include the following:
- Transportation Systems Pro-Seminar

M PUP 593 Applied Project. (1–12)
fall, spring, summer
Topics may include the following:
- Professional Project. (5)
  Applies advanced planning techniques and methodology to a specific, real-world planning issue, with a specified client.

M PUP 598 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Transportation Planning and the Environment

M PUP 599 Thesis. (5)
fall, spring, summer
Creative, scholarly work developed from independent inquiry involving a substantial body of original research. Fee.

M PUP 622 Planning Methods II: Quantitative Planning Analysis. (3)
spring
Methods and models used as the basic quantitative techniques of urban, regional, and environmental planning and policy analysis. Prerequisites: PUP 524; a course in statistics; instructor approval.

M PUP 642 Land Economics. (3)
fall
Land use and locational impact of economic activity and the urban real property market. Prerequisite: instructor approval.

M PUP 644 Public Sector Planning. (3)
spring
Urban fiscal problems and public goods provision in state and local governments. Prerequisites: a course in microeconomics; instructor approval.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Department of Visual Communication Design

www.asu.edu/caed/SOD
480/965-8947
AED 162

Mookesh Patel, Chair

Associate Professors: Patel, Sanft

Assistant Professors: Brungart, Schoenhoff

Clinical Associate Professor: Weed

ORGANIZATION

Programs in the Department of Visual Communication Design are organized by the faculty of the department under the direction and administration of the chair, and standing committees of the faculty.

DEGREES

The faculty in the Department of Visual Communication Design offers the Bachelor of Science in Design degree with a major in Graphic Design.

GRAPHIC DESIGN

The Graphic Design program places an emphasis on strategic communication developed through a design process that includes research, analysis, conceptualization, planning, and realization. The process leads to innovative visual communication design solutions for contemporary design problems that are local to global in scope.

Students integrate design theories and methodologies, cultural and contextual studies, environmental and human factors, traditional and contemporary technologies, and visual aesthetics to develop comprehensive design strategies. These strategies are then employed to give experiential and interactive form to physical artifacts (books, brochures, packaging, etc.), virtual artifacts (Web sites, CD-ROMs, kiosks, interfaces, etc.), and environments (exhibits, sign systems, etc.) Faculty professes the objective of valuable and appropriate graphic design that informs, educates, directs, and communicates effectively.

Studio projects prepare students not only for the graphic design profession but also for graduate studies. Studio projects allow students to think critically, both as individuals and as members of multidisciplinary teams. Some Graphic Design students collaborate with Industrial Design students and participate in a program that focuses on integrated innovation, an educational initiative that provides an interdisciplinary experience with academic partners in the schools of business and engineering at ASU. Third-year students perform internships either in a corporation or a consulting firm. Fourth-year students complete their undergraduate studies with a public exhibition, a unique tradition that has earned professional admiration for more than a decade.

Based on a very diversified portfolio upon graduation, students opting for the graphic design profession gain employment in brand and corporate identity, interaction and interface design, broadcast (TV graphics), museum/exhibit, publication, and advertising. Students may also pursue graduate studies leading to careers in design education and other fields of professional endeavor in design. The Graphic Design program is actively involved with the American Institute of Graphic Arts, playing a critical role in the development and facilitation of national and regional initiatives.

Students interested in videography, video games, animation/ film production, cartoon design, illustration, styling, and photography should consult with the School of Art.

MINORS

Design Studies

Students interested in design who do not wish to major in graphic design can earn a minor in Design Studies. The courses may also appeal to students not accepted to the upper-division of graphic design but who wish to pursue the study of design within the Bachelor of Interdisciplinary Studies degree.

Courses selected must satisfy the minimum requirement of 18 semester hours for the minor. In addition, student must take 12 semester hours in upper-division course work.

To enhance understanding of the subject matter, some of the designated courses are sequential in nature and require certain prerequisites. Consequently, students should carefully note the semester in which these particular courses are

offered. All designated courses for the minor in design studies are lecture courses.

To pursue the minor in Design Studies, students must have a minimum cumulative GPA of 2.50.

Designated Courses for the Minor

Design

DSC 101 Design Awareness *HU, G* 3
DSC 236 Introduction to Computer Modeling *CS* 3
GRA 440 Finding Purpose 3

Graphic Design

GRA 111 Graphic Design History I *HU* 3
GRA 112 Graphic Design History II 3
GRA 225 Communication/Interaction Design Theory 3
GRA 345 Design Rhetoric *L* 3

Industrial Design

IND 236 Introduction to Computer Modeling for Industrial Design 3
IND 242 Materials and Design 3
IND 243 Process and Design 3
IND 316 20th-Century Design I *HU, H* 3
IND 317 20th-Century Design II *HU, H* 3
IND 344 Human Factors in Design 3
IND 354 Principles of Product Design 3
IND 470 Professional Practice for Industrial Design *L* 3

Interior Design

INT 111 Interior Design Issues and Theories *HU* 3
INT 121 Introduction to Computer Modeling for Interior Design *CS* 3
INT 131 Design and Human Behavior *SB* 3
INT 238 Introduction to Computer-Aided Design of Built Environments 3
INT 310 History of Interior Design I *HU, H* 3
INT 311 History of Interior Design II *HU, H* 3
INT 412 History of Decorative Arts in Interiors *HU* 3
INT 413 History of Textiles in Interior Design 3

BIS CONCENTRATIONS

A concentration in design studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

GRADUATE PROGRAMS

The College of Design offers a Master of Science in Design (MSD) degree with concentrations in industrial design, interior design, and graphic design. The faculty also participates in a collegewide, interdisciplinary PhD degree in Environmental Design and Planning with concentrations in design; history, theory, and criticism; and planning. For more information, see the *Graduate Catalog*.

ADMISSION

Lower-Division Program. New and transfer students who have been admitted to the university and who have selected Graphic Design as a major are admitted to the lower-division program. Transfer credits for the lower-division program are reviewed by the college and evaluated for applicability to this curriculum. To be applicable, transfer courses must be equivalent in both content and level of offering. A review of samples of work is required for studio classes. Consult a college academic advisor for further information.

Completion of lower-division requirements does not ensure acceptance to an upper-division professional program.

Upper-Division Program. When students have completed the lower-division curriculum requirements, they may apply for acceptance to the upper-division program in Graphic Design. The limited spaces available each year are awarded to applicants with the highest promise for professional success, as determined by each program. The faculty of the Department of Visual Communication Design retains the right to admit any meritorious student who may be deficient in a published department criterion. Such admission requires an extraordinary review of the applicant by the program's admissions committee. Should the faculty choose to admit such an applicant, the student is placed automatically on a provisional admission status with stipulations as to what is required to be removed from probation. See "Application to Upper-Division Programs," on this page.

Students not admitted to upper-division programs are not dismissed from the university and may reapply or transfer to other programs. Students who intend to reapply should meet with a college academic advisor.

APPLICATION TO UPPER-DIVISION PROGRAMS

Upper-Division Application Procedures. Students should write to a college academic advisor for the application form well in advance of the application deadline. For more information on portfolios, students should ask a college academic advisor for a copy of the application and portfolio guidelines. The following dates and procedures are for students applying to 2007–2008 upper-division programs.

Upper-Division Application Deadlines. The following dates and procedures apply to the Graphic Design program.

April 16, 2007. Portfolio and application documents are due in AED 162 by 5 P.M.

June 1, 2007. If the spring 2007 semester includes transfer course work (i.e., course work taken at an institution other than ASU), a student must submit his or her transcripts to the Academic Advising/Student Services office, ARCH 115, no later than June 1. These transcripts may be unofficial copies. A second set of official transcripts must be sent to the University Registrar's office. Application is not complete until the university receives official transcripts for transfer course work. For those transfer students whose academic term ends in June rather than May, this deadline may be extended upon the written request of the applicant.

July 2, 2007. Acceptance notices are mailed no later than July 2.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Return of Letter of Acceptance. A signed receipt of acceptance of admission must be received by the school by the date indicated on the Notice of Acceptance. Alternates may be accepted at a later date if space becomes available.

Matriculation. An accepted student is expected to begin his or her upper-division professional program at the beginning of the immediate fall term. There is no spring admission to the upper-division program, and deferrals are not allowed.

Graphic Design Application Requirements. Individual applicants are responsible for obtaining the Graphic Design Application Packet by visiting the College of Design Academic Advising Office in ARCH 115. Application materials are submitted in a portfolio organized by the individual applicant. The student's name must be affixed to the outside, with completed materials appearing in the following order:

1. application to the Graphic Design upper-division program;
2. "Commonly Asked Questions" form; and
3. the Graphic Design Aptitude Test.

The packet contains complete instructions for completing the standard test. This test requires the completion of five problems, which are reviewed by the faculty and which become part of the portfolio of materials considered for admission to the upper-division program.

Return of Portfolios. Application documents (pages 1 to 5) remain the property of the College of Design. However, the remainder of the portfolio is returned after the admissions review, provided the applicant encloses a self-addressed return mailer with sufficient prepaid postage. Portfolios may be claimed in person after July 2, 2007. If the applicant provides written permission, another person may claim the portfolio. After one year, unclaimed portfolios are discarded. While care is taken in handling the portfolios, no liability for lost or damaged materials is assumed by the college or school.

ADVISING

Advising for the lower-division curricula is through a college academic advisor in ARCH 115. Advising for the upper-division curricula is provided by the department's academic advisor in AED 162.

DEGREE REQUIREMENTS

The Bachelor of Science in Design degree requires a minimum of 120 semester hours for a major in Graphic Design. The program may include required field trips. Students are responsible for these additional costs. Foreign study opportunities are available for students. An internship is a required part of the program.

Graphic Design

The curriculum in Graphic Design is divided into a preprofessional (first and second years) and a professional program (third and fourth years):

Preprofessional program	61
Professional program	59
Total	120

The preprofessional curriculum balances a foundation in academic subjects such as English, numeracy, and psychology with design courses that include history and theory, as well as studio courses in drawing and design fundamentals as they relate to conceptual design. Students apply for entry into the professional program after fulfilling two years of the preprofessional program. The upper-division curriculum includes studio work in graphic design and its relationship to problem solving at multiple scales. Projects are intended to educate students to think critically as individuals and as team participants in small and large corporate facilities. A formal eight-week summer internship is required in the professional program. The internship is coordinated by the faculty. Students intern in a variety of settings, including in-house corporate design, publication design, and advertising design agencies.

General Studies Requirement. The following curriculum includes sufficient approved course work to fulfill the General Studies requirement. See "General Studies," page 93, for requirements and a list of approved courses. Note that all three General Studies awareness areas are required. Consult an advisor for an approved list of courses.

Graduation Requirements. In addition to fulfilling college and major requirements for this degree, students must meet all university graduation and college degree requirements. See "University Graduation Requirements," page 89, and "College Degree Requirements," page 315.

Graphic Design—BSD

First Year

Fall

DSC	101	Design Awareness *HU, G*	3
ENG	101	First-Year Composition	3
		or ENG 105 Advanced First-Year Composition if qualified (3)	
GRA	111	Graphic Design History I *HU*	3
GRA	121	Principles for Graphic Design I*	3
MA elective			3
Total			15

Spring

ARS	102	Art from Renaissance to Present *HU, H*	3
ENG	102	First-Year Composition	3
		or elective if ENG 105 is taken (3)	
GRA	112	Graphic Design History II	3
GRA	122	Principles for Graphic Design II*	3
Computer science elective			3
Total			15

Second Year

Fall

GRA	220	Design Drawing I*	3
GRA	221	Letterform*	3
GRA	222	Visual Communication I*	3
GRA	225	Communication/Interaction Design Theory	3
L, C elective			3
Total			15

Spring

GRA	223	Typography*	3
GRA	224	Visual Communication II*	3

PGS 101 Introduction to Psychology *SB* 3
Elective 3
SQ elective 4
Total 16

Preprofessional program total 61

Third Year

Fall
GRA 321 Technology for Design I 3
GRA 440 Finding Purpose 3
GRA 361 Visual Communication III* 5
SQ, SG elective 4
Total 15

Spring
GRA 322 Technology for Design II 3
GRA 345 Design Rhetoric *L* 3
GRA 362 Visual Communication IV* 5
SB upper-division elective 3
Total 14

Summer
GRA 484 Internship: Graphic Design 2
Total 2

Fourth Year

Fall
GRA 421 Exhibit Design 3
GRA 422 Motion Graphics and Interaction Design 3
GRA 461 Visual Communication V* 5
Cultural Awareness elective 3
Total 14

Spring
GRA 423 Advanced Interaction Design 3
GRA 424 Advanced Media 3
GRA 462 Visual Communication VI* 5
Elective 3
Total 14

Professional program total 59

BSD minimum total 120

* Transfer credits for the lower-division program must be equivalent in both content and level of offering. Samples of studio work to be accepted for credit must be submitted for evaluation through the college's Academic Advising Office, ARCH 115. Most studio courses and some lecture courses are sequential. They must be taken in, and may be offered only during, the semester noted.

INQUIRIES

For more information, call a college academic advisor at 480/965-3584, send e-mail to caed.advising@asu.edu, or write

ACADEMIC ADVISING/STUDENT SERVICES OFFICE
COLLEGE OF DESIGN
ARIZONA STATE UNIVERSITY
PO BOX 871905
TEMPE AZ 85287-1905

GRAPHIC DESIGN (GRA)

M GRA 481 Visual Communication V. (3)
Effective through fall 2006
Studio problems with emphasis on analysis, problem solving, and professional portfolio preparation. 6 hours a week. Fee.

M GRA 482 Visual Communication VI. (3)
Effective through spring 2007
Individual and group projects with outside clients. All projects culminate in an exhibit. 6 hours a week. Fee. Prerequisite: GRA 481.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

GRAPHIC DESIGN (GRA)
New Curriculum
Effective Fall 2004

M GRA 111 Graphic Design History I. (3)
fall
Surveys development of visual communication from its origins to the 20th century. Investigates significant technological, industrial, and social influences.
General Studies: HU

M GRA 112 Graphic Design History II. (3)
spring
Surveys contemporary and 20th-century graphic design. Investigates relationships between gra[phic design and related disciplines, technological, industrial, and social influences. Prerequisite: GRA 111.

M GRA 121 Principles for Graphic Design I. (3)
fall
Graphic design as a language and process for creative thinking and realization. Studio. Prerequisite: Graphic Design major. Corequisite for Graphic Design majors: GRA 111.

M GRA 122 Principles for Graphic Design II. (3)
spring
Continued exploration of graphic design as a language and process for creative thinking and realization. Studio. Prerequisite: GRA 121. Corequisite for Graphic Design majors: GRA 112.

M GRA 194 Special Topics. (1–4)
selected semesters

M GRA 220 Design Drawing I. (3)
fall
Drawing as language to explore and communicate ideas. Development of drawing aptitude as language and process for graphic design thinking. Studio. Prerequisite: GRA 122.

M GRA 221 Letterform. (3)
fall
Drawing of letterforms with focus on proportion and structure. Introduces letterform nomenclature and classifications. 6 hours a week. Fee. Prerequisites: GRA 122. Corequisite: GRA 222.

M GRA 222 Visual Communication I. (3)
fall
Theoretical and applied studies in shape, drawing, and color. 6 hours a week. Fee. Prerequisite: GRA 122. Corequisite: GRA 221.

M GRA 223 Typography. (3)
spring
Theoretical exercises in spatial and textural qualities of type. Problems in tension, activation, and balance. Exercises in simple typographical applications. 6 hours a week. Fee. Prerequisite: GRA 221. Corequisite: GRA 224.

M GRA 224 Visual Communication II. (3)
spring
Transition from theoretical to applied problems. Emphasizes refinement of visual skills. 6 hours a week. Fee. Prerequisite: GRA 222. Corequisite: GRA 223.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M GRA 225 Communication/Interaction Design Theory. (3)
fall
Theory related to the design of communication artifacts and interaction within various media environments. Prerequisite: GRA 122 or instructor approval.

M GRA 294 Special Topics. (1–4)
selected semesters

M GRA 321 Technology for Design I. (3)
fall
Explores the process of technology in design. Projects interface with GRA 361. Prerequisite: admission to upper-division program. Corequisite: GRA 361.

M GRA 322 Technology for Design II. (3)
spring
Emphasizes advanced technology in design problems. Projects interface with GRA 362. Prerequisite: GRA 321. Corequisite: GRA 362.

M GRA 345 Design Rhetoric. (3)
fall and spring
Develops critical thinking and expression of ideas in concise and persuasive written and spoken form. Prerequisites: ENG 101, 102.
General Studies: L

M GRA 361 Visual Communication III. (5)
fall
Explores methodologies of strategic communication, development of visual systems, and information design ideation processes leading to applied projects in print and digital media. Studio. Fee. Prerequisites: GRA 223, 224; admission to upper-division program. Corequisite: GRA 321.

M GRA 362 Visual Communication IV. (5)
spring
Comprehensive studio projects with emphasis on production processes leading to multidisciplinary applied projects in print, 3-D space, and digital media. Studio. Fee. Prerequisite: GRA 361. Corequisite: GRA 322.

M GRA 394 Special Topics. (1–4)
selected semesters

M GRA 421 Exhibit Design. (3)
fall
Familiarization with the processes associated with the design of exhibits, especially visual communication in 3-D. Studio. Prerequisite: GRA 362 or instructor approval.

M GRA 422 Motion Graphics and Interaction Design. (3)
fall
Discusses and explores theory related to the design of motion graphics and interaction through lectures and studio projects. Studio. Prerequisite: GRA 322 or instructor approval.

M GRA 423 Advanced Interaction Design. (3)
spring
Advanced discussion and exploration of theory related to the design of interaction. Prerequisite: GRA 422 or instructor approval.

M GRA 424 Advanced Media. (3)
spring
Advanced exploration of digital media for communication. Studio. Prerequisite: GRA 422. Corequisite for Graphic Design majors: GRA 462.

M GRA 440 Finding Purpose. (3)
fall and spring
Career orientation in the creative professions, including value clarification, decision making, lifestyle planning, goal setting, and expression of individual talents.

The College of Design offers seven undergraduate degree programs.

John Buchholz photo

M GRA 461 Visual Communication V. (5)
Effective fall 2007
Comprehensive studio projects with emphasis on design processes, including research, writing, critical thinking, practice, presentation, and analysis. Studio. Fee. Prerequisite: GRA 362.

M GRA 462 Visual Communication VI. (5)
Effective spring 2008
Comprehensive studio projects pursued in cooperation with a public organization or private enterprise. All projects culminate in an exhibit. Studio. Fee. Prerequisite: GRA 461.

M GRA 484 Internship: Graphic Design. (1–3)
Effective summer 2007
Full-time summer internship under supervision of practitioners in the Phoenix area or other locales. Students must register for GRA 484 in the fall semester following their summer internship. Prerequisite: GRA 362.

M GRA 494 Special Topics. (1–4)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

College of Education

coe.asu.edu

Eugene E. Garcia, PhD, Vice President for University-School Partnerships and Dean

PURPOSE

For students, choosing a professional college is an important step because it establishes the foundation on which a career will be built. The College of Education provides a stimulating, challenging forum where scholars and practitioners interact in the discovery and mastery of the science and art of educational endeavors. This balanced approach, in which research and practice are viewed as essential and complementary, enables the college to produce superior educators.

The purposes of the faculty of the College of Education are as follows:

1. to engage in the scholarly, scientific, and professional study of education;
2. to prepare competent professionals who will serve in a variety of critical educational roles;
3. to develop productive scholars who will make significant contributions to the educational literature and to the quality of educational practice; and
4. to serve the education profession at the local, national, and international levels.

In accord with these purposes, the College of Education is committed to producing quality scholarship and research and to excellence in teaching.

Information about the college can be found on the Web at coe.asu.edu.

ORGANIZATION

The College of Education is organized into three divisions. These divisions and their academic program areas are listed below.

Division of Curriculum and Instruction

The Initial Teacher Certification program is the largest program in the college, designed to prepare students for teaching positions in bilingual education, early childhood education, elementary education, English as a second language, secondary education, and special education. The program is a blend of on-campus and school-based methods courses. All programs involve professional school-based internships with experienced teachers. For specific program descriptions, see "Degrees," page 352.

Division of Educational Leadership and Policy Studies

Educational Administration and Supervision
Educational Policy Studies
Higher and Postsecondary Education
Social and Philosophical Foundations

Division of Psychology in Education

Counseling
Counseling Psychology
Counselor Education
Educational Psychology
  Learning
  Lifespan Developmental Psychology
  Measurement, Statistics, and Methodological Studies
  School Psychology
Educational Technology

In addition to divisions, administrative units and centers provide services to students and the community. These administrative units and centers are listed below.

Beginning Educator Support Team. Beginning Educator Support Team (BEST) is a quality research-based comprehensive teacher induction and mentoring program that promotes professional growth and development for the ultimate support of student learning. BEST partners with school districts and with individual teachers to provide support in strengthening effective teaching practices and aligning practice to the teaching standards. BEST includes four program components: BEST for Beginning Teachers, BEST Visitation Coaching, BEST Standards in Teaching and BEST for Mentor Teachers. For more information, call 480/965-4339, send e-mail to best@asu.edu, or access the Web site at coe.asu.edu/oss/best.

Bureau of Educational Research and Services. The Bureau of Educational Research and Services (BERS) is a liaison unit of the ASU College of Education. BERS is dedicated to fostering and connecting the human and material resources of the college to the needs in the field of education. BERS engages in information dissemination and service about transforming education and the roles of

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

learners and leaders. BERS provides professional development opportunities, seminars for superintendents, roundtable discussion groups, conference and meeting planning, consulting services, and executive search services. For more information, call 480/965-3538, or access the Web site at bers.asu.edu. BERS is located in ED 140.

Center for Indian Education. See "Center for Indian Education," page 42.

Counselor Training Center. The Counselor Training Center provides counseling for ASU students, staff, and the community at large regarding personal, relationship, and career development issues. Counseling is conducted by graduate students in counseling and counseling psychology under the supervision of licensed psychologists. For more information, call 480/965-5067, or access the Web site at coe.asu.edu/ctc.

CRESMET. See "Center for Research on Education in Science, Mathematics, Engineering, and Technology," page 39.

Education Policy Studies Laboratory. See "Education Policy Studies Laboratory," page 42.

Office of Professional Field Experiences. Part of the Division of Curriculum and Instruction, the Office of Professional Field Experiences places all teacher preparation students in public schools and similar institutions for internships and student teaching. To meet the requirements of school districts applicants to the Initial Teacher Certification programs are required to provide a copy of their fingerprint clearance from the Department of Public Safety. This office monitors students' progress in their field experiences, provides assistance for pre-service teachers who need intervention to improve performance, sponsors courses for mentor teachers, and conducts research on student teacher performance in the field. For more information, call 480/965-6255, or access the Web site at coe.asu.edu/pfe.

Office of Student Services. The Office of Student Services (OSS) is committed to providing a quality, service-oriented environment to promote the development and growth of the education community. The OSS assists undergraduate and postbaccalaureate students interested in entering and completing a teacher preparation program. Services offered by the OSS include high school outreach and recruitment, community college articulation and recruitment, a living and learning community in Manzanita Hall, academic advising, Initial Teacher Certification professional program admissions and retention, scholarships and financial aid, teacher placement, and certification assistance. Students should contact the OSS with questions regarding Declaration of Graduation, program agreements, student petitions, and the Arizona Educators Proficiency Assessment (AEPA) exam.

For more information about services, or to schedule an appointment with an advisor, call 480/965-5555, or access the Web site at coe.asu.edu/oss.

Southwest Center for Education Equity and Language Diversity. See "Southwest Center for Education Equity and Language Diversity," page 42.

Other Units. Other units within the college offering specialized research and educational services include the College of Education Preschool and Technology-Based Learning and Research. For more information about the preschool, call 480/965-2510, or access the Web site at asu.edu/educ/preschool. For more information about Technology-Based Learning and Research, call 480/965-3322, or access the Web site at tblr.ed.asu.edu.

TEACHER EDUCATION

Programs that prepare students for teacher certification by the state are available to both the undergraduate pursuing a first degree and the individual with a college degree in a noneducation field (postbaccalaureate).

Undergraduate students interested in teacher certification in art, music, or dance enroll through programs offered by the Katherine K. Herberger College of Fine Arts. These students must also meet the same eligibility requirements for admission to the Initial Teacher Certification (ITC) program for certification, and a formal application must be submitted to the ITC program. For more information, see "Initial Teacher Certification Professional Program Admission," on this page.

Undergraduate programs leading to the Bachelor of Arts in Education degree are described in the text that follows. Information about postbaccalaureate certification programs can be obtained by either visiting the Office of Student Services, EDB L1-13, or by accessing the Web site at coe.asu.edu/oss. For descriptions of graduate degree programs, see the *Graduate Catalog*. For more information, see the "College of Education Graduate Degrees and Majors," page 362.

ADMISSION

Preprofessional Admission

All newly admitted students to the ASU College of Education are admitted as preprofessional education majors. Preprofessional students are advised by a team of academic advisors whose primary focus is on preparing students for admission into the Initial Teacher Certification (ITC) program during their junior year. Admission to ASU with preprofessional status in the College of Education does not guarantee admission to the ITC program. Admission to the ITC is a separate, competitive process. Preprofessional students are strongly encouraged to meet each semester with the preprofessional team of advisors to ensure proper progression through their chosen major. It is crucial that all applicants seeking application to the ITC program gain valuable experience with the population of students they intend to teach; the Office of Student Services can provide information on various opportunities to gain such experience. To schedule an appointment with a preprofessional advisor, call 480/965-5555.

Initial Teacher Certification Professional Program Admission

Undergraduate students are eligible for admission consideration into the Initial Teacher Certification (ITC) program if they meet the following criteria:

1. They must have admission to the Tempe campus as a degree-seeking student. Application information is available at www.asu.edu/admissions. Students planning to begin the ITC program in the spring should submit ASU admission materials in May. Students planning to begin the ITC program in the fall should submit admission materials in October.
2. They must have a minimum 2.50 cumulative GPA (ASU GPA and transfer GPA combined) (verified one month before program start date).
3. They must have a minimum 2.50 cumulative ASU GPA by the time the student begins the ITC program (verified one month before program start date).
4. They must have completed at least 56 semester hours (verified one month before program start date).
5. They must have completed the following prerequisites (or be completing them): ENG 101 and 102, the Mathematics (MA) requirement, and the Literacy and Critical Inquiry (L) requirement or the Natural Science (SQ or SG) requirement. Proof of in-progress course work (transcripts) must be submitted within the student's ITC Application Portfolio. The above courses must be completed with grades of "C" (2.00) or higher by the time the student begins the ITC program (verified one month before program start date). For more information regarding courses that satisfy these requirements, consult with an Office of Student Services (OSS) advisor. Students from out-of-state institutions or students from outside of the Arizona public community college and university system need to have course equivalency approval before submitting an application.
6. They must have demonstrated experience with children/adolescents. Individuals who wish to become teachers need to have demonstrated a commitment to working with children in a way that helps children/adolescents learn a new skill, acquire knowledge, reinforce concepts, or expand their talents. The applicant's interactions with children/adolescents need to be observed by a supervisor and referred to in the letters of recommendation.
7. They must have a fingerprint clearance card (verified one month before the program start date).
8. They must have made formal application to the ITC program by February 1 for fall admission or September 1 for spring admission.

Note: Secondary Education students must complete a portion of their academic specialization before submitting application materials. See an advisor for more details.

Admission is a selective, competitive process and is not guaranteed to all who satisfy the minimum admission requirements. The ITC application is available online at coe.asu.edu/oss/admission before application deadlines.

Some ITC programs have additional admission requirements; consequently, students should consult with an OSS academic advisor as they prepare to apply to the ITC program of their choice, to verify what additional requirements must be met. Students may also attend an Initial Advising Session (IAS), offered through the OSS, to learn more about the ITC application and admission process. To schedule an IAS appointment, call the OSS at 480/965-5555.

Professional Program Application Deadlines

The College of Education has three admission cycles. Priority application deadlines for most ITC programs are February 1 for fall admission and September 1 for spring admission. An additional application deadline of June 1 applies to students seeking spring admission to the Apprentice Teacher Program (ATP) or fall admission to the Integrated Certification in Teacher Education (INCITE) and the Teacher Education and Certification Highway + Master in Education option (TEACH+ME) postbaccalaureate programs. Spring admission to INCITE follows the regular September 1 deadline. For the most updated admission dates, access the ITC admission Web site at coe.asu.edu/oss/admission.

Transfer Students

To be considered for admission to the ITC program, transfer students must first be formally admitted to ASU. For more information, see "Transfer Students or Readmission Students," page 67.

Note: Once students receive notification of ASU admission, all education transfer students must attend an Initial Advising Session (IAS) as their first step in securing academic advising from the college. These sessions are conducted by academic advisors and are provided in groups according to the student's desired degree program (early childhood, elementary, secondary, special education, multilingual/multicultural). During the IAS, students are given an overview of the various ITC programs available, application requirements are discussed, and individualized degree audits (through the Degree Audits Reporting System) are provided to each student. Course selection, degree requirements, and general education requirements are also covered during these sessions. To sign up for an IAS, call the Office of Student Services at 480/965-5555. ASU Undergraduate Admissions should receive the application for admission to ASU, transcripts, and other required information at least five months before the ITC application deadline for the desired ITC admission semester.

Students who are considering transferring to ASU and the College of Education, who are not yet committed to ASU as their school of choice, may schedule an appointment with the transfer recruitment specialist by calling 480/965-5555.

Transfer students from Arizona institutions should access the ASU Education Transfer guides for optimal course selection on the Web at asu.edu/provost/articulation.

Postbaccalaureate Students

Postbaccalaureate programs prepare students for certification by the state and are designed for those students who hold a bachelor's degree in an area other than education. The college offers postbaccalaureate programs in early childhood education, elementary education, multilingual/multicultural education, secondary education, and special

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

education. Information on postbaccalaureate programs is available through the Office of Student Services, EDB L1-13 (480/965-5555). The office provides academic advising and information regarding requirements, procedures, and deadline dates.

A student who wishes to be considered for admission to the ITC program must meet the following College of Education admission requirements for postbaccalaureate programs:

1. be admitted to ASU as a nondegree graduate student;
2. have earned a bachelor's degree from an accredited institution;
3. possess a junior/senior cumulative GPA of 2.50 or higher on a 4.00 scale; and
4. have submitted a completed application form and supporting materials by the appropriate deadline dates during the semester before admission.

Note: Students in the secondary education program must complete academic specialization requirements. Visit the Office of Student Services, EDB L1-13, for this form. INCITE applicants must submit passing scores on the Arizona Educator Proficiency Assessment subject knowledge portion at time of application. INCITE and TEACH+ME programs require concurrent admission to the Division of Graduate Studies. Applicants must also meet Division of Graduate Studies eligibility requirements.

Admission is competitive and not guaranteed to all who satisfy the minimum admission criteria.

Some academic units have additional requirements. Students seeking admission to ITC programs should consult the Office of Student Services in the College of Education (480/965-5555) to determine if there are additional admission requirements for their teaching fields.

Information on deadline dates and applications can be downloaded via the Web at coe.asu.edu/oss/admission.

ADVISING

All new students are required to meet with an academic advisor before registering for their first semester. To further assist and support freshmen in their first year, these students are also required to meet with an advisor before registering for their second semester. Each fall, freshmen are notified of "Welcome Week." Freshmen should take advantage of this time to meet with their advisors. This is an opportunity to consult with advisors regarding academic difficulties, avenues for student involvement in campus activities, and preparation of spring schedules. To schedule an appointment with an advisor, call 480/965-5555.

DEGREES

Bachelor of Arts in Education

The College of Education offers five Bachelor of Arts in Education (BAE) degree programs. See the "College of Education Baccalaureate Degrees and Majors" table, page 353, for more information on these degrees and their concentrations. Candidates for the BAE degree must complete the Initial Teacher Certification program in their major as offered by the College of Education. Graduates of this program demonstrate proficiency in specified knowledge areas or skills, including the following:

1. principles and application of effective instruction;
2. classroom organization and management;
3. content or subject matter;
4. specific curriculum and teaching strategies;
5. interrelationship of culture and schooling in a multicultural society;
6. human development;
7. communication skills;
8. theories of learning and motivation;
9. assessment and evaluation; and
10. computer literacy.

Initial Teacher Certification Programs

The Initial Teacher Certification (ITC) program is the largest program in the College of Education. It consists of the following areas of academic study: early childhood education, elementary education, secondary education, multilingual/multicultural education, and special education. Within these five degree areas, multiple teacher education programs exist in order to meet the diverse interests and circumstances of students. Students apply to one of the 12 ITC programs, based on their unique interests and needs. The ITC programs offered through the college are as follows:

1. Apprentice Teacher Program (ATP) (K–8);
2. Diné Teacher Education Program (DTEP) (K–8);
3. Early Childhood Interprofessional Program (ECD) (birth–grade 3);
4. Elementary Education Partnership Program (EEPP) (K–8);
5. Indigenous Teacher Preparation Program (ITP);
6. Integrated Certification in Teacher Education (INCITE) (secondary education—postbaccalaureate only);
7. Multilingual/Multicultural Education Program (MLMC) (K–8);
8. Secondary Education (SED) (7–12);
9. Special Education (SPE) (K–12);
10. Summer Certification Institute in Secondary Mathematics (SCISM) (7–12);
11. Teacher Education and Certification Highway + Masters in Education option (TEACH+ME) (elementary education—postbaccalaureate only); and
12. Teacher Education for Arizona Mathematics and Science (TEAMS) (secondary education—postbaccalaureate only).

For more information about these ITC programs, call 480/965-5555, or access the Office of Student Services Web site at coe.asu.edu/oss.

Apprentice Teacher Program. Apprentice Teacher Program (ATP) is a concentrated elementary education program that is completed in one calendar year, January through December, with all course work field experiences and student teaching based in participating schools. The

College of Education Baccalaureate Degrees and Majors

Major	Degree	Concentration[1]	Administered By
Early Childhood Education	BAE	—	Division of Curriculum and Instruction
Elementary Education	BAE	Optional: indigenous teacher preparation program or multilingual/multicultural education[1]	Division of Curriculum and Instruction
Secondary Education	BAE	Academic specializations: biological sciences, business, chemistry, Chicana and Chicano Studies,[2] economics, English, family and human development,[2] French, geography, German, history, Japanese, mathematics, physics, political science, social studies, or Spanish	Division of Curriculum and Instruction
Selected Studies in Education[2]	BAE	—	College of Education
Special Education	BAE	—	Division of Curriculum and Instruction

[1] If a major offers concentrations, one must be selected unless noted as *optional*.

[2] Applications are not being accepted at this time.

program conforms to the public school calendar, thus extending the academic year for ASU students by eight weeks. Students are engaged in K–5 classroom experiences and ASU classes from 8 A.M. to 4 P.M., Monday through Friday for 46 weeks. The theoretical premise that undergirds the ATP program might be called "practice informed by theory," as students are immersed in both "school" and "teacher" cultures throughout the program. Admission is for spring semester only, with a June 1 priority deadline and a September 1 final deadline.

Diné Teacher Education Program. The Diné Teacher Education Program (DTEP) is a collaborative effort between Diné College and the ASU College of Education. All course work is done at the Diné College campus (Tsaile, Arizona) and all field placements are in Navajo bilingual classrooms in Navajo schools. The program is designed to prepare Navajo teachers to teach in Navajo communities of the Navajo Nation. This program meets the requirements for an initial teaching certificate for elementary education and an Arizona endorsement in bilingual education. For more information, call 928/724-6819.

Early Childhood Interprofessional Program (Birth–Grade 3). The early childhood program (ECD) has a core focus on interprofessional education that includes cross-training. Students work with members of other disciplines and collaborate between and across community programs and university departmental structures to promote broad-based professional preparation. Students participate in schools and community agencies that also operate cross-professionally. The early childhood faculty and its community partners work from a child-sensitive, or constructivist approach that emphasizes constructivist theory, multiple points of view, emergent learning, and a developmental, integrative approach to classroom practice. The program includes course work for a provisional English as a second language endorsement, and is a birth–grade 3 certification program. For course requirements, see "Course Requirements," page 356.

Elementary Education Partnership Program (K–8). Students in the Elementary Education Partnership Program (EEPP) work in three different elementary schools, one each semester, before their student teaching. Each semester, or block, includes methods courses that are taught on an elementary school campus through an internship of six hours each week. Students become an integral part of the life of the elementary school, and assignments link the classroom observations and experiences to the content of the methods courses. Faculty from each of the school sites coordinate assignments and activities to ensure a wide range of learning experiences; some assignments are continued across semesters. Course content is in place to qualify all students in this program for a provisional English as a second language endorsement. A fast track option is available, but it is a highly competitive process. Consult with an academic advisor in the Office of Student Services for application deadlines and criteria. For course requirements, see "Course Requirements," page 357.

Indigenous Teacher Preparation Program. Through the commitment of the College of Education and with the collaborative efforts of the ASU Center for Indian Education, the Indigenous Teacher Preparation Program (ITP) intends to meet the unique educational and culturally related academic needs of indigenous children. ITP has developed a program focusing on cultural knowledge and sensitivity; it emphasizes pedagogy and strategies that are most effective for indigenous learners. ITP strives to prepare high quality beginning teachers for elementary certification, provide a developmental and responsive curriculum focused on Indian

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

education, foster knowledge and values of the indigenous community, and promote leadership in teaching and teacher education. The program benefits teaching candidates through a cohort for support, an apprentice model for field experiences, and numerous university resources.

Integrated Certification in Teacher Education. INCITE is a flexible program that prepares working adults to become secondary education teachers. All course work is offered during the evening and on weekends except for secondary education methods courses, which may be offered only during daytime hours depending on the corresponding college's schedule. Daytime field experience internship hours are required. INCITE is designed for postbaccalaureate students only.

Multilingual/Multicultural Program. The MLMC program is a four-semester sequence offered in "blocks" with focused field requirements in selected elementary schools that offer bilingual and/or ESL settings. The bilingual education option prepares teachers to teach elementary students whose primary language is Spanish or a Native American language spoken in Arizona. The ESL option prepares teachers to teach elementary school students from any language background who are still acquiring English as an additional language. Methods courses are often divided into BLE or ESL sections, although some course work is planned together to promote collaboration. The program meets Arizona requirements for an elementary education teaching certificate with an endorsement in bilingual education or English as a second language. For course requirements, see "Course Requirements," page 358.

Secondary Education (7–12). In order to integrate teacher education preparation with the secondary education requirement for an academic specialization, the College of Education maintains connections with academic departments across the university. Each program semester requires an internship in the schools, and some courses are taught in the field. Graduates are eligible for secondary certification in grades 7–12 in one of 15 active academic specializations, and have the option of adding a middle school endorsement. In addition to these 15 active secondary education programs, three additional specializations are available through the Herberger College of Fine Arts, including Music Education (choral-general or instrumental music), Art Education, and Dance Education. Fine Arts majors receive a recommendation for a K–12 endorsement. Students with a major in Secondary Education have two academic advisors: one in the college and department of the academic specialization and one in the Office of Student Services in the College of Education. For course requirements, see "Course Requirements," page 360.

Special Education. The special education program (SPE) leads to the BAE degree in Special Education and to certification in K–12 special education for children with learning disabilities, mild mental retardation, or emotional/behavioral disorders. This program provides preparation in each of the three disability areas; however, the student only qualifies for a teaching certificate in one area, which is determined by the area of student teaching placement. A school internship is required for each semester. For course requirements, see "Course Requirements," page 360.

Summer Certification Institute for Secondary Mathematics. The Summer Certification Institute for Secondary Mathematics (SCISM) program is designed to increase the pool of secondary mathematics teachers defined as highly qualified under the No Child Left Behind legislation. This goal is accomplished by recruiting high performing mathematics majors in the spring of their junior year and making it possible for them to complete the requirements of a BA or BS in mathematics and a BAE with mathematics certification in a timely, convenient, and affordable manner. Field experience is offered in the Phoenix Union High School District. The program consists of six-week sessions of classroom and field experiences during the two summers surrounding the senior year, and an academic year field experience with a learning community. Students do their student teaching in the fall following their senior year.

Teacher Education and Certification Highway + Masters in Education option. Teacher Education and Certification Highway + Masters in Education (TEACH+ME) is a self-paced postbaccalaureate program geared toward working adults interested in achieving elementary (K–8) teaching certification or current teaching professionals who do not possess elementary education certification. The program offers students an array of experiences. Students learn the most recent teaching strategies and become an interactive force in the development of a professional teacher education model. Students also participate in teaching experiences with a mentor teacher and students in designated urban schools.

Teacher Education for Arizona Mathematics and Science. Teacher Education for Arizona Mathematics and Science (TEAMS) is a 10-month program, with course work leading to 7–12 certification and an optional middle school endorsement. It is a combined postbaccalaureate/master's program specializing in mathematics, science, and technology, and is based on technology, field-based experiences, internships, and course work. Students attend classes full-time during daytime hours.

UNIVERSITY GRADUATION REQUIREMENTS

In addition to fulfilling college and major requirements, students must meet all university graduation requirements. For more information, see "University Graduation Requirements," page 89.

DEGREE REQUIREMENTS

A minimum of 120 semester hours is required for the Bachelor of Arts in Education (BAE) degree. The BAE degree consists of four areas:

1. General Studies;
2. College of Education core requirements;
3. academic specialization (Secondary Education only); and
4. Initial Teacher Certification (ITC) program courses.

The College of Education expects degree candidates to meet individual course assessment standards, field-experience observation criteria, courses required for teacher certification, and other proficiency standards and performance criteria required to demonstrate knowledge and skill in the areas listed under "Bachelor of Arts in Education," page 352.

The degree program also includes courses and academic content required for teacher certification by the State of Arizona. Students seeking certification in one of the fine arts must complete degree requirements in the Katherine K. Herberger College of Fine Arts and specified courses through the ITC program.

General Studies Requirement

All students enrolled in a baccalaureate degree program must satisfy a university requirement of a minimum of 35 hours of approved course work as described in "General Studies," page 93. Note that all three General Studies awareness areas are required. General Studies courses are listed in "General Studies Courses" table, page 96, in the course descriptions, in the *Schedule of Classes,* and in the *Summer Sessions Bulletin*.

Preprofessional students should complete as many of the General Studies courses as possible before admission to the ITC program. Students are encouraged to consult with an academic advisor to ensure they comply with all necessary requirements.

College of Education Core Requirements

The Initial Teacher Certification program prepares students for teacher certification and requires students to complete semester hours selected from specific core courses pertinent to the teaching area. Courses listed under this portion of the academic major are governed by the general ASU "Guidelines for Determination of Catalog Year."

For more information, see "Guidelines for Determination of Catalog Year," page 89.

Initial Teacher Certification Program Courses

The Initial Teacher Certification (ITC) program is a sequential program consisting of 36 to 55 semester hours. Ranging from nine to 19 hours per semester, the courses for one semester must be completed before enrolling in the next semester. In other words, courses for one semester usually may not be taken at the same time as those scheduled for another semester. In addition to ITC courses, students continue completing the General Studies requirement and core requirements or academic specialization requirements through the third semester of the program (except for students applying to the Apprentice Teacher Program in Elementary Education). Courses listed under this portion of the academic major are governed under an alternative catalog year, and students should consult with an academic advisors before applying to the ITC program of their choice, to determine the ITC courses for their designated admission date.

Declaration of Graduation

Undergraduate students must file a declaration of graduation during the first semester of enrollment in the ITC program. Preprofessional students completing 87 hours (the university limit for registering without a program of study) who have not been admitted to the ITC program must meet with an advisor to obtain a registration waiver by the College of Education. See "University Graduation Requirements," page 89.

Field Experience Requirements

In addition to course work, students admitted to the ITC program are required to participate in directed field experiences during each of the four semesters of the program. The field experiences progress from short-term observation and participation to long-term supervised practice teaching. School districts require fingerprint clearance of all adults working in classrooms. Subsequently, such clearance is required in the professional programs.

Students should expect these field experiences to be above and beyond the class times listed in the *Schedule of Classes* for each semester. Such field experiences typically take place in schools throughout the greater Phoenix area. Regular attendance is required during all field experiences. Students should plan extra travel time and expect to confer with placement teachers and field facilitators before or after scheduled field experiences. To meet field experience requirements, students must plan to have their own transportation and *be available during regular school hours*.

Teaching is a highly demanding and extraordinarily complex profession. Students desiring to become teachers must maintain academic standards and demonstrate requisite qualifications for successful teaching, including effective interpersonal skills, basic communication skills, appropriate professional conduct, and satisfactory performance during field experience assignments.

Observation and participation assignments in the schools during first, second, and third semester field experience placements are designed to prepare students for the highly demanding performance-based student teaching during semester four.

School districts require fingerprint clearance of all adults working in their classrooms. Therefore, fingerprint clearance is required of students in the professional programs.

Student Teaching. The culminating field experience, called *student teaching,* occurs in the final semester of the ITC program and is a full-day, full-semester obligation. Student teaching takes place only during fall and spring semesters.

Student teaching is a full-time, 15 week, commitment under the supervision of a mentor teacher. To be eligible for a student teaching placement, individuals must apply by the deadline determined each semester by the Office of Professional Field Experiences. Students must complete all program requirements before beginning a student teaching assignment. Student teachers must adhere to the calendar, regulations, and philosophy of the schools in which they are placed. Beginning and ending dates for student teaching are determined by the Office of Professional Field Experiences in cooperation with the participating school. Because student teaching is on a full-day schedule, 8 A.M. to 4 P.M. Monday through Friday for 15 consecutive weeks, student

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Academic Specializations

[1] Art education and dance education concentrations are under corresponding BFA majors.

[2] Applications are not being accepted at this time.

[3] Students pursue a BM degree with a major in Music Education.

teachers are strongly encouraged to avoid extra activities and outside employment that would interfere with the heavy demands placed upon them while student teaching.

For course requirements for each academic specialization, refer to the location shown in the "Academic Specializations" table, on this page.

For approval to student teach, ITC students must

1. have attained a high level of professional standards in previous field experience assignments;
2. be in good standing as defined in the ITC Retention and Continuation Policy;
3. have a Fingerprint Clearance Card on file when submitting a student teaching application;
4. not have an incomplete grade in any ITC course;
5. complete all ITC courses (with a "C" [2.00] or higher);
6. have all General Studies, College of Education, and academic specialization course work completed (If student teaching in fall, a student must complete all courses by the end of the first summer session; if in spring, by the end of the fall semester.); and
7. have an approved Declaration of Graduation (undergraduates) or Program Agreement (postbaccalaureates) on file.

Students may be provisionally approved to start the paperwork for a student teaching placement if final course work is in progress. Provisional approval is not given if courses are outstanding (not in progress). Students may not take any courses while student teaching unless approved by the College of Education Standards Committee. For more information, contact an academic advisor in the Office of Student Services.

MAJOR REQUIREMENTS

Early Childhood Education—BAE

Course Requirements. Many courses are held at local elementary schools during the regular school day. Field Experience requires a minimum commitment of six hours a week during the regular school day. Field-based courses are taken in semester blocks in sequential order. Program courses and requirements are subject to change depending on the ITC admission date.

Required

First-Year Composition	6
General Studies	35–37
Total	41–43
Electives	0–6

College of Education Requirements[1]

ECD	210	The Developing Child: Theory into Practice: Birth–Pre–K	3
ECD	214	The Developing Child: Theory into Practice: K–3	3
ECD	220	Nutrition, Health, and Safety for Young Children[2]	2
MCE	446	Understanding the Culturally Diverse Child *C*	3
MTE	180	Theory of Elementary Mathematics	3
MTE	181	Theory of Elementary Mathematics	3
RDG	334	Children's Literature and Elementary School Curriculum or EED 334 Children's Literature and Elementary School Curriculum (3)	3
SPE	311	Orientation to Education of Exceptional Children *SB, C*	3
Fine arts requirements			6
Total			29

[1] A minimum grade of "C" (2.00) is required in all courses.

[2] This course can be taken before beginning ECD ITC program or completed by start of Block 2.

ITC Program Courses[1]

Semester I

ECD	300	Principles of Interprofessional Collaboration	3
ECD	315	Classroom Organization and Guidance in the Early Years	2
ECD	394	ST: Technology, Media, and Community-Based Education for Young Children	1
ECD	400	Inquiry into Teaching and Learning	3
ECD	496	Field Experience	1
EDT	300	Computers in Education	1
SPF	401	Theory and Practice in Education	1
Total			12

Semester II

BLE	408	SEI for Linguistically Diverse Learners	3
ECD	406	Assessment: Birth–Age 8	3

ECD 476 Integrated Curriculum: Birth–Pre–K 3
ECD 494 ST: Apprenticeship: Pre-K or Infant-Toddler[2] 4
Total 13

Semester III[3]
ECD 401 Integrated Curriculum and Assessment: Social Studies and Creative Arts 3
ECD 404 Teaching Reading and Language Arts in Early Childhood 3
ECD 420 Integrated Curriculum and Assessment: Science 3
ECD 480 Integrated Curriculum and Assessment: Mathematics 3
ECD 496 Field Experience 1
Total 13

Semester IV
ECD 478 Student Teaching in Early Childhood K–3[4] 8–10
ECD 479 Early Childhood Education Student Teaching Seminar 1
ECD 481 Issues and Practices in Early Childhood Education 1
SPE 416 Quality Practices in the Collaborative Classroom[5] 3
Total 13–15

ITC program course total 52–54

[1] A minimum grade of "C" (2.00) is required in all courses.
[2] Apprenticeship is for nine weeks, four half days per week.
[3] These methods courses may be team-taught in pairs for seven weeks plus one Saturday session.
[4] Student teaching, K–3, during Block 4, is for 12 weeks. Each week requires four full days per week, with the fifth day for course meetings.
[5] SPE 416 may be taken before Block 4 and may be tailored for early childhood.

Elementary Education (Partnership Program)—BAE

The Partnership program includes three semesters of field placement in classroom settings, drawing on the rich resources of the Phoenix metropolitan area. The fourth semester is a 15-week, full-time student teaching capstone experience. Course content is in place to qualify all students in this program for a provisional ESL endorsement.

Course Requirements. Many courses are held at local elementary schools during the regular school day. Field Experience requires a minimum commitment of six hours a week during the regular school day. Field-based courses are taken in semester blocks in sequential order. Program courses and requirements are subject to change depending on the ITC admission date.

Required
First-Year Composition 6
General Studies 35–37
Total 41–43

Electives 0–5

College of Education Requirements*

EDP 303 Human Development *L*/*SB* 3
or CDE 232 Human Development *SB* (3)
or ECD 314 The Developing Child: Theory into Practice: K–3) (3)
or EDP 313 Childhood and Adolescence (3)
EDP 310 Educational Psychology *SB* 3
MCE 446 Understanding the Culturally Diverse Child *C* 3
MTE 180 Theory of Elementary Mathematics 3
MTE 181 Theory of Elementary Mathematics 3
SPE 311 Orientation to Education of Exceptional Children *SB, C* 3
Fine arts requirements 9
Total 27

* A minimum grade of "C" (2.00) is required in all courses.

ITC Program Courses*

Semester I
EED 433 Language Arts Methods, Management, and Assessment in the Elementary School 3
EED 496 Field Experience 1
EED 498 PS: Integrated Children's Literature 1
RDG 415 Teaching Phonics 3
RDG 494 ST: Teaching Reading/Practicum Grades K–3 3
SPE 416 Quality Practices in the Collaborative Classroom 1
SPF 401 Theory and Practice in Education 1
Total 13

Semester II
BLE 408 SEI for Linguistically Diverse Learners 3
EDT 300 Computers in Education 1
EED 455 Social Studies Methods, Management, and Assessment in the Elementary School 3
EED 496 Field Experience 1
EED 498 PS: Integrated Children's Literature 1
RDG 494 ST: Teaching Reading/Practicum Grades 4–8 3
SPE 416 Quality Practices in the Collaborative Classroom 1
Total 13

Semester III
EED 420 Science Methods, Management, and Assessment in the Elementary School 3
EED 480 Mathematics Methods, Management, and Assessment in the Elementary School 3
EED 496 Field Experience 2
SPE 416 Quality Practices in the Collaborative Classroom 1
SPF 301 Culture and Schooling *L* 3
Total 12

Semester IV
EED 478 Student Teaching in the Elementary School 12
ITC program course total 50

* A minimum grade of "C" (2.00) is required in all courses.

Elementary Education (Apprentice Teacher Program)—BAE

Offered jointly with local school districts, the Apprentice Teacher Program (ATP) is a concentrated, full-time, daytime certification program option that is completed in one calendar year, with all course work based in the participating schools. This full-immersion program begins each January and leads to K–8 teacher certification.

Course Requirements. The Initial Teacher Certification (ITC) program is completed in one calendar year, spring admission only. All course work (General Studies and

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

College of Education requirements) not included in the ATP program, must be completed before beginning the program. Additionally, undergraduate students must complete 70 semester hours by the start of the program. The program schedule conforms to the public school calendar rather than the ASU calendar, thereby extending the academic year by eight weeks. The program is intense but efficient. Students are actively engaged in classroom experiences or ASU course work for at least seven hours every day (Monday–Friday) for 46 weeks. Field-based courses are taken in semester blocks in sequential order. Program courses and requirements are subject to change depending on the ITC admission date.

Required

First-Year Composition	6
General Studies	35–37
Total	41–43
Electives	9–14

College of Education Requirements*

EDP 310 Educational Psychology *SB*	3
MTE 180 Theory of Elementary Mathematics	3
MTE 181 Theory of Elementary Mathematics	3
SPE 311 Orientation to Education of Exceptional Children *SB, C*	3
Fine arts requirements	9
Total	21

* A minimum grade of "C" (2.00) is required in all courses.

ITC Program Courses*

Semester I: Spring

EDP 303 Human Development *L/SB*	3
EDT 300 Computers in Education	1
EED 433 Language Arts Methods, Management, and Assessment in the Elementary School	3
EED 496 Field Experience	2
RDG 414 Teaching Reading/Decoding	3
RDG 415 Teaching Phonics	3
SPF 301 Culture and Schooling *L*	3
SPF 401 Theory and Practice in Education	1
Total	19

Semester II: Summer

EED 420 Science Methods, Management, and Assessment in the Elementary School	3
EED 444 Organizing the Classroom Culture	1
EED 455 Social Studies Methods, Management, and Assessment in the Elementary School	3
EED 480 Mathematics Methods, Management, and Assessment in the Elementary School	3
EED 496 Field Experience	3
SPE 416 Quality Practices in the Collaborative Classroom	3
Total	16

Semester III: Fall

BLE 408 SEI for Linguistically Diverse Learners	3
EED 478 Student Teaching in the Elementary School	12
ITC program course total	50

* A minimum grade of "C" (2.00) is required in all courses.

Elementary Education (Multilingual/Multicultural Education Concentration)—BAE

Language Proficiency. Language proficiency requirements must be met for each endorsement before completing the Initial Teacher Certification (ITC) professional program.

Bilingual endorsement for Spanish. Students are required to pass the Arizona Classroom Teacher Spanish Proficiency Exam administered through ASU's Department of Languages and Literatures. For more information, call 480/965-6281. The exam is administered at several colleges in Arizona.

Bilingual endorsement for an American Indian language. Proficiency for this endorsement must be verified in writing by an official of the appropriate tribe.

English as a Second Language. Students admitted into the Multilingual/Multicultural Program who are pursuing the English as a Second Language Endorsement must fulfill a second language proficiency requirement. Students are required to submit proof of language proficiency to the Office of Student Services before an Institutional Recommendation is provided to the student. English as a Second Language guidelines are available on the Arizona Department of Education Web site.

Course Requirements. Many courses are held at local elementary schools during the regular school day. Field Experience requires a minimum commitment of six hours a week during the regular school day. Field-based courses are taken in semester blocks in sequential order. Program courses and requirements are subject to change depending on the ITC admission date.

Required

First-Year Composition	6
General Studies	35–37
Total	41–43
Electives	0–5

College of Education Requirements[1]

EDP 310 Educational Psychology *SB*	3
MTE 180 Theory of Elementary Mathematics	3
MTE 181 Theory of Elementary Mathematics	3
RDG 334 Children's Literature and Elementary School Curriculum	3
SPE 311 Orientation to Education of Exceptional Children *SB, C*	3
Fine arts requirements	6
Language proficiency[2]	0–6
Total	21–27

[1] A minimum grade of "C" (2.00) is required in all courses. MCE 446 Understanding the Culturally Diverse Child (3) is strongly recommended as an elective.

[2] For information on language proficiency, see "Language Proficiency," on this page.

ITC Program Courses[1]

Semester I: Living the Scholarly Life of a Multicultural Citizen

BLE 400 Principles of Language Minority Education	3
BLE 455 Social Studies Methods, Management, and Assessment in Elementary BLE/ESL Settings	3

BLE 496 Field Experience 1
MCE 447 Diversity in Families and Communities in Multicultural Settings.....3
SPF 401 Theory and Practice in Education 1
Total 11

Semester II: Living the Scholarly Life of Science and Math
BLE 408 SEI for Linguistically Diverse Learners 3
BLE 420 Science Methods, Management, and Assessment in BLE/ESL Settings.....3
BLE 480 Mathematics Methods, Management, and Assessment in Elementary BLE/ESL Settings 3
BLE 496 Field Experience 1
EDT 300 Computers in Education.....1
SPE 416 Quality Practices in the Collaborative Classroom 3
Total 14

Semester III: Living the Scholarly Life of Literacy/Biliteracy
BLE 335 Language Diversity in Classrooms 3
BLE 414 Reading Methods, Management, and Assessment in BLE/ESL Settings.....3
BLE 433 Language Arts Methods, Management, and Assessment in Elementary BLE/ESL Settings 3
BLE 481 Reading Practicum 3
BLE 496 Field Experience 1
Total 13

Semester IV
BLE 478 Student Teaching in the Elementary School[2].....12
ITC program course total 50

[1] A minimum grade of "C" (2.00) is required in all courses.
[2] Student teaching requires students to student teach in multicultural, multilingual school settings—without exception. Multicultural/multilingual school faculty identify classrooms that meet the above requirement.

Elementary Education (Indigenous Education)—BAE

Course Requirements. Many courses are held at local elementary schools during the regular school day. Field Experience requires a minimum commitment of six hours a week during the regular school day. Field-based courses are taken in semester blocks in sequential order. Program courses and requirements are subject to change depending on the ITC admission date.

Required
First-Year Composition.....6
General Studies 35–37
Total 41–43

Electives 3–8

College of Education Requirements*

EED 334 Children's Literature and Elementary School Curriculum 3
or RDG 334 Children's Literature and Elementary School Curriculum (3)
MCE 446 Understanding the Culturally Diverse Child *C* 3
MTE 180 Theory of Elementary Mathematics.....3
MTE 181 Theory of Elementary Mathematics.....3
SPE 311 Orientation to Education of Exceptional Children *SB, C* 3
Fine arts requirements.....6
Total 21

* A minimum grade of "C" (2.00) is required in all courses.

ITC Program Courses*

Semester I
EDP 310 Educational Psychology *SB* 3
EDT 300 Computers in Education.....1
IED 410 History of American Indian Education *SB, C, H* 3
IED 455 Social Studies Methods, Management, and Assessment for Indigenous Classrooms *C* 3
IED 496 Field Experience: Classroom Management and Organization.....1
SPF 301 Culture and Schooling *L* 3
SPF 402 Teachers and the Law in Indigenous Communities 1
Total 15

Semester II
IED 414 Reading Methods, Management, and Assessment for Indigenous Classrooms 3
IED 422 Methods of Teaching Indian Students *C* 3
IED 433 Counseling the Indian Student 3
IED 496 Field Experience: Classroom Management and Organization.....1
SPE 418 Quality Practices in the Collaborative Indigenous Classroom.....3
Total 13

Semester III
BLE 408 SEI for Linguistically Diverse Learners 3
IED 420 Science Methods, Management, and Assessment for Indigenous Classrooms 3
IED 430 Issues in Language and Literacy of Indigenous Peoples *HU/SB, C* 3
IED 480 Mathematics Methods, Management, and Assessment for Indigenous Classrooms.....3
IED 496 Field Experience: Classroom Management and Organization.....1
Total 13

Semester IV
BLE 478 Student Teaching in the Elementary School 12
ITC program course total 53

* A minimum grade of "C" (2.00) is required in all courses.

Secondary Education—BAE

The Secondary Education major includes two areas of study: academic specialization and Initial Teacher Certification (ITC) professional education course work and experiences.

The academic specialization or teaching major requires 30 to 60 semester hours in a discipline. The ITC program in Secondary Education is a 36 to 38 semester hour sequential program that consists of pedagogical and theoretical training. Refer to the pages shown in the "Academic Specializations" table, page 356.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Course Requirements. All methods courses (including SED 403) must be taken with a field experience. SED 403 must be taken during the first semester of ITC admission. Field Experience requires a minimum commitment of six hours a week during the regular school day. Fine Arts areas may follow a different sequence of ITC courses. Program courses and requirements are subject to change depending on the ITC admission date.

Required

First-Year Composition 6
General Studies 35–37
Total 41–43

Electives 0–13

College of Education Requirements[1]

SPE 311 Orientation to Education of Exceptional Children *SB, C* 3

Academic Specialization[1]

Academic specialization[2] 30–60

ITC Program Courses[1]

BLE 407 SEI for Secondary Students 3
EDP 303 Human Development *L/SB* 3
or EDP 313 Childhood and Adolescence[3] (3)
EDP 310 Educational Psychology *SB* 3
EDT 300 Computers in Education 1
RDG 301 Literacy and Instruction in the Content Areas 3
SED 403 Middle and Secondary School Principles, Curricula, and Methods[4] 3
SED 478 Student Teaching in Secondary Schools 12
SED 496 Field Experience 1
SED 496 Field Experience 1
SED 496 Field Experience 1
SPE 417 Inclusion Practices at the Secondary Level 3
SPF 301 Culture and Schooling *L* 3
SPF 401 Theory and Practice in Education 1
Methods in academic specialization I[4] 3
Methods in academic specialization II[4] 3
ITC program course total 44

1 A minimum grade of "C" (2.00) is required in all courses.
2 Refer to a separate "Academic Specialization" sheet for specific information about each concentration area.
3 Students who take EDP 313 instead of EDP 303 and student teach in grades 7 to 9 qualify for a recommended middle grade endorsement.
4 This course must be taken with field experience.

Special Education—BAE

Course Requirements. Many courses are held at local elementary schools during the regular school day. Field Experience requires a minimum commitment of six hours a week during the regular school day. Field-based courses are taken in semester blocks in sequential order. Program courses and requirements are subject to change depending on the ITC admission date.

Required

ENG 101 First-Year Composition 3
ENG 102 First-Year Composition 3
General Studies 35–37
Total 41–43

Electives 9–14

College of Education Requirements[1]

BLE 407 SEI for Secondary Students 3
or BLE 408 SEI for Linguistically Diverse Learners[2] (3)

MTE 180 Theory of Elementary Mathematics 3
MTE 181 Theory of Elementary Mathematics 3
Fine arts requirements 6
Total 15

1 A minimum grade of "C" (2.00) is required in all courses.
2 Students may choose between the secondary or elementary version of SEI. BLE 407 and 408 can be taken in semester I, II, or III, but *not* with student teaching in semester IV.

ITC Program Courses[1]

Semester I

SPE 309 Basic Special Education Curriculum[2] 3
SPE 311 Orientation to Education of Exceptional Children[2] *SB, C* 3
SPE 314 Introduction to Bilingual/Multicultural Special Education 3
SPE 361 Introduction to Learning Disabilities 3
SPE 496 Field Experience 1
SPF 301 Culture and Schooling *L* 3
Total 16

Semester II

EDT 300 Computers in Education 1
SPE 312 Mental Retardation 3
SPE 336 Behavioral and Emotional Problems in Children 3
SPE 412 Evaluating Exceptional Children 3
SPE 413 Methods in Language, Reading, and Arithmetic for Exceptional Children 3
SPE 496 Field Experience 1
Total 14

Semester III

SPE 411 Parent Involvement and Regulatory Issues 3
SPE 414 Instructional Management and Strategies: Reading and Writing 3
SPE 415 Classroom and Behavior Management 3
SPE 494 ST: Instruction in Content Areas: Science/Social Studies 3
SPE 496 Field Experience (7.5 hours/week) 1
Total 13

Semester IV

SPE 478 Student Teaching in Special Education 12
ITC program course total 55

1 A minimum grade of "C" (2.00) is required in all courses.
2 This course may be taken before being admitted to the ITC.

Selected Studies in Education—BAE

Applications are not being accepted for the major in Selected Studies in Education at this time.

SCHOOL OF EXTENDED EDUCATION

The university-wide School of Extended Education provides an interactive link between ASU and the diverse communities it serves. The college assesses lifelong learning requirements and works in partnership with campuses, other colleges, and the community to serve learners, using a network of locations, programs, schedules, and technologies.

For more information, see "School of Extended Education," page 134, or access the Web site at www.asu.edu/xed.

ACADEMIC STANDARDS

Professional Program Status

Students admitted to the ITC program must maintain high academic standards and demonstrate the requisite qualifications for successful teaching, including sound physical and mental health, good interpersonal skills, basic communication skills, a positive attitude, appropriate professional conduct, and satisfactory performance in field experiences. Because ITC standards are higher than those for the university, a student who is suspended from the ITC program may still be eligible to enroll in other non-ITC courses.

A copy of the Retention and Continuation Policy, which is part of the ITC handbook, may be obtained from the Office of Student Services, EDB L1-13.

College of Education faculty and placement teachers routinely review preservice teachers' professional attributes and characteristics to determine if the student is making satisfactory progress at both midterm and final examinations. To maintain good standing, students need to demonstrate appropriate professional demeanor in field placements and college classes.

Students demonstrating behaviors or characteristics that make it questionable as to whether they can succeed in the teaching profession are reviewed by the director of the Office of Professional Field Experiences and the assistant dean of the Office of Student Services. If necessary, a review panel composed of faculty members who have had direct involvement with the student is convened. Following this review, the student may be referred to the Division of Curriculum and Instruction Standards and Appeals Committee. The committee's review may result in a decision to disqualify the student or the specification of conditions under which continued participation is permitted, i.e., probation.

Students who wish to appeal decisions of the Division of Curriculum and Instruction Standards and Appeals Committee may do so in writing to the dean of the college. Any exceptions to the retention and disqualification policies and procedures must be approved by the committee and the dean.

Certification for Teaching

The curricula for both the undergraduate and postbaccalaureate Initial Teacher Certification programs meet the requirements for teacher certification in the state of Arizona.

In addition to the course requirements specified in this catalog, there are other requirements for teacher certification mandated by the state of Arizona, including the U.S. Constitution and Arizona Constitution requirement. Each student must pass the Arizona Educator Proficiency Assessment, which consists of professional knowledge and subject knowledge tests.

Because these requirements vary over program areas and may be changed at any time, students are encouraged to maintain close contact with the Office of Student Services regarding the most current state certification requirements.

The College of Education is approved by the Arizona Department of Education for the preparation of elementary, secondary, and special education teachers. The Office of Student Services maintains information about current certification requirements in Arizona and other states.

Independent Learning Course Work for Credit

It is the general policy of the College of Education not to accept course credit for *courses in education* taken through Independent Learning. Exceptions to this policy may be approved if the Independent Learning course work has been approved in advance of enrollment in the course by the student's advisor, respective program coordinator, and division director. In all such cases, an appropriate rationale must be submitted with the request to enroll.

BIS CONCENTRATION

A concentration in education is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

GRADUATE DEGREES

The College of Education offers numerous graduate degree programs. For more information, see the "College of Education Graduate Degrees and Majors" table, page 362, and the *Graduate Catalog*.

COLLEGE OF EDUCATION (COE)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

College of Education Graduate Degrees and Majors

Major	Degree	Concentration[1]	Administered By
Counseling	MC	—	Division of Psychology in Education
Counseling Psychology	PhD	—	Division of Psychology in Education
Counselor Education	MEd	—	Division of Psychology in Education
Curriculum and Instruction	MA	Bilingual education, early childhood education, elementary education, English as a second language, Indian education, language and literacy, mathematics education, science education, secondary education, or social studies education	Division of Curriculum and Instruction
	MEd	Bilingual education, early childhood education, elementary education, English as a second language, Indian education, language and literacy, mathematics education, professional studies, science education, secondary education, or social studies education	Division of Curriculum and Instruction
	EdD	Bilingual education,[2] curriculum studies, early childhood education, elementary education,[2] English as a second language,[2] Indian education,[2] language and literacy, mathematics education, science education, secondary education, or social studies education[2]	Division of Curriculum and Instruction
	PhD	Art education,[3] curriculum studies, early childhood education, elementary education, English education, language and literacy, mathematics education, science education, or special education	Division of Curriculum and Instruction
Educational Administration and Supervision	MEd, EdD	—	Division of Educational Leadership and Policy Studies
Educational Leadership and Policy Studies	PhD	—	Division of Educational Leadership and Policy Studies
Educational Psychology	MA, MEd	—	Division of Psychology in Education
	PhD	Learning; lifespan developmental psychology; measurement, statistics, and methodological studies; or school psychology	Division of Psychology in Education
Educational Technology	MEd, PhD	—	Division of Psychology in Education
Higher and Postsecondary Education	MEd, EdD	Optional: higher education[1]	Division of Educational Leadership and Policy Studies
Social and Philosophical Foundations of Education	MA	—	Division of Educational Leadership and Policy Studies
Special Education	MA	—	Division of Curriculum and Instruction
	MEd	Gifted, mildly disabled, multicultural exceptional, or severely/multiply disabled	Division of Curriculum and Instruction

[1] If a major offers concentrations, one must be selected unless noted as *optional*.

[2] Applications are not being accepted at this time.

[3] This concentration is administered in collaboration with the Katherine K. Herberger College of Fine Arts.

Division of Curriculum and Instruction

coe.asu.edu/candi
480/965-1644
ED 426

James Middleton, Director

Professors: Appleton, Artiles, Baker, Barone, Bitter, Cannella, Christie, Edelsky, Faltis, Flores, E. Garcia, Gryder, Guzzetti, Hudelson, Luft, Ovando, Rutherford, Santos de Barona, Stahl, Surbeck, Swadener, Tobin, Wiley, Zucker

Associate Professors: Anijar, Arias, Blumenfeld-Jones, Cohn, Di Gangi, Gomez, MacSwan, McCoy, Middleton, Rader, Sloane, Smith, Vallejo, Young

Assistant Professors: Baek, Battey, Clark, Fischman, Manuelito, Martinez-Roldan, Rolstad, Romero

Clinical Associate Professors: P. Garcia, Mathur

Clinical Assistant Professor: Christine

Lecturers: Atkinson, Cocchiarella, Esch, Fain, Harrison, Rabe, Roanhorse-Dineyazhe, Rutowski, Soroka, Spanias, Stahlman, Thompson, Wellner

Administrative Professional: Enz

Assistant Administrative Professional: Kortman

Initial Teacher Certification Programs

Apprentice Teacher Program (ATP)
Diné Teacher Education Program (DTEP)
Early Childhood Interprofessional Program (ECD)
Elementary Education Partnership Program (EED)
Integrated Certification in Teacher Education (INCITE) (for postbaccalaureate students only)
Multilingual/Multicultural Program (MLMC)
Secondary Education (SED) (7–12)
Special Education (SPE)
Summer Certification Institute in Secondary Mathematics (SCISM)
Teacher Education and Certification Highway + Masters in Education option (TEACH+ME)
Teacher Education for Arizona Mathematics and Science (TEAMS) (for postbaccalaureate students only)

Degrees: BAE, MA, MEd, EdD, PhD

Bachelor of Arts in Education—BAE

The faculty in the Division of Curriculum and Instruction offer several undergraduate academic programs designed to prepare persons to teach effectively in bilingual education, early childhood, elementary, English as a second language, secondary, and special education settings. Programs in special education lead to Arizona teacher certification working with mentally disabled, emotionally disabled, and learning disabled individuals. Programs of study leading to special endorsements by the Arizona Department of Education are bilingual education, ESL, middle school education, reading, and school library science.

Graduate Programs

The faculty in the division offer graduate degrees in a number of majors. See the "College of Education Graduate Degrees and Majors" table, page 362, and the *Graduate Catalog*.

BILINGUAL EDUCATION (BLE)

For more BLE courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M BLE 335 Language Diversity in Classrooms. (3)
fall and spring
Issues in sociolinguistics and language variation in schools with a focus on classroom interaction, instruction, curriculum, assessment, and language policy. Lecture, discussion, lab. Prerequisite: ITC admission.

M BLE 400 Principles of Language Minority Education. (3)
fall and spring
Overview of philosophical and theoretical foundations of bilingual education and ESL models of instruction. Other topics include significant legislative and judicial measures. Lecture, small group discussion. Prerequisite: ITC admission or BIS student.

M BLE 407 SEI for Secondary Students. (3)
fall and spring
Examines foundations, assessment, English language learner proficiency standards, and strategies (including SEI) for the 7–12 classroom. Prerequisite: ITC admission.

M BLE 408 SEI for Linguistically Diverse Learners. (3)
fall and spring
Examines foundations, assessment, English language learner proficiency standards, and strategies (including SEI) for the K–8 classroom. Prerequisite: ITC admission.

M BLE 409 Methods in Language-Sensitive Content Teaching. (3)
fall and spring
Methods course for bilingual and ESL preservice students. Examines the rule of language and culture in teaching, program types, and general strategies. Lecture, discussion. Prerequisite: ITC admission.

M BLE 410 Language Arts, Emergent Literacy, and Language Acquisition in Navajo/English Settings. (4)
fall
Provides foundational concepts for language and literacy development in bilingual (Navajo/English) K–8 settings. Lecture, collaborative activities. Prerequisite: Diné Teacher Education ITC admission.

M BLE 414 Reading Methods, Management, and Assessment in BLE/ESL Settings. (3)
fall and spring
Teaching and assessing reading with emphasis on integrated curriculum and literature-based instruction for BLE/ESL learners. Strategies for decoding (phonics), vocabulary, comprehension, and content area reading. Lecture, lab, discussion. Prerequisite: ITC admission.

M BLE 420 Science Methods, Management, and Assessment in BLE/ESL Settings. (3)
fall and spring
Methods, management strategies, and assessment procedures for teaching science to BLE/ESL students in elementary schools. Lecture, lab, discussion. Prerequisite: ITC admission.

M BLE 433 Language Arts Methods, Management, and Assessment in Elementary BLE/ESL Settings. (3)
fall and spring
Social nature of oral and written, first- and second-language acquisition and congruent teaching, management, assessment practices in BLE/ESL settings. Lecture, lab, discussion. Prerequisite: ITC admission.

M BLE 455 Social Studies Methods, Management, and Assessment in Elementary BLE/ESL Settings. (3)
fall and spring
Examines methods, classroom management strategies, and assessment techniques for social studies instruction in elementary BLE/ESL classes. Lecture, lab, discussion. Prerequisite: ITC admission.

M BLE 478 Student Teaching in the Elementary School. (3–15)
fall and spring
Supervised teaching in the area of specialization. Synthesized experience in curriculum instruction and classroom management in a BLE/ESL setting. Fee. Prerequisite: ITC admission.

M BLE 480 Mathematics Methods, Management, and Assessment in Elementary BLE/ESL Settings. (3)
fall and spring
Teaching, management, and assessment of mathematics in K–8 BLE/ESL settings. Lecture, lab, discussion. Prerequisite: ITC admission.

M BLE 481 Reading Practicum. (3)
fall and spring
Applies concepts from BLE 414. Supervised school-based experiences in teaching reading to BLE/ESL students. Prerequisite: ITC admission.

M BLE 496 Field Experience. (0–3)
fall and spring
Applies course content in a bilingual/ESL school setting. Emphasizes observation, pupil management, planning and delivering instruction, and assessment. Fee. Prerequisite: ITC admission.

M BLE 498 Pro-Seminar. (1–7)
fall and spring
Small-group study and research for advanced students within their majors. Prerequisites: ITC admission; major status in the department (or instructor approval).

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

BUSINESS EDUCATION (BUE)

M BUE 480 Teaching Business Subjects. (3)
fall and spring
Organization and presentation of appropriate content for business subjects in the secondary school. Prerequisite: ITC admission.

M BUE 481 Technology in Business and Vocational Education. (3)
fall and spring
Emerging curricula and instructional technology in business and vocational education. Lecture, hands-on computer instruction. Prerequisite: ITC admission.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

CURRICULUM AND INSTRUCTION (DCI)

For more DCI courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M DCI 396 Field Experience. (0)
fall and spring
First-semester ITC. Observation and limited participation in a school setting. Focus on observation of development, learning, management, instruction, assessment, and motivation. Requires 4 hours per week. Fee. Corequisite: semester I of the ITC.

M DCI 484 Service Learning Internship. (1–12)
fall, spring, summer
Fee.

M DCI 498 Pro-Seminar. (1–7)
selected semesters
Topics may include the following:
- Field Experience. (2)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

EARLY CHILDHOOD EDUCATION (ECD)

For more ECD courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M ECD 210 The Developing Child: Theory into Practice: Birth–Pre-K. (3)
fall and spring or summer
Organizing, planning, and implementing developmentally appropriate educational practices to provide optimal learning environments for infants and toddlers in group settings.

M ECD 214 The Developing Child: Theory into Practice: K–3. (3)
fall and spring or summer
Examines all aspects of development of children, kindergarten through age eight, with implications for teachers and parents. Requires classroom observation and participation.

M ECD 220 Nutrition, Health, and Safety for Young Children. (2)
selected semesters
Emphasizes providing proper nutrition, promoting a safe but challenging learning environment, and becoming knowledgeable of a child's health status.

M ECD 300 Principles of Interprofessional Collaboration. (3)
fall and spring
Focuses on the dispositions, experiences, knowledge, and skills necessary for interprofessional collaboration designed for young children and their families. Prerequisite: ITC admission.

M ECD 315 Classroom Organization and Guidance in the Early Years. (2)
fall and spring
Develops understanding and application of classroom organization and management principles, strategies, and procedures. Prerequisite: ITC admission.

M ECD 394 Special Topics. (1–4)
selected semesters
- Technology, Media, and Community-Based Education for Young Children

M ECD 400 Inquiry into Teaching and Learning. (3)
fall and spring
Foundational basis of the early childhood field, including historical roots, current practices, ethics, models of teaching, and application in early childhood settings. Prerequisite: ITC admission.

M ECD 401 Integrated Curriculum and Assessment: Social Studies and Creative Arts. (3)
fall and spring
Presents materials, techniques, and resources for a balanced program of social studies and aesthetic expression appropriate for children in preschool through 3rd grade, with emphasis on the integrated curriculum. Prerequisite: ITC admission.

M ECD 402 Integrated Curriculum and Assessment: Math and Science. (3)
fall and spring
Emphasizes developmentally appropriate educational strategies and instructional techniques in teaching mathematics and science to children in preschool through 3rd grade, within an integrated curriculum approach. Prerequisite: ITC admission.

M ECD 403 Educational Environments: Preschool/Kindergarten/Primary Grades. (3)
fall and spring
Focuses on interactions between young learners and the physical and social environments encountered in preschool, kindergarten, and primary settings. Prerequisite: ITC admission.

M ECD 404 Teaching Reading and Language Arts in Early Childhood. (3)
fall and spring
Development of oral and written language from birth to age 8. Describes developmentally appropriate educational strategies for promoting growth in speaking, listening, reading, and writing. Prerequisite: ITC admission.

M ECD 405 Practicum in Teaching Reading and Language Arts in Early Childhood. (2)
fall and spring
Supervised experience teaching reading and language arts at the preschool, kindergarten, and primary-grade (1–3) levels. Developmentally appropriate strategies to promote young children's speaking, listening, reading, and writing abilities. Prerequisite: ITC admission.

M ECD 406 Assessment: Birth–Age 8. (3)
fall and spring or summer
Assessment and evaluation principles, techniques, and issues related to children birth through eight years. Test construction and interpretation. Lecture, discussion. Prerequisite: ITC admission.

M ECD 414 Interprofessional Practicum. (3)
fall and spring
Investigates services and agencies available in the local community to parents of children with special needs. Practical experiences with an intermittent seminar format. Dispositions, knowledge, experiences, and skills necessary for interprofessional collaboration across multiple agencies and programs. Prerequisite: ITC admission.

M ECD 420 Integrated Curriculum and Assessment: Science. (3)
fall and spring
Developmentally appropriate educational strategies and instructional techniques in teaching science to children birth–3rd grade. Prerequisite: ITC admission.

M ECD 476 Integrated Curriculum: Birth–Pre-K. (3)
fall and spring or summer
Introduction to teaching children birth through pre-K, including classroom organization, curriculum, and professional relationships. Lecture, demonstrations. Prerequisite: ITC admission.

M ECD 477 Apprenticeship: Pre-K or Infant/Toddler. (4)
fall and spring or summer
Supervised practicum in a pre-K or infant/toddler, school-or center-based program. Practicum. Prerequisite: ITC admission. Corequisite: ECD 476.

M ECD 478 Student Teaching in Early Childhood (K–3). (3–15)
fall and spring
Supervised teaching in the K–3 classroom setting. Synthesized experience in curriculum, instruction, classroom organization, and guidance of young children. May be repeated for credit. Practicum. Prerequisites: ITC admission; minimum 2.50 GPA; PFE office approval.

M ECD 479 Early Childhood Education Student Teaching Seminar. (1)
fall and spring or summer
Concurrent course with the student teaching experience that provides support, content, and critical evaluation opportunities directly related to teaching practices. Discussion. Prerequisite: ITC admission. Corequisite: ECD 478.

M ECD 480 Integrated Curriculum and Assessment: Mathematics. (3)
fall and spring
Developmentally appropriate educational strategies and instructional techniques in teaching mathematics to children birth–3rd grade. Prerequisite: ITC admission.

M ECD 481 Issues and Practices in Early Childhood Education. (1)
fall and spring or summer
Stakeholder analysis of teacher education experiences applicable to preparation that leads to increased educational opportunity and success for diverse children. Lecture, discussion. Prerequisite: ITC admission.

M ECD 494 Special Topics. (1–4)
selected semesters
- Apprenticeship: Pre-K or Infant/Toddler

M ECD 496 Field Experience. (0–3)
fall and spring or summer
Applies course content in diverse birth–3rd grade settings through observation, planning child-sensitive curriculum, implementing learning strategies, and assessment. May be repeated for credit. Practicum. Fee. Prerequisite: ITC admission.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

ELEMENTARY EDUCATION (EED)

For more EED courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M EED 334 Children's Literature and Elementary School Curriculum. (3)
fall and spring
Selecting and using children's literature in various curriculum areas in elementary school classrooms with diverse student populations. Lecture, discussion, lab. Cross-listed as RDG 334. Credit is allowed for only EED 334 or RDG 334. Prerequisite: education major.

M EED 420 Science Methods, Management, and Assessment in the Elementary School. (3)
fall and spring
Examines philosophies of science and how these relate to the implementation, management, and assessment of science teaching. Lecture, discussion, lab. Fee. Prerequisite: ITC admission.

M EED 433 Language Arts Methods, Management, and Assessment in the Elementary School. (3)
fall and spring
Theory on the social nature of oral and written language and congruent teaching, management, and assessment practices. Lecture, discussion, lab. Corequisite: EED 455.

M EED 444 Organizing the Classroom Culture. (1)
fall and spring
Examines how teachers can create and maintain a classroom learning community within the context of an elementary school program. Discussion, workshop, lab. Prerequisite: ITC admission.

M EED 455 Social Studies Methods, Management, and Assessment in the Elementary School. (3)
fall and spring
Teaching methods, classroom management strategies, and assessment techniques for social studies instruction in the elementary grades. Lecture, discussion, lab. Prerequisite: ITC admission.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M EED 478 Student Teaching in the Elementary School. (3–15)
fall and spring
Supervised teaching in the area of specialization. Synthesized experience in curriculum, instruction, and classroom management. Fee. Prerequisite: ITC admission.

M EED 480 Mathematics Methods, Management, and Assessment in the Elementary School. (3)
fall and spring
Beginning course in the teaching, management, and assessment of mathematics in grades K–8. Lecture, discussion, lab. Prerequisite: ITC admission.

M EED 496 Field Experience. (0–3)
fall and spring
Applies course content in a K–8 school classroom. Emphasizes observation, pupil management, planning and delivery of instruction, and assessment. Fee.

M EED 498 Pro-Seminar. (1–7)
selected semesters
Topics may include the following:
- Field Experience. (3)
- Integrated Children's Literature. (1)
- Language and Learning. (3)
  General Studies: L

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

INDIAN EDUCATION (IED)

M IED 401 Navajo Language and Culture I. (3)
fall
History and culture are added components to the introduction of language reading, writing, and speaking. Emphasizes basic communication and appreciation of history and culture. Lecture, discussion.

M IED 403 Navajo Language and Culture II. (3)
spring
Emphasizes communication, grammar, and sentence structures. Translations, reading, writing, and discussions of proper and slang language. Includes cultural activities. Lecture, discussion. Prerequisite: IED 401.

M IED 407 Diné Education Philosophy. (4)
fall
Assists preservice teachers in integrating Navajo educational philosophy Sá'ah Naagháí Bik'eh Hózhóon into educational instruction. Lecture, collaborative activities. Prerequisite: Diné Teacher Education ITC admission.
General Studies: HU, C

M IED 410 History of American Indian Education. (3)
fall and spring
Philosophical and historical review of the development of American Indian education policies in both traditional and contemporary society. Credit is allowed for only IED 410 or 510.
General Studies: SB, C, H

M IED 413 Language Arts Methods, Management, and Assessment for Indigenous Classrooms. (3)
fall and spring
Theory and practice on the social nature of oral and written language and the development of appropriate classroom practices for indigenous students. Prerequisite: ITC admission.

M IED 414 Reading Methods, Management, and Assessment for Indigenous Classrooms. (3)
fall and spring
Development of reading and phonics instruction, management, and assessment methods necessary for successful literacy development for indigenous students. Prerequisite: ITC admission.

M IED 420 Science Methods, Management, and Assessment for Indigenous Classrooms. (3)
fall and spring
Develops and applies elementary science lessons accommodating multiple world views, including those of Native societies, while conforming to Arizona standards. Fee. Prerequisite: ITC admission.

M IED 422 Methods of Teaching Indian Students. (3)
spring
Philosophies, methodologies, and materials used in Indian education. Examines local and tribal classroom materials. Experimentation with new teaching concepts. Prerequisite: IED 410.
General Studies: C

M IED 425 Methods of Teaching Navajo to Nonnative Speakers. (4)
fall
Methods for teaching Navajo language immersion instruction in K–8 settings. Lecture, collaborative activities. Prerequisite: Diné Teacher Education ITC admission.

M IED 427 Methods of Teaching Navajo to Native Speakers. (4)
fall
Methods for teaching Navajo language immersion instruction in K–8 settings. Lecture, collaborative activities. Prerequisite: Diné Teacher Education ITC admission.

M IED 430 Issues in Language and Literacy of Indigenous Peoples. (3)
spring
Examines issues, policies, theoretical foundations, and practices of indigenous peoples and other language minority communities from a sociolinguistics and language reclamation perspective. Credit is allowed for only IED 430 or 530.
General Studies: HU/SB, C

M IED 433 Counseling the Indian Student. (3)
fall
Techniques and methods used in counseling, with emphasis on understanding Indian cultures and values. Experimentation with new counseling concepts. Prerequisite: IED 410.

M IED 444 The Role of Governments in Native Education Policy and Administration. (3)
fall
Examines the interrelationship of federal Indian policy, federal/state/tribal law, and tribal sovereignty as they have shaped American Indian education. Analyzes administrative practices and personnel, program and fiscal management, and resources as they reflect the historic and present influence of this triad of factors. Credit is allowed for only IED 444 or 544. Lecture, seminar.
General Studies: SB

M IED 455 Social Studies Methods, Management, and Assessment for Indigenous Classrooms. (3)
fall and spring
Examines methods, classroom management, and assessment for elementary social studies instruction for indigenous learners, while incorporating language and culture. Prerequisite: ITC admission.
General Studies: C

M IED 460 Yaqui History and Culture. (3)
fall
Yaqui history and culture ranging from precontact to the present. Larger themes of Yaqui identity, belief systems, family, traditions, community, resistance, dispersion, and survival.
General Studies: HU/SB, C, H

M IED 480 Mathematics Methods, Management, and Assessment for Indigenous Classrooms. (3)
fall and spring
Develops and applies elementary mathematics lessons incorporating learning styles and cultural perspectives, while conforming to state standards. Prerequisite: ITC admission.

M IED 496 Field Experience: Classroom Management and Organization. (0–3)
fall, spring, summer
Applies course content in indigenous classrooms. Emphasizes observation, management, and planning and delivering instruction. May be repeated for credit. Lecture, lab. Fee. Prerequisite: ITC admission.

M IED 498 Pro-Seminar. (1–7)
fall and spring
Topics may include the following:
- Navajo Language. (3)
  Designed for Navajo and non-Navajo-speaking students who have little or no knowledge of the Navajo language in its written form. Emphasizes development of reading, writing, and speaking skills.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

LIBRARY SCIENCE (LIS)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

MULTICULTURAL EDUCATION (MCE)

M MCE 446 Understanding the Culturally Diverse Child. (3)
fall and spring
Survey of cultural and linguistic diversity in American education, including education equity, pluralism, learning styles, and roles of schools in a multiethnic society.
General Studies: C

M MCE 447 Diversity in Families and Communities in Multicultural Settings. (3)
fall and spring
Diversity and the changing role of schools in a multiethnic society. Lecture, simulation activities, discussion. Prerequisite: ITC admission.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

READING EDUCATION (RDG)

For more RDG courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M RDG 301 Literacy and Instruction in the Content Areas. (3)
fall, spring, summer
Required course for all Secondary Education candidates. Introduces theory and instructional strategies for learning written and oral texts across academic disciplines. Prerequisite: ITC admission.

M RDG 334 Children's Literature and Elementary School Curriculum. (3)
fall and spring
Selecting and using children's literature in various curriculum areas in elementary school classrooms with diverse student populations. Lecture, discussion, lab. Cross-listed as EED 334. Credit is allowed for only EED 334 or RDG 334. Prerequisite: education major.

M RDG 414 Teaching Reading/Decoding. (3)
fall and spring
Emphasizes teaching reading as part of an integrated classroom curriculum. Includes strategies and skills for teaching decoding (phonics), vocabulary, comprehension, study skills, and content area reading. Prerequisite: ITC admission.

M RDG 415 Teaching Phonics. (1–3)
fall and spring or summer
Provides training in phonics instruction with the study of related research and classroom experiences as appropriate. Lecture, discussion.

M RDG 481 Reading Practicum. (3)
fall and spring
Applies concepts from RDG 414 in classroom settings. Students demonstrate teaching strategies under supervision. Required for Elementary Education candidates. Prerequisite: ITC admission.

M RDG 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Reading/Decoding. (3)
- Teaching Reading/Practicum Grades K–3. (3)
- Teaching Reading/Practicum Grades 4–8. (3)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

SECONDARY EDUCATION (SED)

For more SED courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M SED 403 Middle and Secondary School Principles, Curricula, and Methods. (3)
fall, spring, summer
Advanced level of development of knowledge and skills of instructional planning and methods of teaching and evaluating in the middle and secondary schools. Requires observation/participation. Prerequisite: ITC admission.

M SED 478 Student Teaching in Secondary Schools. (3–15)
fall and spring
Practice of teaching. Relationship of theory and practice in teaching. Fee. Prerequisite: ITC admission.

M SED 480 Special Methods of Teaching Social Studies. (3)
fall and spring
Interdisciplinary approaches; production and collection of materials. Prerequisite: ITC admission.

M SED 494 Special Topics. (1–4).
selected semesters
Topics may include the following:
- Methods of Teaching Science. (3)

M SED 496 Field Experience. (0–3)
fall and spring
Applies course content in a secondary school setting. Emphasizes observation, pupil management, planning and delivering instruction, and assessment. Fee. Corequisite: SED 403.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

SPECIAL EDUCATION (SPE)

For more SPE courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M SPE 294 Special Topics. (1–4)
selected semesters

M SPE 309 Basic Special Education Curriculum. (3)
fall, spring, summer
Introduces curricular practices used in inclusion classrooms.

M SPE 311 Orientation to Education of Exceptional Children. (3)
fall, spring, summer
Includes gifted, mildly handicapped, severely handicapped, and the bilingual/multicultural exceptional child.
General Studies: SB, C

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M SPE 312 Mental Retardation. (3)
fall, spring, summer
Characteristics and assessment specific to mental retardation. Emphasizes terminology, development, educational programming, and therapeutic procedures. Prerequisite: ITC admission.

M SPE 314 Introduction to Bilingual/Multicultural Special Education. (3)
fall, spring, summer
Theoretical background and practical application of general issues regarding the education of bilingual/multicultural handicapped children. Prerequisite: ITC admission.

M SPE 336 Behavioral and Emotional Problems in Children. (3)
fall, spring, summer
Characteristics and assessment specific to emotionally and behaviorally disturbed children. Emphasizes terminology, development, and educational programming. Prerequisite: ITC admission.

M SPE 361 Introduction to Learning Disabilities. (3)
fall, spring, summer
Characteristics and assessment specific to learning disabilities. Emphasizes terminology, development, and educational programming. Prerequisite: ITC admission.

M SPE 394 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Basic Special Education Curriculum
- Inclusion Practices at the Secondary Level
- Quality Practices in the Collaborative Classroom

Prerequisite: ITC admission.

M SPE 411 Parent Involvement and Regulatory Issues. (3)
fall and spring
Emphasizes parent and school relations through effective communication and state and federal regulations impacting services for the handicapped. Prerequisite: ITC admission.

M SPE 412 Evaluating Exceptional Children. (3)
fall and spring
Normative and criterion-referenced diagnostic techniques, including formative evaluation. Emphasizes application. Requires daily practicum. Prerequisite: ITC admission.

M SPE 413 Methods in Language, Reading, and Arithmetic for Exceptional Children. (3)
fall and spring
Methods, techniques, and materials for use in prescriptive teaching. Requires daily practicum. Prerequisite: ITC admission.

M SPE 414 Instructional Management and Strategies: Reading and Writing. (3)
fall and spring
Organization and delivery of instruction, including formative evaluation techniques. Instructional techniques of reading and writing. Requires regular participation in a field experience. Prerequisite: ITC admission.

M SPE 415 Classroom and Behavior Management. (3)
fall and spring
Analysis and intervention into social behavior problems of exceptional populations. Requires regular participation in a field experience. Prerequisite: ITC admission.

M SPE 416 Quality Practices in the Collaborative Classroom. (1–3)
fall and spring
Develops skills, strategies, and a knowledge base for preservice teachers in building collaborative partnerships with special educators. May be repeated for credit. Instructor presentation, group activities, field experience. Prerequisites: SPE 311; ITC admission.

M SPE 417 Inclusion Practices at the Secondary Level. (3)
fall and spring
Applies curricular practice and how preservice teachers work with students with special needs in middle and secondary levels. Lecture, group activities, field experience. Prerequisites: SPE 311; ITC admission.

M SPE 418 Quality Practices in the Collaborative Indigenous Classroom. (3)
fall and spring
Develops skills, strategies, and knowledge for preservice teachers, focusing on indigenous children, while building collaborative partnerships with special education. Prerequisite: ITC admission.

M SPE 419 Instruction in Content Areas: Science and Social Studies. (3)
fall and spring
Develops and implements instructional methods and learning strategies for students with special needs related to science and social studies. Prerequisite: ITC admission.

M SPE 478 Student Teaching in Special Education. (3–15)
fall and spring
"Y" grade only. Fee. Prerequisite: ITC admission.

M SPE 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Instruction in Content Areas: Science/Social Studies. (3)

Prerequisite: ITC admission.

M SPE 496 Field Experience. (0–3)
selected semesters
Applies course content in a special education setting. Emphasizes observation, pupil management, planning and delivering instruction, and assessment. Fee. Prerequisite: ITC admission.

M SPE 498 Pro-Seminar. (1–7)
fall and spring
Small-group study and research for advanced students within their majors. Fee.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Division of Educational Leadership and Policy Studies

coe.asu.edu/elps
480/965-6357
ED 120

Terrence G. Wiley, Director

Regents' Professors: Berliner, Glass, Smith

Professors: Appleton, Barone, Beaulieu, Bernstein, González, McCarty, Molnar, Ovando, Swadener, Tobin, Turner, Valverde, Webb, Wiley

Associate Professors: Danzig, Hunnicutt, Margolis, Rund, Wilkinson

Assistant Professors: Begaye, Garcia, Moses, Powers, Read

Clinical Associate Professors: Jurs, Macey

Research Professor: de los Santos

Program Areas

Educational Administration and Supervision
Educational Policy Studies
Higher and Postsecondary Education
Social and Philosophical Foundations

Degrees: MA, MEd, EdD, PhD

Graduate Programs

The faculty in the division offer several graduate degrees in a number of majors. For more information, see the "College of Education Graduate Degrees and Majors" table, page 362, and the *Graduate Catalog*.

EDUCATIONAL ADMINISTRATION AND SUPERVISION (EDA)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

EDUCATION POLICY ANALYSIS (EPA)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

HIGHER AND POSTSECONDARY EDUCATION (HED)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

SOCIAL AND PHILOSOPHICAL FOUNDATIONS (SPF)

M SPF 301 Culture and Schooling. (3)
fall and spring
For the professional teacher preparation program. Overview of the cultural, social, and political milieus in which formal schooling takes place in the United States. Lecture, recitation. Prerequisite: education major.
General Studies: L

M SPF 401 Theory and Practice in Education. (1–2)
fall and spring
For the professional teacher preparation program. Analysis and interpretation of classroom behavior from perspectives derived from philosophy, social science, and law. Prerequisite: education major.

M SPF 402 Teachers and the Law in Indigenous Communities. (1)
fall
Examines the legal rights of students, teachers, and the district while preventing injury to students in indigenous communities. Lecture, discussion.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Division of Psychology in Education

coe.asu.edu/psyched
480/965-3384
EDB 302

Elsie G. J. Moore, Director

Regents' Professors: Berliner, Glass, Smith

Professors: Arredondo, Bernstein, Bitter, Blanchard, Claiborn, Green, Hackett, Hood, Horan, Kinnier, Klein, Moore, Robinson Kurpius, Strom, Sullivan, Tracey

Associate Professors: Arciniega, Brem, Brown, Ladd, Nakagawa, Savenye, Wodrich

Assistant Professors: Arzubiaga, Atkinson, Gorin, Husman, Nelson, Rayle, Thompson

Clinical Associate Professors: Caterino, Glidden-Tracey, Homer, Stamm

Program Areas

Counseling
Counseling Psychology
Counselor Education
Educational Psychology
  Learning
  Lifespan Developmental Psychology
  Measurement, Statistics, and Methodological Studies
  School Psychology
Educational Technology

Degrees: MA, MC, MEd, PhD

Graduate Programs

The faculty in the Division of Psychology in Education offer graduate degrees in a number of majors. For more information, see the "College of Education Graduate Degrees and Majors" table, page 362, and the *Graduate Catalog*.

COUNSELOR EDUCATION (CED)

For more CED courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M CED 111 Exploration of Education. (3)
fall and spring
Education as an instrument in the development of the individual and society, and its significance as an American institution.
General Studies: SB

M CED 250 Career Development. (3)
fall, spring, summer
Covers models of the individual, the world of work, and decision making with emphasis on individual application. Lecture, discussion.
General Studies: L

M CED 294 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Career Development. (1–3)
- Foundations of Leadership. (1–3)
- Leadership Colloquium. (1–3)
- Trio. (1–3)

M CED 394 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Special Topics in Leadership. (1)
  Courses bring together a faculty member with no more than 12 students to discuss and learn about a specific interest or topic. Topics designed to engage students in intellectual dialogue on one of the themes of leadership, diversity, and service/civic responsibility. Pass/fail elective; taught in the classroom of McClintock Residence Hall. Open to freshmen through senior undergraduates; all majors welcome.

M CED 484 Internship. (1–12)
fall and spring
Topics may include the following:
- Leadership Internship
- Leadership Internship and Capstone

M CED 493 Honors Thesis. (1–6)
fall and spring

M CED 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Paraprofessional Training. (3)

M CED 498 Pro-Seminar. (1–7)
fall and spring
Topics may include the following:
- Resident Assistant Experience. (2)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

COUNSELING PSYCHOLOGY (CPY)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

EDUCATIONAL PSYCHOLOGY (EDP)

For more EDP courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M EDP 302 Assessment and Evaluation in Education. (1)
fall and spring
Applies assessment and evaluation principles to education contexts, using a case format. Prerequisite: education major.

M EDP 303 Human Development. (3)
fall and spring
Selected aspects of child and adolescent development. Emphasizes possibilities for influence by teachers and parents. Prerequisite: education major.
General Studies: L/SB

M EDP 310 Educational Psychology. (1–6)
fall, spring, summer
Presents human behavior in educational situations through instructional modules. May be repeated for credit for total of 6 hours.
General Studies: SB (Three hours must be taken to secure SB credit.)

M EDP 313 Childhood and Adolescence. (3)
fall, spring, summer
Principles underlying total development of pre- and early-adolescent children. Emphasizes physical, intellectual, social, and emotional development with practical implications for teachers.

M EDP 454 Statistical Data Analysis in Education. (3)
fall, spring, summer
Role of data analysis in research and decision making. Elements of exploratory data analysis, descriptive indexes, and statistical inference. Lecture, lab. Prerequisite: MAT 117.
General Studies: CS

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

EDUCATIONAL TECHNOLOGY (EDT)

For more EDT courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M EDT 300 Computers in Education. (1)
fall, spring, summer
Introduces general computer applications, electronic portfolios, educational software, and World Wide Web to integrate computer technology with teaching and instruction.

M EDT 321 Computer Literacy. (3)
fall, spring, summer
Surveys the role of computers in business, industry, education, and personal life. Lab experience with word processing, spreadsheet, and presentation software as well as Internet research and the creation of a personal Web site. 2 hours lecture, 2 hours lab.
General Studies: CS

M EDT 323 Computer Applications. (3)
fall, spring, summer
Introduces computer applications such as HyperCard, telecommunications, authoring languages, and expert systems. Lecture, lab.
General Studies: CS

M EDT 405 Presentation Technology for Multimedia. (3)
fall
Explores multimedia hardware and software used in creating presentations for educational, corporate, and commercial applications.

M EDT 406 Computer Graphics and Animation. (3)
spring
Studies and applies design and animation techniques for use in video or computer-based presentations.

M EDT 455 Authoring Tools. (3)
fall, spring, summer
Use of current authoring tools to design and deliver computer-based instructional materials.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Ira A. Fulton School of Engineering

www.fulton.asu.edu

PURPOSE

The Ira A. Fulton School of Engineering educates undergraduate and graduate engineering students, giving them the knowledge, skills, and attitudes they need for success in technically oriented careers. The school provides students with a range of educational opportunities by which they may achieve excellence in the major branches of engineering, in computer science, and in construction management.

The Fulton School takes pride in its diversity, its economic and cultural heritage, and in the quality of its graduates. It strives to be an integral part of the community it serves and a lifelong presence in the lives of those within its compass. The school's educational and research programs are built around the following principles: entrepreneurship; use-inspired research and scholarship; a focus on the individual; intellectual fusion of unique and distinct disciplines; social embeddedness in the local, national, and international community; and global engagement.

For more information, access the school's Web site at www.fulton.asu.edu.

THE FULTON ASPIRATIONS

Graduates from any of the school's programs will be technically sound. In addition to technical competency, the Fulton School aspires to develop leaders who are aware of biological issues, well read and well spoken, and knowledgeable about current business practices. To this end the school offers enhanced curricula, special courses, and extracurricular activities to enrich the student's stay and to offer every student opportunities to achieve the school's aspirations.

All the programs within the school are professional programs, and hence professionalism is an important component of all the curricula. The school strives to help students understand and value the various aspects of professionalism, including ethical behavior; a desire for life long learning; the ability to communicate with others; and an awareness of how the profession fits into and impacts society. As a first step in ethics, all students are expected to follow rules of academic integrity defined by the university.

For more information, access the Web site at www.asu.edu/studentaffairs/studentlife/judicial/academic_integrity.htm.

ORGANIZATION

The Fulton School of Engineering includes three primary educational components: eight academic units, several research centers, and the Center for Professional Development.

Departments. The school houses eight academic units.

Del E. Webb School of Construction
Department of Chemical and Materials Engineering
Department of Civil and Environmental Engineering
Department of Computer Science and Engineering
Department of Electrical Engineering
Department of Industrial Engineering
Department of Mechanical and Aerospace Engineering
Harrington Department of Bioengineering

Research Centers. The school is committed to the development of research programs of national prominence and to the concept that research is an important part of its educational role. The school encourages the participation of qualified undergraduate and graduate students in various research activities. Most faculty are involved in government- or industry-sponsored research programs in a wide variety of fields. This research is carried out in the academic units and in a number of interdisciplinary research institutes, centers, and programs. A list of centers is available on the Web at www.fulton.asu.edu/fulton/research/centers.php.

Center for Professional Development. The Center for Professional Development (CPD) provides engineers and technical professionals the skills and knowledge necessary to master new methods, to lead projects and teams, and to

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Fulton School Admission Requirements for Freshmen and Transfer Students

Student	Admission Level	Admission Criteria		
Freshmen	Preprofessional	Minimum transfer GPA of 3.00 if any No minimum number of transfer hours No high school math or science deficiency	*and*	Class ranking in upper 25% *or* ABOR GPA of 3.00 minimum *or* ACT minimum combined score of 24 *or* SAT minimum combined math and verbal score of 1140
	Professional	Minimum transfer GPA of 3.50 if any No minimum number of transfer hours No high school math or science deficiency	*and*	ACT minimum combined score of 32 *or* SAT minimum combined math and verbal score of 1400
Transfer students	Preprofessional	Minimum transfer GPA of 3.00 24 transfer hours or more No high school math or science deficiency	*or*	Minimum transfer GPA of 3.00 Less than 24 transfer hours No high school math or science deficiency *and* Class ranking in upper 25% *or* ABOR GPA of 3.00 minimum *or* ACT minimum combined score of 24 *or* SAT minimum combined math and verbal score of 1140

advance professionally. Programs are offered in traditional classroom environments and through distance learning. CPD works with the nationally renowned faculty of the Fulton School of Engineering and affiliate experts to administer short courses and conferences, professional certification programs, and graduate degree programs. These online programs allow students with complex schedules to complete advanced work from remote locations. CPD also administers customized programs at company sites. For more information, call 480/965-1740, or access the center's Web site at www.asuengineeringonline.com.

ADMISSION

The Fulton School is home to a number of rigorous professional programs. To help ensure student success in these programs the Fulton School has higher admission requirements than those for the university. High school students are expected to have completed a college preparation curriculum including math through precalculus and at least three years of high school lab science preferably in biology, chemistry, and physics. Transfer students are likewise expected to have performed well in their postsecondary work. Students interested in degrees within the school are encouraged to consult an advisor to help ensure that a proper set of high school and/or postsecondary courses are being taken.

All the programs within the Fulton School are divided into two parts. The freshmen and sophomore years of the program are designated as the preprofessional portion while the junior and senior years are designated as the professional portion. Students in the preprofessional program are only permitted to register for lower-division (100- and 200-level) classes within the school. Promotion from preprofessional to professional status is competitive and not automatic (see "Promotion to Professional Status," page 373).

The following material defines the admission standards for different categories of students.

Direct Admission at the Professional Level. A few high performing freshmen are admitted directly to the professional level. These students will still take the freshmen and sophomore courses but will not have to compete for promotion. If a directly admitted student fails to maintain acceptable academic performance the student may be demoted back to the preprofessional level. Direct admission at the professional level is reserved for freshmen who have completed a college preparation curriculum, have scored 1400 or higher for the sum of the verbal and math portions of the SAT or 32 or higher for the combined ACT, and, if any post secondary transfer work exists, have a transfer GPA of at least 3.50, as shown in the "Fulton School Admission Requirements for Freshmen and Transfer Students" table, on this page.

Freshmen. Most freshmen are admitted to the preprofessional level. Admission to the Fulton School requires high school students to have completed a college preparation curriculum, to have a transfer GPA of 3.00 or higher (if any transfer courses exist) and to satisfy at least one of the high school performance criteria (see "Fulton School Admission Requirements for Freshmen and Transfer Students" table, on this page). Freshmen who are not initially qualified for admittance may still gain admission to the school via the transfer student or change of major route.

Transfer Students. All transfer students are initially admitted to the preprofessional level but some may be eligible to apply for promotion to professional level (see "Promotion to Professional Status," on this page). The admission standards have been set to select students who are ready for one of the professional programs (e.g., demonstrated math and science competency) and who have demonstrated the ability to succeed in a postsecondary environment (at least 24 hours of work with a GPA of 3.00 or higher). Transfer students with less than 24 transfer hours must also satisfy one of the high school performance criteria. Upon admission to one of the school's programs it is highly recommended that transfer students make an appointment to meet with the program's academic advisor to assess their status and develop a plan for success.

International Students. Foreign nationals must meet the same admission requirements shown in the "Fulton School Admission Requirements for Freshmen and Transfer Students" table, page 372 with the possible additional requirement of a minimum TOEFL score. If the university requires a TOEFL score (see "TOEFL," page 73) then admission to the Fulton School requires a minimum TOEFL score of 550 (paper based), 213 (computer based), 79 on iBT (internet based) or a minimum IELTS score of 6.5.

General Education Development. Students admitted to the university after successful completion of the General Education Development examination are admitted as preprofessional students within their major provided they meet the minimum ACT or SAT score required for admission as listed in the"Fulton School Admission Requirements for Freshmen and Transfer Students" table, page 372.

Admission by Change of Major. Students moving into the Fulton School from an ASU program outside of the school are admitted at the preprofessional level. Students who are changing majors must meet the admission standards established for transfer students. Students interested in changing majors are encouraged to make an appointment with an advisor in the program of interest to discuss the probability of success and to develop a plan of action to ensure successful promotion. Change of major is not guaranteed and may be denied based on lack of evidence that the student can successfully complete the program.

Readmission. Students who have been gone from the university for one or more semesters and want to return to the school will need to have a cumulative ASU GPA of 3.00 or higher. Students returning to the same program in Fulton are readmitted to the program at the same level (preprofessional or professional) they had before leaving the school. Students returning to a new program in Fulton are readmitted at the preprofessional level. Returning students who have a cumulative GPA of less than 3.00 may request review by the Office of the Associate Dean of Academic Affairs. As with transfer students it is strongly recommended that each readmitted student consult with an advisor in the program they plan on pursuing to determine the likelihood of being promoted to the professional level.

Evaluation of Previous Course Work. Transferring from one institution to another or between programs can result in a net loss in units that count toward the degree. Thus it is important for students who contemplate transferring into this school from another institution, whether a community college or four-year institution, to carefully study the catalog material pertaining to the particular program to get a sense of what courses may transfer.

Credit is granted for transferred courses deemed equivalent to corresponding courses in the selected program of study, subject to grade and ASU resident credit requirements. No grades lower than "C" (2.00) are accepted as transfer credit to meet the graduation requirements of this school. Credits transferred from a community college or two-year institution are applied only as lower-division credits. For a listing of the acceptable courses transferable to the various degree programs, prospective Arizona transfer students should consult their advisors and refer to the ASU transfer tools available on the Web at www.asu.edu/provost/articulation.

It should be noted that some courses taken in other ASU colleges or other universities may be acceptable for general university credit but may not be applicable toward the degree requirements of this school. Determination of those particular courses applicable to a specific degree program is made within the appropriate academic unit with the approval of the dean.

Currency of Course Work. Courses taken more than five years before admission to degree programs in this school are not normally accepted for transfer credit at the option of the department in which the applicant wishes to enroll. Courses completed within the five years preceding admission are judged as to their applicability to the student's curriculum.

PROMOTION TO PROFESSIONAL STATUS

Promotion from the preprofessional to the professional level is competitive. All programs within the school use the same general process but the particular requirements are program specific and are listed under each department. Promotion is based on a combination of factors defined by each program but as a minimum consists of the cumulative GPA (ASU and transfer courses if any) for a set of specific courses (referred to as the skill-set). Some programs augment the skill-set criterion with other materials (e.g., a cumulative ASU GPA, essay, exam, etc.). The minimum GPA required for promotion is program specific.

The skill-set for each program has the following characteristics:

1. courses are all lower division (100- and 200-level) courses required by the program for graduation;
2. courses give some prediction of success in the upper-division courses;
3. set includes at least 24 semester hours of course work; and

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4. courses are all included within the first three semesters of a program as shown in the "Typical Four-Year Sequence" (see departmental material).

Students must apply for promotion and are only permitted to request promotion in the program in which they are currently enrolled. The application period is open for the entire semester and closes with the beginning of final exams. The earliest semester a student can apply for promotion is during the semester they are completing a program's skill-set. A typical promotion sequence would be

1. student completes skill-set during third semester;
2. student applies for promotion during third semester;
3. student enrolls for fourth semester course work during third semester;
4. student's request for promotion is processed during the early part of the fourth semester; and
5. student (if successful) is promoted to professional level and registers for fifth semester (first semester of upper-division Fulton course work).

Students completing some of the skill-set courses at institutions other than ASU will need to have course results transferred to ASU before their application for promotion can be considered.

The skill-set courses for each program can be found in the departmental write-ups or at www.eas.asu.edu/fulton/transfers/professional_programs_general.php.

ADVISING

Successful completion of a program in the Fulton School requires careful planning. While final responsibility for becoming familiar with and understanding academic degree requirements lies with the student, each department employs professional academic advisors who work with students in setting academic and career goals; understanding school and university policies and procedures; meeting degree requirements; and becoming familiar with the university's and the school's sources of academic support. Students may also work with a faculty advisor familiar with the chosen field of specialization. Students should consult with an advisor before registering each semester.

Earning promotion in a timely manner requires careful planning. Normally promotion requests are made during the third semester and promotion decisions are made during the fourth semester of a typical four-year sequence of classes. This ensures that the student has classes they can take while the promotion decision is being made. All students are encouraged to meet with a program advisor when they are admitted to a program to discuss promotion and how best to proceed.

Many students find it necessary to work while attending ASU. The working student should endeavor to create a careful balance of work and class responsibilities to avoid academic problems. Students should inform faculty and professional advisors of any outside work or activity so that course loads may be adjusted accordingly.

Advisors and staff in the Office of the Associate Dean for Academic Affairs in the school are available to assist individual students with many different types of advising issues. They work with students to answer general questions regarding policy and procedure; help with registration transactions; administer the probation, disqualification, and readmission processes; oversee disciplinary actions; hear grade grievances; and assist with other administrative matters. For more information, access the school's Web site at fulton.asu.edu/fulton.

REGISTRATION

Students are required to register for courses using one of the university-provided processes. As part of the registration process, the school enforces the following registration restrictions.

Mandatory Advising. All first-year students, all student athletes, and students who are found to be having academic difficulty are required to be advised before they can register for classes, including summer sessions. Some programs relax the advising requirement after the first year, so students should consult their department to determine if advising is required.

Maximum Hours. Students enrolled in an undergraduate degree program in this school may register for a maximum of 19 semester hours each semester. Any student wanting to register for more than the maximum must submit a petition and have an approval on file before registering for the overload.

Probationary Status. Students who have been placed on academic probation must be advised by a faculty or professional advisor from within the academic unit of their major and then advised by an advisor within the Office of the Associate Dean of Academic Affairs, who will issue a special permit allowing them to register. Students on probation are limited to 13 semester hours. Generally the special permits are not issued until after grades have been posted (see, "Probation," page 377 for details).

Undergraduate Nondegree Status. Students who are enrolled in an undergraduate nondegree status in this school must obtain advising and approval to register before registering each semester from the Office of the Associate Dean of Academic Affairs. For more information, see "Admission of Undergraduate Nondegree Applicants," page 74.

Course Prerequisites. Students should consult the *Schedule of Classes* and the catalog for course prerequisites. Students who register for courses without the designated prerequisites may be withdrawn without the student's consent at any time before the final examination. Such withdrawal may be initiated by the instructor, the chair of the department offering the course, or the dean of the college. In such cases, students will not receive monetary reimbursement.

Pass/Fail Grades. Students enrolled in the school do not receive degree credit for pass/fail courses taken at this institution. In addition, no course in this school is offered for pass/fail credit. Students requesting credit for pass/fail courses taken at another institution must file a Petition for Adjustment to Curriculum Requirements to the department of their major. Each request is judged on its particular merits.

Ira A. Fulton School of Engineering Baccalaureate Degrees and Majors

Major	Degree	Concentration[1]	Administered By
Aerospace Engineering	BSE	—	Department of Mechanical and Aerospace Engineering
Bioengineering	BSE	—	Harrington Department of Bioengineering
Chemical Engineering	BSE	—	Department of Chemical and Materials Engineering
Civil Engineering	BSE	Optional: construction engineering or environmental engineering[1]	Department of Civil and Environmental Engineering
Computer Science	BS	Optional: software engineering[1]	Department of Computer Science and Engineering
Computer Systems Engineering	BSE	—	Department of Computer Science and Engineering
Construction	BS	General building construction, heavy construction, residential construction, or specialty construction	Del E. Webb School of Construction
Electrical Engineering	BSE	—	Department of Electrical Engineering
Engineering Interdisciplinary Studies[2]	BS	—	Ira A. Fulton School of Engineering
Engineering Special Studies	BSE	Premedical engineering	Ira A. Fulton School of Engineering and the Harrington Department of Bioengineering
Industrial Engineering	BSE	—	Department of Industrial Engineering
Materials Science and Engineering	BSE	—	Department of Chemical and Materials Engineering
Mechanical Engineering	BSE	—	Department of Mechanical and Aerospace Engineering

[1] If a major offers concentrations, one must be selected unless noted as *optional*.

[2] Applications for this program are not being accepted at this time.

Non-Fulton School of Engineering Students. Students who are not admissible to programs in this school and who enroll in another school at ASU may not register for any 300- or 400-level courses in this school unless they are required in their degree programs and the students have the proper course prerequisites.

UNDERGRADUATE DEGREES

The faculty in the Fulton School of Engineering offer programs leading to the BS and BSE degrees with majors in the subjects shown in the "Ira A. Fulton School of Engineering Baccalaureate Degrees and Majors" table, on this page. Each major is administered by the academic unit indicated.

For detailed information on the degree requirements of a major in the Ira A. Fulton School of Engineering, refer to that academic unit's individual description on the following pages.

GRADUATE DEGREES

The faculty in the Fulton School of Engineering offer master's and doctoral degrees as shown in the "Ira A. Fulton School of Engineering Graduate Degrees and Majors" table, page 376. Engineering faculty participate in offering the Master of Engineering (MEng) as a collaborative degree program offered by Arizona's three state universities. For more information, see the *Graduate Catalog*.

SCHOOL OF EXTENDED EDUCATION

The university-wide School of Extended Education provides an interactive link between ASU and the diverse communities it serves. The college assesses lifelong learning requirements and works in partnership with campuses, other colleges, and the community to serve learners, using a network of locations, programs, schedules, and technologies.

For more information, see "School of Extended Education," page 134, or access the Web site at www.asu.edu/xed .

UNIVERSITY GRADUATION REQUIREMENTS

In addition to department and school requirements, students must meet all university graduation requirements (see "University Graduation Requirements," page 89). A well-planned program of study enables students to meet all requirements in a timely fashion. Students are encouraged

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Ira A. Fulton School of Engineering Graduate Degrees and Majors

Major	Degree	Concentration[1]	Administered By
Aerospace Engineering	MS, MSE, PhD	—	Department of Mechanical and Aerospace Engineering
Bioengineering	MS, PhD	—	Harrington Department of Bioengineering
Chemical Engineering	MS, MSE, PhD	—	Department of Chemical and Materials Engineering
Civil and Environmental Engineering	MS, MSE, PhD	—	Department of Civil and Environmental Engineering
Computer Science	MCS	—	Department of Computer Science and Engineering
	MS, PhD	Optional: arts, media, and engineering[1]	Department of Computer Science and Engineering
Construction	MS	Optional: construction science, facilities, or management[1]	Del E. Webb School of Construction
Electrical Engineering	MS, PhD	Optional: arts, media, and engineering[1]	Department of Electrical Engineering
	MSE	—	Department of Electrical Engineering
Engineering	MEng	—	Ira A. Fulton School of Engineering
Engineering Science	MS	—	Ira A. Fulton School of Engineering
	MSE	Executive embedded systems	Ira A. Fulton School of Engineering
	PhD	Materials science and engineering	Department of Chemical and Materials Engineering
Industrial Engineering	MS, MSE, PhD	—	Department of Industrial Engineering
Materials Engineering	MS, MSE	—	Department of Chemical and Materials Engineering
Materials Science	MS[2]	—	Committee on the Science and Engineering of Materials
Mechanical Engineering	MS, MSE, PhD	—	Department of Mechanical and Aerospace Engineering
Science and Engineering of Materials	PhD[2]	High-resolution nanostructure analysis or solid-state device materials design	Committee on the Science and Engineering of Materials

[1] If a major offers concentrations, one must be selected unless noted as *optional*.

[2] This program is administered by the Division of Graduate Studies.

to consult with an academic advisor in planning a program to ensure that they comply with all necessary requirements.

General Studies Requirement

All students enrolled in a baccalaureate degree program must satisfy a university requirement of a minimum of 35 hours of approved course work in General Studies. General Studies courses are listed in the "General Studies Courses" table, page 96, in the course descriptions in this catalog or on the Web, in the *Schedule of Classes,* and in the *Summer Sessions Bulletin*. Consult with an advisor for an approved list of courses.

First-Year Composition Requirement

As a minimum, completion of ENG 101 and 102, or ENG 107 and 108, or ENG 105 with grades of "C" (2.00) or higher is required for graduation from ASU in any baccalaureate program as described in "First-Year Composition Requirement," page 89. Any student whose written or spoken English in any course is unsatisfactory may be required by the appropriate director or department chair to take additional course work.

ACADEMIC STANDARDS

The school has developed and enforces a number of academic standards, these are designed to support students who are struggling academically and to insure the quality of the school's graduates.

Student Responsibilities

Students have to make many decisions as they complete their degrees. While the school and the university make a number of resources available (e.g., faculty, courses, advisors, and tutors) to help in making the decisions, students are expected to take responsibility for making them.

Satisfactory Progress

Students are expected to select and successfully complete courses that lead to the timely completion of their degree. Students are said to be making satisfactory progress if they (1) maintain an acceptable GPA and (2) complete courses

each semester that are applicable to their degree. Students who are making satisfactory progress are said to be in good standing.

PROBATION

Some students do not make satisfactory progress and these students generally need extra attention and resources to help them get back on track. Such students are placed on probation to help ensure that they get the necessary help. There are many reasons why students fail to make satisfactory progress and meeting with a program academic advisor to work out a program for success is crucial. Students may be required to reduce their course load (13 semester hours maximum), retake courses, or even take courses outside of the program if the advisor judges these measures will help bring the student back to good standing.

Registration for Next Semester Classes. Before students on probation can register for classes in the next semester they must receive advising in their department and then obtain a special permit from an advisor in the Office of the Associate Dean for Academic Affairs. Permits are also required for summer school registration. Generally permits are not issued until final grades for the current semester have been recorded by the registrar but the school may issue the permits immediately following preregistration to some eligible students. Student on probation should check with their department's academic advisor to see if they are eligible for an early permit.

Conditions for Probation. A student is placed on probation when specific academic expectations are not met. Some conditions trigger an automatic placement on probation whereas others trigger an automatic review of the student's case to determine if probation is warranted. When a probation review is triggered, the final decision is made by the student's department, which also determines any conditions of probation.

Automatic probation is triggered by any of the following:

1. a semester or summer session with a GPA less than or equal to 1.50;
2. two successive semesters with GPAs less than 2.00; and
3. an ASU Cumulative GPA below 2.00 (for more than 55 semester hours).

Automatic review is triggered by any one of the following:

1. an ASU cumulative GPA less than 2.00 (0 to 55 semester hours);
2. a cumulative GPA in the major of less than 2.00; or
3. a failure to complete any courses appropriate for the degree during each semester.

Courses completed during summer sessions are not used to reevaluate a student's fall semester probationary status.

Disqualification. Students who are on academic probation and fail to meet the school's retention standards become ineligible to continue working toward a degree within the school. Disqualification occurs if the probationary student

1. does not attain a semester GPA of 2.25 or higher; or
2. has a cumulative GPA below 2.00 at the end of the probationary semester; or
3. has been placed on probation for two consecutive semesters.

Students who have been disqualified are subject to the following limitations:

1. Students who change colleges may not register for courses in engineering unless the courses are required by their new major.
2. Students who register for courses in the school may be withdrawn from these courses any time during the semester they are registered.

Students who have been disqualified are encouraged to consider these options:

1. They may be eligible to change their major to another college if they have an acceptable cumulative GPA. The acceptable GPA level depends on the number of hours completed course work. Students should check with an advisor in the Office of the Associate Dean of Academic Affairs to determine if they are eligible.
2. They may take nonengineering courses during summer and winter sessions.
3. They may request a review of their status by contacting the Office of the Associate Dean for Academic Affairs.

Reinstatement

The school does not accept an application for reinstatement until the disqualified student has remained out of this school for at least a 12-month period. Merely having remained in a disqualified status for this period of time does not, in itself, constitute a basis for reinstatement. Proof of ability to do satisfactory college work in the chosen discipline is required, for example, completing at least 15 semester hours of pertinent courses in the discipline at a community college with a GPA of 3.00 or higher, and a cumulative GPA of 2.50 or higher for all courses completed.

SPECIAL PROGRAMS

Joint Bachelor's and Master's Degree. Several programs within the school offer an opportunity to their highly motivated and high-performing students to start a master's program while still completing the last year of the BS or BSE degree. Interested students should contact their major department for details.

Undergraduate Research. The Fulton Undergraduate Research Initiative (FURI) program allows undergraduate students to participate in university-level research. Students, in collaboration with mentors, make proposals to FURI to fund the research work they want to perform. Students are eligible to apply after only one semester of work. Projects range from one semester to several years. A research poster symposium is held each semester to present the results of

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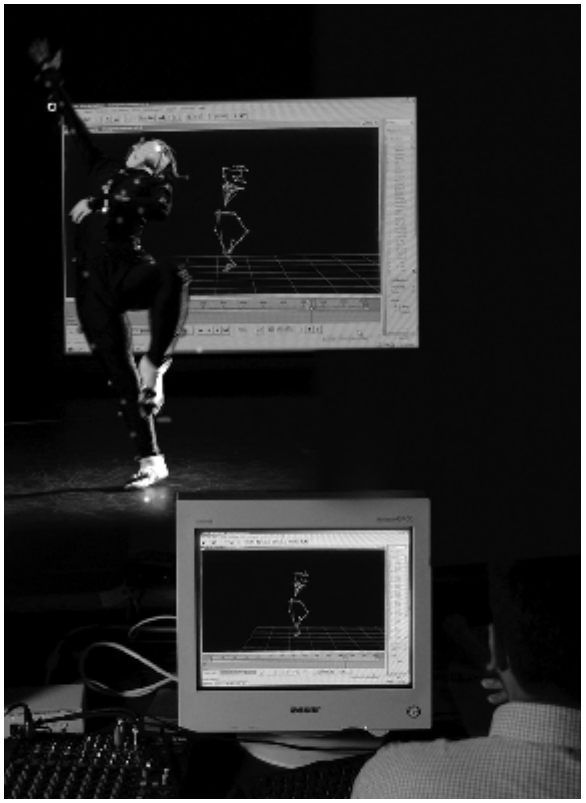
the research. For more information, access the school's Web site at eas.asu.edu/fulton/departments/furi/index.php.

Certificate Program in Technology Entrepreneurship. Engineers and scientists around the globe launch high-tech companies to move their ideas to the market. Studies show that the majority of innovative products and services in the economy evolve from entrepreneurial ventures. By providing knowledge and skills important to the creation and leadership of such startups, the certificate program in Technology Entrepreneurship aims to train the founders and leaders of tomorrow's high-tech ventures. The certificate program is designed specifically for engineers. Courses are approached from the perspective of the student whose primary interest is in technological innovation, whose primary concentration is on engineering, and who has little or no prior business education. For more information, call 480/965-9480.

Science Math Engineering Competition Awards (SMECA) Scholarships. The school has a limited number of scholarships available to students who competed during high school in regional or national science, mathematics or engineering competitions (e.g., National Science Fair, FIRST). The scholarship is renewable up to five years. Interested students should access the school's Web site at www.fulton.asu.edu/fulton/students/sas/scholarships.php for details.



The Arts, Media, and Engineering program is offered collaboratively by the Katherine K. Herberger College of Fine Arts and the Ira A. Fulton School of Engineering.

Tim Trumble photo

Fulton Scholars. The Fulton Scholars are a group of highly motivated, talented students who have the opportunity to participate in enriched intellectual, cultural, and social programs during their college years. Membership is competitive and by invitation; students winning a SMECA scholarship receive automatic membership.

Fulton Ambassadors. The Fulton Ambassadors is composed of undergraduate students representing all disciplines within the school. Originally called "Student Ambassadors," the name was changed in fall 2003 to "Fulton Ambassadors" in recognition of Ira A. Fulton's contribution to the school of engineering. Fulton Ambassadors promote and advance the school at ASU and serve as student liaisons between current students, administrators, alumni, and industry. For more information, access the Web site at www.fulton.asu.edu/sa/fa_website.

SORP. The Student Outreach and Retention Program (SORP) houses student diversity programs in the Ira A. Fulton School of Engineering. SORP offers programs and services to improve the climate for, and to attract, support, and retain minority and women students in engineering. Programs included in SORP are the Women in Science and Engineering Program, the Minority Engineering Program, and the Coalition of Engineering Minority Societies and the Society of Women Engineers (CEMSWE). CEMSWE encourages the minority engineering organizations: American Indian Science and Engineering Society, National Society of Black Engineers, Society of Hispanic Professional Engineers, and the Society of Women Engineers to work together to maximize their effectiveness in many areas.

In addition, SORP houses the Center for Outreach and Recruitment (COR) for the Fulton School. This unit supports the recruitment programs for the Fulton School of Engineering, including the Central Arizona Math, Engineering, Science Achievement program. COR coordinates the Engineering Summer Institute, providing hands-on engineering camps, both commuter and residential, to middle school, high school, and incoming freshmen students. For more information, contact the Office of the Associate Dean of Academic Affairs.

Cooperative Education. The co-op program is a work-study plan of education that alternates periods of academic study with periods of employment in business, industry, or government. Students who choose this program ideally complete 12 months of employment and graduate with both the academic background and practical experience gained from working with professionals in a chosen field.

A student in the school is eligible to apply to the co-op program upon completion of 45 or more hours of classes required for the selected major. Transfer students are required to complete at least one semester at ASU before beginning work. All student applicants must have a GPA of at least 2.50 and the approval of an advisor and the dean of the school.

To maintain continuous student status in the university, each co-op student must be enrolled in FSE 399 Cooperative Work Experience for one semester hour during each work session. Such credit cannot be applied toward degree

requirements. For more information, visit the Office of the Associate Dean for Academic Affairs, or call 480/965-1750, and visit the Career Services office in SSV 329, or call 480/965-2350.

Honor Societies. Students are encouraged to seek information concerning entry into those honor societies for which they may qualify. Membership in such organizations enhances the student's professional stature. The following honor societies are active within the school:

Alpha Eta Mu Beta—Bioengineering Honor Society
Alpha Pi Mu—Industrial Engineering Honor Society
Chi Epsilon—Civil Engineering Honor Society
Eta Kappa Nu—Electrical Engineering Honor Society
Omega Rho—Industrial Engineering Society
Pi Tau Sigma—Mechanical Engineering Honor Society
Sigma Gamma Tau—Aerospace Engineering Honor Society
Sigma Lambda Chi—Construction Honor Society
Tau Beta Pi—National Engineering Honor Society
Upsilon Pi Epsilon—National Computer Science Honor Society

Information on any of these organizations may be obtained from the respective department or school offices.

Honors Students. The Fulton School of Engineering participates in the programs of the Barrett Honors College, which provides enhanced educational experiences to academically superior undergraduate students. Participating students can major in any academic program. A description of the requirements and the opportunities offered can be found in "The Barrett Honors College," page 145.

Internships. A variety of internship programs exist within the college. Information on these programs can be obtained from the Engineering Internship Program coordinator in the Office of the Associate Dean for Academic Affairs.

Scholarships. Information and applications for academic scholarships for continuing students may be obtained by contacting the Office of the Associate Dean for Academic Affairs or the various department or school offices. Other scholarships may be available through the university Student Financial Assistance Office. For an application and more information, access the Web site at fulton.asu.edu/fulton/students/sas/scholarships.php.

ROTC. Students pursuing a commission through either the Air Force or Army ROTC programs are required to take courses in the Department of Aerospace Studies or Department of Military Science. To preclude excessive overloads, these students should plan on at least one additional semester to complete degree requirements. Because of accreditation requirements, aerospace studies (AES) or military science (MIS) courses are not acceptable for degree credit in engineering as social and behavioral science or humanities and fine arts under General Studies. ROTC students must also meet all other degree requirements of this school.

GENERAL INFORMATION

Definition of Terms. The terms used to describe offerings are defined below for purposes of clarity.

Program of Study. This broad term describes the complete array of courses included in the study leading to a degree.

Major. This term describes a specialized group of courses contained within the program of study. Example: program of study—engineering; major—Civil Engineering.

Area of Study (Technical Electives) or Concentration. Each of these terms describes a selection of courses within a major or among one or more majors. The number of technical electives varies from curriculum to curriculum. In several majors, the technical electives must be chosen from preselected groups. For this reason the choice of specific technical electives for an area of study should be made with the advice and counsel of an advisor.

Del E. Webb School of Construction

construction.asu.edu
480/965-3615
USE 138

James J. Ernzen, Interim Director

Professors: Badger, Kashiwagi

Associate Professors: Ariaratnam, Bashford, Chasey, Ernzen, Sawhney, Wiezel

Assistant Professors: Fiori, Mitropoulos, Sullivan

Senior Lecturer: Knutson

PURPOSE

Construction careers are so broadly diversified that no single curriculum prepares the student for universal entry into all fields. As an example, heavy construction contractors usually place more emphasis on technical and engineering science skills than do residential contractors/developers, who usually prefer a greater depth of knowledge in the business management of construction. To ensure a balanced understanding of the technical, professional, and philosophical standards that distinguish modern-day constructors, advisory groups representing leading associations of contractors and builders provide counsel in curriculum development. Construction has a common core of engineering science, management, and behavioral sciences courses on which students may build defined concentrations to suit individual backgrounds, aptitudes, and objectives. These

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

concentrations are not absolute but generally match major divisions of the construction industry.

DEGREES

Construction—BS

The faculty in the Del E. Webb School of Construction offer the BS degree in Construction. Four concentrations are available: general building construction, heavy construction, residential construction, and specialty construction.

Each concentration is arranged to accent requisite technical skills and to develop management, leadership, and competitive qualities in the student. Prescribed are a combination of General Studies courses, technical courses basic to engineering and construction, and courses on a broad range of applied management subjects fundamental to the business of construction contracting.

Construction—MS

The faculty in the school also offer the MS degree in Construction. Details for this degree are found in the *Graduate Catalog*.

Professional Accreditation and Affiliations. The Del E. Webb School of Construction is a member of the Associated Schools of Construction, an organization dedicated to the development and advancement of construction education. The construction program is accredited by the American Council for Construction Education.

SPECIAL PROGRAMS

The Del E. Webb School of Construction maintains a cooperative agreement with community colleges within Arizona and also with selected out-of-state colleges and universities to structure courses that are directly transferable into the construction program at ASU.

Student Organizations. The school has a chapter of Sigma Lambda Chi, a national honor society that recognizes high academic achievement in accepted construction programs. The school is also host to the Associated General Contractors of America student chapter, the National Association of Home Builders student chapter, the Construction Women's Alliance, and the Mechanical Contractors Association of America.

Scholarships. Apart from those given by the university, a number of scholarships from the construction industry are awarded to students registered in the construction program. The scholarships are awarded on the basis of academic achievement and participation in activities of the construction program.

Business Minor. The school, in conjunction with the W. P. Carey School of Business, offers a business minor for students who have an interest in additional business courses while pursuing a degree in construction. The courses available for the minor are designed to appeal to and inform the nonbusiness student. Courses cover a broad range of topics important to modern managers. See a construction undergraduate advisor for minor requirements.

ADMISSION

For information regarding requirements for admission, transfer, retention, qualification, and reinstatement, see "Undergraduate Admission," page 66; "Admission," page 372; and "Degree Requirements," page 381. Students applying to the program will be admitted to either the professional or preprofessional category depending upon their qualifications. For more information about the Fulton School of Engineering, see "Admission," page 372.

Vocational and craft-oriented courses taught at community colleges are not accepted for credit toward a bachelor's degree in Construction.

The Preprofessional Program. Each student admitted to the Del E. Webb School of Construction preprofessional program will follow the freshman and sophomore sequence of courses listed in the section "Typical First Two Year Course Sequence," page 382. Students should follow the recommendations of their staff and faculty academic advisors in completing the prescribed background and skill courses in preparation for passage to the professional program. The skill courses are

COM	225	Public Speaking *L*	3
CON	221	Applied Engineering Mechanics: Statics	3
CON	243	Heavy Construction Equipment, Methods, and Materials	3
CON	251	Microcomputer Applications for Construction	3
CON	252	Building Construction Methods, Materials, and Equipment	3
ECN	212	Microeconomic Principles *SB*	3
ENG	102	First-Year Composition	3
MAT	294	ST: Calculus for Engineers I	3
PHY	111	General Physics *SQ*[1]	3
PHY	113	General Physics Laboratory *SQ*[1]	1
STP	226	Elements of Statistics *CS*	3
Total			31

[1] Both PHY 111 and 113 must be taken to secure SQ credit.

The Professional Program. The junior and senior years constitute the professional program of the undergraduate curriculum. Admission to the professional program is competitive and limited by available resources. Admission is awarded to those applicants demonstrating the highest promise for professional success. The admissions committee considers overall transfer GPA and ASU GPA as well as grades achieved in the skill courses listed above. Students seeking professional status must have completed all of the skill courses before applying. Students who wish to apply to the Del E. Webb School of Construction professional program must submit an application during one of the three annual application periods. Candidates are strongly encouraged to visit with their faculty and staff academic advisors at the beginning of the semester in which they wish to apply to obtain information regarding academic qualifications, admissions criteria, and application deadlines. The application form can be found on the department's Web site at construction.asu.edu. All applicants must be admitted to ASU by the time they submit their professional program application and must provide official SAT or ACT scores and must have completed all the skill-set classes.

BASIC REQUIREMENTS

Students complete the following basic requirements before registering for advanced courses: (1) All first-semester, first-year courses and the university First-Year Composition requirement (see "University Graduation Requirements," page 89) must be completed by the time the student has accumulated 48 semester hours of program requirements, and (2) all second-semester, first-year courses must be completed by the time the student has completed 64 semester hours of program requirements. Transfer students are given a one-semester waiver. Participation in a summer field internship activity is required for all students between the second and third years of the program. Participation in a summer management internship is required for all students between the third and fourth year of the program.

Any student not making satisfactory progress is permitted to register for only those courses required to correct any deficiencies.

DEGREE REQUIREMENTS

A minimum of 120 semester hours with at least 45 hours at the upper-division level is required for graduation from the program. Students in all concentrations are required to complete a construction core of science-based engineering, construction, and management courses.

GRADUATION REQUIREMENTS

A student must earn a grade of "C" (2.00) or higher in the mathematics and physics courses listed in the program of study.

In addition to fulfilling school and major requirements, majors must satisfy the General Studies requirements as noted in "General Studies," page 93, and all university graduation requirements as noted in "University Graduation Requirements," page 89. Note that all three General Studies awareness areas are required. Consult an advisor for an approved list of courses.

SCHOOL COURSE REQUIREMENTS

First Year Composition Requirements[1]

Choose one of the following combinations 6

ENG 101 First-Year Composition (3)
ENG 102 First-Year Composition[2] (3)
——— *or* ———
ENG 105 Advanced First-Year Composition (3)
Elective chosen with advisor (3)
——— *or* ———
ENG 107 English for Foreign Students (3)
ENG 108 English for Foreign Students (3)

First year composition total 6

General Studies[3]

Humanities and Fine Arts/Social and Behavioral Sciences

CON 101 Construction and Culture: A Built Environment *HU, G, H* 3
ECN 211 Macroeconomic Principles *SB* 3
ECN 212 Microeconomic Principles *SB*[2] 3
HU/SB and awareness area course 3
HU/SB (upper division) and awareness area course 3

HU/SB awareness area subtotal 15

Literacy and Critical Inquiry

COM 225 Public Speaking *L*[2] 3
CON 496 Construction Contract Administration *L* 3

L, C awareness subtotal 6

Natural Sciences

PHY 111 General Physics *SQ*[2, 4] 3
PHY 113 General Physics Laboratory *SQ*[2, 4] 1
Physical science elective *SQ/SG* 4

SQ awareness subtotal 8

Mathematical Studies

MAT 294 ST: Calculus for Engineers I[2] 3
STP 226 Elements of Statistics *CS*[2] 3

MA, CS awareness subtotal 6

General Studies/school requirements total 35

Courses in Major Requirements Common to All Concentrations

ACC 394 ST: Financial Analysis and Accounting for Small Businesses 3
CON 221 Applied Engineering Mechanics: Statics[2] 3
CON 223 Strength of Materials 3
CON 241 Surveying 3
CON 243 Heavy Construction Equipment, Methods, and Materials[2] 3
CON 251 Microcomputer Applications for Construction[2] 3
CON 252 Building Construction Methods, Materials, and Equipment[2] 3
CON 296 Field Internship 1
CON 371 Construction Management and Safety 3
CON 383 Construction Estimating 4
CON 389 Construction Cost Accounting and Control *CS* 3
CON 394 ST: Biological Considerations in Construction 1
CON 424 Structural Design 3
CON 450 Geotechnical Applications for Construction 3
CON 453 Construction Labor Management 3
CON 455 Construction Project Management 3
CON 484 Managerial Internship 1
CON 495 Construction Planning and Scheduling *CS* 3
LES 305 Legal, Ethical, and Regulatory Issues in Business 3

Courses in common requirements subtotal 52

Concentration requirements subtotal[5] 27
Major total 79

Program total 120

1 A minimum grade of "C" (2.00) is required.
2 This is a skill-set course.
3 Students are encouraged to select HU/SB courses to complement their technical program. For more information, see "General Studies," page 93.
4 Both PHY 111 and 113 must be taken to secure SQ credit.
5 For details on concentration requirements, see "Concentrations," on this page.

Concentrations

There are four concentrations available in construction, the course requirements are given below.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Concentration in General Building Construction. The general building construction concentration provides a foundation for students who wish to pursue careers as estimators, project managers, project engineers, and eventually, owners of firms engaged in the construction of industrial, commercial, and institutional structures. Educational focus is on building systems required for the mass development and production of large-scale projects. General building construction is addressed as an integrated process from conception through delivery of completed facilities to users.

Requirements

CON	194	ST: Introduction to Construction	1
CON	273	Electrical Construction Fundamentals	3
CON	310	Testing of Materials for Construction	3
CON	345	Mechanical Systems	3
CON	472	Development Feasibility Reports *L*	3
CON	483	Advanced Building Estimating	3
CON	494	ST: Leadership, Management, and Entrepreneurship in Construction	2
PUP	432	Planning and Development Control Law	3
REA	380	Real Estate Fundamentals	3
Upper-division elective			3
Total			27

Concentration in Heavy Construction. The heavy construction concentration prepares students for careers related to the public works discipline. Typical projects in which they are involved are highways, railroads, airports, power plants, rapid transit systems, process plants, harbor and waterfront facilities, pipelines, dams, tunnels, bridges, canals, sewerage and water works, and mass earthwork.

Requirements

CON	194	ST: Introduction to Construction	1
CON	273	Electrical Construction Fundamentals	3
CON	310	Testing of Materials for Construction	3
CON	345	Mechanical Systems	3
CON	486	Heavy Construction Estimating	3
CON	494	ST: Heavy Construction Project Management	3
CON	494	ST: Leadership, Management, and Entrepreneurship in Construction	2
Upper-division electives			9
Total			27

Concentration in Residential Construction. The residential construction concentration prepares students for careers in the residential sector of the industry. This concentration covers the specific methods and processes during the planning, production, marketing, and business-related activities common to residential construction.

Requirements

CON	194	ST: Introduction to Construction	1
CON	273	Electrical Construction Fundamentals	3
CON	310	Testing of Materials for Construction	3
CON	345	Mechanical Systems	3
CON	377	Residential Construction Production Procedures	3
CON	477	Residential Construction Business Practices	3
CON	494	ST: Leadership, Management, and Entrepreneurship in Construction	2
MKT	382	Advertising and Marketing Communication	3
PUP	432	Planning and Development Control Law	3
REA	380	Real Estate Fundamentals	3
Total			27

Concentration in Specialty Construction. The specialty construction concentration prepares students for careers with specialty constructors, such as mechanical and electrical construction firms. It emphasizes the construction process at the trade contractor level.

Requirements

CON	194	ST: Introduction to Construction	1
CON	273	Electrical Construction Fundamentals	3
CON	310	Testing of Materials for Construction	3
CON	345	Mechanical Systems	3
CON	468	Mechanical and Electrical Estimating	3
CON	471	Mechanical and Electrical Project Management	3
CON	494	ST: Cleanroom Construction	3
CON	494	ST: Leadership, Management, and Entrepreneurship in Construction	2
Upper-division electives			6
Total			27

Typical First Two Year Course Sequence

Advisor-approved alternates/transfer credits for these courses may vary from the total required semester hours indicated. Such variances do not reduce the minimum of 120 semester hours required for the degree. The course work for the first two years is similar for all concentrations.

First Semester

CON	101	Construction and Culture: A Built Environment *HU, G, H*	3
CON	194	ST: Introduction to Construction	1
ECN	211	Macroeconomic Principles *SB*	3
ENG	101	First-Year Composition	3
MAT	294	ST: Calculus for Engineers I	3
PHY	111	General Physics *SQ*[1]	3
PHY	113	General Physics Laboratory *SQ*[1]	1
Total			17

Second Semester

COM	225	Public Speaking *L*	3
CON	252	Building Construction Methods, Materials, and Equipment	3
ECN	212	Microeconomic Principles *SB*	3
ENG	102	First-Year Composition	3
HU/SB and awareness area course			3
Total			15

Third Semester

CON	221	Applied Engineering Mechanics: Statics	3
CON	243	Heavy Construction Equipment, Methods, and Materials	3
CON	251	Microcomputer Applications for Construction	3
CON	273	Electrical Construction Fundamentals	3
STP	226	Elements of Statistics *CS*	3
Total			15

Fourth Semester

CON	223	Strength of Materials	3
CON	241	Surveying	3
Construction elective from concentration			3
HU/SB and awareness area course			3
SQ elective with lab[2]			4
Total			16

[1] Both PHY 111 and 113 must be taken to secure SQ credit.

[2] Physical science elective with lab required to secure SQ credit.

CONSTRUCTION (CON)

M CON 101 Construction and Culture: A Built Environment. (3)
fall and spring
Analyzes the cultural context of construction, emphasizing its centrality in the evolution and expansion of built environments as expressions of ethical and historical value systems. Lecture, speakers.
General Studies: HU, G, H

M CON 194 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Introduction to Construction. (1)

M CON 221 Applied Engineering Mechanics: Statics. (3)
fall and spring
Vectors, forces and moments, force systems, equilibrium, analysis of basic structures and structural components, friction, centroids, and moments of inertia. Prerequisites: MAT 270 (or 294 ST: Calculus for Engineers I); PHY 111, 113.

M CON 223 Strength of Materials. (3)
fall and spring
Analyzes strength and rigidity of structural members in resisting applied forces. Stress, strain, shear, moment, deflections, combined stresses, and connections. Both U.S. and SI units of measurement. Prerequisite: CON 221.

M CON 241 Surveying. (3)
fall, spring, summer
Theory and field work in construction and land surveys. Cross-listed as CEE 281. Credit is allowed for only CEE 281 or CON 241. Fee. Lecture, lab. Prerequisite: MAT 270 (or 294 ST: Calculus for Engineers I).

M CON 243 Heavy Construction Equipment, Methods, and Materials. (3)
fall and spring
Emphasizes "Horizontal" construction. Fleet operations, maintenance programs, methods, and procedures to construct tunnels, roads, dams, and the excavation of buildings. Lab, field trips. Fee.

M CON 251 Microcomputer Applications for Construction. (3)
fall and spring
Applies the microcomputer as a problem-solving tool for the constructor. Uses spreadsheets, information management, and multimedia software. Lab. Fee.

M CON 252 Building Construction Methods, Materials, and Equipment. (3)
fall and spring
Emphasizes "Vertical" construction. Methods, materials, codes, and equipment used in building construction corresponding to the 16 division "Master Format."

M CON 273 Electrical Construction Fundamentals. (3)
fall and spring
Circuits and machinery. Power transmission and distribution, with emphasis on secondary distribution systems. Measurements and instrumentation. Lecture, field trips.

M CON 296 Field Internship. (1)
summer
Participation as interns on construction projects to observe and experience the daily activities. Internship. Fee.

M CON 310 Testing of Materials for Construction. (3)
fall and spring
Structural and behavioral characteristics, engineering properties, measurements, and application of construction materials. Not open to engineering students. Lecture, lab. Fee. Prerequisite: CON 223.

M CON 345 Mechanical Systems. (3)
fall and spring
Design parameters and equipment related to heating and cooling systems for mechanical construction. Computer-aided calculations. Lecture, field trips. Prerequisites: CON 252; PHY 111, 113.

M CON 371 Construction Management and Safety. (3)
fall and spring
Organization and management theory applied to the construction process. Leadership functions. Safety procedures and equipment. OSHA requirements for construction. Prerequisite: CON 252.

M CON 377 Residential Construction Production Procedures. (3)
spring
Process used in residential construction. How a house is built: design, permits, scheduling, codes, contracting, site management, mechanical/electrical. Prerequisite: CON 252.

M CON 383 Construction Estimating. (4)
fall and spring
Analyzes construction drawings and specifications. Methods used in estimating process. Quantity surveying techniques for CSI divisions. Lecture, project workshops. Prerequisites: CON 243, 252.

M CON 389 Construction Cost Accounting and Control. (3)
fall and spring
Nature of construction cost. Depreciation and tax theory and variable equipment costs. Cash flow theory, investment models, profitability, and analysis. Computer applications. Funding sources and arrangements. Builder's insurance. Prerequisites: ACC 230 (or 394 ST: Financial Analysis and Accounting for Small Businesses); CON 251.
General Studies: CS

M CON 394 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Biological Considerations in Construction
- Gender, Race, Class in the Construction Industry Workforce
- Megaprojects: Their Impacts on Society

M CON 424 Structural Design. (3)
fall
Economic use of concrete, steel, and wood in building and engineered structures. Design of beams, columns, concrete formwork, and connections. Lecture, field trips. Prerequisite: CON 310.

M CON 450 Geotechnical Applications for Construction. (3)
fall and spring
Soil formation, engineering properties and use as building materials. Soil's influence on construction of built environment, including specifications. Lecture, lab, site visits. Fee. Prerequisite: CON 310.

M CON 453 Construction Labor Management. (3)
fall and spring
Labor and management history, union, and open shop organization of building and construction workers; applicable laws and government regulations; goals, economic power, jurisdictional disputes, and grievance procedures. Prerequisites: CON 371; ECN 212.

M CON 455 Construction Project Management. (3)
fall and spring
Study of methods for coordinating people, equipment, materials, money, and schedule to complete a project on time and within approved cost. Lecture, class projects, CPC exam. Fee. Prerequisite: CON 371. Pre- or corequisite: CON 495.

M CON 468 Mechanical and Electrical Estimating. (3)
fall
Analysis and organization of performing a cost estimate for both mechanical and electrical construction projects. Computer usage. Prerequisites: CON 273, 345, 383.

M CON 471 Mechanical and Electrical Project Management. (3)
spring
Specialty contracts and agreements, scheduling, material handling, labor unit analysis, and job costing for mechanical and electrical construction. Prerequisite: CON 371.

M CON 472 Development Feasibility Reports. (3)
fall and spring
Integrates economic location theory, development cost data, market research data, and financial analysis into a feasibility report. Computer orientation. Prerequisite: REA 380.
General Studies: L

M CON 477 Residential Construction Business Practices. (3)
spring
Topics addressed include development, marketing, financing, legal issues, and sales. Prerequisites: CON 389; MKT 382.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M CON 483 Advanced Building Estimating. (3)
fall and spring
Concepts of pricing and markup, development of historic costs, life cycle costing, change order and conceptual estimating, and emphasizing microcomputer methods. Prerequisite: CON 383.

M CON 484 Internship. (1–12)
fall, spring, summer
Structured practical experience following a contract or plan, supervised by faculty and practitioners. May serve with industry participant or government agency. May be repeated for credit. Topics may include the following:
- Managerial Internship. (1)
  Fee. Prerequisites: CON 296; school approval.

M CON 486 Heavy Construction Estimating. (3)
fall
Methods analysis and cost estimation for construction of highways, bridges, tunnels, dams, and other engineering works. Lecture, field trips. Prerequisites: CON 241, 383.

M CON 492 Honors Directed Study. (1–6)
selected semesters

M CON 493 Honors Thesis. (1–6)
selected semesters

M CON 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Cleanroom Construction. (3)
  fall
- Heavy Construction Project Management. (3)
- Leadership, Management, and Entrepreneurship in Construction. (2)

M CON 495 Construction Planning and Scheduling. (3)
fall and spring
Various network methods of project scheduling, such as AOA, AON Pert, bar-charting, line-of-balance, and VPM techniques. Microcomputers used for scheduling, resource allocation, and time/cost analysis. Lecture, lab. Fee. Prerequisites: CON 383; STP 226. Pre- or corequisite: CON 389.
General Studies: CS

M CON 496 Construction Contract Administration. (3)
fall and spring
Surveys administrative procedures of general and subcontractors. Studies documentation, claims, arbitration, litigation, bonding, insurance, and indemnification. Discusses ethical practices. Lecture, field trips. Prerequisites: COM 225; senior standing.
General Studies: L

M CON 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Engineering Programs

480/965-1726

PURPOSE

Students studying engineering at ASU are expected to acquire a thorough understanding of the fundamentals of mathematics and the sciences and their applications to the solution of problems in the various engineering fields. The programs are designed to develop a balance between science and engineering and an understanding of the economic and social consequences of engineering activity. The goals of the programs include the promotion of the general welfare of the engineering profession.

The courses offered are designed to meet the needs of the following students:

1. those who wish to pursue a career in engineering;
2. those who wish to do graduate work in engineering;
3. those who plan to pursue a nonengineering career but want the technical background associated with a BS or BSE; and
4. those who wish to take certain electives in engineering while pursuing another program in the university.

ADMISSION

All engineering and computer science programs are divided into two parts: a preprofessional program and a professional program. Students are generally admitted into one of the preprofessional programs. For information regarding requirements for admission, transfer, retention, disqualification, and reinstatement in the Fulton School of Engineering, see "Admission," page 372 and "Academic Standards," page 376. For information regarding the professional programs see ""Promotion to Professional Status," page 373 or departmental material.

Students who are beginning their initial college work in engineering should have completed a rigorous university preparation curriculum in secondary school. Such a curriculum would generally consist of four years of English; four years of mathematics through at least precalculus, including a course with trigonometry; and three years of lab science, including chemistry and physics. Biology, calculus, and computer programming are recommended. Students who do not meet subject matter requirements may be required to complete additional university course work to meet the prerequisites for required courses. One or more of the following courses may be required to satisfy omissions or deficiencies upon admission: CHM 113 General Chemistry, CSE 180 Computer Literacy, CSE 181 Applied Problem Solving with Visual BASIC, MAT 170 Precalculus, and PHY 105 Basic Physics.

DEGREES

The Bachelor of Science in Engineering (BSE) degree and the BS degree in Computer Science consist of two parts:

1. university requirements (e.g., General Studies, First-Year Composition); and
2. a major.

The courses identified for each of these parts are intended to meet requirements imposed by the university and by the professional accrediting agency, Accreditation Board for Engineering and Technology, Inc. (ABET), for programs in engineering and computing science, respectively.

In addition to First-Year Composition, the university requires, through the General Studies requirement, courses in literacy and critical inquiry; humanities, fine arts and design; social and behavioral sciences; mathematical studies; and natural sciences (see "General Studies," page 93). There are also requirements for historical awareness, global

awareness, and cultural diversity in the United States. ABET imposes additional requirements, particularly in mathematics, the basic sciences, and in the courses for the major.

The majors available are of two program types: (1) those associated with a particular program (for example, Electrical Engineering and Civil Engineering) and (2) those offered as concentrations in Engineering Special Studies (for example, premedical engineering). Some of the credits in the major are reserved for the student's use as an area of study. These credits are traditionally referred to as *technical electives*.

Majors and areas of study are offered by the seven engineering departments within the Fulton School of Engineering:

Department of Chemical and Materials Engineering
Department of Civil and Environmental Engineering
Department of Computer Science and Engineering
Department of Electrical Engineering
Department of Industrial Engineering
Department of Mechanical and Aerospace Engineering
Harrington Department of Bioengineering

The major in Engineering Special Studies is administered by the Office of the Dean. Engineering Special Studies makes use of the general structure of the engineering curricula noted above and provides students with an opportunity for study in engineering concentrations not available in the traditional engineering curricula at ASU.

The first two years of engineering and computer science study are the preprofessional years and are intended to develop the foundation upon which the professional program is built. The preprofessional courses include a number of the university general studies courses as well as the skill-set courses that are used to help determine if a student can be promoted to the professional program. The final two years of the program are the professional years during which depth and breadth in the major is achieved.

The semester-by-semester selection of courses varies from one field to another and is determined by the student in consultation with a faculty or professional advisor. See the "Typical Four-Year Sequence" tables in each of the department sections of this catalog for example courses for a full-time student.

Well-prepared students who have no outside commitments can usually complete the program of study leading to an undergraduate degree in engineering in four years (eight semesters at 15 semester hours per semester). Many students, however, find it advantageous or necessary to devote more than four years to the undergraduate program by pursuing, in any semester, fewer courses than are regularly prescribed. Where omissions or deficiencies exist—e.g., in chemistry, computer programming, English, mathematics, and physics—the student must complete more than the minimum of 120 semester hours. Therefore, in cases of inadequate secondary preparation, poor health, or financial necessity requiring considerable time for outside work, the undergraduate program is extended beyond four years.

DEGREE REQUIREMENTS

The degree programs in engineering and computer science at ASU are intended to develop habits of quantitative thought having equal utility for both the practice of engineering and other professional fields. In response to the opportunities provided by changing technology, educational research, and industrial input, possible improvements of various aspects of these programs are routinely considered. It is the intent of the faculty that all students be appropriately prepared in the four areas described below.

1. *Oral and written English*. Communication skills are an essential component of an engineering education. All engineering students must complete the university First-Year Composition requirement (see "University Graduation Requirements," page 89), and the literacy and critical inquiry component (see "Five Core Areas," page 93) of the university General Studies requirement, which involves two courses beyond First-Year Composition.
2. *Selected nonengineering topics*. This area ensures that the engineering student acquires a satisfactory level of basic knowledge in the humanities and fine arts, social and behavioral sciences, mathematical studies, and the natural sciences. Courses in these subjects give engineers an increased awareness of their social responsibilities, provide an understanding of related factors in the decision-making process, and also provide a foundation for the study of engineering. Required courses go toward fulfilling the university General Studies requirement. Additional courses in mathematics and the basic sciences are selected to meet ABET requirements.

   Because of accreditation requirements, aerospace studies (AES) and military science (MIS) courses are not acceptable for engineering degree credit in fulfilling the humanities and fine arts and social and behavioral science portions of the General Studies requirement.
3. *Fulton requirements*. To help ensure its students achieve the school's aspirations for its graduates (see "The Fulton Aspirations," page 371) all engineering programs are required to have an Introduction to Engineering course; a course with significant biological content, and a course that exposes students to current business practice. Each program uses a different selection of courses that are scattered throughout the four years. In addition to these three specific courses, the programs have included leadership development modules within some of their courses.
4. *Specific engineering discipline*. This area provides a depth of understanding of a definitive body of knowledge that is appropriate for a specific engineering discipline. Courses build upon the background provided by the earlier completed portions of the curriculum and include a major design experience as well as

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

technical electives that may be selected by the student with the assistance of an advisor.

The catalog material for the individual engineering majors describes specific departmental requirements.

GRADUATION REQUIREMENTS

To qualify for graduation, a student must have a minimum cumulative ASU GPA of 2.00 in addition to having a GPA of at least 2.00 for the courses in the major field.

PROFESSIONAL ACCREDITATION

The undergraduate programs in Aerospace Engineering, Bioengineering, Chemical Engineering, Civil Engineering, Computer Systems Engineering, Electrical Engineering, Industrial Engineering, Materials Science and Engineering, and Mechanical Engineering are accredited by the

ENGINEERING ACCREDITATION COMMISSION
OF ABET
111 MARKET PLACE, SUITE 1050
BALTIMORE MD 21202-4012

The commission may be called at 410/347-7700.

The BS program in Computer Science is accredited by the Computer Science Accreditation Commission of ABET.

FULTON SCHOOL OF ENGINEERING (FSE)

M FSE 105 College Adjustment and Survival. (1)
fall and spring
Explores career goals and majors. Emphasizes organization and development of study skills, including time management, stress management, and use of the library.

M FSE 194 Special Topics. (1–4)
fall
Topics may include the following:
- MEP Academic Success. (2)

M FSE 200 Elements of Engineering Design. (3)
fall and spring
Advanced version of introduction to engineering for students who have not taken an introduction to engineering course. Credit is allowed for only FSE 200 or various program introduction to engineering courses. Lecture, lab. Prerequisites: ENG 101 (or 105); MAT 270 (or 294 ST: Calculus for Engineers I); PHY 121, 122. Pre- or corequisite: CHM 113 or 114 or 116.
General Studies: CS

M FSE 399 Cooperative Work Experience. (1)
fall, spring, summer
Work periods with industrial firms or government agencies alternated with full-time course work. Not open to students from other colleges. May be repeated for credit. Prerequisites: 45 hours completed in major with 2.50 GPA; dean approval.

M FSE 494 Special Topics. (1–4)
fall

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Harrington Department of Bioengineering

fulton.asu.edu/~bme
480/965-3028
ECG 334

Eric J. Guilbeau, Chair

CORE FACULTY

Olin Endowed Professor: Guilbeau
Professors: Akay, Garcia, He, Towe
Associate Professors: Abbas, Iasemidis, Joshi, Jung, Massia, Pizziconi, Steinmetz
Assistant Professors: Buneo, Caplan, Helms-Tillery, Muthuswamy, Vernon
Research Professors: Brophy, Herman, Panitch
Assistant Research Professors: Furnish, Shimansky
Senior Research Professional: Brandon
Research Scientists: Ehteshami, Pauken
Assistant Research Scientist: La Belle
Senior Lecturer: Coursen

AFFILIATED FACULTY

Electrical Engineering
Professor: Kozicki

Electronics and Computer Engineering Technology (Polytechnic Campus)
Associate Professor: Macia

Kinesiology
Associate Professor: Santello
Assistant Professor: Dounskaia

The faculty in the Harrington Department of Bioengineering offer the BSE degree in Bioengineering. The major builds on a broad base of knowledge in mathematics and science. The major offers graduates excellent career opportunities.

Faculty within the department also participate in the Engineering Special Studies program in premedical engineering, which is described separately in "Programs in Engineering Special Studies," page 434.

BIOENGINEERING—BSE

Bioengineering (synonyms: biomedical engineering, medical engineering) is the discipline of engineering that applies principles and methods from engineering, the physical sciences, the life sciences, and the medical sciences to understand, define, and solve problems in medicine, physiology, and biology. The mission of the bioengineering program at ASU is to educate students to use engineering and scientific principles and methods to develop instrumentation, materials, diagnostic and therapeutic devices, artificial

organs, or other equipment and technologies needed in medicine and biology and to discover new fundamental principles regarding the functioning and structure of living systems. The overall goal of the program is to produce high-quality graduates with a broad-based education in engineering and the life and natural sciences who are well prepared for further graduate study in bioengineering, a career in the medical device or biotechnology industries, a career in biomedical research, or entry into a medical or other health profession school.

The program's mission is achieved by having its faculty and graduate teachers fulfill the following objectives: to provide students with a strong foundation in mathematics, the physical and life sciences, and basic engineering; and to give students a balance of theoretical understanding and ability in order to apply modern techniques, skills, and tools for problem solving at the interface of engineering with the biological and medical sciences. Students demonstrate an ability to make measurements on and interpret data from living systems, addressing the problems associated with the interaction between living and nonliving materials and systems. Students are able to design systems, devices, components, processes, and experiments with an understanding of manufacturing processes to meet real-world needs for solutions to problems in the biomedical device industries, medicine, and the life sciences. Students are able to communicate effectively as bioengineers in oral, written, computer-based, and graphical forms. Faculty seek to instill in students a sense of commitment to professionalism and ethical responsibility as bioengineers. Students are given opportunities to interact with and gain real-world experience with local and national medical device and technology industries, health-care organizations, educational institutions, and constituent populations. Faculty seek to develop within students an understanding of and positive approach toward continued lifelong learning of new technologies and relevant issues in the discipline of bioengineering.

Graduate degree programs in Bioengineering are offered at ASU at the master's and doctoral levels. For more information, consult the *Graduate Catalog*.

ADMISSION REQUIREMENTS

The Preprofessional Program. All students admitted to the Harrington Department of Bioengineering are granted preprofessional status. During the time students are in the preprofessional program, they will follow the sequence of first- and second-year courses shown in the Typical Four Year Sequence for bioengineering students. Promotion from the preprofessional program to the professional program is not automatic and a separate application procedure is required.

Promotion is based on performance in a collection of skill-set courses all of which are included in the typical first three semesters of the program. The skill-set courses are as follows:

Skill Courses

BME 100 Introduction to Bioengineering *CS* 3
Choose one of the following combinations 4
BME 111 Engineering Perspectives on Biological Systems (3)
BME 194 ST: Biology for Engineering Laboratory (1)
——— *or* ———
BIO 188 General Biology II[1] *SQ* (4)
BME 294 ST: Conservation Principles in Bioengineering 3
CHM 114 General Chemistry for Engineers *SQ* 4
or CHM 116 General Chemistry II *SQ*[2] (4)
MAT 294 ST: Calculus for Engineers I 3
MAT 294 ST: Calculus for Engineers II 3
MAT 294 ST: Calculus for Engineers III 3
PHY 121 University Physics I: Mechanics *SQ*[3] 3
PHY 122 University Physics Laboratory I *SQ*[3] 1
PHY 131 University Physics II: Electricity and Magnetism *SQ*[4] 3
PHY 132 University Physics Laboratory II *SQ*[4] 1
Total 31

[1] To fulfill medical school admission requirements, premedical students should choose BIO 188. Note that BIO 187 is required by many medical schools in addition to BIO 188. BIO 187 cannot be used as a technical elective.

[2] To fulfill medical school admission requirements, premedical students generally should choose CHM 116. Note that CHM 113 is required by many medical schools in addition to CHM 116. CHM 113 cannot be used for degree credit.

[3] Both PHY 121 and 122 must be taken to secure SQ credit.

[4] Both PHY 131 and 132 must be taken to secure SQ credit.

The Professional Program. Admission to the professional program is competitive. All students seeking admission to the professional program must follow the application procedure described in the Harrington Department of Bioengineering Web site. Admission is granted to those applicants who have demonstrated high promise for professional success. Transfer students who have completed the equivalent required lower-division skill-set courses may also apply to the professional program. While only students who have been admitted to the Bioengineering program are eligible to apply to the professional program, prior attendance at ASU is not required. Completion of the specified preprofessional course work does not guarantee admission to the professional program.

DEGREE REQUIREMENTS

A minimum of 120 semester hours is necessary for the BSE degree in Bioengineering. A minimum of 45 upper-division semester hours is required. Students must attain a GPA of at least 2.00 for upper-division courses in the major.

GRADUATION REQUIREMENTS

In addition to fulfilling school and major requirements, students must satisfy all university graduation requirements. See "University Graduation Requirements," page 89.

COURSE REQUIREMENTS

The course work, in semester hours, for the undergraduate degree can be classified into the following categories:

First-Year Composition

Choose among the course combinations below 6

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

ENG 101 First-Year Composition (3)
ENG 102 First-Year Composition (3)
———*or*———
ENG 105 Advanced First-Year Composition (3)
Elective chosen with an advisor (3)
———*or*———
ENG 107 English for Foreign Students (3)
ENG 108 English for Foreign Students (3)

First-year composition total 6

General Studies/Program Requirements

Humanities and Fine Arts/Social and Behavioral Sciences
HU/SB and awareness area courses 15

HU/SB and awareness area courses subtotal 15

Literacy and Critical Inquiry
Six semester hours of literacy and critical inquiry credit is satisfied by course work in the major.

Natural Sciences/Basic Sciences
Choose one of the following combinations 4
BME 111 Engineering Perspectives on Biological Systems (3)
BME 194 ST: Biology for Engineering Laboratory (1)
——— *or* ———
BIO 188 General Biology II *SQ*[1] (4)
CHM 114 General Chemistry for Engineers *SQ* 4
or CHM 116 General Chemistry II *SQ*[2] (4)
Choose one of the following course groups 4
CHM 231 Elementary Organic Chemistry *SQ*[3] (3)
CHM 235 Elementary Organic Chemistry Laboratory *SQ*[3] (1)
——— *or* ———
CHM 233 General Organic Chemistry I[4, 5] (3)
CHM 237 General Organic Chemistry Laboratory I[4, 5] (1)
PHY 121 University Physics I: Mechanics *SQ*[6] 3
PHY 122 University Physics Laboratory I *SQ*[6] 1
PHY 131 University Physics II: Electricity and Magnetism *SQ*[7] 3
PHY 132 University Physics Laboratory II *SQ*[7] 1

Natural sciences/basic sciences subtotal 20

Mathematical Studies
CSE 100 Principles of Programming with C++ CS 3
MAT 275 Modern Differential Equations *MA* 3
MAT 294 ST: Calculus for Engineers I 3
MAT 294 ST: Calculus for Engineers II 3
MAT 294 ST: Calculus for Engineers III 3
MAT 343 Applied Linear Algebra 3

Mathematical studies subtotal 18

General Studies/school requirements total 53

Lower-Division Engineering Courses
BME 100 Introduction to Bioengineering *CS* 3
BME 235 Physiology for Engineers 4
BME 294 ST: Conservation Principles in Bioengineering 3
EEE 202 Circuits I 4
IEE 280 Probability and Statistics for Engineering Problem Solving *CS* 3
MAE 212 Engineering Mechanics 4

Lower-division courses total 21

Upper-Division Courses in Major
BME 300 Bioengineering Product Design 3
BME 318 Biomaterials 4
BME 331 Bioengineering Transport Phenomena 3
BME 350 Signals and Systems for Bioengineers 3
BME 370 Microcomputer Applications in Bioengineering 3
BME 413 Biomedical Instrumentation *L*[8] 3
BME 417 Biomedical Engineering Capstone Design I 4
BME 423 Biomedical Instrumentation Laboratory *L*[8] 1
BME 434 Applications of Bioengineering Transport Phenomena 3
or BME 416 Biomechanics (3)
or BME 419 Biocontrol Systems (3)
BME 490 Biomedical Engineering Capstone Design II 4
CHM 341 Elementary Physical Chemistry 3
Technical electives 6

Upper-division course total 40

Program total 120

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1 To fulfill medical school admission requirements, premedical students generally should choose BIO 188. Note that BIO 187 is required by many medical schools in addition to BIO 188. BIO 187 cannot be used as a technical elective.

2 To fulfill medical school admission requirements, premedical students generally should choose CHM 116. Note that CHM 113 is required by many medical schools in addition to CHM 116. CHM 113 cannot be used for degree credit.

3 Both CHM 231 and CHM 235 must be taken to secure SQ credit

4 To fulfill medical school admission requirements, premedical students generally should choose CHM 233/237. Note that CHM 234/238 are required by many medical schools in addition to CHM 233/237.

5 If CHM 233/237 are taken to satisfy the natural science requirement, these courses are not eligible to be applied as technical electives.

6 Both PHY 121 and PHY 122 must be taken to secure SQ credit.

7 Both PHY 131 and PHY 132 must be taken to secure SQ credit.

8 Both BME 413 and BME 423 must be taken to secure L credit.

The major BME courses require a grade of "C" (2.00) or higher to advance in the program and to receive a baccalaureate degree.

Bioengineering Areas of Study

Technical electives should in general be selected from one of the emphasis areas. Students can elect to emphasize biochemical engineering, bioelectrical engineering, biomaterials engineering, biomechanical engineering, biomedical imaging engineering, biosystems engineering, molecular and cellular bioengineering, or premedical engineering in their studies. A student may also, with prior approval of the department, select a general area of study or combination of courses that support a career in bioengineering not covered by one of these areas.

Biochemical Engineering. This area is designed to strengthen the student's knowledge of chemistry and transport phenomena and is particularly well suited for students interested in biotechnology. Students must take the following major sequence course:

BME 434 Applications of Bioengineering Transport Phenomena 3

Students should choose technical electives from the following:

BCH 361 Principles of Biochemistry 3
or BCH 461 General Biochemistry (3)
BCH 462 General Biochemistry 3
CHE 475 Biochemical Engineering 3
CHM 234 General Organic Chemistry II 3

CHM 238 General Organic Chemistry Laboratory II 1
MIC 420 Immunology: Molecular and Cellular Foundations 3

Bioelectrical Engineering. This area is designed to strengthen the student's knowledge of electrical systems, electronics, and signal processing. Students considering a career in bioelectric phenomena, biocontrol systems, medical instrumentation, neural engineering, or electrophysiology should consider this area of study. Students must take the following major sequence course:

BME 419 Biocontrol Systems 3

Students should choose technical electives from the following:

EEE 203 Signals and Systems I 3
EEE 230 Computer Organization and Assembly Language Programming 3
EEE 433 Analog Integrated Circuits 4

Biomaterials Engineering. This area integrates the student's knowledge of materials science and engineering with biomaterials science and engineering concepts for the design of materials intended to be used for the development of medical and diagnostic devices. It emphasizes structure-property relationships of engineering materials (metals, polymers, ceramics, and composites) and biological materials, biomaterial-host response phenomena, technical and regulatory aspects of biomaterials testing and evaluation. Students interested in careers in the biomaterials, medical device, or biotechnology industries should consider this area of study. Students must take the following major sequence course:

BME 434 Applications of Bioengineering Transport Phenomena 3

Students should choose technical electives from the following:

BME 494 ST: Biopolymeric Drug Delivery 3
MSE 353 Introduction to Materials Processing and Synthesis 3
MSE 355 Materials Structure and Microstructure 3
MSE 431 Corrosion and Corrosion Control 3
MSE 441 Analysis of Material Failures 3
MSE 470 Polymers and Composites 3
MSE 471 Introduction to Ceramics 3

Biomechanical Engineering. This area is designed to strengthen the student's knowledge of mechanics and control theory. Students interested in careers related to biomechanical analyses, the design of orthotic/prosthetic devices and orthopaedic implants, forensic biomechanics, and rehabilitation engineering should consider this area of study. While students may choose any combination of the following technical electives, it is recommended that courses be selected from one of three subareas: movement biomechanics, rehabilitation engineering, or orthopaedic biomechanics. The movement biomechanics area is designed to strengthen the student's knowledge of dynamics and control theory. Students interested in analyzing pathological movement disorders, sports techniques, and neuromuscular control should select courses from this area. Rehabilitation engineering emphasizes the design of highly functional products for people with disabilities. Biomechanical, electrical, and mechanical design procedures are used to develop new assistive devices, orthoses, and prostheses. The student primarily interested in the material properties of bones, cartilage, soft tissues, and the design of implants for tissue repair and replacement should select courses from the orthopaedic biomechanics area. Students must take the following major sequence course:

BME 416 Biomechanics 3

Recommended subarea selections are as follows:

Movement Biomechanics
BME 419 Biocontrol Systems* 3
KIN 334 Functional Anatomy and Kinesiology 3
KIN 414 Electromyographic Kinesiology *L* 3

Rehabilitation Engineering
IEE 437 Human Factors Engineering 3
or DSC 344 Human Factors in Design (3)
IND 354 Principles of Product Design 3
KIN 334 Functional Anatomy and Kinesiology 3
MAE 341 Mechanism Analysis and Design 3

Orthopaedic Biomechanics
KIN 412 Biomechanics of the Skeletal System 3
MAE 404 Finite Elements in Engineering 3

* This course may be applied as a technical elective if not already taken as the major sequence course.

Biomedical Imaging Engineering. This area is designed to strengthen the student's knowledge of radiation interactions, health physics, medical diagnostic imaging (MRI, PET, x-ray, CT), radiation protection, and nuclear instrumentation. Students considering careers in medical engineering or health physics should consider this area of study. Students must take the following major sequence course:

BME 419 Biocontrol Systems 3

Students should choose technical electives from the following:

BME 494 ST: Scanning Probe Microscopy 3
EEE 460 Nuclear Concepts for the 21st Century 3
PHY 361 Introductory Modern Physics 3

Biosystems Engineering. This area is designed to strengthen the background of students interested in physiological systems modeling and analysis and design and evaluation of artificial organs and medical devices. Analyzing physiological systems and designing artificial organs require knowledge in integrating electrical, mechanical, transport, and thermofluid systems. Students considering careers in medical device industries, clinical engineering, or artificial organs should consider this area of study. Students must take the following major sequence course:

BME 419 Biocontrol Systems 3

Students should choose technical electives from the following:

BME 434 Applications of Bioengineering Transport Phenomena* 3
EEE 480 Feedback Systems 4
MAE 318 Sensors and Controls 5
MAE 404 Finite Elements in Engineering 3
MAE 417 Control System Design 3

* This course may be applied as a technical elective if not already taken as the major sequence course.

Molecular and Cellular Bioengineering. This area is designed to strengthen and integrate the student's knowledge of molecular and cellular biology, biochemistry, and biomaterials science and engineering for the design of biomolecular- and cellular-based hybrid medical and diagnostic devices. It is particularly suited for students interested in pursuing graduate studies in molecular and cellular bioengineering and health-related biotechnologies.

Students must take the following major sequence course:

BME 434 Applications of Bioengineering Transport Phenomena 3

Students should choose technical electives from the following:

BCH 361 Principles of Biochemistry 3
or BCH 461 General Biochemistry (3)
BIO 340 General Genetics 4
or MBB 350 Applied Genetics (4)
or PLB 350 Applied Genetics (4)
BIO 343 Genetic Engineering and Society *L* 4
or MBB 343 Genetic Engineering and Society *L* (4)
BIO 353 Cell Biology 3
BME 451 Cell Biotechnology Laboratory 3
BME 494 ST: Introduction to Molecular, Cellular, and Tissue Engineering 3
CHE 475 Biochemical Engineering 3

Premedical Engineering. This area is designed to meet the needs of students desiring entry into a medical, dental, or veterinary school. The course sequence provides an excellent background for advanced study leading to a career in research in the medical or life sciences. Students must take the following courses:

CHM 234 General Organic Chemistry II 3
CHM 238 General Organic Chemistry Laboratory II 1

Students should choose one major sequence course from the following:

BME 416 Biomechanics* 3
BME 419 Biocontrol Systems* 3
BME 434 Applications of Bioengineering Transport Phenomena* 3
BME 494 ST: Biopolymeric Drug Delivery 3
BME 494 ST: Introduction to Molecular, Cellular, and Tissue Engineering 3

* This course may be applied as a technical elective if not already taken as the major sequence course.

Note: To fulfill medical school admission requirements, BIO 187 General Biology I is required in addition to BIO 188 General Biology II as well as the other degree requirements and cannot generally be used as a technical elective.

Bioengineering Program of Study
Typical Four-Year Sequence

First Year

First Semester
BME 100 Introduction to Bioengineering *CS* 3
CHM 114 General Chemistry for Engineers *SQ* 4
or CHM 116 General Chemistry II *SQ*[1] (4)
ENG 101 First-Year Composition 3
MAT 294 ST: Calculus for Engineers I 3
Total 13

Second Semester
ENG 102 First-Year Composition 3
Choose from one of the following groups 4
BME 111 Engineering Perspectives on Biological Systems (3)
BME 194 ST: Biology for Engineering Laboratory (1)
——— *or* ———
BIO 188 General Biology II *SQ*[2] (4)
MAT 294 ST: Calculus for Engineers II 3
PHY 121 University Physics I: Mechanics *SQ*[3] 3
PHY 122 University Physics Laboratory I *SQ*[3] 1
Total 14

Second Year

First Semester
BME 294 ST: Conservation Principles in Bioengineering 3
Choose from one of the following groups 4
CHM 231 Elementary Organic Chemistry *SQ*[4] (3)
CHM 235 Elementary Organic Chemistry Laboratory *SQ*[4] (1)
——— *or* ———
CHM 233 General Organic Chemistry I[5, 6] (3)
CHM 237 General Organic Chemistry Laboratory I[5, 6] (1)
CSE 100 Principles of Programming with C++ *CS* 3
MAT 294 ST: Calculus for Engineers III 3
PHY 131 University Physics II: Electricity and Magnetism *SQ*[7] 3
PHY 132 University Physics II Laboratory *SQ*[7] 1
Total 17

Second Semester
BME 235 Physiology for Engineers 4
EEE 202 Circuits I 4
IEE 280 Probability and Statistics for Engineering Problem Solving *CS* 3
MAT 275 Modern Differential Equations *MA* 3
HU/SB and awareness area course[8] 3
Total 17

Third Year

First Semester
BME 318 Biomaterials 4
CHM 341 Elementary Physical Chemistry 3
MAE 212 Engineering Mechanics 4
MAT 343 Applied Linear Algebra 3
HU/SB and awareness area[8] 3
Total 17

Second Semester
BME 300 Bioengineering Product Design 3
BME 331 Bioengineering Transport Phenomena 3
BME 350 Signals and Systems for Bioengineers 3
BME 370 Microcomputer Applications in Bioengineering 3
HU/SB and awareness area course[8] 3
Total 15

Fourth Year

First Semester

BME 413 Biomedical Instrumentation *L*[9] 3
BME 417 Biomedical Engineering Capstone Design I 4
BME 423 Biomedical Instrumentation Laboratory *L*[9] 1
BME 434 Applications of Bioengineering Transport Phenomena .3
or BME 416 Biomechanics (3)
or BME 419 Biocontrol Systems (3)
HU/SB and awareness area course[8] 3
Total 14

Second Semester

BME 490 Biomedical Engineering Capstone Design II....4
HU/SB awareness area[8] 3
Technical electives 6
Total 13

Total degree requirements....120

[1] To fulfill medical school admission requirements, premedical students generally should choose CHM 116. Note that CHM 113 is required by many medical schools in addition to CHM 116. CHM 113 cannot be used for degree credit.

[2] To fulfill medical school admission requirements, premedical students generally should choose BIO 188. Note that BIO 187 is required by many medical schools in addition to BIO 188. BIO 187 cannot be used as a technical elective.

[3] Both PHY 121 and PHY 122 must be taken to secure SQ credit.

[4] Both CHM 231 and CHM 235 must be taken to secure SQ credit.

[5] To fulfill medical school admission requirements, premedical students generally should choose CHM 233/237. Note that CHM 234/238 are required by many medical schools in addition to CHM 233/237.

[6] If CHM 233/237 are taken to satisfy the natural science requirement, these courses are not eligible to be applied as technical electives.

[7] Both PHY 131 and PHY 132 must be taken to secure SQ credit.

[8] Engineering students may not use Aerospace Studies (AES) or Military Science (MIS) courses to fulfill HU or SB requirements.

[9] Both BME 413 and BME 423 must be taken to secure L credit.

BIOENGINEERING (BME)

M BME 100 Introduction to Bioengineering. (3)
fall and spring
Introduces profession of bioengineering: bioengineering design process, teaming, computer models in bioengineering, communications skills, career planning. Fee. Prerequisites: high school computing and physics and algebra courses (or their equivalents); BME major (or department approval). Pre- or corequisite: ENG 101 or 105 or 107.
General Studies: CS

M BME 101 Introduction to Bioengineering. (3)
fall and spring
Impact of bioengineering on society. Develops an awareness of the contributions of bioengineering to solve medical and biological problems. Fee. Pre- or corequisites: ENG 102 (or 105 or 108); BME major (or department approval).

M BME 111 Engineering Perspectives on Biological Systems. (3)
fall and spring
Biological concepts for the emerging engineer. Introduces biological and earth systems engineering, materials, structures, fluid mechanics, bioelectricity, and the dynamic, nonlinear nature of nature.

M BME 112 Engineering Perspectives on Biological Systems Laboratory. (1)
fall and spring
Introduces biological concepts for the emerging engineer in a lab setting: biological and earth systems engineering, materials, structures, fluid mechanics, bioelectricity, and the dynamic, nonlinear nature of nature. Lab. Prerequisite: BME 111.

M BME 194 Special Topics. (1–4)
selected semesters
Topics may include the following:
• Biology for Engineering Lab.oratory. (1)

M BME 200 Conservation Principles in Bioengineering. (3)
fall and spring
Applies bioengineering analysis and problem solving of mass, energy, and charge balances to medical and biological systems. Prerequisite: CHM 114 or 116. Pre- or corequisites: PHY 131, 132.

M BME 202 Global Awareness Within Biomedical Engineering Design. (3)
selected semesters
Introduction to ethical, legal, social, economic, and technical issues arising from the design and implementation of bioengineering technology. Lecture, critical discourse. Prerequisites: ECN 211 (or 212); ENG 102 (or 105).
General Studies: L/HU

M BME 235 Physiology for Engineers. (4)
fall and spring
Physiology of the nervous, muscular, cardiovascular, endocrine, renal, and respiratory systems. Emphasizes use of quantitative methods in understanding physiological systems. Lecture, lab. Fee. Prerequisites: BIO 188; CHM 115 (or 116). Pre- or corequisite: PHY 131.

M BME 294 Special Topics. (1–4)
selected semesters
Topics may include the following:
• Conservation Principles in Bioengineering. (3)

M BME 300 Bioengineering Product Design. (3)
fall and spring
The fundamentals of financial and organizational structure of business and how it influences bioengineering analysis, design, and decision making; biomedical ethics and device and drug regulation; and fundamentals of business and technical management. Prerequisites: BME 100; ENG 102 (or 105 or 108); junior standing.

M BME 318 Biomaterials. (4)
fall and spring
Material properties of natural and artificial biomaterials. Tissue and blood biocompatibility. Uses of materials to replace body parts. Prerequisite with a grade of "C" (2.00) or higher: BME 235.

M BME 331 Bioengineering Transport Phenomena. (3)
fall and spring
Transport phenomena with emphasis on momentum, energy, and mass transport in living systems, medical devices, and other therapeutic/diagnostic applications. Prerequisites: CHM 341; MAE 212; MAT 274 (or 275).

M BME 350 Signals and Systems for Bioengineers. (3)
fall and spring
Applies principles of calculus and ordinary differential equations to analysis and computer processing of biosignals and linear modeling of biosystems. Prerequisites: EEE 202; MAT 274 (or 275). Pre- or corequisite: MAT 343.

M BME 370 Microcomputer Applications in Bioengineering. (3)
fall and spring
Uses microcomputers for real-time data collection, analysis, and control of experiments involving actual and simulated physiological systems. Lecture, lab. Fee. Prerequisite with a grade of "C" (2.00) or higher: BME 235, 350.

M BME 411 Biomedical Engineering I. (3)
once a year
Reviews diagnostic and prosthetic methods using engineering methodology. Introduces transport, metabolic, and autoregulatory processes in the human body. Prerequisite with a grade of "C" (2.00) or higher: BME 434.

M BME 412 Biomedical Engineering II. (3)
once a year
Reviews electrophysiology and nerve pacing applications. Introduces biomechanics and joint/limb replacement technology, cardiovascular and pulmonary fluid mechanics, and the application of mathematical modeling. Prerequisite: instructor approval.

M BME 413 Biomedical Instrumentation. (3)
fall and spring
Principles of medical instrumentation. Studies of medical diagnostic instruments and techniques for the measurement of physiologic variables in living systems. Prerequisites with a grade of "C" (2.00) or higher: BME 235. 350. Corequisite: BME 423.
General Studies: L (if credit also earned in BME 423)

M BME 415 Biomedical Transport Processes. (3)
once a year
Principles of momentum, heat, and mass transport with applications to medical and biological systems and medical device design. Prerequisites: MAT 274; PHY 131.

M BME 416 Biomechanics. (3)
fall
Mechanical properties of bone, muscle, and soft tissue. Static and dynamic analysis of human movement tasks such as locomotion. Prerequisite: MAE 212. Prerequisite with a grade of "C" (2.00) or higher: BME 318.

M BME 417 Biomedical Engineering Capstone Design I. (4)
fall
Technical, regulatory, economic, legal, social, and ethical aspects of medical device systems engineering design. Lecture, field trips. Prerequisite with a grade of "C" (2.00) or higher: BME 300. Pre- or corequisites with a grade of "C" (2.00) or higher: at least 5 of the 7 following courses: BME 318, 331, 350, 370, 413; CHM 341; IEE 280.

M BME 419 Biocontrol Systems. (3)
fall
Applies linear and nonlinear control systems techniques to analysis of neuromusculoskeletal, cardiovascular, thermal, and mass transfer systems of the body. Prerequisite with a grade of "C" (2.00) or higher: BME 350 (or its equivalent).

M BME 423 Biomedical Instrumentation Laboratory. (1)
fall
Laboratory experience with problems, concepts, and techniques of biomedical instrumentation in static and dynamic environments. Lab. Fee. Prerequisite: EEE 334. Prerequisite with a grade of "C" (2.00) or higher: BME 235. Corequisite: BME 413.
General Studies: L (if credit also earned in BME 413)

M BME 434 Applications of Bioengineering Transport Phenomena. (3)
spring
Develops mathematical models of transport phenomena in physiological systems, medical devices, and pharmacokinetic analysis. Prerequisite: IEE 280. Prerequisite with a grade of "C" (2.00) or higher: BME 331.

M BME 451 Cell Biotechnology Laboratory. (3)
fall
Mammalian cell culture techniques, including mouse embryonic stem cells, the use of bioreactors, cell fractionation, and digital video imaging. Lecture, lab. Cross-listed as BIO 451. Credit is allowed for only BME 451 or BIO 451. Prerequisites: BIO 353; instructor approval.

M BME 490 Biomedical Engineering Capstone Design II. (4)
spring
Individual projects in medical systems or medical device design and development. Fee. Prerequisite with a grade of "C" (2.00) or higher: BME 417.

M BME 492 Honors Directed Study. (1–6)
selected semesters

M BME 493 Honors Thesis. (1–6)
selected semesters

M BME 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Biopolymeric Drug Delivery. (3)
- Biotechnology Laboratory Techniques. (3)
- Cell Biotechnology Lab. (3)
  Fee.
- Introduction to Molecular, Cellular, and Tissue Engineering. (3)
- Scanning Probe Microscopy. (3)

M BME 496 Professional Seminar. (1–3)
fall and spring
Professional and ethical aspects with a discussion of responsibilities. Lecture, field trips. Prerequisite: instructor approval.

M BME 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Chemical and Materials Engineering

fulton.asu.edu/~cme
480/965-3313
ECG 202

Subhash Mahajan, Chair

Regents' Professor: Mayer

Professors: Adams, Alford, Dey, Jabbour, Krause, Lin, Mahajan, Newman, Raupp, Sieradzki, Van Schilfgaarde, Wang, Zenhausern

Associate Professors: Beckman, Burrows, Chawla, Rivera, Sierks

Assistant Professors: Allen, Friesen, Heys, Park

Research Professor: Picraux

Associate Research Professors: Kotani, Mitkova, Singh

Assistant Research Professors: Chowdhury, Dillner

The faculty in the Department of Chemical and Materials Engineering offer the BSE degree in Chemical Engineering and in Materials Science and Engineering. Each of these majors builds on a broad base of knowledge within the basic and mathematical sciences and the engineering core. Each offers excellent career opportunities.

Chemical engineers design and operate processes that may include chemical change. They combine the science of chemistry with the discipline of engineering in order to solve complex problems in a wide variety of industries. Challenging job opportunities exist not only in the chemical and petroleum industries, but also in the plastics, electronics, computer, metals, space, food, drug, and health care industries. In these industries, chemical engineers practice in a wide variety of occupations, including environmental control, surface treatments, energy and materials transformation, biomedical applications, fermentation, protein recovery, extractive metallurgy, and separations. In the

environmental area, chemical engineers develop methods to reduce the pollution created in manufacturing processes, devise techniques to recover usable materials from wastes, design waste storage and treatment facilities, and design pollution control strategies.

Materials science and engineering uses fundamental knowledge in chemistry and physics to correlate relationships between the structure and processing of materials and their properties. Students educated in this discipline decide how to optimize existing materials or how to develop new advanced materials and processing techniques. Students who major in materials science and engineering will find employment opportunities in a variety of industries and research facilities, which include aerospace, electronics, energy conversion, manufacturing, medical devices, semiconductors, and transportation.

CHEMICAL ENGINEERING—BSE

Chemical engineers are generally concerned with transfer within and between liquid, gas, and solid phases and the chemical changes that may also occur. Engineers design and operate processes that accommodate such changes, including the chemical activation of materials. Typically this involves complex multicomponent systems wherein the interactions between species have to be considered and analyzed. The new challenge in chemical engineering is to apply the principles of fluid dynamics, mass transfer, solution thermodynamics, reaction kinetics, and separation techniques to technological endeavors such as pollution control within manufacturing and the environment, integrated circuit design, solid-state surface treatments, and materials processing.

Consequently, in addition to the chemical and petroleum industries, chemical engineers find challenging opportunities in the plastics, solid-state, electronics, computer, metals, space, food, drug, and health care industries, where they practice in a wide variety of occupations, such as environmental control, surface treatments, energy and materials transformations, biomedical applications, fermentation, protein recovery, extractive metallurgy, and separations. While a large percentage of the industrial positions are filled by graduates with bachelor's degrees, there are lucrative and creative opportunities in research and development for those who acquire postgraduate education.

Subspecializations have developed within the profession. However, the same broad body of knowledge is generally expected of all chemical engineers for maximum flexibility in industrial positions. The preparation for chemical engineering is accomplished by a blend of classroom instruction and laboratory experience.

The chemical engineering faculty are committed to fully developing the potential of students by providing a unique learning environment that encourages them to take responsibility for their education; exposes students to a diversity of viewpoints and teaching/learning styles; prepares students to work in teams to solve real-world, multidisciplinary problems; and sets them on a path of lifelong learning. The faculty demand high quality work. They are fair, honest, courteous, and professional. They are sensitive to students' needs and dedicated to student success. They are interested in capitalizing on the nontraditional student demographics, including cultural background, age group, and the full- and part-time employed, to develop a vibrant and flexible education and research environment.

To achieve this commitment, the following program educational objectives were established by the chemical engineering faculty:

1. Graduates will have a strong foundation in mathematics, science, and engineering with a balance of theoretical understanding and ability to apply modern techniques, skills, and tools to solve real-world chemical engineering problems.
2. Graduates will have the skills and experience necessary to design component systems and processes for the manufacturing of chemical engineering products.
3. Graduates will have the skills and experience necessary to communicate effectively in oral, written, and graphical forms to various types of audiences.
4. Graduates will have the skills necessary to perform as engineers in a professional and ethical manner.
5. Graduates will have the skills and attitudes for continued life-long learning of new technologies and concepts.
6. Graduates will have opportunities to interact with local industries, educational institutions, and constituent populations.

ADMISSION REQUIREMENTS

The Preprofessional Program. Each student admitted to the Chemical Engineering program is designated a preprofessional student. Students follow the first-year sequence of courses listed in the curriculum outline. Included in the first two semester schedules are all skill-set courses or equivalents:

CHE	194	ST: Introduction to Chemical Engineering *CS*	3
CHM	113	General Chemistry I *SQ*	4
CHM	116	General Chemistry II *SQ*	4
ENG	101	First-Year Composition	3
ENG	102	First-Year Composition	3
MAT	294	ST: Calculus for Engineers I	3
MAT	294	ST: Calculus for Engineers II	3
PHY	121	University Physics I: Mechanics *SQ**	3
PHY	122	University Physics Laboratory I *SQ**	1
Total			27

* Both PHY 121 and 122 must be taken to secure SQ credit.

The Professional Program. Admission to the professional program is competitive and granted to those applicants demonstrating the promise for professional success in Chemical Engineering. The admissions committee considers overall transfer and ASU GPA numbers as well as the transfer and ASU GPA numbers in Chemical Engineering skill-set courses. All students seeking professional status must be in the process of completing all of the skill-set courses and then follow the application procedure as described on the

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Chemical Engineering Web site. Completion of the specified courses does not guarantee admission to professional status. Only students who have been admitted to ASU are eligible to apply for the professional programs. Candidates are encouraged to visit the Chemical Engineering undergraduate advising office before beginning the application process. All applications materials can be found on the Web at fulton.asu.edu/~cme.

DEGREE REQUIREMENTS

A minimum of 120 semester hours is necessary for the BSE degree in Chemical Engineering. A minimum of 45 upper-division semester hours is required. Students must attain a GPA of at least 2.00 for the courses in the major field.

GRADUATION REQUIREMENTS

In addition to fulfilling school and major requirements, majors must satisfy all university graduation requirements. See "University Graduation Requirements," page 89.

COURSE REQUIREMENTS

The course work for the undergraduate degree can be classified into the following categories (in semester hours):

First-Year Composition

Choose among the course combinations below 6
- ENG 101 First-Year Composition (3)
- ENG 102 First-Year Composition (3)

—or—

- ENG 105 Advanced First-Year Composition (3)
- Elective chosen with an advisor (3)

—or—

- ENG 107 English for Foreign Students (3)
- ENG 108 English for Foreign Students (3)

Total 6

General Studies/School Requirements

Humanities and Fine Arts/Social and Behavioral Sciences

HU/SB and awareness area courses[1] 15

Total 15

Literacy and Critical Inquiry

Six hours of literacy and critical inquiry credit is satisfied by courses in the major.

Natural Sciences/Basic Sciences

CHM 113 General Chemistry I *SQ* 4
CHM 116 General Chemistry II *SQ* 4
CHM 233 General Organic Chemistry I 3
CHM 234 General Organic Chemistry II 3
CHM 237 General Organic Chemistry Laboratory I 1
PHY 121 University Physics I: Mechanics *SQ*[2] 3
PHY 122 University Physics Laboratory I *SQ*[2] 1
PHY 131 University Physics II: Electricity and Magnetism *SQ*[3] 3
Bioscience electives[4] 3

Total 25

Mathematical Studies

MAT 242 Elementary Linear Algebra 2
MAT 275 Modern Differential Equations *MA* 3
MAT 294 ST: Calculus for Engineers I 3
MAT 294 ST: Calculus for Engineers II 3
MAT 294 ST: Calculus for Engineers III 3

Total 14

General Studies/program requirements total 54

Major

CHE 194 ST: Introduction to Chemical Engineering *CS* 3
CHE 211 Introduction to Chemical Processing 3
CHE 231 Introduction to Transport Phenomena I: Fluids 3
CHE 334 Introduction to Transport Phenomena II: Heat and Mass Transfer 3
CHE 342 Introduction to Applied Chemical Thermodynamics 3
CHE 352 Transport Laboratories 3
CHE 432 Principles of Chemical Engineering Design 3
CHE 433 Modern Separations 3
CHE 442 Introduction to Chemical Reactor Design 3
CHE 451 Chemical Engineering Laboratory 3
CHE 461 Process Dynamic Control *CS* 3
CHE 462 Process Design *L* 3
IEE 220 Business and Industrial Engineering 3
MAE 384 Numerical Methods for Engineers 3
Engineering elective (200 level) 3
Technical electives[5] 15

Major courses total 60

Program total 120

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1 Engineering students may not use aerospace studies (AES) or military science (MIS) courses to fulfill HU or SB requirements.

2 Both PHY 121 and 122 must be taken to secure SQ credit.

3 Both PHY 131 and 132 must be taken to secure SQ credit.

4 See "Bioscience Electives," on this page for a list of electives.

5 Students must complete a total of 15 semester hours of upper-division technical electives in the natural sciences, math, or engineering. These must include at least six hours of CHE courses and at least six hours of advanced chemistry content. Courses with advanced chemistry content include CHM, BCH, and approved CHE courses.

Bioscience Electives

BCH 361 Principles of Biochemistry (3)
BCH 461 General Biochemistry (3)
BCH 463 Biophysical Chemistry (3)
BIO 188 General Biology II (4)
BME 235 Physiology for Engineers (4)
BME 318 Biomaterials (4)
BME 411 Biomedical Engineering I (3)
MBB 245 Cellular and Molecular Biology *SQ* (4)
MBB 247 Applied Biosciences: Biotechnology (4)
MIC 205 Microbiology *SG* (3)
MIC 220 Biology of Microorganisms (3)
CHE 475 Biochemical Engineering (3)

Students should consult with their department academic advisors to ensure that all requirements are met.

The technical elective courses must be selected from upper-division courses with an advisor's approval and must include two three-semester-hour chemistry courses; a three-semester-hour natural science or materials course; and a three-semester-hour chemical engineering course.

To fulfill accreditation requirements and to prepare adequately for the advanced chemistry courses, Chemical Engineering majors are required to take the CHM 113 and 116 introductory chemistry sequence (CHM 117 and 118 are acceptable substitutes). Other freshman chemistry courses are *not acceptable,* and transfer students who have taken

another chemistry course may be required to enroll in CHM 113 and 116.

Chemical Engineering Areas of Study

Students who wish to specialize may develop an area of interest through the use of technical electives and selective substitutions for required courses. Substitutions must be approved by the advisor and the Department Standards Committee and must be consistent with ABET accreditation criteria. No substitution of CHE 462 is allowed. The following are possible elective areas with suggested courses. A student may choose electives within the general department guidelines and does not have to select one of the areas listed.

Biochemical. Students wishing to prepare for a career in biotechnology, fermentation, food processing, pharmaceuticals, and other areas within biochemical engineering should select from the following:

Chemistry Electives
BCH 361 Principles of Biochemistry....3
or BCH 461 General Biochemistry (3)
BCH 462 General Biochemistry....3

Technical Electives
CHE 475 Biochemical Engineering....3
CHE 494 ST: Biotechnology Techniques....3

Biomedical. Students who are interested in biomedical engineering but wish to maintain a strong, broad chemical engineering base should select from the following:

Chemistry Electives
BCH 361 Principles of Biochemistry....3
or BCH 461 General Biochemistry (3)
BCH 462 General Biochemistry....3

Technical Electives
BME 318 Biomaterials....4

Environmental. Students interested in environmental engineering are encouraged to pursue a BSE degree in Chemical Engineering with this area of study. Students interested in the management of hazardous wastes and air and water pollution should select from the following:

Chemistry Electives
BCH 361 Principles of Biochemistry....3
or BCH 461 General Biochemistry (3)
CHM 302 Environmental Chemistry....3
CHM 481 Geochemistry....3
CHM 494 ST: Chemistry of Global Climate Change....3

Technical Electives
CEE 561 Physical-Chemical Treatment of Water and Waste....3
CEE 563 Environmental Chemistry Laboratory....3

Materials. Students interested in the development and production of new materials such as alloys, ceramics, composites, polymers, semiconductors, and superconductors should select from the following:

Chemistry Electives
CHM 345 Physical Chemistry I....3
CHM 346 Physical Chemistry II....3
CHM 453 Inorganic Chemistry....3
CHM 471 Solid-State Chemistry....3

Technical Electives
BME 318 Biomaterials....4
CHE 458 Semiconductor Material Processing....3
EEE 352 Properties of Electronic Materials....4
MSE 353 Introduction to Materials Processing and Synthesis....3
MSE 354 Experiments in Materials Synthesis and Processing....2
MSE 431 Corrosion and Corrosion Control....3
MSE 470 Polymers and Composites....3

Premedical. Students planning to attend medical school should select courses from those listed under the biomedical area. In addition, BIO 187, 188, and CHM 238 must be taken to satisfy medical-school requirements but are not counted toward the Chemical Engineering bachelor's degree.

Process Engineering. The engineering core and required chemical engineering courses serve as a suitable background for students intending to enter the traditional petrochemical and chemical process industries. Students can build on this background by selecting courses with the approval of their advisor. Examples of these courses are as follows:

CHE 494 ST: Advanced Process Control....3
MAE 436 Combustion....3

Semiconductor Processing. Students interested in the development and manufacturing of semiconductor and other electronic devices should select from the following:

Chemistry Electives
CHM 345 Physical Chemistry I....3
CHM 346 Physical Chemistry II....3
CHM 453 Inorganic Chemistry....3
CHM 471 Solid-State Chemistry....3

Technical Electives
CHE 458 Semiconductor Material Processing....3
CHE 494 Special Topics....1 to 4
EEE 352 Properties of Electronic Materials....4
EEE 435 Microelectronics....3
EEE 436 Fundamentals of Solid-State Devices....3
EEE 439 Semiconductor Facilities and Cleanroom Practices....3
MSE 353 Introduction to Materials Processing and Synthesis....3
MSE 354 Experiments in Materials Synthesis and Processing....2

Chemical Engineering
Program of Study
Typical Four-Year Sequence

First Year

First Semester
CHE 194 ST: Introduction to Chemical Engineering....3
CHM 113 General Chemistry I *SQ*....4
ENG 101 First-Year Composition....3
MAT 294 ST: Calculus for Engineers I....3
HU/SB and awareness area course....3
Total....16

Second Semester
CHM 116 General Chemistry II *SQ*....4
ENG 102 First-Year Composition....3

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

MAT	294	ST: Calculus for Engineers II	3
PHY	121	University Physics I: Mechanics *SQ*[1]	3
PHY	122	University Physics Laboratory I *SQ*[1]	1
Total			14

Second Year

First Semester

CHE	211	Introduction to Chemical Processing	3
MAT	242	Elementary Linear Algebra	2
MAT	275	Modern Differential Equations *MA*	3
PHY	131	University Physics II: Electricity and Magnetism *SQ*[2]	3
Engineering elective (200 level)			3
Total			14

Second Semester

CHE	231	Introduction to Transport Phenomena I: Fluids	3
MAE	384	Numerical Methods for Engineers	3
MAT	294	ST: Calculus for Engineers III	3
HU/SB and awareness area courses			6
Total			15

Third Year

First Semester

CHE	334	Introduction to Transport Phenomena II: Heat and Mass Transfer	3
CHE	342	Introduction to Applied Chemical Thermodynamics	3
CHM	233	General Organic Chemistry I	3
CHM	237	General Organic Chemistry Laboratory I	1
Bioscience elective[3]			3
Technical Elective			3
Total			16

Second Semester

CHE	352	Transport Laboratories	3
CHE	433	Modern Separations	3
CHE	442	Introduction to Chemical Reactor Design	3
CHM	234	General Organic Chemistry II	3
IEE	220	Business and Industrial Engineering	3
Total			15

Fourth Year

First Semester

CHE	432	Principles of Chemical Engineering Design	3
CHE	451	Chemical Engineering Laboratory	3
CHE	461	Process Dynamic Control *CS*	3
HU/SB and awareness area course			3
Technical elective			3
Total			15

Second Semester

CHE	462	Process Design *L*	3
HU/SB and awareness area course			3
Technical electives			9
Total			15

Total degree requirements 120

1 Both PHY 121 and 122 must be taken to secure SQ credit.
2 Both PHY 131 and 132 must be taken to secure SQ credit.
3 See "Bioscience Electives," page 394 for a list of electives.

MATERIALS SCIENCE AND ENGINEERING—BSE

Materials engineers create innovations that result in new and improved materials that help drive the cutting edge of new technologies in many industries. These include the auto, aerospace, electronics, semiconductor, materials production, and health professions. The space shuttle, lightweight cars, and today's fastest computers have all been developed using the latest materials technologies. In advancing today's technologies, materials engineers fulfill a wide range of job responsibilities that significantly impact other engineering disciplines and include

1. selecting the best material for a given application or developing innovative materials and processing techniques for new applications;
2. characterizing and analyzing failed products in order to redesign more reliable and robust engineering components; and
3. impacting technological advances in larger-scale projects through working in a team environment with other engineers from the chemical, electrical, mechanical, aerospace and other engineering disciplines.

The Materials Science and Engineering degree program at ASU has outstanding faculty who have national reputations in the areas of both structural and electronic materials. The faculty bring significant professional expertise to classroom teaching, which is complemented by enlightening experimental work in the program's contemporary, well-equipped laboratory facilities. This atmosphere promotes quality undergraduate research projects and senior design projects that frequently result in patents and technical publications. Examples of recent patent applications include an improved method for producing artificial Teflon arteries and an improved technique for testing steel in air bag containers. Such preparation and experiences give the program's graduates an edge in seeking employment at the best companies or admission to the nation's leading graduate schools. The program's educational experience is also enhanced by numerous scholarships available to students ranging from entering freshmen to final-year seniors.

The Materials Science and Engineering degree program is accredited by the Accreditation Board for Engineering and Technology, Inc. As such, it has an identifiable program mission, objectives, and outcomes, which reflect, encompass, and embody the unique educational development that a student experiences as he or she progresses through the program to graduation. The mission and objectives are described below.

The mission of the Materials Science and Engineering degree program is to provide a solid educational foundation in the application of the principles of science and engineering toward the design, utilization, and improvement of materials in engineering components and systems for the betterment of society. This mission, with the associated objectives and outcomes, also supports the mission and goals of ASU and the Ira A. Fulton School of Engineering. To accomplish this mission, the program's graduates fulfill the following objectives: (1) graduates will have the strong educational foundation in materials science and engineering that promotes success in the broad range of career

opportunities available in graduate school, industry, and government; and (2) graduates will have the personal skills and values that promote their success in the rapidly changing, culturally diverse workplace that reflects the needs of contemporary society.

ADMISSION REQUIREMENTS

The Preprofessional Program. Each student admitted to the Materials Science and Engineering Program is designated a preprofessional student. Students follow the first- and second-year sequence of courses listed in the curriculum outline. Included in the first three semester schedules are all skill-set courses or equivalents:

CHM	114	General Chemistry for Engineers *SQ*	4
MAT	294	ST: Calculus for Engineers I	3
MAT	294	ST: Calculus for Engineers II	3
MAT	294	ST: Calculus for Engineers III	3
MSE	100	Introduction to Materials Engineering *CS*	3
PHY	121	University Physics I: Mechanics *SQ*[1]	3
PHY	122	University Physics Laboratory I *SQ*[1]	1
PHY	131	University Physics II: Electricity and Magnetism *SQ*[2]	3
PHY	132	University Physics Laboratory II *SQ*[2]	1
Total			24

[1] Both PHY 121 and 122 must be taken to secure SQ credit.
[2] Both PHY 131 and 132 must be taken to secure SQ credit.

The Professional Program. Admission to the professional program is competitive and granted to those applicants demonstrating the promise for professional success in Materials Science and Engineering. The admissions committee considers overall transfer and ASU GPA numbers as well as the transfer and ASU GPA numbers in Materials Science and Engineering skill-set courses. All students seeking professional status must be in the process of completing all of the skill-set courses and then follow the application procedure as described on the Materials Science and Engineering Web site. Completion of the specified courses does not guarantee admission to professional status. Only students who have been admitted to ASU are eligible to apply for the professional programs. Candidates are encouraged to visit the Materials Science and Engineering undergraduate advising office before beginning the application process.
All applications materials can be found on the Web at fulton.asu.edu/~cme.

DEGREE REQUIREMENTS

A minimum of 120 semester hours is necessary for the BSE degree in Materials Science and Engineering. A minimum of 45 upper-division semester hours is required. Students must attain a GPA of at least 2.00 for the courses in the major field.

GRADUATION REQUIREMENTS

In addition to fulfilling school and major requirements, majors must satisfy all university graduation requirements. See "University Graduation Requirements," page 89.

COURSE REQUIREMENTS

The undergraduate curriculum requires that students take a series of interdisciplinary courses of fundamental importance to an understanding of all engineering materials. Following these are additional courses that may be taken as technical electives to develop an area of study. The courses for the undergraduate degree can be classified into the following categories (in semester hours):

First-Year Composition

Choose among the course combinations below 6

ENG	101	First-Year Composition	3
ENG	102	First-Year Composition	3
		—or—	
ENG	105	Advanced First-Year Composition	3
		Elective chosen with an advisor	3
		—or—	
ENG	107	English for Foreign Students	3
ENG	108	English for Foreign Students	3

Total 6

General Studies/School Requirements

Humanities and Fine Arts/Social and Behavioral Sciences

HU/SB and awareness area courses 15

HU/SB subtotal 15

Literacy and Critical Inquiry

Six semester hours of literacy and critical inquiry credit is satisfied by courses in the major.

Natural Sciences/Basic Sciences

CHM	114	General Chemistry for Engineers *SQ*	4
PHY	121	University Physics I: Mechanics *SQ*[1]	3
PHY	122	University Physics Laboratory I *SQ*[1]	1
PHY	131	University Physics II: Electricity and Magnetism *SQ*[2]	3
PHY	132	University Physics Laboratory II *SQ*[2]	1
Math or science elective			3

Natural science/basic sciences subtotal 15

Mathematical Studies

MAT	275	Modern Differential Equations *MA*	3
MAT	294	ST: Calculus for Engineers I	3
MAT	294	ST: Calculus for Engineers II	3
MAT	294	ST: Calculus for Engineers III	3
MAT	343	Applied Linear Algebra	3

Mathematical studies subtotal 15

General Studies/school requirements total 45

Major

BME	111	Engineering Perspectives on Biological Systems	3
IEE	220	Business and Industrial Engineering	3
MSE	100	Introduction to Materials Engineering *CS*	3
MSE	211	Introduction to Mechanics of Materials	3
MSE	215	Materials Synthesis	3
MSE	250	Structure and Properties of Materials	3
MSE	315	Mathematical and Computational Methods in Materials	3
MSE	330	Thermodynamics of Materials	3
MSE	335	Materials Kinetics and Processing	3
MSE	355	Materials Structure and Microstructure	3

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

MSE 356 Materials Structure and Microstructure Lab 1
MSE 358 Introduction to Electronic, Magnetic, and Optical Properties 3
MSE 420 Physical Metallurgy 3
MSE 421 Physical Metallurgy Laboratory 1
MSE 440 Mechanical Properties of Solids 3
MSE 450 Introduction to Materials Characterization 3
MSE 451 Introduction to Materials Characterization Lab 1
MSE 470 Polymers and Composites 3
MSE 471 Introduction to Ceramics 3
MSE 482 Materials Engineering Design *L* 3
MSE 490 Capstone Design Project 3
Select two 300- or 400-level science courses from biology, chemistry, geology, or physics 6
Technical electives 6
Total 69

Program total 120

[1] Both PHY 121 and 122 must be taken to secure SQ credit.
[2] Both PHY 131 and 132 must be taken to secure SQ credit.

Materials Science and Engineering Areas of Study

Technical electives may be selected from one or more of the following areas. A student may select a general area or a set of courses from engineering, mathematics, or science that would support a career objective not covered by the following categories.

Biomaterials. Students interested in the materials used in the body and other living systems to improve or replace body components should choose from the following technical electives:

BME 318 Biomaterials 4
BME 411 Biomedical Engineering I 3
BME 412 Biomedical Engineering II 3
BME 413 Biomedical Instrumentation *L** 3
BME 416 Biomechanics 3

* Both BME 413 and 423 must be taken to secure L credit.

Ceramic Materials. Students who want to develop an understanding of the chemistry and processing that control the structure and properties of ceramics and their application should select from these technical electives:

CHM 233 General Organic Chemistry I 3
CHM 234 General Organic Chemistry II 3
CHM 471 Solid-State Chemistry 3
EEE 435 Microelectronics 3
EEE 436 Fundamentals of Solid-State Devices 3
EEE 439 Semiconductor Facilities and Cleanroom Practices 3

Energy Systems. Students interested in the materials used in energy conversion systems such as solar energy or nuclear energy should choose from the following technical electives:

MAE 342 Principles of Design 3
MAE 442 Mechanical Systems Design 4
MSE 431 Corrosion and Corrosion Control 3
MSE 441 Analysis of Material Failures 3

Integrated Circuit Materials. Students interested in the materials used in the semiconductor industry and in how they are processed to achieve the desired properties should choose from the following technical electives:

CHE 458 Semiconductor Material Processing 3
EEE 435 Microelectronics 3
EEE 436 Fundamentals of Solid-State Devices 3
EEE 439 Semiconductor Facilities and Cleanroom Practices 3

Manufacturing and Materials Processing. Students interested in the manufacturing and processing of materials for a broad base of applications should choose from the following technical electives:

CHE 458 Semiconductor Material Processing 3
IEE 300 Economic Analysis for Engineers 3
IEE 360 Manufacturing Processes 3
or MAE 351 Manufacturing Processes (3)
IEE 361 Manufacturing Processes Lab 1
IEE 368 Facilities Analysis and Design *L* 3
IEE 369 Work Analysis and Design *L* 3
IEE 431 Engineering Administration 3
IEE 437 Human Factors Engineering 3
IEE 461 Production Control 3
IEE 463 Computer-Aided Manufacturing and Control *CS* 3
MAE 322 Mechanics of Materials 4
MAE 342 Principles of Design 3
MAE 442 Mechanical Systems Design 4
MSE 431 Corrosion and Corrosion Control 3
MSE 441 Analysis of Material Failures 3

Mechanical Metallurgy. Students interested in understanding the design, processing, and manufacturing of metals for structural applications, such as autos, airplanes, and buildings, should choose from the following technical electives:

MAE 322 Mechanics of Materials 4
MAE 342 Principles of Design 3
MAE 415 Vibration Analysis 3
MAE 442 Mechanical Systems Design 4
MSE 431 Corrosion and Corrosion Control 3
MSE 441 Analysis of Material Failures 3

Metallic Materials Systems. Students interested in building an understanding of the basis for the design and processing of metals and alloys should choose from the following technical electives:

MAE 351 Manufacturing Processes 3
MSE 431 Corrosion and Corrosion Control 3
MSE 441 Analysis of Material Failures 3

Polymers and Composites. Students who desire to build an understanding of the chemical and processing basis for the properties of polymers and their applications, including composite systems, should select from the following technical electives:

CHM 233 General Organic Chemistry I 3
CHM 234 General Organic Chemistry II 3
CHM 471 Solid-State Chemistry 3
MSE 441 Analysis of Material Failures 3

Materials Science and Engineering
Program of Study
Typical Four-Year Sequence

First Year

First Semester
CHM 114 General Chemistry for Engineers *SQ* 4

ENG 101 First-Year Composition 3
MAT 294 ST: Calculus for Engineers I 3
MSE 100 Introduction to Materials Engineering *CS* 3
HU/SB and awareness area course[1] 3
Total 16

Second Semester
ENG 102 First-Year Composition 3
MAT 294 ST: Calculus for Engineers II 3
MSE 250 Structure and Properties of Materials 3
PHY 121 University Physics I: Mechanics *SQ*[2] 3
PHY 122 University Physics Laboratory I *SQ*[2] 1
HU/SB and awareness area course[1] 3
Total 16

Second Year

First Semester
BME 111 Engineering Perspectives on Biological Systems 3
MAT 294 ST: Calculus for Engineers III 3
MSE 215 Materials Synthesis 3
PHY 131 University Physics II: Electricity and Magnetism *SQ*[3] 3
PHY 132 University Physics Laboratory II *SQ*[3] 1
Total 13

Second Semester
MAT 275 Modern Differential Equations *MA* 3
MAT 343 Applied Linear Algebra 3
MSE 211 Introduction to Mechanics of Materials 3
HU/SB awareness area course[1] 3
Science or mathematics elective 3
Total 15

Third Year

First Semester
IEE 220 Business and Industrial Engineering 3
MSE 315 Mathematical and Computer Methods in Materials 3
MSE 330 Thermodynamics of Materials 3
MSE 355 Materials Structure and Microstructure 3
MSE 356 Materials Structure and Microstructure Lab 1
HU/SB awareness area course[1] 3
Total 16

Second Semester
MSE 335 Materials Kinetics and Processing 3
MSE 358 Introduction to Electronic, Magnetic, and Optical Properties 3
MSE 420 Physical Metallurgy 3
MSE 421 Physical Metallurgy Laboratory 1
MSE 450 Introduction to Materials Characterization 3
MSE 451 Introduction to Materials Characterization Lab 1
Total 14

Fourth Year

First Semester
MSE 440 Mechanical Properties of Solids 3
MSE 470 Polymers and Composites 3
MSE 471 Introduction to Ceramics 3
MSE 482 Materials Engineering Design *L* 3
Advanced science elective 3
Total 15

Second Semester
MSE 490 Capstone Design Project 3
Advanced science elective 3
HU/SB awareness area course[1] 3
Technical elective 6
Total 15

Total degree requirements 120

[1] Engineering students may not use aerospace studies (AES) or military science (MIS) courses to fulfill HU and SB requirements.
[2] Both PHY 121 and 122 must be taken to secure SQ credit.
[3] Both PHY 131 and 132 must be taken to secure SQ credit.

GRADUATE STUDY

The faculty in the Department of Chemical and Materials Engineering also offer graduate programs leading to the MS, MSE, and PhD degrees. These programs provide a blend of classroom instruction and research. Many diverse topical and relevant research projects are available for thesis topics. Students interested in these programs should contact the department for up-to-date descriptive literature.

CHEMICAL ENGINEERING (CHE)

M CHE 100 Introduction to Chemical Engineering. (3)
fall
Introduces design in chemical engineering, teaming, chemical engineering profession, computer models, communication skills, quality and customer satisfaction. Fee. Prerequisites: high school algebra and computing and physics courses (or their equivalents). *General Studies: CS*

M CHE 211 Introduction to Chemical Processing. (3)
fall
Applies chemical engineering analysis and problem solving to chemical processes material and energy balance methods and skills. Prerequisites: CHM 116; MAT 271 (or 294 ST: Calculus for Engineers II).

M CHE 231 Introduction to Transport Phenomena I: Fluids. (3)
spring
Transport phenomena, with emphasis on fluid systems. Credit is allowed for only CHE 231 or 501. Prerequisites: CHE 211; MAT 271 (or 294 ST: Calculus for Engineers II).

M CHE 334 Introduction to Transport Phenomena II: Heat and Mass Transfer. (3)
fall
Applies heat and mass transport principles. Design of heat exchangers and continuous contactors. Credit is allowed for only CHE 334 or 502. Prerequisite: CHE 231.

M CHE 342 Introduction to Applied Chemical Thermodynamics. (3)
fall
Applies conservation and accounting principles with nonideal property estimation techniques. Credit is allowed for only CHE 342 or 504. Prerequisite: CHE 211. Pre- or corequisite: MAT 272 or 294 ST: Calculus for Engineers III.

M CHE 352 Transport Laboratories. (3)
spring
Introduces engineering lab equipment, data collection, and analysis; strengthens ability to generate written reports and oral presentations; reinforces teamwork skills; strengthens and extends the understanding of earlier technical contents in the curriculum. Integrated lecture/lab. Fee. Prerequisite: CHE 334.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M CHE 432 Principles of Chemical Engineering Design. (3)
fall
Multicomponent distillation, engineering economics, equipment sizing and costs, plant operation economics, and simulation and optimization techniques. Prerequisites: CHE 334, 342.

M CHE 433 Modern Separations. (3)
spring
Design of modern separation equipment in chemical engineering other than fractionation. Prerequisites: CHE 334, 342.

M CHE 442 Introduction to Chemical Reactor Design. (3)
spring
Applies kinetics to chemical reactor design. Lecture, recitation. Credit is allowed for only CHE 442 or 505. Prerequisites: CHE 334, 342.

M CHE 451 Chemical Engineering Laboratory. (3)
fall
Operation, control, and design of experimental and industrial process equipment; independent research projects. Integrated lecture/lab. Fee. Prerequisites: CHE 334, 352; MAE 384.

M CHE 458 Semiconductor Material Processing. (3)
selected semesters
Introduces the processing and characterization of electronic materials for semiconductor applications. Prerequisites: CHE 334, 342.

M CHE 461 Process Dynamic Control. (3)
fall
Process dynamics, instrumentation, and feedback applied to automatic process control. Integrated lecture/lab. Fee. Prerequisites: MAE 384; MAT 274.
General Studies: CS

M CHE 462 Process Design. (3)
spring
Applies economic principles to optimize equipment selection and design; development and design of process systems. Prerequisites: CHE 432, 433, 442.
General Studies: L

M CHE 469 Air Quality Engineering. (3)
selected semesters
Chemical and physical processes by which air pollutants are generated and controlled with an emphasis on urban air quality. Cross-listed as CEE 469. Credit is allowed for only CHE 469 or CEE 469. Prerequisite: CEE 361 or CHE 334.

M CHE 474 Chemical Engineering Design for the Environment. (3)
fall
Conflict of processing materials and preserving the natural resources. Teaches students to understand and value the environment and attempt to control our impact. Prerequisites: CHE 334, 342.

M CHE 475 Biochemical Engineering. (3)
selected semesters
Applies chemical engineering methods, mass transfer, thermodynamics, and transport phenomena to industrial biotechnology. Prerequisite: instructor approval.

M CHE 476 Bioreaction Engineering. (3)
selected semesters
Principles of analysis and design of reactors for processing with cells and other biologically active materials; applications of reaction engineering in biotechnology. Prerequisite: instructor approval.

M CHE 477 Bioseparation Processes. (3)
selected semesters
Principles of separation of biologically active chemicals; the application, scale-up, and design of separation processes in biotechnology. Prerequisite: instructor approval.

M CHE 478 Industrial Water Quality Engineering. (3)
fall
Chemical treatment processing, quality criteria and control, system design, and water pollutants. Prerequisites: CHE 231; senior standing.

M CHE 490 Chemical Engineering Projects. (1–5)
fall, spring, summer
Individual projects in chemical engineering operations and design. Prerequisite: instructor approval.

M CHE 492 Honors Directed Study. (1–6)
selected semesters

M CHE 493 Honors Thesis. (1–6)
selected semesters

M CHE 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Advanced Process Control. (3)
- Biotechnology Techniques. (3)

M CHE 496 Professional Seminar. (1–3)
fall and spring
Professional and ethical aspects with a discussion of responsibilities. Lecture, field trips. Prerequisite: instructor approval.

M CHE 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

MATERIALS SCIENCE AND ENGINEERING (MSE)

M MSE 100 Introduction to Materials Engineering. (3)
fall
Engineering design process, concepts about materials, and the materials engineering profession, including teaming, computer models, communication, and societal impact. Fee. Prerequisites: high school algebra and computing and physics courses (or their equivalents).
General Studies: CS

M MSE 111 Challenges in Materials Engineering. (1)
fall
Introduces current issues and concepts of materials engineering, relationship between materials properties, application to engineering problems.

M MSE 208 Patterns in Nature. (4)
fall and spring
Project-oriented science course with computer training to develop critical thinking and technical skills for student-oriented K–12 science lessons. Lecture, lab. Cross-listed as PHS 208. Credit is allowed for only MSE 208 or PHS 208. Fee. Prerequisite: college-level science course or instructor approval.
General Studies: SQ

M MSE 211 Introduction to Mechanics of Materials. (3)
spring
Topics include stress, strain, elasticity, axial loading, torsion, bending, yield criteria, fracture, general energy methods and Castigliano's Theorem. Prerequisites: PHY 121, 122. Pre- or corequisite: MAT 272 (or 294 ST: Calculus for Engineers III).

M MSE 215 Materials Synthesis. (3)
fall
Introduces contemporary techniques for synthesizing both traditional and novel materials and the corresponding correlation to synthesized materials properties. Lecture, lab. Prerequisites: CHM 114 (or 116); MSE 250.

M MSE 250 Structure and Properties of Materials. (3)
fall, spring, summer session 1
Basic concepts of material structure and its relation to properties. Application to engineering problems. Prerequisites: CHM 114 or 116.

M MSE 308 Sensing the World. (4)
fall and spring
Project-oriented science course develops critical thinking and technical skill using Internet modules on the five senses. Integrated lecture/lab. Prerequisite: college-level science course or instructor approval.

M MSE 315 Mathematical and Computer Methods in Materials. (3)
fall
Mathematical, computational, and statistical methods and computer programming used to model materials science phenomena and materials engineering applications. Prerequisites: preferably MAT 275 (or 274); MSE 250.

M MSE 330 Thermodynamics of Materials. (3)
fall
Principles of statistical mechanics, statistical thermodynamics of single crystals, solutions, phase equilibrium, free energy of reactions, free electron theory, and thermodynamics of defects. Prerequisite: MSE 250.

M MSE 335 Materials Kinetics and Processing. (3)
spring
Introduces kinetics in processing of materials as illustrated through real-world materials processing examples. Integrated lecture/lab. Prerequisites: MSE 250, 330.

M MSE 353 Introduction to Materials Processing and Synthesis. (3)
fall
Principles of materials structure and properties with emphasis on applications in bulk and thin film materials processing and synthesis. Prerequisites: CHM 116 and MSE 250 and PHY 131 (or their equivalents).

M MSE 354 Experiments in Materials Synthesis and Processing. (2)
spring
Small groups of students complete three experiments selected from a list. Each is supervised by a selected faculty member. Lab. Fee. Prerequisite: MSE 353 (or its equivalent).

M MSE 355 Materials Structure and Microstructure. (3)
fall
Elements of the structure of metals and alloys, measurement of mechanical properties, and optical metallography. Fee. Prerequisite: MSE 250.

M MSE 356 Materials Structure and Microstructure Lab. (1)
fall
Lab experiments correlating atomic structure, defects and microstructure of processed metals, ceramics polymers and composites to their mechanical and thermal properties. Lab. Fee. Prerequisite: MSE 250. Corequisite: MSE 355.

M MSE 358 Introduction to Electronic, Magnetic, and Optical Properties. (3)
spring
Introduces electrical, optical, and magnetic properties of solids and microstructure effects as examined through materials-based examples. Prerequisites: CHM 114 (or 116); MSE 250; PHY 131.

M MSE 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Computer and Experimental Methods in Materials. (3)
- Computer Modeling
  Fee.

M MSE 420 Physical Metallurgy. (3)
spring
Crystal structure and defects. Phase diagrams, metallography, solidification and casting, deformation, and annealing. Prerequisite: MSE 250.

M MSE 421 Physical Metallurgy Laboratory. (1)
spring
Focuses on analysis of microstructure of metals and alloys and includes correlation with mechanical properties to some extent. Lab. Fee. Pre- or corequisite: MSE 420.

M MSE 431 Corrosion and Corrosion Control. (3)
spring in odd years
Introduces corrosion mechanisms and methods of preventing corrosion. Topics include: electrochemistry, polarization, corrosion rates, oxidation, coatings, and cathodic protection. Prerequisite: MSE 250.

M MSE 440 Mechanical Properties of Solids. (3)
fall
Effects of environmental and microstructural variables of mechanical properties, including plastic deformation, fatigue, creep, brittle fracture, and internal friction. Credit is allowed for only MSE 440 or 516. Prerequisite: MSE 250.

M MSE 441 Analysis of Material Failures. (3)
spring in even years
Identifies types of failures. Analytical techniques. Fractography, SEM, nondestructive inspection, and metallography. Mechanical and electronic components. Credit is allowed for only MSE 441 or 512. Prerequisite: MSE 250.

M MSE 450 Introduction to Materials Characterization. (3)
spring
Introduces materials characterization techniques for analysis of thin films and bulk materials by TEM, SEM, XRD, XPS, and AES. Fee. Prerequisite: MSE 250.

M MSE 451 Introduction to Materials Characterization Lab. (1)
spring
Lab for materials characterization techniques for analysis of thin films and bulk materials by TEM, SEM, XRD, XPS, and AES. Lab. Fee. Corequisite: MSE 450.

M MSE 470 Polymers and Composites. (3)
fall
Relationship between chemistry, structure, and properties of engineering polymers. Design, properties, and behavior of fiber composite systems. Cross-listed as MAE 455. Credit is allowed for only MAE 455 or MSE 470. Prerequisites: MSE 211 (or CEE 213 or MAE 213), 250.

M MSE 471 Introduction to Ceramics. (3)
fall
Principles of structure and property relations in ceramic materials. Processing techniques. Applications in mechanical, electronic, and superconducting systems. Prerequisite: MSE 250.

M MSE 482 Materials Engineering Design. (3)
fall
Principles of the design process. Feasibility and optimization. Manufacturing processes, materials selection, failure analysis, and economics. Prerequisites: ENG 101 (or 105 or 107); MSE 354, 355.
General Studies: L

M MSE 490 Capstone Design Project. (1–3)
spring
For small groups in fundamental or applied aspects of engineering materials; emphasizes experimental problems and design. Fee. Prerequisites: MSE 330, 440, 450.

M MSE 492 Honors Directed Study. (1–6)
selected semesters

M MSE 493 Honors Thesis. (1–6)
selected semesters

M MSE 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Composite Materials. (3)
- Electronic, Optical, and Magnetic Properties of Materials. (3)
- Engineering Disasters: Heavy Metal Toxicity
- Growth and Processing of Semiconductors. (3)
- Nanomaterials: Synthesis and Evaluation. (3)
- Scanning Probe Microscopy. (3)
- Vacuum Systems Science and Engineering. (3)

M MSE 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Department of Civil and Environmental Engineering

fulton.asu.edu/civil
480/965-3589
ECG 252

Sandra L. Houston, Chair

Richard Snell Presidential Chair Professor: Crittenden

Professors: Allenby, Fox, Houston, Johnson, Mamlouk, Mays, Mobasher, Rajan, Rittmann, Singhal, Washington, Witczak

Associate Professors: Abbaszadegan, Fafitis, Kavazanjian, Muccino, Westerhoff

Assistant Professors: Allen, Kaloush

Associate Research Professor: Chen

Faculty Research Associates: Alum, Ryu, Zapata

Faculty Research Assistant: El-Basyouny

Lecturer: Lawrence

The civil engineering profession includes analysis, planning, design, construction, and maintenance of many types of facilities for government, commerce, industry, and the public domain. These facilities include high-rise office towers, factories, schools, airports, tunnels and subway systems, dams, canals, and water purification and environmental protection facilities such as solid waste and wastewater treatment systems. Civil engineers are concerned with the impact of their projects on the public and the environment, and they attempt to coordinate the needs of society with technical and economic feasibility.

Career Opportunities in the Field. University graduates with the BSE degree in Civil Engineering readily find employment. Civil engineers work in many different types of companies, from large corporations to small, private consulting firms, or in governmental agencies. A civil engineering background is an excellent foundation for jobs in management and public service. Civil engineering is one of the best engineering professions from the viewpoint of international travel opportunities or for eventually establishing one's own consulting business.

Uniqueness of the Program at ASU. The Department of Civil and Environmental Engineering offers a challenging program of study designed to provide the student with the resources and background to pursue a career in a wide range of specialty areas. Some of these areas are structural, construction, geotechnical, environmental and water resources, and transportation and materials engineering. The Civil Engineering program is fully accredited by ABET. With the program, students will be prepared for the Fundamentals of Engineering examination and professional registration.

The Department of Civil and Environmental Engineering at ASU strongly believes in the development of programmatic objectives and outcomes, and in a continuous quality improvement program. The four preeminent learning objectives for the program deal with the ability of graduates to

1. be technically competent,
2. be effective members of society,
3. communicate effectively, and
4. analyze and design civil engineering systems with due consideration to cost and environmental and construction factors.

Civil Engineering Areas of Study

Areas of study in the civil engineering curriculum are described below.

Environmental Engineering. This area of study includes the quality of air, water, and land resources; transport, use, and disposal of hazardous wastes; water and wastewater treatment; water reuse; and sustainability.

Geotechnical/Geoenvironmental Engineering. This area of study includes the analysis and design of foundation systems, seepage control, earthdams and water resource structures, earthwork operations, fluid flow-through porous media, response of foundations and embankments to earthquakes, and solutions to environmental problems.

Structures/Materials Engineering. This area of study considers the planning, analysis, and design of steel and concrete bridges, buildings, dams; special offshore and space structures; portland cement concrete; composite materials; and structural retrofit of existing bridges.

Transportation/Materials Engineering. This area of study includes (1) transportation design and operation and (2) pavements and materials. Transportation design and operation cover geometric design of highways, traffic operations, and highway capacity and safety. Pavements and materials focus on pavement analysis and design, pavement maintenance and rehabilitation, pavement evaluation and management, characterization of highway materials, and durability of highway structures.

Water Resources Engineering. This area of study is concerned with surface and groundwater flow, planning and management of water supply, and water distribution system modeling.

UNDERGRADUATE OPPORTUNITIES IN CIVIL AND ENVIRONMENTAL ENGINEERING

Students majoring in Civil Engineering have three choices:

1. the major without a concentration;
2. the major with a concentration in construction engineering; and
3. the major with a concentration in environmental engineering.

Civil Engineering. The BSE degree in Civil Engineering offers students a wide background in various areas of study within civil engineering. The degree provides basic principles of construction, environmental, geotechnical/geoenvironmental, structural/materials, transportation/materials, and water resources engineering. Students have the option to select from a certain number of design and technical elective courses in their senior year.

Civil Engineering with Construction Engineering Concentration. The BSE degree in Civil Engineering with a construction engineering concentration offers students basic principles of civil engineering with the option to concentrate on construction engineering. The degree provides education based on traditional engineering principles, construction materials and practice, quality control, and civil engineering project management.

Civil Engineering with Environmental Engineering Concentration. The BSE degree in Civil Engineering with an environmental engineering concentration offers students basic principles of civil engineering with the option to concentrate on environmental engineering. The degree provides a multidisciplinary education based on the traditional engineering principles, chemistry, biology, and hydrogeology.

CIVIL ENGINEERING—BSE

The BSE degree in Civil Engineering requires a minimum of 120 semester hours of course work. A minimum of 45 upper-division semester hours is required. The minimum requirements are for a student who has successfully completed at least a year each of high school chemistry, physics, and computer programming along with precalculus, algebra, and trigonometry.

The BSE degree program consists of the following categories:

First-Year Composition.....6
General Studies/program requirements.....47
Civil Engineering major.....67
Minimum requirement.....120

First-Year Composition

Choose among the course combinations below.....6
ENG 101 First-Year Composition (3)
ENG 102 First-Year Composition (3)
———*or*———
ENG 105 Advanced First-Year Composition (3)
Elective chosen with an advisor (3)
———*or*———
ENG 107 English for Foreign Students (3)
ENG 108 English for Foreign Students (3)
First-year composition total.....6

General Studies/Program Requirements

Humanities and Fine Arts/Social and Behavioral Sciences/ Awareness
CEE 400 Earth Systems Engineering and Management.....3
ECN 211 Macroeconomic Principles *SB*.....3
or ECN 212 Microeconomic Principles *SB (3)*
HU courses.....3–6
SB courses.....3–6
Minimum total.....15

Awareness Areas (C, G, H)
Students must select at least two courses to satisfy the three awareness areas.

Literacy and Critical Inquiry
Six semester hours of literary and critical inquiry credit is satisfied by courses in the major.

Natural Sciences/Basic Sciences
CHM 114 General Chemistry for Engineers *SQ*[1].....4
or CHM 116 General Chemistry II *SQ*[1, 2](4)
PHY 121 University Physics I: Mechanics *SQ*[3].....3
PHY 122 University Physics Laboratory I *SQ*[3].....1
PHY 131 University Physics II: Electricity and Magnetism *SQ*[1, 4].....3
PHY 132 University Physics Laboratory II *SQ*[1, 4].....1
Basic science elective.....3
Total.....15

Mathematical Studies
IEE 280 Probability and Statistics for Engineering Problem Solving *CS*.....3
MAT 242 Elementary Linear Algebra[1].....2
MAT 275 Modern Differential Equations *MA*[1].....3
MAT 294 ST: Calculus for Engineers I.....3
MAT 294 ST: Calculus for Engineers II[1].....3
MAT 294 ST: Calculus for Engineers III[1].....3
Total.....17

General Studies/program requirements total.....47

1 This is a skill-set course.
2 CHM 116 has a prerequisite of CHM 113. Degree credit for CHM 113 is awarded only with departmental approval.
3 Both PHY 121 and 122 must be taken to secure SQ credit.
4 Both PHY 131 and 132 must be taken to secure SQ credit.

Civil Engineering Major

CEE 100 Introduction to Civil and Environmental Engineering *CS*[1].....3
CEE 211 Engineering Mechanics: Statics and Dynamics[1].....4
CEE 213 Introduction to Deformable Solids.....3
CEE 300 Engineering Business Practice.....3
CEE 321 Structural Analysis and Design.....4
CEE 341 Fluid Mechanics for Civil Engineers.....4
CEE 351 Geotechnical Engineering.....4
CEE 353 Civil Engineering Materials.....3
CEE 361 Introduction to Environmental Engineering.....4
CEE 372 Transportation Engineering.....4
CEE 384 Numerical Methods for Engineers.....3
CEE 486 Integrated Civil Engineering Design *L*.....3
MAE 240 Thermofluids I.....4
or EEE 202 Circuits I (4)
Design courses[2].....6
Technical courses[3].....15
Total.....67

Degree requirements total.....120

1 This is a skill-set course.
2 For information on design course options, see "Design Courses for the Degree Without a Concentration," page 404.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

[3] For information on technical course options, see "Technical Courses for the Degree Without a Concentration," page 404.

Design Courses for the Degree Without a Concentration

Six semester hours from the following list are required.

CEE 412 Pavement Analysis and Design 3
or CEE 475 Highway Geometric Design (3)
CEE 420 Steel Structures 3
or CEE 421 Concrete Structures (3)
CEE 441 Water Resources Engineering 3
CEE 452 Foundations 3
CEE 462 Unit Operations in Environmental Engineering 3
or CEE 466 Urban Water System Design (3)

Technical Courses for the Degree Without a Concentration

Fifteen semester hours are required. The design elective courses that have not been selected to satisfy the design electives requirement may be used as technical electives.

A maximum of three hours may be selected from outside civil engineering, with an advisor's approval. Construction courses taken as technical electives may be selected from the following list: CON 383, 495, and 496. Students must select technical and design electives from at least three different CEE areas of study.

Environmental Engineering
CEE 462 Unit Operations in Environmental Engineering 3
CEE 466 Urban Water System Design 3
CEE 467 Environmental Microbiology 3
CEE 469 Air Quality Engineering 3

Geotechnical/Geoenvironmental Engineering
CEE 452 Foundations 3

Structures/Materials Engineering
CEE 420 Steel Structures 3
CEE 421 Concrete Structures 3
CEE 423 Structural Design 3
CEE 432 Developing Software for Engineering Applications 3

Transportation/Materials Engineering
CEE 281 Surveying 3
CEE 412 Pavement Analysis and Design 3
CEE 474 Transportation Systems Engineering 3
CEE 475 Highway Geometric Design 3
CEE 481 Civil Engineering Project Management 3
CEE 483 Highway Materials, Construction, and Quality 3

Water Resources Engineering
CEE 440 Engineering Hydrology 3
CEE 441 Water Resources Engineering 3

Design Courses for the Degree with the Construction Engineering Concentration

CEE 420 Steel Structures 3
CEE 452 Foundations 3
Total 6

Technical Courses for the Degree with the Construction Engineering Concentration

CEE 281 Surveying 3
CEE 412 Pavement Analysis and Design 3
or CEE 483 Highway Materials, Construction, and Quality (3)
CEE 421 Concrete Structures 3
CEE 481 Civil Engineering Project Management 3
CON 496 Construction Contract Administration *L* 3
Total 15

Design Courses for the Degree with the Environmental Engineering Concentration

CEE 441 Water Resources Engineering 3
CEE 466 Urban Water System Design 3
Total 6

Technical Courses for the Degree with the Environmental Engineering Concentration

BIO 320 Fundamentals of Ecology 3
or BCH 361 Principles of Biochemistry (3)
or CHM 302 Environmental Chemistry (3)
or CHM 341 Elementary Physical Chemistry (3)
or PUP 442 Environmental Planning (3)
or PUP 475 Environmental Impact Assessment (3)
CEE 440 Engineering Hydrology 3
CEE 462 Unit Operations in Environmental Engineering 3
CEE 467 Environmental Microbiology 3
CEE 469 Air Quality Engineering 3
or Technical elective* (3)

Total 15

* This course is selected from the list of technical courses for the degree without a concentration.

Civil Engineering Program of Study
Typical Four-Year Sequence

First Year

First Semester
CEE 100 Introduction to Civil and Environmental Engineering *CS* 3
CHM 114 General Chemistry for Engineers *SQ* 4
or CHM 116 General Chemistry II *SQ*[1] (4)
ENG 101 First-Year Composition 3
MAT 294 ST: Calculus for Engineers I 3
Total 13

Second Semester
ECN 111 Macroeconomic Principles *SB* 3
or ECN 112 Microeconomic Principles *SB* (3)
ENG 102 First-Year Composition 3
MAT 242 Elementary Linear Algebra 2
MAT 294 ST: Calculus for Engineers II 3
PHY 121 University Physics I: Mechanics *SQ*[2] 3
PHY 122 University Physics Laboratory I *SQ*[2] 1
Total 15

Second Year

First Semester
CEE 211 Engineering Mechanics: Statics and Dynamics 4
MAT 275 Modern Differential Equations *MA* 3
MAT 294 ST: Calculus for Engineers III 3
PHY 131 University Physics II: Electricity and Magnetism *SQ*[3] 3
PHY 132 University Physics Laboratory II *SQ*[3] 1
Total 14

Second Semester

CEE	213	Introduction to Deformable Solids	3
EEE	202	Circuits I	4
		or MAE 240 Thermofluids I (4)	
IEE	280	Probability and Statistics for Engineering Problem Solving *CS*	3
HU/SB and awareness area course[4]			3
Basic science elective			3
Total			16

Third Year

First Semester

CEE	300	Engineering Business Practice	3
CEE	321	Structural Analysis and Design	4
CEE	353	Civil Engineering Materials	3
CEE	372	Transportation Engineering	4
CEE	384	Numerical Methods for Engineers *CS*	3
Total			17

Second Semester

CEE	341	Fluid Mechanics for Civil Engineers	4
CEE	351	Geotechnical Engineering	4
CEE	361	Introduction to Environmental Engineering	4
CEE	400	Earth Systems Engineering and Management	3
Total			15

Fourth Year

First Semester

Design elective			3
HU/SB and awareness area course[4]			3
Technical electives			9
Total			15

Second Semester

CEE	486	Integrated Civil Engineering Design *L*	3
Design elective			3
HU/SB and awareness area course[4]			3
Technical electives			6
Total			15

Minimum total 120

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1 CHM 116 has a prerequisite of CHM 113. Degree credit for CHM 113 is awarded only with departmental approval.

2 Both PHY 121 and 122 must be taken to secure SQ credit.

3 Both PHY 131 and 132 must be taken to secure SQ credit.

4 Engineering students may not use aerospace studies (AES) or military science (MIS) courses to fulfill HU or SB requirements. Students should consider the following list of electives to enhance communication and management skills: COM 100, 110, 320; CON 101; GCU 141, 361, 421, 442; PUP 100, 200.

Construction Engineering Concentration
Program of Study
Typical Four-Year Sequence

First Year

First Semester

CEE	100	Introduction to Civil and Environmental Engineering *CS*	3
CHM	114	General Chemistry for Engineers *SQ*	4
		or CHM 116 General Chemistry II *SQ*[1] (4)	
ENG	101	First-Year Composition	3
MAT	294	ST: Calculus for Engineers I	3
Total			13

Second Semester

ECN	211	Macroeconomic Principles *SB*	3
		or ECN 112 Microeconomic Principles *SB* (3)	
ENG	102	First-Year Composition	3
MAT	242	Elementary Linear Algebra	2
MAT	294	ST: Calculus for Engineers II	3
PHY	121	University Physics I: Mechanics *SQ*[2]	3
PHY	122	University Physics Laboratory I *SQ*[2]	1
Total			15

Second Year

First Semester

CEE	211	Engineering Mechanics: Statics and Dynamics	4
MAT	275	Modern Differential Equations *MA*	3
MAT	294	ST: Calculus for Engineers III	3
PHY	131	University Physics II: Electricity and Magnetism *SQ*[3]	3
PHY	132	University Physics Laboratory II *SQ*[3]	1
Total			14

Second Semester

CEE	213	Introduction to Deformable Solids	3
EEE	202	Circuits I	4
IEE	280	Probability and Statistics for Engineering Problem Solving *CS*	3
HU/SB and awareness area course[4]			3
Basic science elective			3
Total			16

Third Year

First Semester

CEE	300	Engineering Business Practice	3
CEE	321	Structural Analysis and Design	4
CEE	353	Civil Engineering Materials	3
CEE	372	Transportation Engineering	4
CEE	384	Numerical Methods for Engineers	3
Total			17

Second Semester

CEE	341	Fluid Mechanics for Civil Engineers	4
CEE	351	Geotechnical Engineering	4
CEE	361	Introduction to Environmental Engineering	4
CEE	400	Earth Systems Engineering and Management	3
Total			15

Fourth Year

First Semester

CEE	281	Surveying	3
CEE	420	Steel Structures	3
CEE	452	Foundations	3
CEE	412	Pavement Analysis and Design	3
		or CEE 483 Highway Materials, Construction, and Quality (3)	
HU/SB and awareness area course[4]			3
Total			15

Second Semester

CEE	421	Concrete Structures	3
CEE	481	Civil Engineering Project Management	3
CEE	486	Integrated Civil Engineering Design *L*	3
CON	496	Construction Contract Administration *L*	3

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

HU/SB and awareness area course[4] 3
Total 15

Minimum total 120

[1] CHM 116 has a prerequisite of CHM 113. Degree credit for CHM 113 is awarded only with departmental approval.
[2] Both PHY 121 and 122 must be taken to secure SQ credit.
[3] Both PHY 131 and 132 must be taken to secure SQ credit.
[4] Engineering students may not use aerospace studies (AES) or military science (MIS) courses to fulfill HU or SB requirements. Students should consider the following list of electives to enhance communication and management skills: COM 100, 110, 320; CON 101; PUP 100, 200.

Environmental Engineering Concentration
Program of Study
Typical Four-Year Sequence

First Year

First Semester
CEE 100 Introduction to Civil and Environmental Engineering *CS* 3
CHM 114 General Chemistry for Engineers *SQ* 4
or CHM 116 General Chemistry II *SQ*[1] (4)
ENG 101 First-Year Composition 3
MAT 294 ST: Calculus for Engineers I 3
Total 13

Second Semester
ECN 211 Macroeconomic Principles *SB* 3
or ECN 212 Microeconomic Principles *SB* (3)
ENG 102 First-Year Composition 3
MAT 242 Elementary Linear Algebra 2
MAT 294 ST: Calculus for Engineers II 3
PHY 121 University Physics I: Mechanics *SQ*[2] 3
PHY 122 University Physics Laboratory I *SQ*[2] 1
Total 15

Second Year

First Semester
CEE 211 Engineering Mechanics: Statics and Dynamics 4
MAT 275 Modern Differential Equations *MA* 3
MAT 294 ST: Calculus for Engineers III 3
PHY 131 University Physics II: Electricity and Magnetism *SQ*[3]3
PHY 132 University Physics Laboratory II *SQ*[3] 1
Total 14

Second Semester
CHM 231 Elementary Organic Chemistry *SQ*[4] 3
CEE 213 Introduction to Deformable Solids 3
MAE 240 Thermofluids I 4
IEE 280 Probability and Statistics for Engineering Problem Solving *CS* 3
HU/SB and awareness area course[5] 3
Total 16

Third Year

First Semester
CEE 300 Engineering Business Practice 3
CEE 341 Fluid Mechanics for Civil Engineers 4
CEE 353 Civil Engineering Materials 3
CEE 361 Introduction to Environmental Engineering 4
CEE 384 Numerical Methods for Engineers 3
Total 17

Second Semester
CEE 321 Structural Analysis and Design 4
CEE 351 Geotechnical Engineering 4
CEE 372 Transportation Engineering 4
CEE 400 Earth Systems Engineering and Management 3
Total 15

Fourth Year

First Semester
BIO 320 Fundamentals of Ecology 3
or BCH 361 Principles of Biochemistry (3)
or CHM 302 Environmental Chemistry (3)
or CHM 341 Elementary Physical Chemistry (3)
or PUP 442 Environmental Planning (3)
or PUP 475 Environmental Impact Assessment (3)
CEE 440 Engineering Hydrology 3
or CEE 469 Air Quality Engineering (3)
CEE 466 Urban Water System Design 3
CEE 467 Environmental Microbiology 3
HU/SB and awareness area course[5] 3
Total 15

Second Semester
CEE 441 Water Resources Engineering 3
CEE 462 Unit Operations in Environmental Engineering 3
CEE 486 Integrated Civil Engineering Design *L* 3
HU/SB and awareness area course[5] 3
Technical elective[6] 3
Total 15

Minimum total 120

[1] CHM 116 has a prerequisite of CHM 113. Degree credit for CHM 113 is awarded only with departmental approval.
[2] Both PHY 121 and 122 must be taken to secure SQ credit.
[3] Both PHY 131 and 132 must be taken to secure SQ credit.
[4] Both CHM 231 and 235 must be taken to secure SQ credit. Students who pursue this major fulfill this GS requirement through other courses.
[5] Engineering students may not use aerospace studies (AES) or military science (MIS) courses to fulfill HU or SB requirements. Students should consider the following list of electives to enhance communication and management skills: CON 101; GCU 141, 361, 442; PUP 100, 200.
[6] This course is selected from the list of technical courses for the degree without a concentration.

ADMISSION REQUIREMENTS

Preprofessional Program. With the exception of a few outstanding students, all students will initially be admitted to the preprofessional level. The student follows the first- and second-year sequence of courses listed in the curriculum outline for his or her particular program. Included in the first three semester schedules are the skill-set courses:

CEE 100 Introduction to Civil and Environmental Engineering *CS* 3
CEE 211 Engineering Mechanics: Statics and Dynamics 4
CHM 114 General Chemistry for Engineers *SQ* 4
or CHM 116 General Chemistry II *SQ*[1] (4)
MAT 242 Elementary Linear Algebra 2
MAT 275 Modern Differential Equations *MA* 3
MAT 294 ST: Calculus for Engineers II 3
MAT 294 ST: Calculus for Engineers III 3

PHY	131	University Physics II: Electricity and Magnetism *SQ*[2]3
PHY	132	University Physics Laboratory II *SQ*[2] 1
Total		26

[1] CHM 116 has a prerequisite of CHM 113. Degree credit for CHM 113 is awarded only with departmental approval.

[2] Both PHY 131 and 132 must be taken to secure SQ credit.

Professional Program. Admission to the professional program is competitive and granted to those applicants demonstrating the highest promise for professional success in Civil and Environmental Engineering measured by their average GPA of the skill-set courses. For transfer students, both transfer and ASU GPA numbers in the skill-set courses are considered. All students seeking professional status must have completed or be in the process of completing all the skill-set courses and then follow the application procedure as described on the Civil and Environmental Engineering Web site. Completion of the specified courses does not guarantee admission to professional status. Only students who have been admitted to ASU are eligible to apply for the professional programs. Candidates are strongly encouraged to visit the Civil and Environmental Engineering undergraduate advising office before beginning the application process. All application materials can be found on the Web at www.fulton.asu.edu/civil.

GRADUATION REQUIREMENTS

Students must complete CEE courses in order (100-level followed by 200-level, etc.). CEE 486 is taken in the last semester of course work. This order of courses is important not only to satisfy the prerequisite requirements, but also to avoid time conflicts that may exist among different level courses. CEE 300- and 400-level courses must be completed with an average grade of 2.00 or higher. The total GPA of all ASU courses must be 2.00 or higher.

A maximum of two graduate courses may be taken for undergraduate credit by students whose cumulative GPA is 3.00 or higher with the approval of the instructor, advisor, department chair, and the dean of the school.

In addition to fulfilling school and major requirements, students must satisfy all university graduation requirements. See "University Graduation Requirements," page 89.

Concurrent Studies in Architecture and Civil Engineering

Qualified lower-division students interested in combining undergraduate studies in architecture and civil engineering may prepare for upper-division and graduate courses in both programs by taking courses to meet requirements for option B under the Architectural Studies major. See "Architectural Studies—BSD[1] Lower-Division Requirements," page 320.

GRADUATE STUDY

The Department of Civil and Environmental Engineering also offers graduate programs leading to the MS, MSE, and PhD degrees. These programs provide a blend of classroom instruction and research. Many topics and relevant research projects are available for thesis programs. Students interested in these programs should review the *Graduate Catalog* for up-to-date literature.

CIVIL AND ENVIRONMENTAL ENGINEERING (CEE)

M CEE 100 Introduction to Civil and Environmental Engineering. (3)
fall and spring or summer
Introduces basics of civil and environmental engineering design, team work, ethics, communication and management skills, modeling, problem solving, computer applications. Fee. Prerequisites: high school algebra and computing and physics (or their equivalents).
General Studies: CS

M CEE 211 Engineering Mechanics: Statics and Dynamics. (4)
fall, spring, summer
Force systems, equilibrium, structural analysis, area-related properties, kinematics and dynamics of particles and rigid bodies, energy and conservation principles. Lecture, recitation. Prerequisites: CEE 100; MAT 272 (or 294 ST: Calculus for Engineers III); PHY 121, 122.

M CEE 213 Introduction to Deformable Solids. (3)
fall, spring, summer
Strain-displacement and stress-strain-temperature relations. Stresses and deformations due to axial, shear, torsional and bending moments. Buckling, stability. Lecture, recitation. Prerequisites: CEE 211; MAT 275.

M CEE 281 Surveying. (3)
fall, spring, summer
Theory and field work in construction and land surveys. Cross-listed as CON 241. Credit is allowed for only CEE 281 or CON 241. Fee. Lecture, lab. Prerequisite: MAT 270 (or 294 ST: Calculus for Engineers I).

M CEE 300 Engineering Business Practice. (3)
fall, spring, summer
Engineering economic principles, cost/benefit analysis, project financing and delivery, management of engineering design, business practices, ethical and professional responsibilities. Prerequisite: CEE 213.
General Studies: L

M CEE 321 Structural Analysis and Design. (4)
fall and spring
Statically determinate and indeterminate structures (trusses, beams, and frames) by classical and matrix methods. Introduces structural design. Lecture, recitation. Prerequisite: CEE 213. Pre- or corequisites: CEE 384; IEE 280.

M CEE 341 Fluid Mechanics for Civil Engineers. (4)
fall and spring
Fundamental principles and methods of fluid mechanics forming the analytical basis for water resources engineering. Conduit and open channel flow. Fee. Lecture, lab. Prerequisite: CEE 213. Pre- or corequisites: CEE 384; IEE 280.

M CEE 351 Geotechnical Engineering. (4)
fall and spring
Index properties and engineering characteristics of soils. Compaction, permeability and seepage, compressibility and settlement, and shear strength. Fee. Lecture, lab. Prerequisite: CEE 213. Pre- or corequisites: CEE 384; IEE 280.

M CEE 353 Civil Engineering Materials. (3)
fall and spring
Structure and behavior of civil engineering materials, including steel, aggregate, concrete, masonry, asphalt, wood, composites. Atomic structure and engineering applications. Fee. Lecture, lab. Prerequisite: CEE 213.

M CEE 361 Introduction to Environmental Engineering. (4)
fall and spring
Concepts of air and water pollution; environmental regulation, risk assessment, chemistry, water quality modeling, water and wastewater

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

treatment systems designs. Fee. Lecture, lab. Prerequisite: CEE 213. Pre- or corequisites: CEE 384; IEE 280.

M CEE 372 Transportation Engineering. (4)
fall and spring
Highway, rail, water, and air transportation. Operational characteristics and traffic control devices of each transport mode. Impact on urban form. Prerequisite: CEE 213. Pre- or corequisites: CEE 384; IEE 280.

M CEE 384 Numerical Methods for Engineers. (3)
fall and spring
Numerical methods and computational tools for selected problems in engineering. Cross listed as MAE 384. Credit is allowed for only CEE 384 or MAE 384. Prerequisites: preferably MAT 275 or 274, preferably 343 or 242 or 342. Pre- or corequisite: MAT 272 or 294 ST: Calculus for Engineers III.

M CEE 400 Earth Systems Engineering and Management. (3)
fall and spring
Introduces earth systems engineering and management, and the technological, economic and cultural systems underlying the terraformed Earth Prerequisite: CEE 300. Prerequisite for non-CEE major: instructor approval.
General Studies: H

M CEE 412 Pavement Analysis and Design. (3)
fall
Design of flexible and rigid pavements for highways and airports. Surface, base, and subgrade courses. Cost analysis and pavement selection. Credit is allowed for only CEE 412 or 511. Prerequisites: CEE 351, 353.

M CEE 420 Steel Structures. (3)
fall
Behavior of structural components and systems. Design of steel members and connections. Load and resistance factor design methods. Lecture, recitation. Prerequisite: CEE 321.

M CEE 421 Concrete Structures. (3)
spring
Behavior of concrete structures and the design of reinforced and prestressed concrete members, including footings. Partial design of concrete building system. Lecture, recitation. Prerequisite: CEE 321.

M CEE 423 Structural Design. (3)
fall
Analysis and design of reinforced concrete steel, masonry, and timber structures. Fee. Prerequisite: CEE 421. Pre- or corequisite: CEE 420.

M CEE 432 Developing Software for Engineering Applications. (3)
spring
Matrix and computer applications to structural engineering and structural mechanics. Stiffness and flexibility methods, finite elements, and differences. Credit is allowed for only CEE 432 or 532. Prerequisite: CEE 321.

M CEE 440 Engineering Hydrology. (3)
fall
Descriptive hydrology; hydrologic cycle, models, and systems. Rain-runoff models. Hydrologic design. Concepts, properties, and basic equations of groundwater flow. Prerequisite: CEE 341.

M CEE 441 Water Resources Engineering. (3)
spring
Applies the principles of hydraulics and hydrology to the engineering of water resources projects; design and operation of water resources systems; water quality. Prerequisite: CEE 341.

M CEE 452 Foundations. (3)
fall
Applies soil mechanics to foundation systems, bearing capacity, lateral earth pressure, and slope stability. Prerequisite: CEE 351.

M CEE 462 Unit Operations in Environmental Engineering. (3)
spring
Design and operation of unit processes for water and wastewater treatment. Prerequisite: CEE 361.

M CEE 466 Urban Water System Design. (3)
fall
Capacity; planning and design of water supply; domestic and storm drainage; and solid waste systems. Prerequisites: CEE 341, 361.

M CEE 467 Environmental Microbiology. (3)
fall
Overview of the microbiology of natural and human-impacted environment, microbial detection methodologies, waterborne disease outbreaks, risk assessment, and regulations. Credit is allowed for only CEE 467 or 567. Fee. Lecture, lab. Prerequisite: CEE 361 or MIC 220.

M CEE 469 Air Quality Engineering. (3)
selected semesters
Chemical and physical processes by which air pollutants are generated and controlled with an emphasis on urban air quality. Cross-listed as CHE 469. Credit is allowed for only CEE 469 or CHE 469. Prerequisite: CEE 361 or CHE 334.

M CEE 474 Transportation Systems Engineering. (3)
selected semesters
Introduces transportation systems and modeling, traffic characteristic analysis, traffic predictions, highway capacity, signal timing, transportation systems management, and transit. Prerequisites: CEE 372, 384.

M CEE 475 Highway Geometric Design. (3)
spring
Design of visible elements of roadway, design controls, at-grade intersections, freeways, and interchanges. Lecture, computer lab. Fee. Credit is allowed for only CEE 475 or 576. Prerequisite: CEE 372.

M CEE 481 Civil Engineering Project Management. (3)
once a year
Civil engineering project management and administration, planning and scheduling, cost estimating and bidding strategies, financial management, quality control and safety, and computer applications. Lecture, field trips. Prerequisites: CEE 321, 351, 372.

M CEE 483 Highway Materials, Construction, and Quality. (3)
once a year
Properties of highway materials, including aggregates, asphalt concrete, and portland cement concrete; construction practice; material delivery, placement, and compaction; quality control. Credit is allowed for only CEE 483 or 583. Lecture, field trips. Prerequisites: CEE 351, 353, 372.

M CEE 486 Integrated Civil Engineering Design. (3)
fall and spring
Requires completion of a civil engineering design in a simulated practicing engineering environment. Limited to undergraduates in their final semester. Lecture, team learning. Prerequisites: CEE 321, 341, 351, 361, 372.
General Studies: L

M CEE 492 Honors Directed Study. (1–6)
selected semesters

M CEE 493 Honors Thesis. (1–6)
selected semesters

M CEE 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Computer Science and Engineering

fulton.asu.edu/cse
480/965-3190
BYENG 501

Sethuraman Panchanathan, Chair

Professors: Baral, Colbourn, Collofello, Farin, Kambhampati, Y. Lee, Lewis, Nielson, Panchanathan, Tsai, J. Urban, S. Urban, Vrudhula, Xue, Yau

Associate Professors: Bazzi, Candan, Dasgupta, Gupta, Huey, Liu, Miller, Richa, Sen

Assistant Professors: Cam, Chatha, Chen, Davulcu, Huang, Janssen, Kim, Konjevod, J. Lee, Li, Ryu, Sarjoughian, Sundaram, Syrotiuk, Wonka, Ye

Senior Lecturer: DeLibero

Lecturers: Boyd, Calliss, Nakamura, Navabi, Turban

Computers have a significant impact on our daily lives, and this impact is likely to be even greater in the future as computer professionals continue to develop more powerful, smaller, faster, and less expensive computing systems.

Computing is integral to many other fields, including bioinformatics. The Department of Computer Science and Engineering is strategically positioned in the university to provide educational and research opportunities for students in computing in many related disciplines.

Computer science and computer engineering deal with the study, design, development, construction, and application of computing technology. Other important topics include computing techniques and appropriate languages for general information processing; for scientific computation; for the recognition, storage, retrieval, and processing of data of all kinds; for the automatic control and simulation of processes; and for information assurance.

The curricula offered by the Department of Computer Science and Engineering prepare the student to be a participant in this rapidly changing area of technology by presenting in-depth treatments of the fundamentals of computer science and computer engineering. The department offers two undergraduate degrees: a BS degree in Computer Science and a BSE degree in Computer Systems Engineering. The following are shared objectives of the degree programs:

1. Graduates will understand current trends in information technology and be able to apply their understanding in the distributed management of information.
2. Graduates can apply the underlying principles of computer science, including mathematical and physical sciences and engineering principles.
3. Graduates will know and be able to apply system development processes, using modern tools, from the component level to the system level.
4. Graduates also will have the skills required to communicate effectively in both technical and nontechnical settings, to work effectively in teams and in a multicultural environment, to work ethically and professionally, and to continue learning independently and growing intellectually.

An integrated bachelors and masters degree program is offered beginning fall 2006. This program is designed to provide selected highly accomplished undergraduate students with the opportunity to combine advanced undergraduate course work with graduate course work, and accelerate graduate degree completion. Students will be able to earn a BS and an MS degree in five years.

The Computer Systems Engineering program has the specific objective that its graduates will have the technical expertise necessary to analyze requirements and to design and implement effective solutions to problems that require the integration of hardware and software in embedded systems. The Computer Science program has the specific objective that its graduates will have the technical expertise necessary to analyze requirements and to design and implement effective solutions using computer science for a broad range of problems in many disciplines. The department strives to maintain a modern learning environment that fosters excellence, cooperation, and scholarship for faculty, students, and staff.

ADMISSION REQUIREMENTS

Preprofessional Program. Each student admitted to the Department of Computer Science and Engineering is designated a preprofessional student in either Computer Science or Computer Systems Engineering. Students follow the first- and second-year sequence of courses listed in the curriculum outline for their particular major. Included in the first three semester schedules are all skill-set courses:

CSE	100	Principles of Programming with C++ *CS* or CSE 110 Principles of Programming with Java *CS* (3)	3
CSE	101	Introduction to Engineering Design *CS**	3
CSE	120	Digital Design Fundamentals	3
CSE	205	Concepts of Computer Science and Data Structures *CS*	3
CSE	230	Computer Organization and Assembly Language Programming	3
MAT	243	Discrete Mathematical Structures	3
MAT	294	ST: Calculus for Engineers I	3
MAT	294	ST: Calculus for Engineers II	3
MAT	294	ST: Calculus for Engineers III	3
Total			27

* CSE 101 is for Computer Systems Engineering only.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Professional Program. Admission to the professional program is competitive and granted to those applicants demonstrating the highest promise for professional success in Computer Science and Engineering. The admissions committee considers overall transfer and ASU GPA numbers as well as the transfer and ASU GPA numbers in Computer Science and Engineering skill-set courses. All students seeking professional status must be in the process of completing all the skill-set courses and then follow the application procedure as described on the Computer Science and Engineering Web site. Completion of the specified courses does not guarantee admission to professional status. Only students who have been admitted to ASU are eligible to apply for the professional programs. Candidates are strongly encouraged to visit the Computer Science and Engineering Advising Center in BYENG before beginning the application process. All application materials can be found on the Web during enrollment periods at cse.asu.edu.

DEGREE REQUIREMENTS

A minimum of 120 semester hours is required for the BS degree in Computer Science and the BSE degree in Computer Systems Engineering. A minimum of 45 upper-division semester hours is required. In addition to the requirement for a cumulative GPA and a major GPA of 2.00 or higher, all computer science and computer systems engineering students must obtain a minimum grade of "C" (2.00) in all CSE courses used for degree credit. Students cannot take CSE courses for which they failed to earn a grade of "C" (2.00) or better in the prerequisite course.

The department calculates the major GPA in both Computer Science and Computer Systems Engineering based on an average of all CSE courses and technical electives that count toward the degree.

GRADUATION REQUIREMENTS

In addition to fulfilling school and major requirements, majors must satisfy all university graduation requirements. See "University Graduation Requirements," page 89.

DEGREES

Computer Science—BS

The faculty in the Department of Computer Science and Engineering offer a BS degree that prepares the student for a career in computer science. A student pursuing a BS degree must complete the First-Year Composition requirement, the General Studies requirement, department degree requirements, the computer science core courses, a senior-level breadth requirement in the major, technical electives, and unrestricted electives. For more information, visit the CSE Advising Center, call 480/965-3199, or access the department's Web site at cse.asu.edu.

Software Engineering Concentration. Students pursuing the BS degree in Computer Science may choose to concentrate their studies on software engineering. The BS degree in Computer Science with a concentration in software engineering provides recognition that the student has acquired in-depth knowledge and hands-on experience in software development and related subjects. This concentration requires the student to complete CSE 445, 460, 461, and 462 with a grade of "C" (2.00) or higher in each course.

The following table specifies departmental requirements for the BS degree in Computer Science.

First-Year Composition

Choose among the course combinations below 6
- ENG 101 First-Year Composition (3)
- ENG 102 First-Year Composition (3)

—or—

- ENG 105 Advanced First-Year Composition (3)
- HU/SB elective chosen with an advisor (3)

—or—

- ENG 107 English for Foreign Students (3)
- ENG 108 English for Foreign Students (3)

First-year composition subtotal 6

General Studies/Department Requirements

Humanities and Fine Arts/Social and Behavioral Sciences

HU/SB electives 18

Literacy and Critical Inquiry

Six semester hours of literacy and critical inquiry credit is satisfied by courses in the major

Natural Sciences/Basic Sciences

BIO 187 General Biology I *SG* 4
or 188 General Biology II *SQ* (4)
Lab Science I[1] 4
Lab Science II[1] 4

Natural sciences/basic sciences subtotal 12

Mathematical Studies

IEE 280 Probability and Statistics for Engineering Problem Solving *CS* 3
MAT 243 Discrete Mathematical Structures[2] 3
MAT 294 ST: Calculus for Engineers I[2] 3
MAT 294 ST: Calculus for Engineers II[2] 3
MAT 294 ST: Calculus for Engineers III[2] 3
MAT 343 Applied Linear Algebra 3

Mathematical studies subtotal 18

General Studies/department requirements total 48

Computer Science Major Curriculum

Computer Science Core

CSE 100 Principles of Programming with C++ *CS*[2] 3
or CSE 110 Principles of Programming with Java *CS* (3)[2]
CSE 120 Digital Design Fundamentals[2] 3
CSE 205 Concepts of Computer Science and Data Structures *CS*[2] 3
CSE 230 Computer Organization and Assembly Language Programming[2] 3
CSE 240 Introduction to Programming Languages 3
CSE 301 Computing Ethics 1
CSE 310 Data Structures and Algorithms 3
CSE 340 Principles of Programming Languages 3
CSE 355 Introduction to Theoretical Computer Science 3
CSE 360 Introduction to Software Engineering 3
CSE 430 Operating Systems 3
CSE 485 Computer Science Capstone Project I *L* 3
CSE 486 Computer Science Capstone Project II 3

Computer science core subtotal 37

Electives

400-level CSE computer science breadth requirement[3] 15
General electives 8

Technical electives[4] 6
Electives subtotal 29
Total degree requirements 120

[1] A biology, chemistry, or physics two-course sequence meets the requirement.
[2] Computer Science and Engineering skill-set courses must be completed in order to be admitted to the professional program.
[3] Students cannot count toward graduation more than six semester hours of independent study courses, including, but not limited to, CSE 484, 492, 493, and 499. Computer science honors students are allowed to use an extra three semester hours for the L elective. The only course that meets the L elective requirement in this group is CSE 493.
[4] Each student must complete six hours of courses chosen from the computer science technical elective list and approved by the student's advisor. See an advisor for the approved listing.

Computer Science
Program of Study
Typical Four-Year Sequence

First Year

First Semester
CSE 100 Principles of Programming with C++ *CS* 3
or 110 Principles of Programming with Java *CS* (3)
ENG 101 First-Year Composition 3
MAT 294 ST: Calculus for Engineers I 3
HU/SB and awareness area course* 3
General elective 3
Total 15

Second Semester
BIO 187 General Biology I *SG* 4
or BIO 188 General Biology II *SQ* (4)
CSE 120 Digital Design Fundamentals 3
CSE 205 Concepts of Computer Science and Data Structures *CS* 3
ENG 102 First-Year Composition 3
MAT 294 ST: Calculus for Engineers II 3
Total 16

Second Year

First Semester
CSE 230 Computer Organization and Assembly Language 3
IEE 280 Probability and Statistics for Engineering Problem Solving *CS* 3
MAT 243 Discrete Mathematical Structures 3
MAT 294 ST: Calculus for Engineers III 3
HU/SB and awareness area course* 3
Total 15

Second Semester
CSE 240 Introduction to Programming Languages 3
MAT 343 Applied Linear Algebra 3
HU/SB and awareness area course* 3
Laboratory Science *SQ* 4
Total 13

Third Year

First Semester
CSE 310 Data Structures and Algorithms 3
CSE 360 Introduction to Software Engineering 3
HU/SB and awareness area course* 3
Laboratory Science II *SQ* 4
General elective 3
Total 16

Second Semester
CSE 301 Computing Ethics 1
CSE 340 Principles of Programming Languages 3
CSE 355 Introduction to Theoretical Computer Science 3
400-level CSE Computer Science breadth elective 3
HU/SB and awareness area course* 3
Technical elective 3
Total 16

Fourth Year

First Semester
CSE 430 Operating Systems 3
CSE 485 Computer Science Capstone I *L* 3
400-level CSE Computer Science breadth electives 6
General elective 2
Total 14

Second Semester
CSE 486 Computer Science Capstone II *L* 3
400-level CSE Computer Science breadth electives 6
HU/SB and awareness area course* 3
Technical elective 3
Total 15

Total degree requirements 120

* Engineering students may not use aerospace studies (AES) or military science (MIS) courses to fulfill HU and SB requirements.

COMPUTER SYSTEMS ENGINEERING—BSE

The Department of Computer Science and Engineering offers a BSE degree that prepares students for careers in computer systems engineering. This degree program provides training in both engineering and computer science. Qualified students in this program may apply to participate in an industrial internship program offered through the Consortium for Embedded Systems. Students who participate in this internship program receive academic credit (CSE 484) that applies to the technical elective requirement of the BSE degree in Computer Systems Engineering. The following table specifies departmental requirements for the BSE degree in Computer Systems Engineering.

First-Year Composition
Choose among the course combinations below 6
ENG 101 First-Year Composition (3)
ENG 102 First-Year Composition (3)
—or—
ENG 105 Advanced First-Year Composition (3)
HU/SB elective chosen with an advisor (3)
—or—
ENG 107 English for Foreign Students (3)
ENG 108 English for Foreign Students (3)
First-year composition subtotal 6

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

General Studies/Department Requirements

Humanities and Fine Arts/Social and Behavioral Sciences

HU/SB electives 15

Total 15

Literacy and Critical Inquiry

Six semester hours of literacy and critical inquiry credit is satisfied by courses in the major.

Natural Sciences/Basic Sciences

BIO 187 General Biology I *SG* 4
or 188 General Biology II SQ (4)
PHY 121 University Physics I: Mechanics *SQ*[1] 3
PHY 122 University Physics Laboratory I *SQ*[1] 1
PHY 131 University Physics II: Electricity and Magnetism *SQ* [2] 3
PHY 132 University Physics Laboratory II *SQ*[2] 1

Natural sciences/basic sciences subtotal 12

Mathematical Studies

MAT 243 Discrete Mathematical Structures[3] 3
MAT 275 Modern Differential Equations *MA*[3] 3
MAT 294 ST: Calculus for Engineers I[3] 3
MAT 294 ST: Calculus for Engineers II[3] 3
MAT 294 ST: Calculus for Engineers III[3] 3

Mathematical studies subtotal 15

General Studies/department requirement total 42

Courses in Major

Lower-Division Engineering

CSE 100 Principles of Programming with C++ *CS*[3] 3
or CSE 110 Principles of Programming with Java *CS* (3)[3]
CSE 101 Introduction to Engineering Design *CS*[3] 3
CSE 120 Digital Design Fundamentals[3] 3
CSE 205 Concepts of Computer Science and Data Structures *CS*[3] 3
CSE 220 Programming for Computer Engineering[3] 3
CSE 230 Computer Organization and Assembly Language Programming[3] 3
EEE 202 Circuits I 4
IEE 280 Probability and Statistics for Engineering Problem Solving *CS* 3

Lower-division subtotal 25

Upper-Division Courses in Major

CSE 301 Computing Ethics 1
CSE 310 Data Structures and Algorithms 3
CSE 320 Design and Synthesis of Digital Hardware 3
CSE 325 Embedded Microprocessor Systems 3
CSE 360 Introduction to Software Engineering 3
CSE 420 Computer Architecture I 3
CSE 423 Systems Capstone Project I *L* 3
CSE 424 Systems Capstone Project II 3
CSE 430 Operating Systems 3
CSE 434 Computer Networks 3
EEE 334 Circuits II 4
MAT 343 Applied Linear Algebra 3
Technical electives[4] 12

Upper-division subtotal 47

Total degree requirements 120

[1] Both PHY 121 and 122 must be taken to secure SQ credit.

[2] Both PHY 131 and 132 must be taken to secure SQ credit.

[3] Computer Science and Engineering skill-set courses must be completed in order to be admitted to professional programs.

[4] Each student must complete 12 hours of courses chosen from the computer science technical elective list and approved by the student's advisor. See an advisor for the approved listing.

Computer Systems Engineering
Program of Study
Typical Four-Year Sequence

First Year

First Semester

CSE 100 Principles of Programming with C++ *CS* 3
or CSE 110 Principles of Programming with Java *CS* (3)
CSE 101 Introduction to Engineering Design *CS* 3
ENG 101 First-Year Composition 3
MAT 294 ST: Calculus for Engineers I 3
HU/SB and awareness area course[1] 3

Total 15

Second Semester

BIO 187 General Biology I *SG* 4
or BIO 188 General Biology II *SQ* (4)
CSE 120 Digital Design Fundamentals 3
CSE 205 Concepts of Computer Science and Data Structures *CS* 3
ENG 102 First-Year Composition 3
MAT 294 ST: Calculus for Engineers II 3

Total 16

Second Year

First Semester

CSE 230 Computer Organization and Assembly Language Programming 3
IEE 280 Probability and Statistics for Engineering Problem Solving *CS* 3
MAT 243 Discrete Mathematical Structures 3
MAT 294 ST: Calculus for Engineers III 3
PHY 121 University Physics I: Mechanics *SQ*[2] 3
PHY 122 University Physics Laboratory I *SQ*[2] 1

Total 16

Second Semester

CSE 220 Programming for Computer Engineering 3
MAT 275 Modern Differential Equations *MA* 3
PHY 131 University Physics II: Electricity and Magnetism *SQ*[3] 3
PHY 132 University Physics Laboratory II *SQ*[3] 1
HU/SB and awareness area course[1] 3

Total 13

Third Year

First Semester

CSE 301 Computing Ethics 1
CSE 310 Data Structures and Algorithms 3
CSE 360 Introduction to Software Engineering 3
EEE 202 Circuits I 4
HU/SB and awareness course[1] 3

Total 14

Second Semester

CSE 320 Design and Synthesis of Digital Hardware 3
CSE 325 Embedded Microprocessor Systems 3
EEE 334 Circuits II 4
MAT 343 Applied Linear Algebra 3
HU/SB and awareness area course[1] 3

Total 16

Fourth Year

First Semester

CSE 423 Systems Capstone Project I *L*	3
CSE 430 Operating Systems	3
CSE Technical electives	6
HU/SB and awareness area course[1]	3
Total	15

Second Semester

CSE 424 Systems Capstone Project II	3
CSE 420 Computer Architecture	3
CSE 434 Computer Networks	3
Technical electives	6
Total	15

Total degree requirements 120

[1] Engineering students may not use aerospace studies (AES) or military science (MIS) courses to fulfill HU and SB requirements.

[2] Both PHY 121 and 122 must be taken to secure SQ credit.

[3] Both PHY 131 and 132 must be taken to secure SQ credit.

COMPUTER SCIENCE AND ENGINEERING (CSE)

For more CSE courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M CSE 100 Principles of Programming with C++. (3)
fall and spring
Principles of problem solving using C++, algorithm design, structured programming, fundamental algorithms and techniques, and computer systems concepts. Social and ethical responsibility. Lecture, lab. Prerequisite: MAT 170.
General Studies: CS

M CSE 101 Introduction to Engineering Design. (3)
fall and spring
Introduces engineering design, teaming, engineering profession; computer models and programming; communication skills; design of electrical and computer-based systems. Lecture, lab. Cross-listed as EEE 101. Credit is allowed for only CSE 101 or EEE 101. Fee. Prerequisites: high school algebra, computing, and physics courses (or their equivalents).
General Studies: CS

M CSE 110 Principles of Programming with Java. (3)
fall and spring
Concepts of problem solving using Java, algorithm design, structured programming, fundamental algorithms and techniques, and computer systems concepts. Social and ethical responsibility. Lecture, lab. Prerequisite: MAT 170.
General Studies: CS

M CSE 120 Digital Design Fundamentals. (3)
fall and spring
Number systems, conversion methods, binary and complement arithmetic, Boolean algebra, circuit minimization, ROMs, PLAs, flipflops, synchronous sequential circuits. Lecture, lab. Cross-listed as EEE 120. Credit is allowed for only CSE 120 or EEE 120. Fee. Prerequisite: computer literacy.

M CSE 180 Computer Literacy. (3)
fall and spring
Introduces personal computer operations and their place in society. Problem-solving approaches using databases, spreadsheets, and word processing. May be taken for credit on either Windows or Macintosh, but not both. Lecture, demonstration. Prerequisite: nonmajor.
General Studies: CS

M CSE 181 Applied Problem Solving with Visual BASIC. (3)
selected semesters
Introduces systematic definition of problems, solution formulation, and method validation. Requires computer solutions using Visual BASIC for projects. Lecture, lab. Prerequisites: MAT 117; nonmajor.
General Studies: CS

M CSE 182 Applied Problem Solving with C#.Net. (3)
fall and spring
Introduces object oriented programming, problem solving, fundamental algorithms and techniques, computer systems concepts, and implementation of programs using Visual C#.Net platform.

M CSE 185 Internet and the World Wide Web. (3)
fall and spring
Fundamental Internet concepts, World Wide Web browsing, publishing, searching, advanced Internet productivity tools.

M CSE 205 Concepts of Computer Science and Data Structures. (3)
fall and spring
Problem solving by programming with an object-oriented programming language. Introduction to data structures. Overview of computer science topics. Fee. Prerequisite: CSE 100 or 110 or instructor approval.
General Studies: CS

M CSE 210 Object-Oriented Design and Data Structures. (3)
fall and spring
Object-oriented design, static and dynamic data structures (strings, stacks, queues, binary trees), recursion, searching, and sorting. Professional responsibility. Fee. Prerequisite: CSE 205.
General Studies: CS

M CSE 220 Programming for Computer Engineering. (3)
fall and spring
Introduces procedure programming languages (C/C++) and hardware descriptive language (VHDL). Fee. Prerequisites: CSE 120 (or EEE 120), 205.

M CSE 230 Computer Organization and Assembly Language Programming. (3)
fall and spring
Register-level computer organization. Instruction set architecture. Assembly language. Processor organization and design. Memory organization. IO programming, Exception/interrupt handling. Cross-listed as EEE 230. Credit is allowed for only CSE 230 or EEE 230. Fee. Prerequisites: CSE 100 (or 110), 120 (or EEE 120).

M CSE 240 Introduction to Programming Languages. (3)
fall and spring
Introduces the procedural (C/C++), applicative (LISP/Scheme), and declarative (Prolog) languages. Lecture, lab. Prerequisite: CSE 205.

M CSE 301 Computing Ethics. (1)
fall and spring
Offers broad coverage of computing ethics topics, including: computing history, philosophical frameworks, intellectual property, privacy, and professional responsibilities. Prerequisite: CSE 220 or 240.

M CSE 310 Data Structures and Algorithms. (3)
fall and spring
Advanced data structures and algorithms, including stacks, queues, trees (B, B+, AVL), and graphs. Searching for graphs, hashing, external sorting. Fee. Lecture, lab. Prerequisites: CSE 220 (or 240); MAT 243.

M CSE 320 Design and Synthesis of Digital Hardware. (3)
fall and spring
Design and synthesis of digital hardware with hardware description language, computer-aided design tools, and programmable devices. Fee. Prerequisites: CSE 220, 230 (or EEE 230).

M CSE 325 Embedded Microprocessor Systems. (3)
fall and spring
System-level programming and analysis of embedded microprocessors systems. Fundamental concepts of digital system design for embedded system applications. Fee. Prerequisites: CSE 220, 230 (or EEE 230).

M CSE 330 Computer Organization and Architecture. (3)
fall and spring
Instruction set architecture, processor performance and design; datapath, control (hardwired, microprogrammed), pipelining, input/output. Memory organization with cache, virtual memory.

M CSE 340 Principles of Programming Languages. (3)
fall and spring
Formal syntactic and semantic descriptions, compilation and implementation issues, and theoretical foundations for several programming paradigms. Formal syntactic and semantic descriptions, compilation and implementation issues, and theoretical foundations for several programming paradigms. Prerequisites: CSE 230, 310.

M CSE 355 Introduction to Theoretical Computer Science. (3)
fall and spring
Introduces formal language theory and automata, Turing machines, decidability/undecidability, recursive function theory, and complexity theory. Prerequisite: CSE 310.

M CSE 360 Introduction to Software Engineering. (3)
fall and spring
Software life cycle models; project management, team development environments and methodologies; software architectures; quality assurance and standards; legal, ethical issues. Fee. Prerequisite: CSE 220 or 240.

M CSE 408 Multimedia Information Systems. (3)
fall
Design, use, and applications of multimedia systems. Introduces acquisition, compression, storage, retrieval, and presentation of data from different media such as images, text, voice, and alphanumeric. Prerequisite: CSE 310.

M CSE 412 Database Management. (3)
fall and spring
Introduces DBMS concepts. Data models and languages. Relational database theory. Database security/integrity and concurrency. Fee. Prerequisite: CSE 310.

M CSE 414 Advanced Database Concepts. (3)
fall and spring
Object-oriented data modeling, advanced relational features, JDBC and Web access to databases, XML and databases, object-oriented databases, and object-relational databases. Prerequisite: CSE 412.

M CSE 420 Computer Architecture I. (3)
fall, spring, summer
Computer architecture. Performance versus cost tradeoffs. Instruction set design. Basic processor implementation and pipelining. Prerequisite: CSE 230.

M CSE 421 Microprocessor System Design I. (4)
fall and spring
Assembly language programming and logical hardware design of systems using 8-bit microprocessors and microcontrollers. Fundamental concepts of digital system design. Reliability and social, legal implications. Lecture, lab. Fee.

M CSE 422 Microprocessor System Design II. (4)
fall and spring
Design of microcomputer systems using contemporary logic and microcomputer system components. Requires assembly language programming. Fee. Prerequisite: CSE 421.

M CSE 423 Systems Capstone Project I. (3)
fall and spring
Development process: specification, design, implementation, evaluation, and testing with economic, social, and safety considerations. Technical communication and team skills enrichment. Fee. Prerequisites: CSE 320, 325, 360.
General Studies: L

M CSE 424 Systems Capstone Project II. (3)
fall and spring
Continuation of capstone project started in CSE 423. Fee. Prerequisite: CSE 423.
General Studies: L

M CSE 428 Computer-Aided Processes. (3)
selected semesters
Hardware and software considerations for computerized manufacturing systems. Specific concentration on automatic inspection, numerical control, robotics, and integrated manufacturing systems. Prerequisite: CSE 330.

M CSE 430 Operating Systems. (3)
fall and spring
Operating system structure and services, processor scheduling, concurrent processes, synchronization techniques, memory management, virtual memory, input/output, storage management, and file systems. Fee. Prerequisites: CSE 230 (or EEE 230), 310.

M CSE 432 Operating System Internals. (3)
fall
IPC, exception and interrupt processing, memory and thread management, user-level device drivers, and OS servers in a modern microkernel-based OS. Fee. Prerequisite: CSE 430.

M CSE 434 Computer Networks. (3)
fall and spring
Distributed computing paradigms and technologies, distributed system architectures and design patterns, frameworks for development of distributed software components. Prerequisite: CSE 230 or EEE 230.

M CSE 438 Systems Programming. (3)
selected semesters
Design and implementation of systems programs, including text editors, file utilities, monitors, assemblers, relocating linking loaders, I/O handlers, and schedulers. Prerequisite: CSE 421 or instructor approval.
General Studies: L

M CSE 440 Compiler Construction I. (3)
once a year
Introduces programming language implementation. Implementation strategies such as compilation, interpretation, and translation. Major compilation phases such as lexical analysis, semantic analysis, optimization, and code generation. Prerequisites: CSE 340, 355.

M CSE 445 Distributed Software Development. (3)
fall and spring
Distributed computing paradigms and technologies, distributed system architectures and design patterns, frameworks for development of distributed software components. Fee. Lecture, projects. Prerequisite: CSE 360.

M CSE 446 Client-Server User Interfaces. (3)
selected semesters
Client-server model and its use in creating and managing window interfaces. Toolkits and libraries, including X11, Microsoft Foundation Classes, and Java Abstract Window Toolkit. Lecture, projects. Fee. Prerequisite: CSE 310 or instructor approval.

M CSE 450 Design and Analysis of Algorithms. (3)
fall and spring
Design and analysis of computer algorithms using analytical and empirical methods; complexity measures, design methodologies, and survey of important algorithms. Prerequisite: CSE 310.

M CSE 457 Theory of Formal Languages. (3)
selected semesters
Theory of grammar, methods of syntactic analysis and specification, types of artificial languages, relationship between formal languages, and automata. Prerequisite: CSE 355.

M CSE 459 Logic for Computing Scientists. (3)
selected semesters
Propositional logic, syntax and semantics, proof theory versus model theory, soundness, consistency and completeness, first order logic, logical theories, automated theorem proving, ground resolution, pattern matching unification and resolution, Dijkstras logic, proof obligations, and program proving. Prerequisite: CSE 355.

M CSE 460 Software Analysis and Design. (3)
fall and spring
Object-oriented and structured analysis and design; software architecture and design patterns; component-based development; software safety and reliability. Fee. Prerequisite: CSE 360.

M CSE 461 Software Engineering Project I. (3)
fall and spring
First of two-course software team-development sequence. Planning, management, design, and implementation using object-oriented technology, CASE tools, CMM-level-5 guidelines. Fee. Lecture, lab. Prerequisite: CSE 460.
General Studies: L

M CSE 462 Software Engineering Project II. (3)
fall and spring
Second of two-course software team-development sequence. Software evolution, maintenance, reengineering, reverse engineering, component-based development, and outsourcing. Fee. Prerequisite: CSE 461. Pre- or corequisite: CSE 445.
General Studies: L

M CSE 463 Introduction to Human Computer Interaction. (3)
spring
Design, evaluate, and implement interactive software intended for human use. Prerequisite: CSE 310.

M CSE 465 Introduction to Information Assurance. (3)
fall or spring
Concepts of information assurance (IA); basic IA techniques, policies, risk management, administration, legal and ethics issues. Prerequisite: CIS 300 or CSE 360 or IEE 305.

M CSE 470 Computer Graphics. (3)
once a year
Introduces basic concepts of interactive computer graphics, realistic rendering, and 3-D viewing. Fee. Prerequisites: both CSE 310 and MAT 343 or only instructor approval.

M CSE 471 Introduction to Artificial Intelligence. (3)
fall and spring
State space search, heuristic search, games, knowledge representation techniques, expert systems, and automated reasoning. Fee. Prerequisites: CSE 240, 310.

M CSE 476 Introduction to Natural Language Processing. (3)
selected semesters
Principles of computational linguistics, formal syntax, and semantics, as applied to the design of software with natural (human) language I/O. Prerequisite: CSE 310 or instructor approval.

M CSE 477 Introduction to Computer-Aided Geometric Design. (3)
once a year
Introduces basic concepts of 3-D computer geometry, including curves, surfaces, meshes. Prerequisites: both CSE 470 and MAT 343 or only instructor approval.

M CSE 484 Internship. (1–12)
selected semesters

M CSE 485 Computer Science Capstone Project I. (3)
fall and spring
First course in capstone sequence for computer science majors emphasizing development process, technical skills, teamwork, and communication. Fee. Prerequisites: CSE 310, 340, 360.
General Studies: L

M CSE 486 Computer Science Capstone Project II. (3)
fall and spring
Second course in capstone sequence for computer science majors continuing the development process, technical skills, teamwork, and communication. Fee. Prerequisite: CSE 485.
General Studies: L

M CSE 492 Honors Directed Study. (1–6)
selected semesters

M CSE 493 Honors Thesis. (1–6)
selected semesters

M CSE 494 Special Topics. (1–4)
selected semesters
Topics may include the following:

- Computational Models for the Arts. (3)
  fall
  Covers computability and intractability; kolmogorov complexity in the context of randomness and determinism.
- Signal Processing and Programming for the Arts. (3)
  spring
  Introduces basic concepts behind the functioning of existing, widely used digital arts and media tools.

M CSE 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Electrical Engineering

fulton.asu.edu/ee
480/965-3424
ENGRC 552

Stephen M. Phillips, Chair

Regents' Professors: Balanis, Ferry, Heydt

Professors: Chakrabarti, Crouch, Goodnick, Gorur, Hui, Karady, Kiaei, Kozicki, Lai, Palais, Pan, Phillips, Rodriguez, Roedel, Schroder, Shen, Si, Spanias, Tao, Thornton, Tsakalis, Vittal, Y. Zhang

Associate Professors: Aberle, Allee, Bakkaloglu, Clark, Cochran, Dengi, Diaz, Duman, Holbert, Karam, Papandreou-Suppappola, Reisslein, Skromme, Tylavsky, J. Zhang

Assistant Professors: Abbaspour-Tamijani, Ayyanar, Barnaby, Cao, Chae, Jalali-Farahani, Joo, O'Brien, Qian, Tepedelenlioglu, Thornburg, Vasileska, Yu

The professional activities of electrical engineers directly affect the everyday lives of most of the world's population. They are responsible for the design and development of radio and television transmitters and receivers, telephone networks and switching systems, computer systems, and electric power generation and distribution. Within the broad scope of these systems, the electrical engineer is concerned with a challenging and diverse array of design and development problems.

Electrical engineers design minuscule semiconductor integrated circuits that contain many thousands of elementary devices. These engineers design systems for automatically controlling mechanical devices and a variety of processes. These engineers are responsible for the design of satellite communication links as well as patient monitoring systems for hospitals. The development of the microprocessor has expanded the opportunities for electrical engineers to improve the design of familiar products since these devices are now incorporated in automobiles, consumer and office products, entertainment systems, and a vast variety of test and measurement instruments and machine tools.

Students who earn a BSE degree in Electrical Engineering will be involved in a variety of electrical and electronic problems in the course of their careers. To ensure

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

the necessary breadth of knowledge, the Electrical Engineering curriculum includes basic engineering courses and courses in circuits, electromagnetic fields and waves, microprocessors, communication and control systems, solid-state electronics, electrical power systems, and other specialty courses.

ELECTRICAL ENGINEERING—BSE

The goal of the Electrical Engineering undergraduate program is to prepare graduates for entry-level positions as electrical engineers for the broad range of opportunities available in industrial, commercial, and governmental organizations, and to prepare graduates for continued learning experiences either in a formal graduate program or in continuing education applications.

This goal is achieved through a curriculum designed to accomplish five objectives:

1. We will maintain a modern curriculum, which adapts to changes in technology and society.
2. Our program will foster a diverse student population entering and successfully graduating, and our graduates will function well in a diverse work force.
3. Our graduates will be self-motivated, creative people who can succeed in environments where technical innovation is important.
4. Our graduates will be sought after by our constituent industries and respected graduate programs.
5. Our graduates will be technically competent.

The curriculum in Electrical Engineering builds upon the base provided by classes in chemistry, mathematics, and physics. The curriculum includes a number of required electrical engineering and technical elective courses. Approved technical elective courses provide students with an opportunity either to broaden their background in electrical engineering or to study, in greater depth, technical subjects in which they have special interests. Successful completion of the curriculum leaves the student prepared to embark on a career in electrical engineering or to pursue an advanced education in graduate school.

The engineering design experience is structured around three backbone courses employing engineering teams: EEE 101 Introduction to Engineering Design, EEE 488 Senior Design Laboratory I, and EEE 489 Senior Design Laboratory II. The integrated experience is strengthened with required courses and area pathway courses. Students focus on design pertaining to specific electrical engineering areas in their senior technical electives before the culminating, capstone design experience in EEE 488 and EEE 489.

ADMISSION REQUIREMENTS

Preprofessional Program (Lower Division). Most new freshman and all new transfer students eligible for admission to the Fulton School of Engineering who have been admitted to the university and who have selected Electrical Engineering as their major are admitted to the lower-division preprofessional program without separate application to the Department of Electrical Engineering. A separate application procedure is required for entry to the upper-division professional program. The preprofessional student follows the first- and second-year course sequence outlined in the typical four-year sequence, which includes all the skill-set courses required for promotion to the professional program. Transfer credits are not applied to this degree program or skill-set courses until they are reviewed and accepted by the director for undergraduate programs. Completion of lower-division requirements does not ensure acceptance to the upper-division program. Preprofessional students are not allowed to register for 300- and 400-level engineering courses. The required skill-set courses follow:

Required Skill-Set

CHM	114	General Chemistry for Engineers *SQ*	4
		or CHM 116 General Chemistry II *SQ*[1] (4)	
		or CHM 231 Elementary Organic Chemistry *SQ*[2] (3)	
		and CHM 235 Elementary Organic Chemistry Laboratory *SQ*[2] (1)	
CSE	100	Principles of Programming with C++ *CS*[3]	3
EEE	101	Introduction to Engineering Design *CS*	3
EEE	120	Digital Design Fundamentals	3
EEE	202	Circuits I	4
MAT	274	Elementary Differential Equations *MA*[4]	3
		or MAT 275 Modern Differential Equations *MA*[4] (3)	
MAT	294	ST: Calculus for Engineers I[4]	3
MAT	294	ST: Calculus for Engineers II[4]	3
MAT	294	ST: Calculus for Engineers III[4]	3
PHY	121	University Physics I: Mechanics *SQ*[4, 5]	3
PHY	122	University Physics Laboratory I *SQ*[4, 5]	1
PHY	131	University Physics II: Electricity and Magnetism *SQ*[4, 6]	3
PHY	132	University Physics Laboratory II *SQ*[4, 6]	1
Required skill-set total			37

[1] CHM 116 has a prerequisite of CHM 113, which cannot be used for degree credit.

[2] Both CHM 231 and 235 must be taken to secure SQ credit.

[3] CSE 110 Principles of Programming with Java (3) can be substituted for CSE 100 with Department of Electrical Engineering approval.

[4] A minimum grade of "C" (2.00) is required.

[5] Both PHY 121 and 122 must be taken to secure SQ credit.

[6] Both PHY 131 and 132 must be taken to secure SQ credit.

Professional Program (Upper Division). Admission to the upper-division professional program is competitive. Admission is awarded to those applicants demonstrating the highest promise for professional success. Transfer students who have completed the equivalent required lower-division skill-set courses may apply to the upper-division program. Prior attendance at ASU is not required for application to the upper-division program.

Consideration for promotion is not automatic. To be considered for admission to the upper-division program, the following requirements must be met:

1. admission to the ASU preprofessional Electrical Engineering program (note that application and admission to the upper-division professional program are separate from application and admission to ASU);
2. submission of a completed Application for Electrical Engineering Professional Program before the posted deadline (for admission criteria, deadlines, and an application, access the department's Web site at ful-

ton.asu.edu/ee/students/undergraduate/AdmissionRequirements.php); and

3. completion of all required lower-division skill-set courses, or equivalents, with a competitive GPA in the skill-set courses (note that completion of lower-division requirements does not ensure acceptance to the upper-division program).

Students are strongly encouraged to visit the Electrical Engineering advising office, ERC 555, at the beginning of the semester in which they wish to apply for the professional program to obtain information regarding admission criteria and application deadlines and procedures.

Students not admitted to the upper-division program are not dismissed from the Fulton School and may transfer to other programs. Students considering a change of major are encouraged to meet with an advisor in the program they wish to pursue to determine the likelihood of being promoted to the professional level.

DEGREE REQUIREMENTS

A minimum of 120 semester hours is necessary for the BSE degree in Electrical Engineering. A minimum of 45 upper-division semester hours is required.

GRADUATION REQUIREMENTS

A student must earn a grade of "C" (2.00) or higher in the mathematics and physics courses listed in the program of study. Each mathematics and physics course in the program of study must be completed with a "C" (2.00) or higher before enrolling in any course that requires that mathematics or physics course as a prerequisite. The student must also have an overall GPA of at least 2.00 for the group of courses designated as major in the curriculum.

In addition to fulfilling school and major requirements, students must satisfy all university graduation requirements. See "University Graduation Requirements," page 89.

COURSE REQUIREMENTS

The specific course requirements for the BSE degree in Electrical Engineering follow.

First-Year Composition[1]

Choose among the course combinations below 6
- ENG 101 First-Year Composition (3)
- ENG 102 First-Year Composition (3)

———*or*———

- ENG 105 Advanced First-Year Composition (3)
- Elective (requires departmental approval) (3)

———*or*———

- ENG 107 English for Foreign Students (3)
- ENG 108 English for Foreign Students (3)

First-year composition total 6

General Studies/Program Requirements

Humanities and Fine Arts/Social and Behavioral Sciences

ECN 211 Macroeconomic Principles *SB* 3
or ECN 212 Microeconomic Principles *SB* (3)
HU courses 6–9
SB course(s) 3–6
HU, SB Minimum subtotal 15

Literacy and Critical Inquiry

Six hours of literacy and critical inquiry credit is satisfied by courses in the major.

Natural Sciences/Basic Sciences

BME 111 Engineering Perspectives on Biological Systems 3
or BCH 361 Principles of Biochemistry[2] (3)
CHM 114 General Chemistry for Engineers *SQ* 4
or CHM 116 General Chemistry II *SQ*[3] (4)
or CHM 231 Elementary Organic Chemistry *SQ*[1] (3)
and CHM 235 Elementary Organic Chemistry Laboratory *SQ*[1] (1)
PHY 121 University Physics I: Mechanics *SQ*[1, 4, 6] 3
PHY 122 University Physics Laboratory I *SQ*[1, 4, 6] 1
PHY 131 University Physics II: Electricity and Magnetism *SQ*[1, 4, 7] 3
PHY 132 University Physics Laboratory II *SQ*[1, 4, 7] 1
PHY 241 University Physics III[1] 3
Total 18

Mathematical Studies[1]

MAT 274 Elementary Differential Equations *MA*[4] 3
or MAT 275 Modern Differential Equations *MA*[4] (3)
MAT 294 ST: Calculus for Engineers I[4] 3
MAT 294 ST: Calculus for Engineers II[4] 3
MAT 294 ST: Calculus for Engineers III[4] 3
MAT 342 Linear Algebra 3
or MAT 343 Applied Linear Algebra (3)
Mathematical studies subtotal 15

General Studies/program requirements total 48

Electrical Engineering Major

CSE 100 Principles of Programming with C++ *CS*[4, 8] 3
EEE 101 Introduction to Engineering Design *CS*[4] 3
EEE 120 Digital Design Fundamentals[4] 3
EEE 202 Circuits I[4] 4
EEE 203 Signals and Systems I 3
EEE 230 Computer Organization and Assembly Language Programming 3
EEE 241 Fundamentals of Electromagnetics 3
EEE 334 Circuits II 4
EEE 350 Random Signal Analysis 3
EEE 488 Senior Design Laboratory I *L* 3
EEE 489 Senior Design Laboratory II *L* 3
Area pathway courses; select four from the following 16
- EEE 304 Signals and Systems II (4)
- EEE 333 Hardware Design Language and Programmable Logic (4)
- EEE 335 Analog and Digital Circuits (4)
- EEE 341 Engineering Electromagnetics (4)
- EEE 352 Properties of Electronic Materials (4)
- EEE 360 Energy Systems and Power Electronics (4)

Technical electives 15
Total 66

Total degree requirements 120

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1 A minimum grade of "C" (2.00) is required.

2 BCH 361 requires CHM 231 be taken as a prerequisite.

3 CHM 116 has a prerequisite of CHM 113, which cannot be used for degree credit.

4 This is a required skill-set course.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

[5] Both CHM 231 and 235 must be taken to secure SQ credit.
[6] Both PHY 121 and 122 must be taken to secure SQ credit.
[7] Both PHY 131 and 132 must be taken to secure SQ credit.
[8] CSE 110 Principles of Programming with Java (3) can be substituted for CSE 100 with Department of Electrical Engineering approval.

The program in Electrical Engineering requires a total of 15 semester hours of technical electives. Qualified students may choose from approved graduate courses. Students must have a GPA of 3.00 or higher and approval of the dean to enroll in EEE graduate-level courses. With department approval, a maximum of one technical elective may be taken outside electrical engineering. Technical electives may be selected from one or more of the following areas.

Communications and Signal Processing
EEE 407 Digital Signal Processing....4
EEE 455 Communication Systems....4
EEE 459 Communication Networks....3

Computer Engineering
CSE 420 Computer Architecture I....3
EEE 404 Real-Time DSP Systems....3

Controls
EEE 480 Feedback Systems....4
EEE 481 Computer-Controlled Systems....3

Electromagnetics
EEE 443 Antennas for Wireless Communications....3
EEE 445 Microwaves....4
EEE 448 Fiber Optics....4

Electronic Circuits
EEE 425 Digital Systems and Circuits....4
EEE 433 Analog Integrated Circuits....4

Power Systems
EEE 460 Nuclear Concepts for the 21st Century....3
EEE 463 Electrical Power Plant....3
EEE 470 Electric Power Devices....3
EEE 471 Power System Analysis....3
EEE 473 Electrical Machinery....3

Solid-State Electronics
EEE 434 Quantum Mechanics for Engineers....3
EEE 435 Microelectronics....3
EEE 436 Fundamentals of Solid-State Devices....3
EEE 437 Optoelectronics....3
EEE 439 Semiconductor Facilities and Cleanroom Practices....3

Electrical Engineering
Program of Study
Typical Four-Year Sequence

First Year

First Semester
CHM 114 General Chemistry for Engineers *SQ* 4
or CHM 116 General Chemistry II *SQ*[1] (4)
or CHM 231 Elementary Organic Chemistry *SQ*[2] (3)
and CHM 235 Elementary Organic Chemistry Laboratory *SQ*[2] (1)
CSE 100 Principles of Programming with C++ *CS*[2, 4] 3
EEE 101 Introduction to Engineering Design *CS*[2] 3
ENG 101 First-Year Composition....3
MAT 294 ST: Calculus for Engineers I[2] 3
Total 16

Second Semester
BME 111 Engineering Perspectives on Biological Systems 3
or BCH 361 Principles of Biochemistry[5] (3)
EEE 120 Digital Design Fundamentals[2] 3
ENG 102 First-Year Composition....3
MAT 294 ST: Calculus for Engineers II[2] 3
PHY 121 University Physics I: Mechanics *SQ*[2, 6] 3
PHY 122 University Physics Laboratory I *SQ*[2, 6] 1
Total 16

Second Year

First Semester
EEE 202 Circuits I[2] 4
MAT 274 Elementary Differential Equations *MA*[2] 3
or MAT 275 Modern Differential Equations *MA*[2] (3)
MAT 294 ST: Calculus for Engineers III[2] 3
PHY 131 University Physics II: Electricity and Magnetism *SQ*[2, 7] 3
PHY 132 University Physics Laboratory II *SQ*[2, 7] 1
Total 14

Second Semester
EEE 203 Signals and Systems I....3
EEE 241 Fundamentals of Electromagnetics....3
MAT 342 Linear Algebra 3
or MAT 343 Applied Linear Algebra (3)
PHY 241 University Physics III....3
HU/SB and awareness area course[8] 3
Total 15

Third Year

First Semester
EEE 230 Computer Organization and Assembly Language Programming....3
EEE 334 Circuits II 4
EEE 350 Random Signal Analysis....3
Area pathway course....4
Total 14

Second Semester
ECN 211 Macroeconomic Principles *SB* 3
or ECN 212 Microeconomic Principles *SB* (3)
Area pathway courses 12
Total 15

Fourth Year

First Semester
EEE 488 Senior Design Laboratory I *L* 3
HU/SB and awareness area course[8] 6
Technical electives 6
Total 15

Second Semester
EEE 489 Senior Design Laboratory II *L* 3
HU/SB and awareness area course[8] 3
Technical electives 9
Total 15

Total degree requirements....120

[1] CHM 116 has a prerequisite of CHM 113, which cannot be used for degree credit.
[2] This is a required skill-set course.
[3] Both CHM 231 and 235 must be taken to secure SQ credit.
[4] CSE 110 Principles of Programming with Java (3) can be substituted for CSE 100 with Department of Electrical Engineering approval.

[5] BCH 361 requires CHM 231 be taken as a prerequisite.
[6] Both PHY 121 and 122 must be taken to secure SQ credit.
[7] Both PHY 131 and 132 must be taken to secure SQ credit.
[8] Engineering students may not use aerospace studies (AES) or military science (MIS) courses to meet HU or SB requirements.

ELECTRICAL ENGINEERING (EEE)

M EEE 101 Introduction to Engineering Design. (3)
fall and spring
Introduces engineering design, teaming, engineering profession; computer models and programming; communication skills; design of electrical and computer-based systems. Lecture, lab. Cross-listed as CSE 101. Credit is allowed for only EEE 101 or CSE 101. Fee. Prerequisites: high school algebra, computing, and physics courses (or their equivalents).
General Studies: CS

M EEE 120 Digital Design Fundamentals. (3)
fall and spring
Number systems, conversion methods, binary and complement arithmetic, Boolean algebra, circuit minimization, ROMs, PLAs, flipflops, synchronous sequential circuits. Lecture, lab. Cross-listed as CSE 120. Credit is allowed for only CSE 120 or EEE 120. Fee. Prerequisite: computer literacy.

M EEE 202 Circuits I. (4)
fall and spring
Principles for analyzing linear and nonlinear circuits. Uses SPICE and MATLAB. Design and measurement of linear analog electrical systems. Lecture, lab. Fee. Prerequisite: EEE 101 (or its equivalent). Pre- or corequisites: MAT 274 (or 275); PHY 131, 132.

M EEE 203 Signals and Systems I. (3)
fall and spring
Introduces continuous and discrete time signal and system analysis, linear systems, Fourier, and z-transforms. Prerequisite: EEE 202. Pre- or corequisite: MAT 342 or 343.

M EEE 230 Computer Organization and Assembly Language Programming. (3)
fall and spring
Register-level computer organization. Instruction set architecture. Assembly language. Processor organization and design. Memory organization. IO programming, Exception/interrupt handling. Cross-listed as CSE 230. Credit is allowed for only EEE 230 or CSE 230. Fee. Prerequisites: CSE 100 (or 110), 120 (or EEE 120).

M EEE 241 Fundamentals of Electromagnetics. (3)
fall and spring
Vector analysis, differential operators, fourier analysis, scalar, vector fields, electro/magneto statics, time-varying fields, boundary value problems, dielectric, magnetic materials, Maxwell's equations. Prerequisites: EEE 202; MAT 272 (or 294 ST: Calculus for Engineers III), 274 (or 275); PHY 131, 132.

M EEE 302 Electrical Networks. (3)
fall and spring
Analyzes linear and nonlinear networks. Analytical and numerical methods. Pre- or corequisite: MAT 362.

M EEE 304 Signals and Systems II. (4)
fall and spring
Communication, signal processing, control systems, continuous, discrete transforms, sampling theorem, analog, digital modulation, filter design, signal processing applications, state space. Lecture, lab. Fee. Prerequisite: EEE 203.

M EEE 333 Hardware Design Languages and Programmable Logic. (4)
fall and spring
Develops digital logic with modern practices of hardware description languages. Emphasizes usage, synthesis of digital systems for programmable logic, VLSI. Lecture, lab. Fee. Prerequisites: EEE 101 (or its equivalent), 120 (or CSE 120).

M EEE 334 Circuits II. (4)
fall and spring
Design of analog and digital circuits. Diodes/BJTs/ Mosfets. Digital and analog circuit building blocks. Fundamentals of mixed signal circuits. Lecture, lab. Fee. Prerequisite: EEE 202.

M EEE 335 Analog and Digital Circuits. (4)
fall and spring
Analog, digital microelectronic circuits and systems. Gate sizing, timing analysis, sequential digital circuits. Amplifiers, multistage op-amps, A/D, D/A converters. Lecture, lab. Fee. Prerequisite: EEE 334.

M EEE 341 Engineering Electromagnetics. (4)
fall and spring
Time-varying electromagnetic fields, waves in homogeneous and stratified media, transmission lines, waveguides and cavity resonators, radiation and antennas. Lecture, lab. Fee. Prerequisites: EEE 203, 241.

M EEE 350 Random Signal Analysis. (3)
fall and spring
Probabilistic and statistical analysis as applied to electrical signals and systems. Pre- or corequisite: EEE 203.

M EEE 352 Properties of Electronic Materials. (4)
fall and spring
Schrodinger's wave equation, potential barrier problems, bonds of crystals, the band theory of solids, semiconductors, superconductor dielectric, and magnetic properties. Prerequisites: CHM 114 (or 116); EEE 241; PHY 241.

M EEE 360 Energy Systems and Power Electronics. (4)
fall and spring
Conventional and alternate energy sources for power systems, three-phase analysis, AC generators, transformers, induction, DC motors, power electronic speed control. Fee. Lecture, lab. Prerequisites: EEE 202, 241.

M EEE 404 Real-Time DSP Systems. (3)
spring
Digital signal processors, translating signals and systems concepts into real-time multimedia and communications applications, real-time algorithms. Lecture, lab. Prerequisites: EEE 203, 230 (or CSE 230).

M EEE 407 Digital Signal Processing. (4)
fall and spring
Time and frequency domain analysis, difference equations, z-transform, FIR and IIR digital filter design, discrete Fourier transform, FFT, and random sequences. Fee. Lecture, lab. Prerequisite: EEE 203.

M EEE 425 Digital Systems and Circuits. (4)
fall and spring
Digital logic gate analysis and design. Propagation delay times, fan out, power dissipation, noise margins. Design of MOS and bipolar logic families, including NMOS, CMOS, standard and advanced TTL, ECL, and BiCMOS. Inverter, combinational and sequential logic circuit design, MOS memories, VLSI circuits. Computer simulations using PSPICE. Lecture, lab. Fee. Prerequisite: EEE 335.

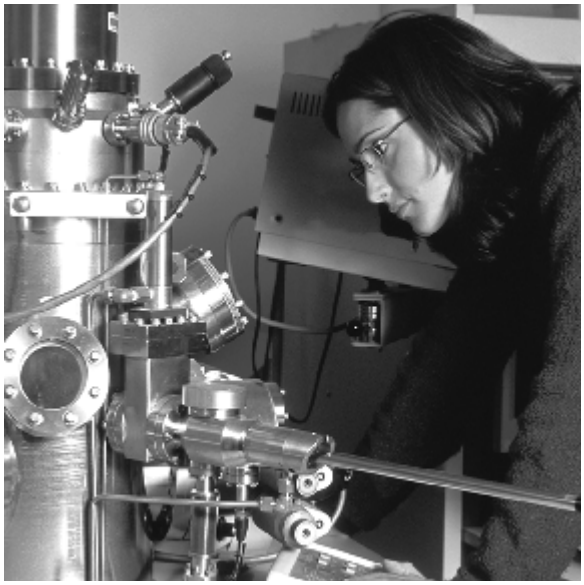
M EEE 433 Analog Integrated Circuits. (4)
fall and spring
Analysis, design, and applications of modern analog circuits using integrated bipolar and field-effect transistor technologies. Lecture, lab. Fee. Prerequisite: EEE 335.

M EEE 434 Quantum Mechanics for Engineers. (3)
fall
Angular momentum, wave packets, Schroedinger wave equation, probability, problems in one dimension, principles of wave mechanics, scattering, tunneling, central forces, angular momentum, hydrogen atom, perturbation theory, variational techniques. Prerequisites: EEE 241, 352.

M EEE 435 Microelectronics. (3)
spring
Introduces basic CMOS processing and fabrication tools. Covers the fundamentals of thermal oxidation, CVD, implantation, diffusion, and process integration. Internet lecture, Internet or on-campus lab. Fee. Pre- or corequisite: EEE 436.

M EEE 436 Fundamentals of Solid-State Devices. (3)
fall and spring
Semiconductor fundamentals, pn junctions, metal-semiconductor contacts, metal-oxide-semiconductor capacitors and field-effect transistors, bipolar junction transistors. Prerequisite: EEE 352.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.



Hands-on experience is an important part of the engineering curriculum.

John Phillips photo

M EEE 437 Optoelectronics. (3)
selected semesters
Basic operating principles of various types of optoelectronic devices that play important roles in commercial and communication electronics; light-emitting diodes, injection lasers, and photodetectors. Prerequisite: EEE 436.

M EEE 439 Semiconductor Facilities and Cleanroom Practices. (3)
fall
Microcontamination, controlled environments, cleanroom layout and systems, modeling, codes and legislation, ultrapure water, production materials, personnel and operations, hazard management, advanced concepts. Prerequisite: EEE 435 or instructor approval.

M EEE 443 Antennas for Wireless Communications. (3)
spring
Fundamental parameters; radiation integrals; wireless systems; wire, loop, and microstrip antennas; antenna arrays; smart antennas; ground effects; multipath. Prerequisite: EEE 341.

M EEE 445 Microwaves. (4)
fall
Waveguides; circuit theory for waveguiding systems; microwave devices, systems, and energy sources; striplines and microstrips; impedance matching transformers; measurements. Lecture, lab. Fee. Prerequisite: EEE 341.

M EEE 448 Fiber Optics. (4)
fall
Principles of fiber-optic communications. Fee. Lecture, lab. Prerequisite: EEE 341.

M EEE 455 Communication Systems. (4)
fall and spring
Signal analysis techniques applied to the operation of electrical communication systems. Introduction to and overview of modern digital and analog communications. Fee. Lecture, lab. Prerequisites: EEE 203, 350.

M EEE 459 Communication Networks. (3)
spring
Fundamentals of communication networks. Study of Seven-Layer OSI model. Focus on functionality and performance of protocols used in communication networks. Prerequisite: EEE 203. Pre- or corequisite: EEE 350.

M EEE 460 Nuclear Concepts for the 21st Century. (3)
spring
Radiation interactions, damage, dose, and instrumentation. Cosmic rays, satellite effects; soft errors; transmutation doping. Fission reactors, nuclear power. TMI, Chernobyl. Radioactive waste. Prerequisites: CHM 114 (or 116); MAT 274 (or 275); PHY 241 (or 361).

M EEE 463 Electrical Power Plant. (3)
fall
Nuclear, fossil, and solar energy sources. Analysis and design of steam supply systems, electrical generating systems, and auxiliary systems. Power plant efficiency and operation. Prerequisites: CHM 114 (or 116); MAE 240 (or PHY 241); MAT 274 (or 275).

M EEE 470 Electric Power Devices. (3)
fall
Analyzes devices used for short circuit protection, including circuit breakers, relays, and current and voltage transducers. Protection against switching and lightning over voltages. Insulation coordination. Prerequisite: EEE 360.

M EEE 471 Power System Analysis. (3)
spring
Review of transmission line parameter calculation. Zero sequence impedance, symmetrical components for fault analysis, short circuit calculation, review of power flow analysis, power system stability, and power system control concepts. Prerequisite: EEE 360.

M EEE 473 Electrical Machinery. (3)
fall
Operating principles, constructional details, and design aspects of conventional DC and AC machines, transformers and machines used in computer disc drives, printers, wrist watches, and automobiles. Prerequisite: EEE 360.

M EEE 480 Feedback Systems. (4)
fall and spring
Analysis and design of linear feedback systems. Frequency response and root locus techniques, series compensation, and state variable feedback. Fee. Lecture, lab. Prerequisite: EEE 203 or MAE 318.

M EEE 481 Computer-Controlled Systems. (3)
fall
Implements computer-based, embedded, control systems using MATLAB xPC Target toolbox. Small-scale, representative projects demonstrate theoretical issues and provide hands-on expertise. Prerequisites: both EEE 203 and 230 (or CSE 230) or only MAE 318.

M EEE 488 Senior Design Laboratory I. (3)
fall and spring
Design process: research, concept, feasibility, simulation, specifications, benchmarking, and proposal generation. Technical communications and team skills enrichment. Fee. Lecture, lab. Prerequisites: ENG 102 (or 105 or 108); EEE 241, 334, 350; four area pathway courses.
General Studies: L

M EEE 489 Senior Design Laboratory II. (3)
fall and spring
Implement, evaluate, and document EEE 488 design. Social, economic, and safety considerations. Technical communications and team skills enrichment. Fee. Lecture, lab. Prerequisite: EEE 488 in the immediately preceding semester.
General Studies: L

M EEE 492 Honors Directed Study. (1–6)
selected semesters

M EEE 493 Honors Thesis. (1–6)
selected semesters

M EEE 498 Pro-Seminar. (1–7)
selected semesters
Topics may include the following:
- Real-Time DSP

Fee. Credit is allowed for only EEE 498 or 591.

M EEE 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Industrial Engineering

fulton.asu.edu/ie
480/965-3185
GWC 502

Gary L. Hogg, Chair

Regents' Professor: Montgomery

Professors: Cochran, Fowler, Henderson, Hogg, Hubele, Runger, Shunk, Wolfe, Ye

Associate Professors: Anderson-Rowland, Mackulak, Moor, Villalobos

Assistant Professors: Gel, Keha, Kulahci, Wu

Senior Lecturer: Thompson

Lecturer: Chattin

The industrial engineer (IE) provides leadership for organizations in establishing and maintaining competitiveness in the global marketplace through system integration and productivity improvement. As in other engineering fields, industrial engineering is concerned with solving problems through the application of scientific and practical knowledge. What sets industrial engineering apart from other engineering disciplines is its broader scope. An IE evaluates the total picture of productivity to make each system perform at its best with the right combination of human resources, natural resources, synthetic structures, and equipment. An IE bridges the gap between management and operations, working with and motivating people as well as determining what tools should be used and how they should be used.

INTEGRATION OF TECHNOLOGY AND PEOPLE

Industrial engineers are the "productivity people" who provide the necessary leadership and skills to integrate technology and people. No challenge can be greater than improving productivity, which is the application of knowledge and skills to provide improved goods and services that enhance quality of life. Such improvement must be achieved without waste of physical and human resources while maintaining environmental balance. This requires that IEs possess a wide range of interests and expertise to fulfill job responsibilities. To be competitive in the global economy, it is essential to emphasize and continually improve the quality of goods and services. Industrial engineering is the only engineering discipline offering course work in designing and implementing quality assurance systems.

An IE deals with people as well as technology. In fact, industrial engineering is often called the "people-oriented profession" because the IE's primary function is to integrate people with technology-oriented systems. For this reason, IEs are active in the fields of ergonomics and human factors. Many industrial engineers will find themselves involved with interdisciplinary teams. IEs are often leaders of teams composed of electrical and mechanical engineers, accountants, computer scientists, and planners.

DIVERSE APPEAL OF INDUSTRIAL ENGINEERING

Skills in industrial engineering are applicable to every kind of organization. IEs learn how to approach, think about, and solve productivity and integration problems in diverse settings. They work in a variety of industries, including manufacturing facilities, banks, hospitals, government, transportation, construction, and social services. Within this wide range of organizations, IEs get involved in projects such as designing and implementing quality control systems, computer-based management information systems, and manufacturing operating systems.

IEs have a sound background in technology integration, management theory and application, engineering economics, and cost analysis. They are well equipped to deal with current organizational problems. As a matter of fact, more than half of all professional IEs are in management positions. Industrial engineers are prime candidates for promotion through the management career path, especially in high-tech organizations.

Industrial engineering students at the Fulton School of Engineering gain experience in the development and use of analytical tools. Students learn to understand the problems of clients and respond quickly because through the IE program, they have had the opportunity to develop first-rate analytical and people skills. These skills, when applied to the professional world, play a vital role for organizations competing in today's global marketplace.

INDUSTRIAL ENGINEERING—BSE

The curriculum in Industrial Engineering builds upon mathematics, computer utilization, and the engineering core. Beyond this foundation, the curriculum includes a number of required IE core courses, IE electives, and focus study area electives, enabling each student to focus on a specific career objective.

Successful completion of this curriculum prepares the student to embark on a career in industrial engineering or to pursue advanced study in graduate school.

Suggested career-focused study areas are as follows:

1. *Industrial and management systems*: for a broad traditional IE career in the design and analysis of manufacturing and service systems.
2. *Information and telecommunications systems*: for a career in the application of integrated computer and telecommunication systems to manufacturing and service systems analysis and design.
3. *Global industrial engineering leadership*: for a career in global manufacturing and service organizations.
4. *High-tech manufacturing*: for a career in the design and analysis of integrated manufacturing systems.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

5. *Preprofessional and service systems*: for a career in law, medicine, or public service or for a career in the design and analysis of health care, agribusiness, banking/financial, and government/public-administration systems.

ADMISSION REQUIREMENTS

Preprofessional Program (lower-division courses). All students entering the Industrial Engineering program are admitted as preprofessional. The only exception to this is for students who qualify to be admitted directly into any Fulton School of Engineering professional program. All students are required to complete the first- and second-year sequence of lower-division courses. In addition, preprofessional students must take the following skill-set courses in order to be considered for admission to the professional program. The GPA for all skill-set courses must be 2.50 or higher.

Required Skill-Set

BME	111	Engineering Perspectives on Biological Systems[1]	3
CSE	110	Principles of Programming with Java *CS*[1]	3
ECN	211	Macroeconomic Principles *SB*	3
ENG	101	First-Year Composition[2]	3
		or ENG 105 Advanced First-Year Composition (3)	
		or ENG 107 English for Foreign Students (3)	
IEE	100	Introduction to Engineering Design for IE *CS*	3
MAT	294	ST: Calculus for Engineers I[1]	3
MAT	294	ST: Calculus for Engineers II[1]	3
PHY	121	University Physics I: Mechanics *SQ*[1, 3]	3
PHY	122	University Physics Laboratory I *SQ*[1, 3]	1
Required skill-set total			25

1 The GPA for science and mathematics courses must be 2.50 or higher.
2 A minimum grade of "C" (2.00) is required.
3 Both PHY121 and 122 must be taken to secure SQ credit.

Professional Program. Students admitted to the professional program are eligible to take upper-division engineering courses. Students with applicable transfer credit will be evaluated based on the same GPA criteria for the skill-set courses. All students seeking professional status must be in the process of completing their skill-set courses in order to apply to the professional program. Please visit the academic advisor for details on applying to the professional program. Professional status will be granted once the skill-set courses and required grades are attained.

DEGREE REQUIREMENTS

A minimum of 120 semester hours is necessary for the BSE degree in Industrial Engineering. A minimum of 45 upper-division hours is required. Students must attain a GPA of at least "C" (2.00) for each course in industrial engineering.

GRADUATION REQUIREMENTS

In addition to fulfilling school and major requirements, students must satisfy all university graduation requirements. See "University Graduation Requirements," page 89. For information concerning admission, degree, course, and graduation requirements for the School of Engineering, see "Admission," page 372, and subsequent sections.

COURSE REQUIREMENTS

Students take 55 semester hours of university English proficiency and general studies course work, 26 semester hours of lower-division engineering courses, 24 semester hours of upper-division industrial engineering courses, three semester hours of industrial engineering upper-division electives, and 12 semester hours of career-focused study area electives of which at least nine are upper-division. Each career-focused study area has an associated list of recommended study area courses. A total of 45 semester hours of IE courses are included in the overall course requirements for the IE degree. The course work for the undergraduate degree can be classified into the following categories:

First-Year Composition

Choose among the course combinations below			6
	ENG	101 First-Year Composition[1, 2] (3)	
	ENG	102 First-Year Composition[1] (3)	
		— *or* —	
	ENG	105 Advanced First-Year Composition[1, 2] (3)	
	Elective chosen with an advisor (3)		
		— *or* —	
	ENG	107 English for Foreign Students[1, 2] (3)	
	ENG	108 English for Foreign Students[1] (3)	
First-year composition total			6

General Studies/Program Requirements

Humanities and Fine Arts/Social and Behavioral Sciences

ECN	211	Macroeconomic Principles *SB*[2]	3
HU electives			6–9
SB electives			3–6
Humanities and fine arts/social and behavioral sciences subtotal			15

Literacy and Critical Inquiry

Six semester hours of literacy and critical inquiry credit is satisfied by courses in the major.

Natural Sciences/Basic Sciences

BME	111	Engineering Perspectives on Biological Systems[2]	3
PHY	121	University Physics I: Mechanics *SQ*[2, 4]	3
PHY	122	University Physics Laboratory I *SQ*[2, 4]	1
PHY	131	University Physics II: Electricity and Magnetism *SQ*[5]	3
PHY	132	University Physics Laboratory II *SQ*[5]	1
Natural sciences/basic sciences subtotal			11

Mathematical Studies

IEE	280	Probability and Statistics for Engineering Problem Solving *CS*[1]	3
MAT	242	Elementary Linear Algebra	2
MAT	275	Modern Differential Equations *MA*	3
MAT	294	ST: Calculus for Engineers I[2]	3
MAT	294	ST: Calculus for Engineers II[2]	3
MAT	294	ST: Calculus for Engineers III	3
Mathematical studies subtotal			17
General studies/program requirement total			43

Major

Lower-Division Engineering Courses

CSE	110	Principles of Programming with Java *CS*[2]	3
CSE	205	Concepts of Computer Science and Data Structures *CS*	3

IEE	100	Introduction to Engineering Design for IE *CS*[1, 2]	3
IEE	210	Introduction to Industrial Engineering[1]	3
IEE	220	Business and Industrial Engineering[1]	3
MAE	212	Engineering Mechanics	4
		or CEE 211 Engineering Mechanics: Statics and Dynamics (4)	
MSE	250	Structure and Properties of Materials	3
EEE	202	Circuits I	4
Lower-division subtotal			26

Upper-Division Industrial Engineering Required Courses[1]

IEE	300	Economic Analysis for Engineers	3
IEE	305	Information Systems Engineering *CS*	3
IEE	368	Facilities Analysis and Design *L*	3
		or IEE 369 Work Analysis and Design *L* (3)	
IEE	376	Operations Research Deterministic Techniques/ Applications *CS*	3
IEE	385	Introduction to Engineering Probability *CS*	3
IEE	461	Production Control	3
IEE	470	Stochastic Operations Research	3
IEE	474	Quality Control *CS*	3
IEE	475	Simulating Stochastic Systems *CS*	3
IEE	490	Project in Design and Development *L*	3
Industrial engineering elective area[3]			3
Career-focused area electives[6]			12
Upper-division courses subtotal			45
Major total			71
Degree requirements total			120

1 A minimum grade of "C" (2.00) or higher is required for graduation.
2 This course is to be taken as part of skill-set.
3 For information about these electives, see "Industrial Engineering Elective Area," on this page.
4 Both PHY 121 and 122 must be taken to secure SQ credit.
5 Both PHY131 and 132 must be taken to secure SQ credit.
6 For information about these electives, see "Career-Focused Study Area Electives," on this page.

Industrial Engineering Elective Area. Students select three semester hours of industrial engineering electives. For course information, see the list of recommended courses in the department advising office.

Career-Focused Study Area Electives. Students select a minimum of 12 semester hours (at least nine upper-division hours) from one of the following five career-focused study areas:

Industrial and Management Systems[1]

IEE	369	Work Analysis and Design *L*[2]	3
		or IEE 368 Facilities Analysis and Design *L* (3)[2]	
IEE	431	Engineering Administration[2]	3
IEE	437	Human Factors Engineering[2]	3
Any approved engineering or business elective			3

Information and Telecommunication Systems[1]

IEE	405	Developing Information Systems Applications[2]	3
Any approved upper-division Information and Telecommunications electives			9

Global Industrial Engineering Leadership

ECN	306	Survey of International Economics *SB, G*	3
IBS	300	Principles of International Business *G*	3
IBS	400	Cultural Factors in International Business *C, G*	3
Any approved international business elective			3

High-Tech Manufacturing

EEE	352	Properties of Electronic Materials	4
EEE	435	Microelectronics	3
EEE	436	Fundamentals of Solid-State Devices	3
MSE	353	Introduction to Materials Processing and Synthesis	3
MSE	441	Analysis of Materials Failures	3
MSE	470	Polymers and Composites	3

Preprofessional and Service Systems

Focus area courses[3]			12

1 Certain focus areas may require more than 12 semester hours due to course prerequisites.
2 A minimum grade of "C" (2.00) or higher is required for graduation.
3 A student desiring a focus area other than those listed is invited to create his or her own that concentrates on a professional service area. The student is expected to formulate a set of four courses (12 semester hours) that supports his or her career option. The student needs to submit a petition to the department that explains and supports the focus and the courses selected. The associate chair for undergraduate studies must approve the petition before the student begins study in the focus area. For more information, see the IE academic advisor.

Industrial Engineering
Program of Study
Typical Four-Year Sequence

First Year

First Semester

BME	111	Engineering Perspectives on Biological Systems	3
ENG	101	First-Year Composition	3
IEE	100	Introduction to Engineering Design for IE *CS*	3
MAT	294	ST: Calculus for Engineers I	3
HU/SB elective[1]			3
Total			15

Second Semester

CSE	110	Principles of Programming with Java *CS*	3
ECN	211	Macroeconomic Principles *SB*	3
ENG	102	First-Year Composition	3
MAT	294	ST: Calculus for Engineers II	3
PHY	121	University Physics I: Mechanics *SQ*[2]	3
PHY	122	University Physics Laboratory I *SQ*[2]	1
Total			16

Second Year

First Semester

IEE	210	Introduction to Industrial Engineering	3
IEE	220	Business and Industrial Engineering	3
MAT	242	Elementary Linear Algebra	2
MAT	294	ST: Calculus for Engineers III	3
PHY	131	University Physics II: Electricity and Magnetism *SQ*[3]3	
PHY	132	University Physics Laboratory II *SQ*[3]	1
Total			15

Second Semester

CSE	205	Concepts of Computer Science and Data Structures *CS*	3

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

IEE	280	Probability and Statistics for Engineering Problem Solving *CS*	3
MAT	275	Modern Differential Equations *MA*	3
MSE	250	Structure and Properties of Materials	3
HU/SB elective[1]			3
Total			15

Third Year

First Semester

EEE	202	Circuits I	4
IEE	300	Economic Analysis for Engineers	3
IEE	305	Information Systems Engineering *CS*	3
MAE	212	Engineering Mechanics or CEE 211 Engineering Mechanics: Statics and Dynamics (4)	4
Total			14

Second Semester

IEE	368	Facilities Analysis and Design *L* or IEE 369 Work Analysis and Design *L* (3)	3
IEE	376	Operations Research Deterministic Techniques/ Applications *CS*	3
IEE	385	Introduction to Engineering Probability *CS*	3
HU/SB elective[1]			3
Focus area course			3
Total			15

Fourth Year

First Semester

IEE	470	Stochastic Operations Research	3
IEE	474	Quality Control *CS*	3
IEE	475	Simulating Stochastic Systems *CS*	3
HU/SB elective[1]			3
Focus area course			3
Total			15

Second Semester

IEE	461	Production Control	3
IEE	490	Project Design and Development *L*	3
IE Technical Elective			3
Focus area course			6
Total			15

Total degree requirements 120

[1] Engineering students may not use aerospace studies (AES) or military science (MIS) courses to satisfy HU or SB requirements.

[2] Both PHY 121 and 122 must be taken to secure SQ credit.

[3] Both PHY 131 and 132 must be taken to secure SQ credit.

INDUSTRIAL ENGINEERING (IEE)

M IEE 100 Introduction to Engineering Design for IE. (3)
fall and spring
Introduces industrial engineering design; teaming, the profession of engineering, computer models in engineering communication skills; quality and customer satisfaction. Integrated lecture/lab. Fee.
General Studies: CS

M IEE 210 Introduction to Industrial Engineering. (3)
fall and spring
History of IE: IE career paths; ethical, social, and contemporary issues; introduction to IE techniques, methods, and their application; case studies. Prerequisite: IEE 100.

M IEE 220 Business and Industrial Engineering. (3)
fall and spring
Introduces business for industrial engineers, including business/financial structures, fundamentals of cost and accounting, role of business/engineering in society. Prerequisite: IEE 210.

M IEE 280 Probability and Statistics for Engineering Problem Solving. (3)
fall and spring or summer
Applications-oriented course with computer-based experience using statistical software for formulating and solving engineering problems. Fee. Integrated lecture/lab. Prerequisite: MAT 271 or 294 ST: Calculus for Engineers II.
General Studies: CS

M IEE 294 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Industrial Engineering Applications Seminar. (2)

M IEE 300 Economic Analysis for Engineers. (3)
fall and spring
Economic evaluation of alternatives for engineering decisions, emphasizing the time value of money. Prerequisites: IEE 100; MAT 270 (or 294 ST: Calculus for Engineers I).

M IEE 305 Information Systems Engineering. (3)
fall
Overview of computer and information systems applications. Topics include client/server; distributed computing; networks; process modeling; e-commerce; enterprise applications; Internet. Fee. Prerequisite: CSE 205.
General Studies: CS

M IEE 360 Manufacturing Processes. (3)
fall and spring
Production technique and equipment. Casting and molding, forming, machining, joining and assembly, computer-integrated manufacturing, rapid prototyping, and electronics manufacturing. Cross-listed as MAE 351. Credit is allowed for only IEE 360 or MAE 351. Fee. Prerequisite: MSE 250.

M IEE 361 Manufacturing Processes Lab. (1)
fall and spring
Series of labs designed to illustrate concepts presented in IEE 360 on production technique and equipment. Fee. Corequisite: IEE 360 or MAE 351.

M IEE 368 Facilities Analysis and Design. (3)
fall
Planning, analysis, and design of the tangible physical assets of the firm. Emphasizes facilities location, materials handling, automation, computer integration, and utilization of financial resources. Applications in diverse fields. Lecture, lab. Fee. Prerequisites: ENG 101; IEE 300.
General Studies: L

M IEE 369 Work Analysis and Design. (3)
spring
Planning, analysis, and design of methods of accomplishing work. Emphasizes human factors, work planning, methods analysis and design, and work measurement. Applications in diverse fields. Lecture, lab. Fee. Prerequisites: ENG 101; IEE 300.
General Studies: L

M IEE 376 Operations Research Deterministic Techniques/Applications. (3)
fall and spring
Industrial systems applications with deterministic operations research techniques. Resource allocation, product mix, production, transportation, task assignment, networks. Prerequisites: CSE 205; MAT 242.
General Studies: CS

M IEE 385 Engineering Statistics with Probability. (3)
fall and spring
Designing statistical studies for solutions to engineering problems. Methods include regression, design and analysis of experiments, and other statistical topics. Prerequisite: IEE 280.
General Studies: CS

M IEE 394 Special Topics. (1–4)
fall and spring
Covers topics of immediate or special interest to a faculty member and students.

M IEE 405 Developing Information Systems Applications. (3)
spring
Analysis and design of distributed information system applications using object and relational architectures. Integrated lecture/lab. Prerequisites: CSE 205; IEE 305.

M IEE 431 Engineering Administration. (3)
fall and summer
Introduces quantitative and qualitative approaches to management functions, engineering administration, organizational analysis, decision making, and communication. Credit is allowed for only IEE 431 or 541. Prerequisite: senior standing.

M IEE 437 Human Factors Engineering. (3)
fall
Study of the human psychological and physiological factors that underlie the design of equipment and the interaction between people and machines. Credit is allowed for only IEE 437 or 547.

M IEE 461 Production Control. (3)
fall
Techniques for the planning, control, and evaluation of production systems. Project management, forecasting, inventory control, scheduling, enterprise requirements planning. Fee. Prerequisites: CSE 100 (or 110); IEE 376, 385.

M IEE 463 Computer-Aided Manufacturing and Control. (3)
spring
Computer control in manufacturing, CIM, NC, logic controllers, group technology, process planning, and robotics. Cross-listed as MAE 453. Credit is allowed for only IEE 463 or MAE 453. Credit is allowed for only IEE 463 or 543. Fee. Prerequisite: IEE 360 or MAE 351.
General Studies: CS

M IEE 470 Stochastic Operations Research. (3)
fall and spring
Modeling and analysis with emphasis on stochastic operations research. Models for stochastic processes, including Markov chains, queueing and decision analysis. Prerequisites: IEE 280, 376.

M IEE 474 Quality Control. (3)
fall
Basic statistical process control techniques, capability analysis, design of experiments, and acceptance sampling plans. Prerequisite: IEE 385.
General Studies: CS

M IEE 475 Simulating Stochastic Systems. (3)
fall and spring
Analyzes stochastic systems using basic queuing networks and discrete event simulation. Basic network modeling, shared resources, routing, assembly logic. Fee. Prerequisites: CSE 205; IEE 385.
General Studies: CS

M IEE 490 Project in Design and Development. (3)
fall and spring
Individual or team capstone project in creative design and synthesis. Fee. Prerequisites: IEE 376, 475.
General Studies: L

M IEE 492 Honors Directed Study. (1–6)
selected semesters

M IEE 493 Honors Thesis. (1–6)
selected semesters

M IEE 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Information Systems Development Tools. (3)

M IEE 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Mechanical and Aerospace Engineering

fulton.asu.edu/mae
480/965-3291
ECG 346

Robert E. Peck, Chair

Aerospace Engineering

Professors: Chattopadhyay, Mignolet, Wie

Associate Professors: Lee, Wells

Assistant Professor: Mikellides

Mechanical Engineering

Professors: Adrian, Boyer, Davidson, Fernando, Peck, Roy, Shah, Sieradzki, Squires, Tseng, Van Schilfgaarde, Yao

Associate Professors: Chen, McNeill, Peralta, Phelan,

Assistant Professors: Calhoun, Friesen, Posner

The Department of Mechanical and Aerospace Engineering houses two undergraduate programs: Aerospace Engineering and Mechanical Engineering. Both programs prepare students for immediate entry into professional employment in the engineering field or for graduate study. The curricula in Aerospace and Mechanical Engineering emphasize fundamental principles of mechanical and thermal sciences as well as contemporary tools of engineering practice.

The Aerospace Engineering and Mechanical Engineering programs at ASU are accredited by the

ENGINEERING ACCREDITATION COMMISSION
OF ABET
111 MARKET PLACE, SUITE 1050
BALTIMORE MD 21202-4012
410/347-7700

INTEGRATED BSE—MS PROGRAM

The Integrated BSE—MS is designed to provide selected high-achieving MAE undergraduate students with the opportunity to combine advanced undergraduate course work with graduate course work and to accelerate graduate degree completion. Up to nine semester hours of approved graduate-level course work taken as technical electives during the senior year may apply to both undergraduate and graduate degrees.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

The program is particularly suited for students with strong academic backgrounds who are motivated to pursue independent research. Participants will have an opportunity to work in a laboratory/research environment and to engage in theoretical and/or experimental work with faculty and doctoral student mentors. Students will showcase their research at both the undergraduate/graduate research symposia in the Fulton School, and they will be eligible for travel grants to present their work at national conferences.

A minimum of two semesters of full-time enrollment in MAE is required. Applications are normally submitted with two semesters remaining in the senior year. A minimum of 90 credit hours of course work applicable to the BSE degree with a cumulative GPA of 3.50 to 4.00 or higher must be completed before beginning the joint degree program.

Students must apply for admission to the program through the MAE department and the Division of Graduate Studies (DGS) by submitting an application for the joint BSE—MS program in Aerospace or Mechanical Engineering. Forms are available at the MAE Graduate Advising Office, ECG 339, or can be downloaded from the MAE Web site.

AEROSPACE ENGINEERING—BSE

The Aerospace Engineering curriculum is designed to provide students with an education in technological areas critical to the design and development of aerospace vehicles and systems. The program emphasizes aeronautical engineering with required courses covering aerodynamics, aerospace materials, aircraft structures, propulsion, flight mechanics, and stability and control. Required astronautics topics include orbital mechanics, attitude control, and rocket propulsion.

The Aerospace Engineering program offers incoming freshmen a degree track with emphasis in astronautics. Enrollment in the astronautics track is limited, and interested students should contact the advising office in the Department of Mechanical and Aerospace engineering. Students should refer to the Web site of the Department of Mechanical and Aerospace Engineering for the latest information regarding the new offerings.

The Aerospace Engineering program has four educational objectives, which describe the expected capabilities and achievements of graduates during the first several years following completion of the program. The objectives of the program are to

1. provide graduates with the ability to think in a critical and evaluative manner and to consider a broad perspective, in order to solve technical and non technical problems;
2. prepare professionally successful graduates who provide effective leadership, who act in an ethical manner and whose skills include the ability to communicate well and to work successfully within diverse groups;
3. provide the depth and breadth of engineering education that prepares graduates for employment in the aerospace engineering profession, admission to graduate programs in Aerospace engineering or a related field, or the pursuit of advanced education in other professional areas, such as business, law, or medicine; and
4. cultivate in our graduates a spirit of inventiveness, creativity, and entrepreneurship.

Students are prepared for a career in Aerospace Engineering by a thorough grounding in the fundamentals of mathematics and science, instruction in engineering sciences, and experience in engineering design, which is distributed throughout the curriculum. Students are encouraged to select elective general studies courses that complement the program's technical content and promote the program objectives.

DEGREE REQUIREMENTS

In order to attain the Bachelor of Science in Engineering in Aerospace Engineering degree, students must complete a minimum of 120 semester hours of course work, including 45 upper-division hours. In addition to those courses specifically required for a degree in Aerospace Engineering, students must fulfill all university First-Year Composition and General Studies requirements. The Ira A. Fulton School of Engineering does not permit the use of pass/fail courses as part of a degree program, and credit hours earned more than five years before admission to the program are normally not accepted for transfer credit.

ADMISSION TO THE PROFESSIONAL PROGRAM

Admission to the professional program in Aerospace Engineering is competitive, and the level of achievement necessary for promotion will be based on several factors, including the number of places available and the number of students requesting professional status in a given year. Students must complete, or be currently enrolled in, the courses in the Aerospace Engineering skill-set before making application to the professional program. Students may not enroll in upper-division courses in the Department of Mechanical and Aerospace Engineering until they are admitted to professional status.

For admission to professional status in Aerospace Engineering, a minimum grade of "C" (2.00) is required in all chemistry, mathematics, and physics courses, and in all courses in the skill-set. It is anticipated that a minimum GPA of approximately 2.80 in the skill-set and overall will be necessary for professional admission. Under no circumstances will students with a GPA lower than 2.50 (in the skill-set and overall) be considered for promotion to professional status in Aerospace Engineering.

The following courses make up the skill-set in Aerospace Engineering. Students must have completed these courses, or be enrolled in them, in order to apply to the professional program in the major. All skill-set courses are normally taken during the first three semesters of a typical four-year program in Aerospace Engineering.

CHM 114 General Chemistry for Engineers *SQ*.....4–5
or CHM 115 General Chemistry with Qualitative Analysis *SQ*[1] (5)
or CHM 116 General Chemistry II *SQ*[1] (4)
ENG 102 First-Year Composition.....3
or ENG 105 Advanced First-Year Composition (3)
or ENG 108 English for Foreign Students (3)

MAE 100 Introduction to Mechanical and Aerospace Engineering *CS* 3
MAE 212 Engineering Mechanics....4
MAT 275 Modern Differential Equations *MA*....3
MAT 294 ST: Calculus for Engineers II....3
PHY 131 University Physics II: Electricity and Magnetism *SQ*[2] 3
PHY 132 University Physics Laboratory II *SQ*[2]....1

Total 24–25

[1] CHM 115 and 116 have a prerequisite of CHM 113, which cannot be used for degree credit.
[2] Both PHY 131 and 132 must be taken to secure SQ credit.

GRADUATION REQUIREMENTS

In addition to achieving professional status in Aerospace Engineering and completing all required course work, students must earn a minimum GPA of 2.00 in the major and overall. A minimum grade of "C" (2.00) is required in all upper-division major courses. The department may require additional or remedial course work for students experiencing academic difficulties.

COURSE REQUIREMENTS

The following constitute specific course requirements for the Bachelor of Science in Engineering degree for Aerospace Engineering:

First-Year Composition[1]

Choose among the course combinations below 6
ENG 101 First-Year Composition (3)
ENG 102 First-Year Composition (3)[2]
——— *or* ———
ENG 105 Advanced First-Year Composition (3)[2]
Approved Elective (3)
——— *or* ———
ENG 107 English for Foreign Students (3)
ENG 108 English for Foreign Students (3)[2]

First-year composition subtotal....6

General Studies/Program Requirements[3]

Humanities and Fine Arts/Social and Behavioral Sciences
Humanities and Fine Arts Courses....6–9
Social and Behavioral Sciences 6–9

Humanities and fine arts/social and behavioral sciences subtotal 15

Literacy and Critical Inquiry
Six semester hours of literacy and critical inquiry credit is satisfied by courses in the major.

Mathematical Studies[1]
MAE 100 Introduction to Mechanical and Aerospace Engineering *CS*[2] 3
MAT 275 Modern Differential Equations *MA*....3
MAT 294 ST: Calculus for Engineers I....3
MAT 294 ST: Calculus for Engineers II[2] 3
MAT 294 ST: Calculus for Engineers III 3
MAT 343 Applied Linear Algebra....3

Mathematical studies subtotal....18

Natural Sciences[1]
BME 111 Engineering Perspectives on Biological Systems 3
CHM 114 General Chemistry for Engineers *SQ*[2] 4–5
or CHM 115 General Chemistry with Qualitative Analysis *SQ*[4, 5] (5)
or CHM 116 General Chemistry II *SQ*[5] (4)
PHY 121 University Physics I: Mechanics *SQ*[6] 3
PHY 122 University Physics Laboratory I *SQ*[6]....1
PHY 131 University Physics II: Electricity and Magnetism *SQ*[2, 7] 3
PHY 132 University Physics Laboratory II *SQ*[2, 7] 1

Natural sciences subtotal....15–16

General studies/program requirements total 48

Aerospace Engineering Major

Lower-Division
EEE 202 Circuits I....4
MAE 212 Engineering Mechanics[2] 4
MAE 213 Solid Mechanics....3
MAE 214 Computer-Aided Engineering I....1
MAE 240 Thermofluids I....4

Lower-division subtotal 16

Upper-Division[1]
MAE 313 Aircraft Dynamics and Control....3
MAE 318 Sensors and Controls....5
MAE 322 Mechanics of Materials....4
MAE 344 Fundamentals of Aerospace Design....3
MAE 360 Aerodynamics[8]....4
MAE 362 High-Speed Aerodynamics[8]....4
MAE 384 Numerical Methods for Engineers 3
MAE 400 Engineering Profession 3
MAE 415 Vibration Analysis....3
MAE 462 Space Vehicle Dynamics and Control 3
MAE 463 Propulsion 3
MAE 468 Aerospace Systems Design *L*....3
Technical electives 6

Upper-division subtotal....47

Aerospace major total 63

General elective[9] 3

Program total....120

[1] A minimum grade of "C" (2.00) is required.
[2] This is an aerospace engineering skill-set course; it must be completed before promotion can be considered. A minimum grade of "C" (2.00) is required.
[3] See "General Studies," page 93. Students are encouraged to select HU and SB courses to complement their technical program and to promote the program objectives. Suggested HU/SB courses are available from the Department of Mechanical and Aerospace Engineering.
[4] Students taking CHM 115 will receive 4 semester hours of credit toward the Aerospace Engineering degree.
[5] CHM 115 and 116 have a prerequisite of CHM 113, which cannot be used for degree credit.
[6] Both PHY 121 and 122 must be taken to secure SQ credit.
[7] Both PHY 131 and 132 must be taken to secure SQ credit.
[8] Students must complete both MAE 360 and 362 to secure L credit.
[9] General electives must be taken for a letter grade (A to E). Courses that are remedial for or prerequisites for any course required for the BSE degree in Aerospace Engineering are not approved for use as the free elective. Students must receive prior approval from the department to of receive free elective credit.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

TECHNICAL ELECTIVES

Students must select two courses from the following list of technical electives. Students may, with prior approval of the advisor and department chair, select an alternative course that supports a specific career objective. Though in general both technical electives will be 300- or 400-level courses, at least one of them must have upper-division designation. Graduate courses are permitted for students with a GPA of 3.00 or higher and with the approval of the instructor, the advisor and the dean. Students with a GPA of 3.50 or higher may wish to consider the Integrated BSE—MS program when selecting technical electives.

IEE 300 Economic Analysis for Engineers
MAE 340 Thermofluids II
MAE 341 Mechanism Analysis and Design
MAE 351 Manufacturing Processes
MAE 372 Fluid Mechanics
MAE 404 Finite Elements in Engineering
MAE 406 CAD/CAM Applications in MAE
MAE 417 Control System Design
MAE 426 Design of Aerospace Structures
MAE 434 Internal Combustion Engines
MAE 435 Turbomachinery
MAE 455 Polymers and Composites
MAE 465 Rocket Propulsion
MAE 466 Rotary Wing Aerodynamics and Performance
MAE 469 Projects in Astronautics or Aeronautics
MAE 471 Computational Fluid Dynamics
MAT 421 Applied Computational Methods *CS*
MAT 423 Numerical Analysis I *CS*
MAT 425 Numerical Analysis II *CS*
MSE 440 Mechanical Properties of Solids
MSE 441 Analysis of Material Failures

TYPICAL FOUR-YEAR SEQUENCE

The following presents a typical schedule for students wishing to complete the BSE in Aerospace Engineering within four years. When selecting a semester course schedule, students should consider that most upper-division courses are taught only once per academic year. Students may not register for upper-division courses in the major until they are accepted into the professional program in Aerospace Engineering.

Aerospace Engineering Program of Study
Typical Four-Year Sequence

First Year

Fall Semester
CHM 114 General Chemistry for Engineers *SQ* 4–5
or CHM 115 General Chemistry with Qualitative Analysis *SQ*[1, 2] (5)
or CHM 116 General Chemistry II *SQ*[2] (4)
ENG 101 First-Year Composition....3
MAE 100 Introduction to Mechanical and Aerospace Engineering *CS*[3]....3
MAT 294 ST: Calculus for Engineers I....3
Total 13–14

Spring Semester
ENG 102 First-Year Composition[3]....3
MAT 275 Modern Differential Equations *MA*[3]....3
MAT 294 ST: Calculus for Engineers II[3]....3
PHY 121 University Physics I: Mechanics *SQ*[4]....3
PHY 122 University Physics Laboratory I *SQ*[4]....1
HU/SB elective[4]....3
Total 16

Second Year

Fall Semester
BME 111 Engineering Perspectives on Biological Systems....3
MAE 212 Engineering Mechanics[3]....4
MAT 294 ST: Calculus for Engineers III....3
PHY 131 University Physics II: Electricity and Magnetism *SQ*[3, 6]....3
PHY 132 University Physics Laboratory II *SQ*[3, 6]....1
Total 14

Spring Semester
EEE 202 Circuits I....4
MAE 213 Solid Mechanics....3
MAE 214 Computer-Aided Engineering I....1
MAE 240 Thermofluids I....4
MAT 343 Applied Linear Algebra....3
Total 15

Third Year

Fall Semester
MAE 318 Sensors and Controls....5
MAE 322 Mechanics of Materials....4
MAE 360 Aerodynamics[7]....4
MAE 384 Numerical Methods for Engineers....3
Total 16

Spring Semester
MAE 313 Aircraft Dynamics and Control....3
MAE 344 Fundamentals of Aerospace Design....3
MAE 362 High-Speed Aerodynamics[7]....4
HU/SB electives[4]....6
Total 16

Fourth Year

Fall Semester
MAE 415 Vibration Analysis....3
MAE 462 Space Vehicle Dynamics and Control....3
MAE 463 Propulsion....3
HU/SB elective[5]....3
Technical elective....3
Total 15

Spring Semester
MAE 400 Engineering Profession....3
MAE 468 Aerospace Systems Design *L*....3
General elective....3
HU/SB elective[5]....3
Technical elective....3
Total 15

Total degree requirements....120

[1] Students taking CHM 115 will receive 4 semester hours of credit toward the Aerospace Engineering degree.
[2] CHM 115 and 116 have a prerequisite of CHM 113, which cannot be used for degree credit.
[3] This is an aerospace engineering skill-set course; it must be completed before promotion can be considered. A minimum grade of "C" (2.00) is required.
[4] Both PHY 121 and 122 must be taken to secure SQ credit.

[5] Aerospace Engineering Students may not use ASE or MIS courses for general studies credit.
[6] Both PHY 131 and 132 must be taken to secure SQ credit
[7] Both MAE 360 and 362 must be completed to secure L credit.

MECHANICAL ENGINEERING—BSE

Mechanical Engineering is a creative, diverse discipline that draws upon a number of basic sciences to design, build and control the devices, machines, processes and systems that are the mainstay of modern industrialized society. The field involves the conversion of energy resources into mechanical work through various engines and power plants; the transmission of energy and power via devices such as heat exchangers, machine elements and actuators, and the efficient use of energy to perform a variety of beneficial tasks such as transportation, manufacturing, agriculture, environmental control, domestic chores, healthcare, and security. Since all hardware products must be constructed of solid materials and because most products contain parts that transmit forces, mechanical engineering is involved in the structural integrity and materials selection for almost every product on the market.

Mechanical engineers are employed in virtually every kind of industry. They are involved in seeking new knowledge through research, in generating creative design and development, and in the production, control, management, and sales of the devices and systems needed by society. Therefore a major strength of a mechanical engineering education is the flexibility it provides in future employment opportunities for its graduates.

The Mechanical Engineering program has four educational objectives, which describe the expected capabilities and achievements of graduates during the first several years following completion of the program. The objectives of the program are to

1. provide graduates with the ability to think in a critical and evaluative manner and to consider a broad perspective, in order to solve technical and non technical problems;
2. prepare professionally successful graduates who provide effective leadership, who act in an ethical manner and whose skills include the ability to communicate well and to work successfully within diverse groups;
3. provide the depth and breadth of engineering education that prepares graduates for employment in the Mechanical engineering profession, admission to graduate programs in Mechanical engineering or a related field, or the pursuit of advanced education in other professional areas, such as business, law, or medicine; and
4. cultivate in our graduates a spirit of inventiveness, creativity and entrepreneurship.

Students are prepared for a career in Mechanical Engineering through a curriculum that includes study of the principles governing the use of energy; the principles of design, instruments, and control devices; and the application of these to the creative solution of practical modern problems. Students are encouraged to select elective general studies courses that complement the program's technical content and promote its objectives.

DEGREE REQUIREMENTS

In order to attain the Bachelor of Science in Engineering in Mechanical Engineering degree, students must complete a minimum of 120 semester hours of course work, including 45 upper-division hours. In addition to those courses specifically required for a degree in Mechanical Engineering, students must fulfill all university First-Year Composition and General Studies requirements. The Ira A. Fulton School of Engineering does not permit the use of pass/fail courses as part of a degree program, and credit hours earned more than five years before admission to the program are normally not accepted for transfer credit.

ADMISSION TO THE PROFESSIONAL PROGRAM

Admission to the professional program in Mechanical Engineering is competitive, and the level of achievement necessary for promotion is based on several factors, including the number of places available and the number of students requesting professional status in a given year. Students must complete, or be currently enrolled in, the courses in the Mechanical Engineering skill-set before making application to the professional program. Students may not enroll in upper-division courses in the Department of Mechanical and Aerospace Engineering until they are admitted to professional status.

For admission to professional status in Mechanical Engineering, a minimum grade of "C" (2.00) is required in all chemistry, mathematics, and physics courses, and in all courses in the skill-set. It is anticipated that a minimum GPA of approximately 2.80 in the skill-set and overall will be necessary for professional admission. Under no circumstances will students with a GPA lower than 2.50 (in the skill-set and overall) be considered for promotion to professional status in Mechanical Engineering.

The following courses make up the skill-set in Mechanical Engineering. Students must have completed these courses or be enrolled in them in order to apply to the professional program in the major. All skill-set courses are normally taken during the first three semesters of a typical four-year program in Mechanical Engineering.

CHM 114 General Chemistry for Engineers *SQ*.....4–5
or CHM 115 General Chemistry with Qualitative Analysis *SQ*[1] (5)
or CHM 116 General Chemistry II *SQ*[1] (4)
ENG 102 First-Year Composition.....3
or ENG 105 Advanced First-Year Composition (3)
or ENG 108 English for Foreign Students (3)
MAE 100 Introduction to Mechanical and Aerospace Engineering *CS*.....3
MAE 212 Engineering Mechanics.....4
MAT 275 Modern Differential Equations *MA*.....3
MAT 294 ST: Calculus for Engineers II.....3
PHY 131 University Physics II: Electricity and Magnetism *SQ*[2].....3

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

PHY 132 University Physics Laboratory II *SQ*[2] 1

Total 24–25

[1] CHM 115 and 116 have a prerequisite of CHM 113, which cannot be used for degree credit.

[2] Both PHY 131 and 132 must be taken to secure SQ credit.

GRADUATION REQUIREMENTS

In addition to achieving professional status in Mechanical Engineering and completing all required course work, students must earn a minimum GPA of 2.00 in the major and overall. The department may require additional or remedial course work for students experiencing academic difficulties.

COURSE REQUIREMENTS

The following constitute specific course requirements for the Bachelor of Science in Engineering degree for Mechanical Engineering:

First-Year Composition[1]

Choose among the course combinations below 6

ENG 101 First-Year Composition (3)
ENG 102 First-Year Composition (3)[2]

——— *or* ———

ENG 105 Advanced First-Year Composition (3) [2]
Approved Elective (3)

——— *or* ———

ENG 107 English for Foreign Students (3)
ENG 108 English for Foreign Students (3) [2]

Total 6

General Studies/Program Requirements[3]

Humanities and Fine Arts/Social and Behavioral Sciences

Humanities and Fine Arts Courses.....6–9
Social and Behavioral Sciences 6–9

Humanities and fine arts/social and behavioral sciences subtotal 15

Literacy and Critical Inquiry

Six semester hours of literacy and critical inquiry credit is satisfied by courses in the major.

Mathematical Studies[1]

MAT 275 Modern Differential Equations *MA*[2] 3
MAT 294 ST: Calculus for Engineers I 3
MAT 294 ST: Calculus for Engineers II[2] 3
MAT 294 ST: Calculus for Engineers III 3
MAT 343 Applied Linear Algebra.....3

Mathematical studies subtotal.....15

Natural Sciences[1]

BME 111 Engineering Perspectives on Biological Systems 3
or BCH 361 Principles of Biochemistry (3)
CHM 114 General Chemistry for Engineers *SQ*[2] 4–5
or CHM 115 General Chemistry with Qualitative Analysis *SQ*[4, 5] (5)
or CHM 116 General Chemistry II *SQ*[4, 5] (4)
CHM 231 Elementary Organic Chemistry *SQ* 3
or CHM 240 Introduction to Physical Chemistry *CS* (3)
PHY 121 University Physics I: Mechanics *SQ*[6] 3
PHY 122 University Physics Laboratory I *SQ*[6] 1
PHY 131 University Physics II: Electricity and Magnetism *SQ*[2, 7] 3
PHY 132 University Physics Laboratory II *SQ*[2, 7] 1

Natural sciences subtotal.....18–19

General studies/program requirements total 48

Mechanical Engineering Major

Lower-Division

EEE 202 Circuits I.....4
MAE 100 Introduction to Mechanical and Aerospace Engineering *CS*[2] 3
MAE 212 Engineering Mechanics[2] 4
MAE 213 Solid Mechanics.....3
MAE 214 Computer-Aided Engineering I.....1
MAE 240 Thermofluids I.....4
MSE 250 Structure and Properties of Materials 3

Lower-division subtotal 22

Upper-Division[1]

MAE 318 Sensors and Controls.....5
MAE 322 Mechanics of Materials.....4
MAE 323 Computer-Aided Engineering II 1
MAE 340 Thermofluids II 3
MAE 342 Principles of Design.....3
MAE 343 Computer-Aided Engineering III 1
MAE 384 Numerical Methods for Engineers 3
MAE 400 Engineering Profession 3
MAE 488 Mechanical Engineering Design I.....3
MAE 489 Mechanical Engineering Design II 3
MAE 491 Experimental Mechanical Engineering *L*.....3
Technical electives[8].....12

Upper-division subtotal.....44

Mechanical engineering major total.....66

Program total.....120

[1] A minimum grade of "C" (2.00) is required.

[2] This is a mechanical engineering skill-set course; it must be completed before promotion can be considered. A minimum grade of "C" (2.00) is required.

[3] See "General Studies," page 93. Students are encouraged to select HU and SB courses to complement their technical program and to promote the program objectives. Suggested HU/SB courses are available from the Department of Mechanical and Aerospace Engineering.

[4] Students taking CHM 115 will receive four semester hours of credit toward the Mechanical Engineering degree.

[5] CHM 115 and 116 have a prerequisite of CHM 113, which cannot be used for degree credit.

[6] Both PHY 121 and 122 must be taken to secure SQ credit.

[7] Both PHY 131 and 132 must be taken to secure SQ credit.

[8] Mechanical Engineering students must select upper-division technical electives.

Technical Electives

Students select four technical electives from among all upper-division courses offered in the Department of Mechanical and Aerospace Engineering that are not required for the major in mechanical engineering. Students may, with prior approval of the advisor and department chair, select an alternative course that supports a specific career objective. Normally, only one technical elective from outside the Department of Mechanical and Aerospace Engineering will be approved. Because a minimum of 45 upper-division hours are required for graduation, technical electives must be numbered 300 or above. Graduate courses are permitted for students with a GPA of 3.00 or higher and with the approval of the instructor, the advisor, and the dean. Students with a GPA of 3.50 or higher may wish to consider the Integrated BSE—MS program when selecting technical electives.

Typical Four-Year Sequence

The following presents a typical schedule for students wishing to complete the BSE in Mechanical Engineering within four years. When selecting a semester course schedule, students should consider that many upper-division courses in Mechanical and Aerospace Engineering are taught only once per academic year. Students may not register for upper-division courses in the major until they are accepted into the professional program in Mechanical Engineering.

Mechanical Engineering Program of Study
Typical Four-Year Sequence

First Year

Fall Semester

CHM	114	General Chemistry for Engineers *SQ*[1, 2] 4–5
		or CHM 115 General Chemistry with Qualitative Analysis *SQ*[3, 4] (5)
		or CHM 116 General Chemistry II *SQ*[4] (4)
ENG	101	First-Year Composition[2] 3
MAE	100	Introduction to Mechanical and Aerospace Engineering *CS*[1] 3
MAT	294	ST: Calculus for Engineers I[1, 2] 3
HU/SB elective[5]		3
Total		16–17

Spring Semester

ENG	102	First-Year Composition[1, 2] 3
MAT	275	Modern Differential Equations MA[1, 2] 3
MAT	294	ST: Calculus for Engineers II[1, 2] 3
PHY	121	University Physics I: Mechanics *SQ*[6] 3
PHY	122	University Physics Laboratory I *SQ*[6] 1
HU/SB elective[5]		3
Total		16

Second Year

Fall Semester

CHM	231	Elementary Organic Chemistry *SQ* 3
		or CHM 240 Introduction to Physical Chemistry *CS* (3)
MAE	212	Engineering Mechanics[1] 4
MAT	294	ST: Calculus for Engineers III[2] 3
PHY	131	University Physics II: Electricity and Magnetism *SQ*[1, 2, 7] 3
PHY	132	University Physics Laboratory II *SQ*[1, 2, 7] 1
Total		14

Spring Semester

MAE	213	Solid Mechanics 3
MAE	214	Computer-Aided Engineering I 1
MAE	240	Thermofluids I 4
MAT	343	Applied Linear Algebra 3
MSE	250	Structure and Properties of Materials 3
Total		14

Third Year

Fall Semester

EEE	202	Circuits I 4
MAE	322	Mechanics of Materials 4
MAE	323	Computer-Aided Engineering II 1
MAE	340	Thermofluids II 3
MAE	384	Numerical Methods for Engineers 3
Total		15

Spring Semester

BME	111	Engineering Perspectives on Biological Systems 3
		or BCH 361 Principles of Biochemistry (3)
MAE	318	Sensors and Controls 5
MAE	342	Principles of Design 3
MAE	343	Computer-Aided Engineering III 1
Technical elective		3
Total		15

Fourth Year

Fall Semester

MAE	488	Mechanical Engineering Design I 3
MAE	491	Experimental Mechanical Engineering *L* 3
HU/SB elective[5]		3
Technical electives		6
Total		15

Spring Semester

MAE	400	Engineering Profession 3
MAE	489	Mechanical Engineering Design II 3
HU/SB electives[5]		6
Technical elective		3
Total		15

Total degree requirements 120

1 This is a mechanical engineering skill-set course; it must be completed before promotion can be considered. A minimum grade of "C" (2.00) is required.

2 A minimum grade of "C" (2.00) is required.

3 Students taking CHM 115 will receive four semester hours of credit toward the Mechanical Engineering degree.

4 CHM 115 and 116 have a prerequisite of CHM 113, which cannot be used for degree credit.

5 Aerospace Engineering Students may not use ASE or MIS courses for general studies credit.

6 Both PHY 121 and 122 must be taken to secure SQ credit.

7 Both PHY 131 and 132 must be taken to secure SQ credit.

MECHANICAL AND AEROSPACE ENGINEERING (MAE)

M MAE 100 Introduction to Mechanical and Aerospace Engineering. (3)
fall and spring
Introduces mechanical and aerospace engineering, design process, teaming, the profession of mechanical and aerospace engineering, computer models in engineering, communication skills, CAD tools, and programming tools. Fee. Prerequisites: high school algebra and physics; familiarity with computer applications.
General Studies: CS

M MAE 191 First-Year Seminar. (1–3)
selected semesters
Discussion of and critical thinking about topics of current intellectual importance, taught by faculty in their areas of expertise and illuminating many paths of discovery at ASU. "Y" grade. Seminar.

M MAE 212 Engineering Mechanics. (4)
fall, spring, selected summers
Force systems, resultants, moments and equilibrium. Kinematics and kinetics of particles, systems of particles and rigid bodies. Energy and momentum principles. Lecture, recitation. Prerequisites: PHY 121, 122. Pre- or corequisite: preferably MAT 275 (or 274).

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M MAE 213 Solid Mechanics. (3)
fall, spring, selected summers
Equilibrium, strain-displacement relations, and stress-strain-temperature relations. Applications to force transmission and deformations in axial, torsional, and bending of bars. Combined loadings. Lecture, recitation. Prerequisite: preferably MAE 212 or CEE 211.

M MAE 214 Computer-Aided Engineering I. (1)
fall, spring, selected summers
Introduces geometry and construction techniques in CAD, technical drawing conventions, generating drawings from CAD models. Lab. Fee. Pre- or corequisite: preferably MAE 213 or CEE 213.

M MAE 240 Thermofluids I. (4)
fall, spring, selected summers
Introductory concepts of thermodynamics, fluid mechanics, and heat transfer. Prerequisites: CHM 114; preferably MAE 212 (or CEE 211); PHY 131, 132.

M MAE 313 Aircraft Dynamics and Control. (3)
spring
Aircraft static stability; equations of motion; dynamic modes and stability; stability derivatives; response to controls; introduction to automatic control of aircraft. Prerequisites: MAE 318, 360.

M MAE 318 Sensors and Controls. (5)
fall and spring
Introduces measurement systems, feedback control modelling and dynamics of physical systems, computer simulations and real-time experiments. Integrated lecture/lab. Fee. Prerequisites: EEE 202; MAE 212.

M MAE 322 Mechanics of Materials. (4)
fall and spring
Three-dimensional stress analysis, failure theories, energy methods, finite elements, torsion of noncircular members, unsymmetrical bending, beam column, fatigue and fracture. Fee. Lecture, lab. Prerequisite: MAE 213; MAT 343. Pre- or corequisite: MAE 384.

M MAE 323 Computer-Aided Engineering II. (1)
fall, spring, selected summers
Introduces finite-element analysis, pre- and postprocessing, solving problems with FEA. Lab. Fee. Prerequisite: MAE 214. Pre- or corequisite: MAE 322.

M MAE 340 Thermofluids II. (3)
fall and spring
Intermediate concepts of thermodynamics, fluid mechanics, and heat transfer. Prerequisite: MAE 240.

M MAE 341 Mechanism Analysis and Design. (3)
once a year
Positions, velocities, and accelerations of machine parts; cams, gears, flexible connectors, and rolling contact; introduces synthesis. Prerequisite: MAE 212.

M MAE 342 Principles of Design. (3)
fall and spring
The design process; conceptual and embodiment design of mechanical elements; form synthesis; material selection, failure modes, manufacturability tolerances, common mechanisms and machine elements. Fee. Lecture, lab (project). Prerequisites: MAE 318, 322; MSE 250.

M MAE 343 Computer-Aided Engineering III. (1)
fall, spring, selected summers
Solution to fluid mechanics and heat transfer problems using Finite Element Analysis (FEA). Lab. Fee. Prerequisites: MAE 214, 240.

M MAE 344 Fundamentals of Aerospace Design. (3)
spring
Design theory and design tools applied to aerospace engineering. Engineering drawings, aircraft performance, RFP's, Federal Aviation Regulations and military specifications, aircraft sizing, rapid prototyping. Fee. Lab, projects. Prerequisites: MAE 322, 360, 384.

M MAE 351 Manufacturing Processes. (3)
fall and spring
Production technique and equipment. Casting and molding, forming, machining, joining and assembly, computer-integrated manufacturing, rapid prototyping, and electronics manufacturing. Cross listed as IEE 360. Credit is allowed for only MAE 351 or IEE 360. Fee. Prerequisite: MSE 250.

M MAE 360 Aerodynamics. (4)
fall
Airfoils and wings, ideal flow, panel methods, boundary layers, finite-difference solutions, wind-tunnel testing. 3 hours lecture, 1 hour lab. Fee. Prerequisites: ENG 102; MAE 240. Pre- or corequisite: MAE 384.

M MAE 362 High-Speed Aerodynamics. (4)
spring
Compressible flow at subsonic and supersonic speeds; ducts, nozzles, and diffusers; normal and oblique shocks, transonic flow, numerical solutions; experimental applications. 3 hours lecture, 1 hour lab. Fee. Prerequisites: preferably MAE 360 (or 240 and instructor approval), 384.

M MAE 372 Fluid Mechanics. (3)
once a year
Applies basic principles of fluid mechanics to problems in viscous and compressible flow. Prerequisites: MAE 340 (or 360), 384.

M MAE 382 Thermodynamics. (3)
once a year
Applied thermodynamics; gas mixtures, psychrometrics, property relationships, power and refrigeration cycles, and reactive systems. Prerequisite: MAE 240.

M MAE 384 Numerical Methods for Engineers. (3)
fall and spring
Numerical methods and computational tools for selected problems in engineering. Cross listed as CEE 384. Credit is allowed for only MAE 384 or CEE 384. Prerequisites: preferably MAT 275 or 274, preferably 343 or 242 or 342. Pre- or corequisite: MAT 272 or 294 ST: Calculus for Engineers III.

M MAE 394 Special Topics. (1–4)
selected semesters

M MAE 400 Engineering Profession. (3)
fall and spring
Impact of mechanical and aerospace engineering in a global and societal context; effects of and on globalization, environment, sustainability, economy, politics; engineering ethics and business practices. Prerequisites: MAE 362 (or 491); senior standing in Aerospace or Mechanical Engineering.

M MAE 404 Finite Elements in Engineering. (3)
once a year
Introduces ideas and methodology of finite element analysis. Applications to solid mechanics, heat transfer, fluid mechanics, and vibrations. Prerequisites: MAE 213 (or CEE 213), 384 (or CEE 384).

M MAE 406 CAD/CAM Applications in MAE. (4)
once a year
Solution of engineering problems with the aid of state-of-the-art software tools in solid modeling, engineering analysis, and manufacturing; selection of modeling parameters; reliability tests on software. Fee. 3 hours lecture, 3 hours lab. Prerequisites: MAE 342 (or 344), 384.

M MAE 415 Vibration Analysis. (3)
spring
Free and forced response of single and multiple degree of freedom systems, continuous systems; applications in mechanical and aerospace systems numerical methods. Fee. Prerequisites: MAE 213, 384.

M MAE 417 Control System Design. (3)
once a year
Tools and methods of control system design and compensation, including simulation, response optimization, frequency domain techniques, state variable feedback, and sensitivity analysis. Introduces nonlinear and discrete time systems. Prerequisite: MAE 318.

M MAE 426 Design of Aerospace Structures. (3)
once a year
Flight vehicle loads, design of semimonocoque structures, local buckling and crippling, fatigue, aerospace materials, composites, joints, and finite element applications. Prerequisite: MAE 322.

M MAE 433 Air Conditioning and Refrigeration. (3)
once a year
Air conditioning processes; environmental control; heating and cooling loads; psychrometry; refrigeration cycles. Prerequisite: MAE 340 or instructor approval.

M MAE 434 Internal Combustion Engines. (3)
once a year
Performance characteristics, combustion, carburetion and fuel-injection, and the cooling and control of internal combustion engines. Computer modeling. Fee. Lab. Prerequisite: MAE 340 or instructor approval.

M MAE 435 Turbomachinery. (3)
once a year
Design and performance of turbomachines, including steam, gas and hydraulic turbines, centrifugal pumps, compressors, fans, and blowers. Prerequisite: MAE 340 or 360.

M MAE 436 Combustion. (3)
once a year
Thermochemical and reaction rate processes; combustion of gaseous and condensed-phase fuels. Applications to propulsion and heating systems. Pollutant formation. Prerequisite: MAE 340 or instructor approval.

M MAE 442 Mechanical Systems Design. (4)
spring
Applies design principles and techniques to the synthesis, modeling, and optimization of mechanical, electromechanical, and hydraulic systems. Fee. Lecture, lab. Prerequisites: MAE 318, 342 (or 344).

M MAE 446 Thermal Systems Design. (3)
once a year
Applies engineering principles and techniques to the modeling and analysis of thermal systems and components. Presents and demonstrates optimization techniques and their use. Prerequisite: MAE 340.

M MAE 447 Robotics and Its Influence on Design. (3)
once a year
Robot applications, configurations, singular positions, and work space; modes of control; vision; programming exercises; design of parts for assembly. Prerequisite: MAE 318.

M MAE 453 Computer-Aided Manufacturing and Control. (3)
spring
Computer control in manufacturing, CIM, NC, logic controllers, group technology, process planning, and robotics. Cross-listed as IEE 463. Credit is allowed for only IEE 463 or MAE 453. Credit is allowed for only IEE 463 or 543. Fee. Prerequisite: IEE 360 or MAE 351.
General Studies: CS

M MAE 455 Polymers and Composites. (3)
fall
Relationship between chemistry, structure, and properties of engineering polymers. Design, properties, and behavior of fiber composite systems. Cross-listed as MSE 470. Credit is allowed for only MAE 455 or MSE 470. Prerequisites: MSE 211 (or CEE 213 or MAE 213), 250.

M MAE 462 Space Vehicle Dynamics and Control. (3)
fall
Attitude dynamics and control, launch vehicles, orbital mechanics, orbital transfer/rendezvous, space mission design, space structures, spacecraft control systems design. Prerequisite: MAE 318.

M MAE 463 Propulsion. (3)
fall
Fundamentals of gas-turbine engines and design of components. Principles and design of rocket propulsion and alternative devices. Lecture, design projects. Prerequisites: MAE 362, 384.

M MAE 465 Rocket Propulsion. (3)
once a year
Rocket flight performance; nozzle design; combustion of liquid and solid propellants; component design; advanced propulsion systems; interplanetary missions; testing. Prerequisite: MAE 340 or 362.

M MAE 466 Rotary Wing Aerodynamics and Performance. (3)
once a year
Introduces helicopter and propeller analysis techniques. Momentum, blade-element, and vortex methods. Hover and forward flight. Ground effect, autorotation, and compressibility effects. Prerequisite: MAE 360 or instructor approval.

M MAE 468 Aerospace Systems Design. (3)
fall and spring
Group projects related to aerospace vehicle design, working from mission definition and continuing through preliminary design. Fee. Prerequisite: MAE 344. Pre- or corequisite: MAE 463.
General Studies: L

M MAE 469 Projects in Astronautics or Aeronautics. (3)
fall and spring
Various multidisciplinary team projects available each semester. Projects include design of high-speed rotocraft autonomous vehicles, liquid-fueled rockets, microaerial vehicles, satellites. Fee. Prerequisite: instructor approval.

M MAE 471 Computational Fluid Dynamics. (3)
once a year
Numerical solutions for selected problems in fluid mechanics. Fee. Prerequisites: MAE 340 (or 360), 384.

M MAE 488 Mechanical Engineering Design I. (3)
fall
Conceptual and embodiment design; modeling; rapid prototyping. Team project. MAE 488 and 489 must be taken in consecutive semesters. Lecture, discussion. Fee.Prerequisites: MAE 340, 342.

M MAE 489 Mechanical Engineering Design II. (3)
spring
Detail design; fabrication and testing. Team project. MAE 488 and 489 must be taken in consecutive semesters. Lecture, discussion. Fee. Prerequisite: MAE 488.

M MAE 491 Experimental Mechanical Engineering. (3)
fall and spring
Experimental and analytical studies of phenomena and performance of fluid flow, heat transfer, thermodynamics, refrigeration, and mechanical power systems. Fee. 6 hours lab. Prerequisites: MAE 318, 340.
General Studies: L

M MAE 492 Honors Directed Study. (1–6)
selected semesters

M MAE 493 Honors Thesis. (1–6)
selected semesters

M MAE 498 Pro-Seminar. (1–3)
selected semesters
Special topics for advanced students. Applies the engineering disciplines to design and analysis of modern technical devices and systems. Prerequisite: instructor approval.

M MAE 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Programs in Engineering Special Studies

The major of Engineering Special Studies accommodates students whose educational objectives require more intensity of concentration on a particular subject or more curricular flexibility within an engineering discipline than the traditional departmental majors generally permit. The major is a School of Engineering program. Unlike the departmental major areas, however, there is not a separate faculty. The faculty teaching and advising in these programs are from the various departments within the School of Engineering.

For many students, engineering studies form the basis of preparation for professional engineering work where proficiency in the application of science and the physical and social technologies is brought to bear on problems of a large scope. The necessary breadth that these students seek often is not obtainable in traditional engineering fields. Rather, specially designed programs of course work that merge the required principles and approaches drawn from all fields of engineering and other pertinent disciplines are desired.

ENGINEERING SPECIAL STUDIES—BSE

At the current time there is only one concentration available for this program—premedical engineering.

Premedical Engineering. In recent decades, the interrelation between engineering and medicine has become vigorous and exciting. Rapidly expanding technology dictates that engineering will continue to become increasingly involved in all branches of medicine. As this develops, so will the need for physicians trained in the engineering sciences—medical men and women with a knowledge of computer technology, transport phenomena, biomechanics, bioelectric phenomena, operations research, and cybernetics. This concentration is of special interest to students who desire entry into a medical college and who have medical interests in research, aerospace and undersea medicine, artificial organs, prostheses, biomedical engineering, or biophysics. Since both engineering and medicine have as their goal the well-being of humans, this program is compatible with any field of medical endeavor. This program is administered by the faculty of the Harrington Department of Bioengineering.

ADMISSION REQUIREMENTS

Preprofessional Program. All students admitted to the Engineering Special Studies program with a concentration in premedical engineering will be admitted to the preprofessional program. During the time students are in the preprofessional program, they will follow the sequence of first- and second-year courses shown in the Typical Four-Year Sequence for the concentration. Promotion from the preprofessional program to the professional program is not automatic and a separate application procedure is required.

Promotion is based on performance in a collection of skill-set courses all of which are included in the typical first three semesters of the program. The skill-set courses are:

Skill-Set Courses

BIO	188	General Biology II[1] *SQ*	4
BME	100	Introduction to Bioengineering *CS*	3
BME	294	ST: Conservation Principles in Bioengineering	3
CHM	116	General Chemistry II *SQ*[2]	4
MAT	294	ST: Calculus for Engineers I	3
MAT	294	ST: Calculus for Engineers II	3
PHY	121	University Physics I: Mechanics *SQ*[3]	3
PHY	122	University Physics Laboratory I *SQ*[3]	1
PHY	131	University Physics II: Electricity and Magnetism *SQ*[4]	3
PHY	132	University Physics Laboratory II *SQ*[4]	1
Skill-set course total			28

[1] Note that BIO 187 is required by many medical schools in addition to BIO 188. BIO 187 cannot be used as a technical elective.

[2] To fulfill medical school admission requirements, premedical students generally should choose CHM 116. Note that CHM 113 is required by many medical schools in addition to CHM 116. CHM 113 cannot be used as a technical elective.

[3] Both PHY 121 and 122 must be taken for SQ to secure credit.

[4] Both PHY 131 and 132 must be taken for SQ to secure credit.

Professional Program. Admission to the professional program is competitive. All students seeking admission to the professional program must follow the application procedure described in the Harrington Department of Bioengineering Web site. Admission is granted to those applicants who have demonstrated high promise for professional success. Transfer students who have completed the equivalent required lower-division skill-set courses may also apply to the professional program. While only students who have been admitted to the bioengineering program are eligible to apply to the professional program, prior attendance at ASU is not required. Completion of the specified preprofessional course work does not guarantee admission to the professional program.

DEGREE REQUIREMENTS

A minimum of 120 semester hours is necessary for the BSE degree in Engineering Special Studies with a concentration in Premedical Engineering. A minimum of 45 upper-division hours is required. Students must attain a GPA of at least 2.00 for the courses in the major field.

GRADUATION REQUIREMENTS

In addition to fulfilling school and major requirements, majors must satisfy all university graduation requirements. See "University Graduation Requirements," page 89.

Note: To fulfill medical school admission requirements, BIO 187 General Biology is required in addition to the degree requirements and is best taken in summer session before the Medical College Admission Test.

COURSE REQUIREMENTS

The course work for the undergraduate degree can be classified into the following categories (in semester hours):

First-Year Composition[1]

Choose among the course combinations below 6
- ENG 101 First-Year Composition (3)
- ENG 102 First-Year Composition (3)

———*or*———

- ENG 105 Advanced First-Year Composition (3)
- Elective chosen with an advisor (3)

———*or*———

- ENG 107 English for Foreign Students (3)
- ENG 108 English for Foreign Students (3)

First-year composition subtotal 6

General Studies/Program Requirements

Humanities and Fine Arts/Social and Behavioral Sciences

HU/SB and awareness area courses[2] 15

Total 15

Literacy and Critical Inquiry

Six hours of literacy and critical inquiry credit is satisfied by courses in the major.

Natural Sciences

BIO 188 General Biology II *SQ*[1, 2] 4
CHM 113 General Chemistry I *SQ* 4
CHM 116 General Chemistry II *SQ* 4
CHM 233 General Organic Chemistry I[3] 3
CHM 237 General Organic Chemistry Laboratory I[3] 1
PHY 121 University Physics I: Mechanics *SQ*[4] 3
PHY 122 University Physics Laboratory I *SQ*[4] 1
PHY 131 University Physics II: Electricity and Magnetism *SQ*[5] 3
PHY 132 University Physics Laboratory II *SQ*[5] 1

Natural sciences subtotal 24

Mathematical Studies

CSE 100 Principles of Programming with C++ *CS* 3
MAT 274 Elementary Differential Equations *MA* 3
MAT 294 ST: Calculus for Engineers I 3
MAT 294 ST: Calculus for Engineers II 3
MAT 343 Applied Linear Algebra 3

Mathematical studies subtotal 15

General Studies/program requirements total 54

Lower-Division Engineering Courses

BME 100 Introduction to Bioengineering *CS* 3
BME 235 Physiology for Engineers 4
BME 294 ST: Conservation Principles in Bioengineering 3
EEE 202 Circuits I 4
IEE 280 Probability and Statistics for Engineering Problem Solving *CS* 3
MAE 212 Engineering Mechanics 4

Lower-division subtotal 21

Upper-Division Courses in Major

BME 300 Bioengineering Product Design 3
BME 318 Biomaterials 4
BME 331 Bioengineering Transport Phenomena 3
BME 350 Signals and Systems for Bioengineers 3
BME 370 Microcomputer Applications in Bioengineering 3
BME 413 Biomedical Instrumentation *L*[6] 3
BME 417 Biomedical Engineering Capstone Design I 4
BME 423 Biomedical Instrumentation Laboratory *L*[6] 1
BME 434 Applications of Bioengineering Transport Phenomena 3
or BME 416 Biomechanics (3)
or BME 419 Biocontrol Systems (3)
BME 490 Biomedical Engineering Capstone Design II 4
CHM 234 General Organic Chemistry II 3
CHM 238 General Organic Chemistry Laboratory II 1
CHM 341 Elementary Physical Chemistry 3
Technical electives[7] 1

Upper-division courses in major subtotal 39

Program total 120

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1 A minimum grade of "C" (2.00) is required.

2 Note that BIO 187 is required by many medical schools in addition to BIO 188. BIO 187 cannot be used as a technical elective.

3 If CHM 233/237 is taken to satisfy the natural science requirement, these courses are not eligible to be applied as technical electives.

4 Both PHY 121 and PHY 122 must be taken to secure SQ credit.

5 Both PHY 131 and PHY 132 must be taken to secure SQ credit.

6 Both BME 413 and BME 423 must be taken to secure L credit.

7 Acceptable courses require advisor approval.

Premedical Engineering
Program of Study
Typical Four-Year Sequence

First Year

First Semester

BME 100 Introduction to Bioengineering *CS* 3
CHM 113 General Chemistry I *SQ* 4
ENG 101 First-Year Composition 3
MAT 294 ST: Calculus for Engineers I 3

Total 13

Second Semester

BIO 188 General Biology II *SQ*[1] 4
CHM 116 General Chemistry II *SQ* 4
ENG 102 First-Year Composition 3
MAT 294 ST: Calculus for Engineers II 3
PHY 121 University Physics I: Mechanics *SQ*[2] 3
PHY 122 University Physics Laboratory I *SQ*[2] 1

Total 18

Second Year

First Semester

BME 294 ST: Conservation Principles in Bioengineering 3
CHM 233 General Organic Chemistry I[3] 3
CHM 237 General Organic Chemistry Laboratory I[3] 1
CSE 100 Principles of Programming with C++ *CS* 3
PHY 131 University Physics II: Electricity and Magnetism *SQ*[4] 3
PHY 132 University Physics II Laboratory *SQ*[4] 1

Total 14

Second Semester

BME 235 Physiology for Engineers 4
EEE 202 Circuits I 4
IEE 280 Probability and Statistics for Engineering Problem Solving 3
MAT 275 Modern Differential Equations *MA* 3
HU/SB and awareness area course[5] 3

Total 17

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Third Year

First Semester

BME 318 Biomaterials 4
CHM 341 Elementary Physical Chemistry 3
MAE 212 Engineering Mechanics 4
MAT 343 Applied Linear Algebra 3
HU/SB and awareness area course[5] 3
Total 17

Second Semester

BME 300 Bioengineering Product Design 3
BME 331 Bioengineering Transport Phenomena 3
BME 350 Signals and Systems for Bioengineers 3
BME 370 Microcomputer Applications in Bioengineering 3
HU/SB and awareness area course[5] 3
Total 15

Fourth Year

First Semester

BME 413 Biomedical Instrumentation *L*[6] 3
BME 417 Biomedical Engineering Capstone Design I 4
BME 423 Biomedical Instrumentation Laboratory *L*[6] 1
BME 434 Applications of Bioengineering Transport Phenomena 3
or BME 416 Biomechanics (3)
or BME 419 Biocontrol Systems (3)
CHM 234 General Organic Chemistry II 3
CHM 238 General Organic Chemistry Laboratory II 1
Total 15

Second Semester

BME 490 Biomedical Engineering Capstone Design II 4
HU/SB electives[5] 6
Technical elective 1
Total 11

Total degree requirements 120

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1 Note that BIO 187 is required by many medical schools in addition to BIO 188. BIO 187 cannot be used as a technical elective.
2 Both PHY 121 and PHY 122 must be taken to secure SQ credit.
3 If CHM 233/237 is taken to satisfy the natural science requirement, these courses are not eligible to be applied as technical electives.
4 Both PHY 131 and PHY 132 must be taken to secure SQ credit.
5 Engineering students may not use aerospace studies (AES) or military science (MIS) courses to fulfill HU or SB requirements.
6 Both BME 413 and BME 423 must be taken to secure L credit.

ASU Research Park

Tim Trumble photo

The Katherine K. Herberger College of Fine Arts

herbergercollege.asu.edu

PURPOSE

The Katherine K. Herberger College of Fine Arts at ASU provides both preprofessional and professional education in the arts disciplines and an opportunity for nonmajors to become culturally literate through participation in the creative and performing arts.

The college, through its programs in art, dance, music, and theatre, reflects a wide range of challenges facing the contemporary artist and scholar. The arts, as an integral part of the curriculum, offer the student a rewarding educational experience balanced and strengthened by studies in related fine arts areas, the humanities, social sciences, and the natural sciences.

In addition to professional curricula offered in each department and school, the college provides courses designed to meet the specific educational needs of students pursuing majors in other colleges throughout the university. The cultural life of the university community is further enriched by study opportunities offered at off-campus sites. The Katherine K. Herberger College of Fine Arts also offers community audiences many hours of cultural enjoyment through a myriad of art exhibitions, music and dance concerts, dramatic productions, operas, lectures, and seminars.

ORGANIZATION

The college houses the School of Art, the Department of Dance, the School of Music, and the School of Theatre and Film. An average of 2,600 students per semester enroll as majors in various degree programs offered through these units. The college also includes the ASU Art Museum and the Institute for Studies in the Arts.

ADMISSION

Students meeting the university requirements for admission may matriculate in the Katherine K. Herberger College of Fine Arts. Separate admission procedures and approvals are required for some programs within the college. Students must contact specific departments or schools for details.

Transfer of Community College Credits. The university standards for evaluation of transfer credit are listed under "Transfer Credit," page 71. Transfer students are encouraged to contact their department or school or the Katherine K. Herberger College of Fine Arts Student Academic Services (GHALL 116) to ensure a smooth transition to the Katherine K. Herberger College of Fine Arts. Credits transferred from any accredited junior or community college may be accepted up to a maximum of 64 semester hours. (A community college student planning to transfer at the end of his or her first or second year should plan to take community college courses that meet the requirements of the ASU curriculum selected. Students attending Arizona community colleges are permitted to follow the degree requirements specified in the ASU *General Catalog* in effect at the time they began their community college work, providing their college attendance has been continuous.)

Courses transferred from community colleges are not accepted as upper-division credit at ASU. Arizona students are urged to refer to the *Course Applicability System* for transferability of specific courses from Arizona community colleges. For more information, access the Web site at az.transfer.org/cas.

In choosing courses at a community college, students should be aware that a minimum of 45 semester hours of work taken at the university must be upper-division credits. While attending a community college, it is suggested that students select courses similar to ASU General Studies lower-division courses in the major field.

For optimal course selection, access the ASU Transfer Guides on the Web at www.asu.edu/provost/articulation.

General Transfer Credit. Direct transfer of courses from other accredited institutions to the Katherine K. Herberger College of Fine Arts are subject to (1) the existence of parallel and equal courses in the college's curriculum and (2) departmental or school evaluation of studio courses with respect to performance standards. Every candidate for the bachelor's degree must earn a minimum of 30 semester hours in resident credit at ASU. Transfer students enrolled in the college must complete a minimum of 15 semester hours of resident credit in the major as approved by the faculty.

ADVISING

Undergraduate academic advising is handled as a centralized activity within the college. To offer personalized

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Katherine K. Herberger College of Fine Arts Baccalaureate Degrees and Majors

Major	Degree	Concentration[1]	Administered By
Art	BA	Art history, digital art, museum studies, or studio art	School of Art
	BFA	Art education, ceramics, drawing, fibers, intermedia, metals, painting, photography, printmaking, or sculpture	School of Art
Dance	BFA	Choreography, dance education, dance studies, or performance	Department of Dance
Film	BA	Film and media production	School of Theatre and Film
Music	BA	—	School of Music
Music Education[2]	BM	Choral-general, instrumental, or string	School of Music
Music Therapy[2]	BM	—	School of Music
Performance	BM	Collaborative piano, guitar, jazz, keyboard, music theatre, orchestral instrument, or voice	School of Music
Theatre	BA	Optional: acting or scenography[1]	School of Theatre and Film
Theory and Composition	BM	Composition or theory	School of Music

[1] If a major offers concentrations, one must be selected unless noted as *optional*.

[2] This major requires more than 120 semester hours to complete.

attention, each academic unit establishes its own graduate advising procedures. Students are encouraged to make appointments through the Herberger Student Academic Services central office. For more information, call 480/965-4495.

Baccalaureate Degrees

The three baccalaureate degrees differ in curricula with respect to the amount of specialization permitted in the major field. The BA degree provides a broad, scholarly, humanistic program, while the other two programs place greater emphasis upon the major field. See the "Katherine K. Herberger College of Fine Arts Baccalaureate Degrees and Majors" table, on this page, for more information.

The university General Studies curriculum plays an integral role within the educational mission of the university and as such constitutes an important component of all undergraduate degrees in the Katherine K. Herberger College of Fine Arts. See "General Studies," page 93, for more information.

In cooperation with the College of Education, a K–12 endorsement for teacher certification is available in the disciplines of art, dance, and music for students preparing for a teaching career in the public schools. Students should, with the advice and counsel of their arts education advisors, fulfill the requirements for the appropriate area of specialization under the Bachelor of Fine Arts or Bachelor of Music degrees. In addition, a student wishing to be admitted to the Initial Teacher Certification (ITC) program in the College of Education (leading to teaching certification) must consult with an advisor from the Office of Student Services in the College of Education before applying for the ITC. Students must have completed 56 semester hours with a minimum GPA of 2.50. Further details on admission requirements and procedures for the ITC can be found under "Teacher Education," page 350.

Minors

The Katherine K. Herberger College of Fine Arts provides an opportunity for students majoring in other disciplines to sustain their interest in the arts through a structured program of required courses and electives leading to a minor. The minor is not intended as a substitute for professional work in the arts, but as a complement to various liberal arts and preprofessional curricula.

Minors are offered in Art History, Dance, Music, and Theatre. The total number of semester hours required for a minor ranges from 18 to 25. Students should contact the relevant academic unit for specific requirements and guidelines regarding the minor.

Graduate Degrees

Master's programs range from 30 to 60 semester hours, depending upon the degree chosen. Doctoral programs vary in scope and curricula. See the "Katherine K. Herberger College of Fine Arts Graduate Degrees and Majors" table, page 439, for more information. See the *Graduate Catalog* for specific requirements.

UNIVERSITY GRADUATION REQUIREMENTS

In addition to fulfilling college and major requirements, students must meet all university graduation requirements. For more information, see "University Graduation Requirements," page 89.

GENERAL STUDIES REQUIREMENT

All students enrolled in a baccalaureate degree program must satisfy a university requirement of a minimum of 35 semester hours of approved course work in General Studies, as described under "General Studies," page 93. All three General Studies awareness areas are required. Consult with an advisor for an approved list of courses. General Studies

Katherine K. Herberger College of Fine Arts Graduate Degrees and Majors

Major	Degree	Concentration[1]	Administered By
Art	MA	Art education or art history	School of Art
	MFA	Ceramics, digital technology, drawing, fibers, intermedia, metals, painting, photography, printmaking, sculpture, or wood	School of Art
Composition	MM	Optional: interdisciplinary digital media and performance[1]	School of Music
Creative Writing	MFA[2]	—	Creative Writing Committee
Curriculum and Instruction	PhD[3]	Art education	School of Art
Dance	MFA	Optional: interdisciplinary digital media and performance[1]	Department of Dance
History and Theory of Art[4]	PhD	—	School of Art
Music	MA	Ethnomusicology, music history and literature, or music theory	School of Music
	DMA	Conducting, interdisciplinary digital media and performance, music composition, music education, or performance	School of Music
Music Education	MM	Choral music, general music, instrumental music, or jazz studies	School of Music
Music Therapy	MM	—	School of Music
Performance	MM	Collaborative piano, music theatre/opera musical direction, music theatre/opera performance, performance, or performance pedagogy	School of Music
Theatre	MA	—	School of Theatre and Film
	MFA	Directing, interdisciplinary digital media, performance, performance design, or theatre for youth	School of Theatre and Film
	PhD	Theatre and performance of the Americas or theatre for youth	School of Theatre and Film

1 If a major offers concentrations, one must be selected unless noted as *optional*.

2 This program is administered by the Division of Graduate Studies.

3 This program is administered in collaboration with the College of Education.

4 This major is jointly offered with the University of Arizona.

courses are listed in the "General Studies Courses" table, page 96, in the course descriptions, in the *Schedule of Classes,* and in the *Summer Sessions Bulletin*.

Courses in the major or in a related field area may not be used to satisfy both the major and core area portions of the General Studies requirement. Concurrent listings in the literacy areas, numeracy (computer applications) areas, and awareness areas are an exception. Students are encouraged to consult with an academic advisor to ensure that they comply with all necessary requirements.

COLLEGE DEGREE REQUIREMENTS

The Katherine K. Herberger College of Fine Arts degree requirements supplement the General Studies requirement. Descriptions of additional required courses follow. Students are encouraged to consult with an academic advisor to ensure that they comply with all necessary requirements.

Fine arts majors must take at least six semester hours of fine arts course work in areas outside of the major school or department. These courses may be in art, dance, music, or theatre. A student may concurrently fulfill this requirement and the humanities and fine arts portion of the General Studies requirement by selecting approved courses as indicated in the *Schedule of Classes*. This requirement may also be met by taking any Katherine K. Herberger College of Fine Arts course outside of the student's major.

All BA degrees require the equivalent of 16 semester hours in one foreign language except for the BA degrees in Theatre and Art with concentrations in digital art and studio art. Foreign language study is strongly recommended but not required for these degree programs. Course work may be selected in any language and must follow the sequence of language courses 101, 102, 201, and 202. This requirement may be fulfilled at the secondary school level or by examination. If acquired in secondary school, two years of instruction in one foreign language is considered the equivalent of one year of college instruction. Transfer

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

students are placed in language study at the level above completed work.

Candidates for the BM degree in Performance with a concentration in voice have specific foreign language requirements, which are stated in the degree requirements. There is no foreign language requirement for other concentrations of the BFA or BM degrees.

ACADEMIC STANDARDS AND RETENTION

Good Standing. Students in the Katherine K. Herberger College of Fine Arts are considered in good standing for the purpose of retention if they maintain a cumulative GPA of 2.00 or higher in all courses taken at ASU. However, to gain admission into certain undergraduate degree programs in the college, students must maintain a minimum GPA within their major and/or a minimum cumulative GPA. These minimum GPAs vary according to the given program.

Probation. Any student who does not maintain good standing is placed on academic probation. A student on academic probation is required to observe any limitations or rules the college may impose as a condition for retention.

Students are encouraged to seek advising from their major academic advisor, in an effort to improve academic standing. All Herberger College of Fine Arts students who are placed on academic probation and continuing probation are required to submit completed student progress reports to the office of the assistant dean of the college. The student progress report is a means to monitor the academic performance that a probation/continuing probation student is achieving in each of his or her courses, during the semester.

Completed student progress reports must be returned to the Herberger College of Fine Arts Office, GHALL 116, every second Friday. The assistant dean will then review each report. Progress reports are required until the student earns a cumulative GPA of 2.00 or higher.

Disqualification. A student who is on probation becomes disqualified if the student (1) has not returned to good standing or (2) has not met the required semester GPA.

Disqualification is exercised at the discretion of the college and becomes effective on the first day of the fall or spring semester following college action. A disqualified student is notified by the Office of the Registrar and/or the dean of the college and is not allowed to register for a fall or spring semester at the university until reinstated. A student who is disqualified may not attend as a nondegree student.

Reinstatement. Students seeking reinstatement after disqualification should contact the Katherine K. Herberger College of Fine Arts Student Services Office regarding procedures and guidance for returning to good standing. When reinstatement includes readmission, application must be made to the Readmissions Section of the Office of the Registrar.

All academic disciplinary action is a function of the Katherine K. Herberger College of Fine Arts Student Services Office, GHALL 116, under the direction of the assistant dean of the college. Students having academic problems should call this office for advising at 480/965-4495.

MAJOR REQUIREMENTS

The minimum requirement for a baccalaureate degree is the completion of 120 semester hours with a minimum cumulative GPA of 2.00. Of these 120 semester hours, at least 45 must be selected from upper-division courses.

Several professional programs within the college require additional semester hours for graduation and a higher cumulative GPA of their students. To be acceptable as degree credit, all course work in the major discipline must show an earned grade of "C" (2.00) or higher.

In addition to the general information given below, consult the school and departmental sections that follow for specific degree requirements.

Bachelor of Arts (BA) Degree. The BA degree requires from 45 to 69 semester hours for the major. Depending on the major, 18 to 24 semester hours must be selected from upper-division (300- or 400-level) courses. The semester-hour requirements in the major are distributed between a field of specialization (30 to 53 semester hours) and one or more related fields. The exact content of the major is selected by a student in consultation with an advisor under the rules and regulations of the department or school concerned. A successful entrance audition is also required for admission to the BA degree in Music or Theatre programs.

Bachelor of Fine Arts (BFA) Degree. The BFA degree requires 79 semester hours for the major. At least 30 of these hours, depending on the major, must be selected from upper-division (300- or 400-level) courses. The curriculum for the major is designed as preprofessional study. Auditions are required for entrance into Dance major classes, and auditions and/or interviews are required for admission into the BFA program in Dance with specialization. Specific information can be obtained through the HCFA Advisement Office.

Bachelor of Music (BM) Degree. The BM degree requires a minimum of 79 semester hours for the major (depending on the area of specialization). The required number of upper-division (300- or 400-level) courses is dependent upon the area of specialization. The curriculum is designed to provide a broad yet concentrated preparation with a choice of specialization among various areas. See the "Katherine K. Herberger College of Fine Arts Baccalaureate Degrees and Majors" table, page 438, for available majors and concentrations. An entering undergraduate music student, regardless of the area of specialization, must pass an entrance audition in his or her primary performing medium (voice or instrument).

Academic Standards. The terms of disqualification, reinstatement, and appeals are consistent with those set forth by the university under "Retention and Academic Standards," page 86. In addition, a student disqualified in any program is normally not eligible for reinstatement for two semesters.

SPECIAL PROGRAMS

Working closely with faculty, visiting scholars, and artists-in-residence, students in all fields of the college participate in dynamic, innovative programs. Students

receive a great deal of individual attention to their creative work and artistic development.

School of Art. The School of Art is among the highest ranked programs in the country. The faculty are nationally recognized and the programs offer students diverse educational opportunities in studio art (ceramics, digital, drawing, fibers, intermedia, metals, painting, photography, printmaking, and sculpture), art history and museum studies, and art education. Some of the unique offerings include bookmaking and papermaking, film, neon, digital video, computer animation, and foundry. In addition, internships are available in galleries and museums throughout the Phoenix area. The Eleanor A. Robb Children's Art Workshop is an on-campus program taught by students in art education for school-age children in the metropolitan area. Northlight, Harry Wood, Gallery 100, and Step galleries host exhibitions of student art work. Visiting artists and guest lecturers enrich the basic curriculum. Graduates of the School of Art have been accepted to top graduate schools and many are in leadership positions in art, education, and industry.

Department of Dance. The department's strengths include choreography and performance, dance science and somatics, educational outreach and methodology, media and technology, as well as contemporary directions. Prominent and renowned faculty and guest artists create repertory for dance majors and for the Dance Arizona Repertory Theatre (DART), the repertory and community partnership company. Through instructional curriculum, workshop intensives, guest residencies, strong performance programs, professional internships, and apprenticeships, students are exposed to and trained to meet the demands of professional preparations. An environment that encourages creative collaboration, interdisciplinary views, and community awareness is central to the mission of the department.

School of Music. Ranked among the top programs in the United States, the School of Music offers a broad scope of degree options for the study of performance, music education, music therapy, composition, theory, history and literature, jazz, music theatre, ethnomusicology, pedagogy, interdisciplinary digital media, accompanying, and conducting. This wide spectrum of areas is supported by special programs and facilities that enrich the opportunities for professional training and musical growth. Music education and pedagogy are supplemented by the Piano and Guitar Preparatory Programs, the Music for Tots series, and special classes for certification in Orff and Kodály methods. Performance opportunities are enhanced by a wide variety of ensembles, including such groups as marimba, African drumming, gamelan, and mariachi. Voice students may pursue training in opera or in Broadway musicals. Composition students work in the Electronic Music Studio, and all benefit from the Electronic Classroom, a state-of-the-art computer facility. A variety of community partnerships, including a gang intervention program, stem from the music therapy area. The scope and variety of the School of Music's programs are made possible by the wide range of expertise of the faculty, who are performers, teachers, conductors, composers, and scholars recognized nationally and internationally.

School of Theatre and Film. Offering the BA in Theatre and the BA in Film (with a concentration in film and media production), the school provides a comprehensive liberal arts approach to the study and practice of the theatre and film arts. Students have opportunities to study across the range of curricular areas: performance and directing, design and production, theatre and performance studies, playwriting and dramaturgy, theatre for youth, and film. Students pursuing the BA in Theatre may choose to specialize by seeking admission to acting or design and production concentrations. The BA in Film is a joint program of the Herberger College of Fine Arts and the College of Liberal Arts and Sciences, with the film and media production concentration housed in the School of Theatre and Film. The breadth of curricular offerings is made possible by faculty nationally and internationally recognized for their expertise and excellence.

An active production program is integral to the theatre curriculum. Productions are mounted in the 496-seat Galvin Playhouse and the 162-seat Lyceum Theatre; student-generated projects take place in the Prism Theatre Lab. With special emphasis on creating new work and original interpretations, the school is devoted to moving the art of the theatre into the future.

Of special note are the departments's highly ranked programs in playwriting, which feature a Mainstage Festival of New Work each year and multiple readings and workshop series; the Performance in the Borderlands Project, which provides opportunities for performance and scholarship of and about the southwest borderlands region; and Theatre for Youth, which attracts artists and scholars from around the world. The Child Drama Special Collections in Hayden Library supports their endeavors.

Arts, Media, and Engineering. The Arts, Media, and Engineering Graduate Research and Education (AME) program is cosponsored by the Katherine K. Herberger College of Fine Arts and the Ira A. Fulton School of Engineering. Graduate degrees with concentrations in media and arts are offered collaboratively through AME by the Departments of Computer Science and Engineering, Dance, and Electrical Engineering and the Schools of Art, Music, and Theatre and Film. The concentrations aim to train hybrid arts-engineering graduate students who draw their creativity from the arts and their methodology from the sciences. The concentrations focus on in-depth studies that fully integrate discipline-specific studies with development of arts and media technologies and research-oriented practices.

SCHOOL OF EXTENDED EDUCATION

The university-wide School of Extended Education provides an interactive link between ASU and the diverse communities it serves. The college assesses lifelong learning requirements and works in partnership with campuses, other colleges, and the community to serve learners, using a network of locations, programs, schedules, and technologies.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

For more information, see "School of Interdisciplinary Studies," page 139, or access the Web site at www.asu.edu/xed.

GENERAL INFORMATION

Undergraduate Credit for Graduate Courses. To enable interested students to benefit as much as possible from their undergraduate studies, the Division of Graduate Studies and the Katherine K. Herberger College of Fine Arts extend to seniors with a GPA of at least 2.50 the privilege of taking 500-level graduate courses for undergraduate credit. Students requesting to take 500-level graduate courses must have the approval of the class instructor and their academic advisor.

Preprofessional Programs. Students preparing for admission to professional graduate schools should obtain information regarding admission requirements by writing directly to the schools in which they are interested.

Courses. The academic units within the Katherine K. Herberger College of Fine Arts may use the CFA prefix for course offerings that cross disciplinary boundaries.

COLLEGE OF FINE ARTS (CFA)

M CFA 194 Special Topics. (1–4)
fall
Topics may include the following:
- Academic Balance for the Fine Arts Major. (1)

M CFA 484 Internship. (1–12)
fall and spring

M CFA 494 Special Topics. (3)
fall and spring

M CFA 498 Pro-Seminar. (1–7)
fall and spring

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

ARTS, MEDIA, AND ENGINEERING (AME)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

School of Art

herbergercollege.asu.edu/art
480/965-3468
ART 102

Regents' Professors: Klett, Weiser

Professors: Britton, Codell, Collins, Duncan, Eckert, Erickson, Fahlman, Gillingwater, Hajicek, Magenta, Marc, Maxwell, Meissinger, Neubauer, Pittsley, Risseeuw, Schleif, Schmidt, Schoebel, Stokrocki, Sweeney, Verstegen, White, Wolfthal, Young

Associate Professors: Brown, Gully, Jenkins, McIver, Newport, Pessler, Schutte, Segura, Serwint, Umberger

Assistant Professors: Anand, Ellsworth, Hood, McDonah, Mesch, Schneider

Senior Lecturer: Mittman

All students registering in a School of Art degree program enroll through the Katherine K. Herberger College of Fine Arts. Each degree program and area of specialization has its own check sheet, which describes the specific course sequence and special requirements. Check sheets are available online at art.asu.edu.

Art majors seeking a second BA or BFA degree in art must petition the Katherine K. Herberger College of Fine Arts after completing 12 semester hours in the specialization of the second degree. The second degree in art requires at least 30 semester hours of courses that meet art requirements in the major. These 30 semester hours should not duplicate any of the courses taken for the first degree.

Portfolio Reviews

Students who have been admitted to the School of Art before the fall semester of 2006 need to submit application materials, including a portfolio, for acceptance into upper division classes (300 and 400 levels) in the following programs: BA in Art with a concentration in digital art; BFA in art with concentrations in drawing, intermedia, painting, and photography. Eligibility for these programs requires a GPA of at least 2.70 overall and 3.00 for art classes. Portfolio deadlines are March 1 for acceptance into fall semester upper-division classes and October 1 for spring classes. Transfer students are encouraged to apply a semester before attending ASU. Students who have been admitted before the fall of 2006 must follow the course prerequisites and program requirements appropriate for their catalog year.

Preprofessional Programs

Effective fall semester 2006, all students applying to degree programs in the School of Art will be admitted to the preprofessional program without a concentration classification. Choices of concentrations include: art education, art history, ceramics, digital art, drawing, fibers,

intermedia, metals, museum studies, painting, photography, printmaking, sculpture, and studio art. Students remain in the preprofessional program until they have been accepted into a professional program concentration; eligibility is determined through a performance review.

Students pursuing studio concentrations must complete the following classes to prepare for acceptance into the professional program: ARS 101 and 102, ART 111, 112, 113, and 115. In addition, students must successfully complete 12 semester hours of the following 200-level studio classes: 2-D class, 3-D class, a course related to the concentration in which they are applying, and a studio elective class (3-D or 2-D). Students must complete the 200-level concentration class in the semester before the application is submitted. The application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Students pursuing the art education concentration must complete the following classes to prepare for acceptance into the professional program: ARS 101 and 102, ART 111, 112, 113, and 115. In addition, students must successfully complete 12 semester hours of the following 200-level classes: 2-D class, 3-D class, ARE 250 (formerly ARE 450) with a grade of 3.00 or higher, and a studio elective class (3-D or 2-D). Students must complete ARE 250 the semester before the application is submitted. The application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must maintain an overall GPA of 2.70 and an art of GPA 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Students pursuing the art history or museum studies concentration must complete the following classes with grades of 3.00 or higher for acceptance into the professional program: ENG 101 and 102, ARS 101 and 102. Students must maintain a GPA of 3.00 for a minimum of 30 semester hours to be eligible for the professional program. Applicants should submit materials during the semester in which they are completing 30 semester hours.

It is recommended that transfer students who meet the above requirements apply the semester before they plan to attend the School of Art and by the March 1 or October 1 deadline. For specifics regarding application materials and criteria for acceptance into upper division professional programs, access the Web site at art.asu.edu/undergraduate.

Students will be notified by mail and e-mail of their acceptance status. For students applying in the semester during which they are completing preprofessional requirements, the acceptance status of students will not be final until grades are posted.

Once students majoring in art have been accepted into the professional program for a concentration, the School of Art will add the concentration designation to the major, and they will be able to register for upper-division classes in the concentration to which they were admitted and into related upper-division classes within other concentrations in the major.

Denial of Acceptance into a Professional Program

Students who are not accepted through portfolio review will remain in the preprofessional program for a maximum of one year (two semesters following their first application to the professional program) with the following conditions:

1. they will continue to work with school of art advisors,
2. they will continue to take 100- or 200-level art courses appropriate for acceptance into a concentration,
3. they may reapply to the same concentration no more than two times, once during each of the following semesters, and
4. students who have not been accepted within a year of the first unsuccessful portfolio review will work with School of Art advisors to choose another major suited to their interests.

Appeals by applicants who are denied must be submitted as a petition to the School of Art Standards Committee within 30 days of the date of the e-mail and/or letter notifying students of their status regarding acceptance into the professional program.

Studio and Art History Foundations

Students must complete 18 semester hours of studio and art history foundations requirements to be eligible for acceptance into upper division professional BA and BFA programs in studio art.

Studio and Art History Foundations Requirements

ARS	101	Art from Prehistory Through Middle Ages *HU, H*	3
ARS	102	Art from Renaissance to Present *HU, H*	3
ART	111	Drawing I: Foundations	3
ART	112	2-D Design	3
ART	113	Color	3
ART	115	3-D Design	3
Total			18

Professional Programs

In studio concentrations, the professional program consists of nine to 15 semester hours of required upper-division courses in the concentration core, seven to 15 semester hours of upper-division electives in the concentration (including one to three semester hours of senior exhibition and portfolio), and nine to 17 semester hours of School of Art classes (ARA, ARE, ARS, and ART) outside of the concentration. In addition to courses in the professional program, six to 12 semester hours of art history beyond ARS 101 and 102 are required.

The art education professional program consists of 21 semester hours of art education, including 18 semester hours of upper-division courses, 21 semester hours of a proficiency in art (studio or art history), including 12 semester hours of upper-division courses. In addition to courses in the professional program, six semester hours of art history beyond ARS 101 and 102 are required.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

The art history professional program consists of 27 semester hours of art history courses and 16 semester hours of foreign language or related study (if the language proficiency requirement has been met).

The museum studies professional program consists of 30 semester hours of art history, ART 409 or ARA 460, and 16 semester hours of foreign language or related study (if the language proficiency requirement has been met). ASB 471 Introduction to Museums or ARS 494 ST: Introduction to Museums is also recommended.

Transfer Courses in Art

Courses from other departments, when approved by a student's faculty advisor and the School of Art, may be applied to the major if deemed appropriate to the student's program of study. Transfer art courses which do not have the same title and description as ASU catalog courses must have the approval of the School of Art Standards Committee.

Senior Exhibition

All majors in studio BFA programs and the BA in Art with a concentration in digital art program must successfully complete ART 494 ST: Senior Exhibition and Portfolio for graduation. Graduating students in these areas must submit acceptable work to a faculty sponsor in their area of concentration for a group exhibition, a portfolio of 10 to 15 images, and an artist's statement.

Art—BA

The faculty in the School of Art offer four concentrations for students in the BA degree in Art program: art history, digital art, museum studies, and studio art. These concentrations are intended to give the student a broadly based general education in the field with specialized work at the upper-division level.

The major in Art consists of 45 to 79 semester hours, depending on the concentration. BA degree programs are especially suited for individuals pursuing interdisciplinary studies or a minor in another discipline. All courses in the major must be completed with a grade of "C" (2.00) or higher.

Graduation Requirements. In addition to fulfilling the major requirements, students must meet all university graduation requirements and college degree requirements.

See "University Graduation Requirements," page 89, and "College Degree Requirements," page 439.

ART HISTORY CONCENTRATION

The art history concentration consists of a minimum of 61 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 12 semester hours of a related subject field, six semester hours of art history, six semester hours of ENG 101 and 102 or ENG 105, and six semester hours of General Studies.

Application for acceptance into the professional program occurs during the semester in which the 30 semester hours of preprofessional study is being completed. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate. The professional program requirements include 27 semester hours of art history courses, including a minimum of 18 semester hours of upper-division courses.

Additional requirements include 16 semester hours of foreign language or a demonstrated language proficiency (not American sign language). If the foreign language proficiency is demonstrated, 16 semester hours of related study is required, which must be approved by the department. Satisfactory completion of ARS 480 Research Methods is required before the senior year.

Preprofessional Art History Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester 2006 or later will be admitted to the preprofessional program without a concentration classification (i.e., art history). Students interested in the Art History BA program will pursue the preprofessional courses below.

ENG	101	First-Year Composition*	3
ENG	102	First-Year Composition*	3
General Studies			6
Total			12

* ENG 105 or 107 and 108 also accepted.

Related Subject Field. Select four courses (12 semester hours) from those with the prefix APH, ARA, ARE, or from the following:

ART	101	Photography I	3
ART	111	Drawing I: Foundations	3
ART	112	2-D Design	3
ART	113	Color	3
ART	115	3-D Design	3
ART	274	Wood I	3
ART	294	Special Topics	3
Total			12

Art History

ARS	101	Art from Prehistory Through Middle Ages *HU, H*	3
ARS	102	Art from Renaissance to Present *HU, H*	3
Total			6

Applying to Art History Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted in fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete ENG 101 and 102 or equivalent and ARS 101 and 102 with a grade of B (3.00) or higher before the semester in which the application is submitted. Students must maintain an overall GPA of 3.00 for a minimum of 30 semester hours to be eligible for the professional program. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Art History Requirements

Forty-three semester hours with a minimum of 18 semester hours of upper-division courses are required.

Art History

ARS	480	Research Methods *L*	3
ARS	498	PS: Art History	3

Any ARS course	6
Total	12

Also required is at least one 300- or 400-level art history (ARS) course from each of the following areas:

Ancient	3
Medieval	3
Modern/contemporary	3
Non-Western	3
Renaissance/Baroque	3
Total	15

Foreign Language or Additional Art History Related Study

Sixteen semester hours of language courses or demonstrated proficiency in a foreign language is required. American Sign Language cannot be used for this requirement. If the language proficiency is met, additional courses are required in interdisciplinary related studies (e.g., architecture history, anthropology, history, religious studies, global studies)

Free Electives

Students must select a minimum of 18 semester hours of free electives.

BIS CONCENTRATION

A concentration in art history is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

Related Subject Field. Select three courses (nine semester hours) from those with the prefix APH, ARA, ARE, or from the following:

ART 101 Photography I	3
ART 111 Drawing I: Foundations	3
ART 112 2-D Design	3
ART 113 Color	3
ART 115 3-D Design	3
ART 274 Wood I	3
ART 294 Special Topics	3

Also required is an approved upper-division elective (ARA, ARE, or ARS).

Foreign Language. Sixteen semester hours of 101, 102, 201, and 202 foreign language courses; or a demonstrated proficiency in at least one foreign language equivalent to the level attained through the completion of two years of study at the college level is required. For specific courses, see the "Department of Languages and Literatures," page 580. (SHS courses are not acceptable.)

DIGITAL ART CONCENTRATION

The digital art concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 18 semester hours of foundations courses and 12 semester hours of 200-level classes, which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. In addition, nine semester hours of art history is required (six semester hours at the upper-division level). The upper-division professional program requirements include 10 semester hours of digital art core, 14 semester hours of studio art digital electives, including the Senior Exhibition and Portfolio, and 12 semester hours of related study outside of the digital art concentration.

Portfolio Review. Students who have been admitted to the BA in digital art before fall of 2006 need to submit application materials, including a portfolio, for acceptance into digital art upper division classes (300 and 400 levels) and must have a minimum cumulative GPA of 2.70 and an art GPA of 3.00. The portfolio deadlines are October 1 for spring classes and March 1 for fall classes.

Preprofessional Digital Art Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester 2006 or later are admitted to the preprofessional program without a concentration classification (i.e., digital art). Students interested in the digital art BA program will purse the preprofessional courses below.

Studio and Art History Foundations Requirements. Eighteen semester hours are required. See "Studio and Art History Foundations," page 443.

Preprofessional Digital Art Electives

Choose one of the following courses	3
ART 101 Photography I (3)	
ART 204 Photography II (3)	
ART 211 Drawing II (3)	
ART 214 Life Drawing I (3)	
ART 223 Painting I (3)	
ART 227 Watercolor I (3)	
ART 253 Introduction to Printmaking (3)	
Choose one of the following courses	3
ART 231 Sculpture I (3)	
ART 261 Ceramic Survey (3)	
ART 272 Jewelry I (3)	
ART 274 Wood I (3)	
ART 276 Fibers I (3)	
ART 294 ST: Intermedia (3)	
ART 294 ST: Digital Media	3
Any 2-D or 3-D ART course	3
Total	12

Art History. Nine semester hours are required, including six semester hours of upper-division courses, which must include six semester hours of 20th-century and three semester hours of non-Western art. This requirement does not need to be completed before applying to the digital art professional program.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Applying to Digital Art Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted in the fall semester of 2006, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete ART 294 Digital Media before the semester that the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures access the Web site at art.asu.edu/undergraduate.

Professional Digital Art Requirements. A minimum of 24 semester hours of upper-division courses is required.

Digital Art Core Requirements

ART 345 Visualization and Prototyping I 3
ART 346 3-D Computer Imaging and Animation *CS* 3
ART 440 New Media Concepts 3
ART 441 Video Art 1
Total 10

Digital Art Electives

Choose from the following 12
- ART 348 Animation Motion Studies (3)
- ART 394 ST: Guided Study (3)
- ART 440 New Media Concepts (3)
- ART 441 Video Art (1)
- ART 449 Computer Animation and Video (3)
- ART 450 Computer Animation and Audio (3)
- ART 470 Computer Animation Portfolio *CS* (3)
- ART 484 Internship (3)
- ART 494 ST: Digital Processes for Printmaking (3)
- ART 494 ST: Visualization and Prototyping II (3)
- ART 494 ST: Web Art (3)
- ART 499 Individualized Instruction (3)

ART 494 ST: Senior Exhibition and Portfolio 2
Total 14

Related Subject Area. A minimum of 12 semester hours of upper-division courses is required. The related subject requirement includes courses outside of the digital art concentration associated with the media and conceptual direction of students' art work. This may include courses outside of the department directly related to digital media, installation art, and the cultural contexts for digital art. Courses must be approved by the department.

Free Electives. Students must select a minimum of four semester hours of free electives.

MUSEUM STUDIES CONCENTRATION

The museum studies concentration consists of a minimum of 67 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include six semester hours of ARS 101 and 102, six semester hours of ENG 101 and 102 or ENG 105, and 18 semester hours of general studies. Application for acceptance into the professional program occurs after the completion of ARS 101, 102, and ENG 101, 102; and during the semester in which the 30 semester hours of preprofessional study is being completed. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate for deadlines and application procedures.

The upper-division professional program requirements include 36 semester hours of art history courses. A minimum of 30 semester hours of upper-division courses is required in the Museum Studies professional program. Additional requirements include 16 semester hours of foreign language or a demonstrated language proficiency (not American sign language). If the foreign language proficiency is demonstrated, 16 semester hours of related study is required, which must be approved by the department. Satisfactory completion of ARS 480 Research Methods is required before the senior year.

Preprofessional Museum Studies Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester 2006 or later are admitted to the preprofessional program without a concentration classification (i.e., museum studies). Students interested in the Museum Studies BA program will pursue the preprofessional courses below.

ENG 101 First-Year Composition* 3
ENG 102 First-Year Composition* 3
General Studies *GS* 6

* ENG 105 or 107 and 108 also accepted.

Art History

ARS 101 Art from Prehistory Through Middle Ages *HU, H* 3
ARS 102 Art from Renaissance to Present *HU, H* 3
General Studies *GS* 6
Total 12

Applying to Museum Studies Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted in fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete ENG 101 and 102 or equivalent and ARS 101, 102 with a grade of B (3.00) or higher before the semester in which the application is submitted. Students must maintain an overall GPA of 3.00 for a minimum of 30 semester hours to be eligible for the professional program. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Museum Studies Requirements. Fifty-two semester hours with a minimum of 30 semester hours of upper-division courses are required.

Art History

ARS 201 Art of Asia *HU, G, H* 3
ARS 202 Art of Africa, Oceania and the Americas *HU, G, H* 3
ARS 480 Research Methods *L* 3
ARS 484 Internship: Museum 3
ART 409 Photographic Exhibition 3
or ARS 460 Art Now (3)
Ancient 3
Medieval 3
Modern/contemporary 3
Non-Western 3

Renaissance/Baroque 3
ARS or ASB* 3
Total 27

* ARS 494 ST: Introduction to Museums or ASB 471 Introduction to Museums is recommended.

Foreign Language. Sixteen semester hours of foreign language courses or demonstrated proficiency in a foreign language is required. American sign language cannot be used for this requirement. If the language proficiency is demonstrated, additional courses are required in interdisciplinary related studies (e.g., architecture history, anthropology, history, religious studies, global studies)

Related Study Requirements. Select nine semester hours of courses in Business, Recreation, Business Administration, and/or Public Programs.

Choose three from the following courses* 9
- ACC 394 ST: Accounting and Financial Analysis (3)
- MGT 380 Management and Strategy for Nonmajors (3)
- MKT 382 Advertising and Marketing Communication (3)
- NLM 191 First-Year Seminar (3)
- NLM 300 Fund Raising and Resource Development (3)
- NLM 310 Volunteer Management (3)
- NLM 430 Managing Nonprofit Organizations (3)
- D PAF 300 Public Management and Administration (3)
- D PAF 340 Public Management and Policy (3)
- D PAF 420 Public Leadership (3)
- WPC 380 Small Business Leadership (3)
- WPC 381 Small Business Accounting and Finance (3)

* See an advisor for department approved substitutes.

Free Electives. Students must select a minimum of 12 semester hours of free electives.

STUDIO ART CONCENTRATION

The studio art concentration consists of a minimum of 63 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 18 semester hours of foundations requirements and 12 semester hours of 200-level classes, which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. The upper-division professional program requirements include nine semester hours of studio art core; 15 semester hours of studio art electives related to either the 2-D or 3-D studio core emphasis, including the senior exhibition and portfolio; and 12 semester hours of related study outside of the studio art core.

Preprofessional Studio Art Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester 2006 or later are admitted to the preprofessional program without a concentration classification (i.e., studio art). Students interested in the Studio BA program will pursue the preprofessional courses below.

Studio and Art History Foundations Requirements. Eighteen semester hours of required courses. See "Studio and Art History Foundations," page 443.

Preprofessional Studio Art Electives
Choose one of the following courses 3
- ART 101 Photography I (3)
- ART 204 Photography II (3)
- ART 211 Drawing II (3)
- ART 214 Life Drawing I (3)
- ART 223 Painting I (3)
- ART 227 Watercolor I (3)
- ART 253 Introduction to Printmaking (3)

Choose one of the following courses 3
- ART 231 Sculpture I (3)
- ART 261 Ceramic Survey (3)
- ART 272 Jewelry I (3)
- ART 274 Wood I (3)
- ART 276 Fibers I (3)
- ART 294 ST: Intermedia (3)

ART 294 ST: Digital Media 3
Any 2-D or 3-D ART course 3
Total 12

Applying to Studio Art Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted in fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete a three semester hour 2-D or 3-D ART course in the emphasis to which they are applying before the semester that the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Studio Art Requirements. A minimum of 24 semester hours of upper-division courses is required.

Studio Art Core Requirements. Select nine semester hours of upper division courses in the 2-D or 3-D emphasis selected.

Studio Art Department Art Electives. A minimum of 15 semester hours is required.

ART 494 ST: Senior Exhibition and Portfolio 3

Twelve semester hours of courses related to the 2-D or 3-D emphasis must be selected.

Related Study Requirements. A minimum of 12 semester hours of upper-division courses is required. The related subject requirement includes courses outside of the 2-D or 3-D emphasis selected that relate to the media and conceptual direction of students' art work and may include classes outside of the department directly related to studio media, installation art, and the cultural contexts for studio art. Courses must be approved by the department.

Free Electives. Students must select a minimum of four semester hours of free electives.

Art History Minor

The School of Art offers a minor in Art History consisting of 18 semester hours of course work, including 12 upper-division electives. A minimum grade of "C" (2.00) is

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

required in all classes in the minor. For those pursuing a minor, a minimum overall GPA of 2.00 is required. Courses may not be double counted in a major and the minor, and a minimum of 12 semester hours of resident credit at the Tempe campus is required.

ARS 100 or 300 may be used toward a minor. ARS 100 and 300 may not be used toward an Art History minor if the student is an Art major or has credit in ARS 101 and 102.

Required Courses. Select two of the following four required courses:

ARS 101 Art from Prehistory Through Middle Ages *HU, H* 3
ARS 102 Art from Renaissance to Present *HU, H* 3
ARS 201 Art of Asia *HU, G, H* 3
ARS 202 Art of Africa, Oceania, and the Americas *HU, G, H*.....3

Elective Courses. Students pursuing an art history minor select four three-semester-hour upper-division courses. A seminar is strongly recommended for those considering graduate study. Students need to be aware of lower-division prerequisites for all upper-division courses. Interested students should contact the School of Art for specific requirements and admission procedures.

Art—BFA

The faculty in the School of Art offer ten concentrations for students in the BFA in Art program: art education, ceramics, drawing, fibers, intermedia, metals, painting, photography, printmaking, and sculpture. With the exception of art education, which focuses on preparing students as instructors of art, each concentration is designed to prepare students as artists. The major in Art consists of 75 semester hours of course work in each concentration. At least 30 upper-division semester hours must be earned within the major. All courses in the major must be completed with a grade of "C" (2.00) or higher. Specific requirements for each concentration are recommended by the faculty advisors of the area and are listed on School of Art check sheets.

Graduation Requirements. In addition to fulfilling the major requirements, students must meet all university graduation requirements and college degree requirements. See "University Graduation Requirements," page 89, and "College Degree Requirements," page 439.

ART EDUCATION CONCENTRATION

The art education concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 18 semester hours of foundations requirements, and 12 semester hours of 200-level classes, which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. The upper-division professional program requirements include 18 semester hours of art education core classes and 21 semester hours of art proficiency courses, which include a minimum of 12 upper division hours. Teaching experience is provided in an on campus Saturday program for children ages five to 15. Participation in the program is part of the requirements for ARE 486 Art Education: Strategies and Applications. ARE 486 meets the state certification requirement for the elementary methods class, and ARE 496 Methods and Assessment of Learning in Art meets the requirement for the secondary methods class in the subject area. Both of these courses have prerequisites.

Preprofessional Art Education Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester of 2006 will be admitted to the preprofessional program without a concentration classification (i.e., art education). Students interested in the Art Education BFA program in the School of Art will pursue the preprofessional courses below.

Studio and Art History Foundations Requirements. Eighteen semester hours of required courses. See "Studio and Art History Foundations," page 443.

Preprofessional Art Education Electives

ARE 250 Teaching Inquiry in Art 3
Choose one of the following courses 3
- ART 101 Photography I (3)
- ART 204 Photography II (3)
- ART 211 Drawing II (3)
- ART 214 Life Drawing I (3)
- ART 223 Painting I (3)
- ART 227 Watercolor I (3)
- ART 253 Introduction to Printmaking (3)

Choose one of the following courses 3
- ART 231 Sculpture I (3)
- ART 261 Ceramic Survey (3)
- ART 272 Jewelry I (3)
- ART 274 Wood I (3)
- ART 276 Fibers I (3)
- ART 294 ST: Intermedia (3)

Any 2-D or 3-D ART course 3

Total 12

Art History. Six semester hours of upper-division courses are required. This must include a course in 20th-century art, and non-Western art is recommended for the second course. This requirement does not need to be completed before applying to the Art Education professional program.

Applying to Art Education Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete the ARE 250 course before the semester that the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate. Application to the College of Education professional program is a separate process.

Professional Art Education Requirements. Thirty-nine semester hours with a minimum of 30 semester hours of upper-division courses are required.

Art Education Core Requirements

ARE 370 Teaching Visual Culture 3
ARE 440 Disciplines of Art Education 3
ARE 482 Teaching Art Processes 3
ARE 486 Art Education: Strategies and Applications 3

ARE 494 ST: Art Education	3
ARE 496 Methods and Assessment of Learning in Art	3
Total	18

Art Education School of Art Proficiency. Twenty-one semester hours approved by an art education faculty advisor, with a minimum of 12 semester hours of upper-division courses. Select from Art History and Museum Education (ARA 394 ST: Art Museum Education Service Learning), or ART (2-D studio art), or ART (3-D studio art).

Free Electives. Students must select a minimum of four semester hours of free electives.

Teacher Certification. A student pursuing a BFA degree in Art with a concentration in art education may also choose to become certified for teaching art K–12. If certification is elected while pursuing the art education undergraduate degree, additional semester hours are required in the College of Education. Students must make special application to the Initial Teacher Certification (ITC) program in the College of Education. Application deadlines for the ITC programs are February 1 for fall admission and September 1 for spring admission. Appointments with an advisor can be made in the Office of Student Services in the College of Education, or by calling 480/965-5555.

Certification is also available through the postbaccalaureate program in the College of Education. Interested students should contact an advisor in the College of Education and in art education for admission requirements to the postbaccalaureate program.

Art education courses for this program are as follows:

ARE 250 Teaching Inquiry in Art	3
ARE 482 Teaching Art Processes	3
ARE 486 Art Education: Strategies and Applications	3
ARE 496 Methods and Assessment of Learning in Art	3
Total	12

In addition to the art education courses, students must complete the following: education courses, field experiences, and student teaching.

The BFA degree in Art with a concentration in art education and the postbaccalaureate program for certification in art have a special art education application procedure. This procedure is separate from, and in addition to, the admission requirements of ASU. This procedure is separate from, and in addition to, the admission requirements of ASU and acceptance into the Art Education professional upper-division program. Acceptance is based on acceptance into the Art Education professional undergraduate program or a GPA of 2.50 for the post baccalaureate program, six semester hours of upper-division art history, and a B (3.00) or higher in ARE 250 and 440.

In addition, undergraduate and postbaccalaureate students seeking K–12 certification should check requirements and deadlines for admission to the College of Education professional program. To be accepted into student teaching, a student must be recommended in writing by the art education faculty and must have completed all art education classes. For additional student teaching requirements, see "Student Teaching," page 355. Students who are not recommended may complete the BFA degree in Art with a concentration in art education without certification or may reapply after meeting any deficiencies in knowledge and skills related to the teaching of art.

CERAMICS CONCENTRATION

The ceramics concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 18 semester hours of foundations requirements and 12 semester hours of 200 level classes which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. In addition, six semester hours of upper division art history is required. The upper-division professional program requirements include 12 semester hours of ceramics core classes, 10 to 12 semester hours of elective ceramics courses, including ART 494 ST: Senior Exhibition and Portfolio, and 15 to 17 semester hours of School of Art courses outside of ceramics (ARA, ARE, ARS, ART).

Preprofessional Ceramics Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester 2006 or later are admitted to the preprofessional program without a concentration classification (i.e., ceramics). Students interested in the Ceramics BFA will pursue the preprofessional courses below.

Studio and Art History Foundations Requirements. Eighteen semester hours of required courses. See "Studio and Art History Foundations," page 443.

Preprofessional Ceramics Electives

Choose one of the following courses	3
ART 101 Photography I (3)	
ART 204 Photography II (3)	
ART 211 Drawing II (3)	
ART 214 Life Drawing I (3)	
ART 223 Painting I (3)	
ART 227 Watercolor I (3)	
ART 253 Introduction to Printmaking (3)	
Choose one of the following courses	3
ART 231 Sculpture I (3)	
ART 272 Jewelry I (3)	
ART 274 Wood I (3)	
ART 276 Fibers I (3)	
ART 294 ST: Intermedia (3)	
ART 261 Ceramic Survey	3
Any 2-D or 3-D ART course	3
Total	12

Art History. Six semester hours of upper-division courses are required, including a 20th-century and a non-Western art elective. This requirement does not need to be completed before applying to the ceramics professional program.

Applying to Ceramics Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted fall semester 2006 or later, the application for acceptance into

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete the ART 261 course before the semester that the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Ceramics Requirements. Thirty-nine semester hours with a minimum of 30 semester hours of upper-division courses are required.

Ceramics Core Requirements

ART 360 Ceramic Throwing	3
ART 364 Ceramic Handbuilding I	3
ART 460 Ceramic Clay	3
or ART 463 Ceramic Glaze (3)	
ART 466 Special Problems Ceramics	3
Total	12

Ceramics Electives[1]

Choose from the following	9
ART 365 Ceramic Handbuilding II (3)	
ART 460 Ceramic Clay (3)	
ART 463 Ceramic Glaze (3)	
ART 466 Special Problems in Ceramics (3)	
ART 494 ST: Senior Exhibition and Portfolio[2]	1–3
Total	10–12

1 Electives in ceramics must include 10 to 12 semester hours of upper-division course work.

2 Course selection must include one to three semester hours of ART 494 ST: Senior Exhibition and Portfolio.

School of Art Electives in Major. Fifteen to 17 semester hours with a minimum of 12 semester hours of upper-division courses are required. These are department electives outside of ceramics courses that are selected from upper-division classes in other art concentrations that are open to those admitted to professional programs in the department (ART, ARA, ARS, ARE).

Free Electives. Students must select a minimum of four semester hours of free electives.

DRAWING CONCENTRATION

The drawing concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 18 semester hours of foundations requirements and 12 semester hours of 200-level classes, which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. In addition, nine semester hours of art history is required (6 semester hours upper-division). The upper-division professional program requirements include 15 semester hours of drawing core classes, seven to nine semester hours of elective drawing courses, including ART 494 ST: Senior Exhibition and Portfolio, and 12 to 14 semester hours of School of Art courses outside of drawing (ARA, ARE, ARS, ART).

Portfolio Review. Students who have been admitted to the BFA in Drawing, before the fall of 2006 need to submit application materials, including a portfolio, for acceptance into drawing upper-division classes (300 and 400 levels) and must have a minimum cumulative GPA of 2.70 and an art GPA of 3.0. The portfolio deadlines are October 1 for spring classes and March 1 for fall classes.

Preprofessional Drawing Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester of 2006 or later are admitted to the preprofessional program without a concentration classification (i.e., drawing). Students interested in the Drawing BFA program will pursue the preprofessional courses below.

Preprofessional Drawing Electives

ART 211 Drawing II	3
ART 214 Life Drawing I	3
Choose one of the following courses	3
ART 231 Sculpture I (3)	
ART 261 Ceramic Survey (3)	
ART 272 Jewelry I (3)	
ART 274 Wood I (3)	
ART 276 Fibers I (3)	
ART 294 ST: Intermedia (3)	
Any 2-D or 3-D ART course	3
Total	12

Art History. Nine semester hours are required, including six semester hours of upper-division courses, which must include a non-Western elective. This requirement does not need to be completed before applying to the drawing professional program.

Applying to Drawing Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete ART 211 and 214 before the semester in which the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Drawing Requirements. Thirty-six semester hours with a minimum of 30 semester hours of upper-division courses are required.

Drawing Core Requirements

ART 311 Drawing III	3
ART 314 Life Drawing II	3
ART 315 Figure Drawing III	3
ART 411 Drawing IV	3
ART 414 Life Drawing III	3
Total	15

Drawing Electives[1]

Choose from the following	9
ART 411 Drawing IV (3)	
ART 414 Life Drawing III (3)	
ART 494 ST: Drawing (3)	
ART 494 ST: Senior Exhibition and Portfolio[2]	1–3
Total	10–12

1 Electives in drawing must include 10 to 12 semester hours of upper-division course work.

2 Course selection must include one to three semester hours of ART 494 ST: Senior Exhibition and Portfolio.

School of Art Electives in Major. Twelve to fourteen semester hours with a minimum of twelve semester hours of upper-division courses are required. These are department electives outside of drawing courses that are selected from upper-division classes in other art concentrations that are open to those admitted to professional programs in the department (ART, ARA, ARS, ARE).

Free Electives. Students must select a minimum of four semester hours of free electives.

FIBERS CONCENTRATION

The fibers concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 18 semester hours of foundations requirements and 12 semester hours of 200-level classes, which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. In addition, six semester hours of upper-division art history is required. The upper-division professional program requirements include 12 semester hours of fibers core classes, 10 to 12 semester hours of elective fibers courses, including ART 494 ST: Senior Exhibition and Portfolio, and 15 to 17 semester hours of School of Art courses outside of fibers (ARA, ARE, ARS, ART).

Preprofessional Fibers Requirements. A minimum of 30 semester hours is required. Students who enter the university in the fall semester of 2006 are admitted to the preprofessional program without a concentration classification (i.e., fibers). Students interested in the Fibers BFA program in the School of Art at ASU will pursue the preprofessional courses below.

Studio and Art History Foundations Requirements. Eighteen semester hours of required courses. See "Studio and Art History Foundations," page 443.

Preprofessional Fibers Electives

Choose one of the following courses 3
- ART 101 Photography I (3)
- ART 204 Photography II (3)
- ART 211 Drawing II (3)
- ART 214 Life Drawing I (3)
- ART 223 Painting I (3)
- ART 227 Watercolor I (3)
- ART 253 Introduction to Printmaking (3)

Choose one of the following courses 3
- ART 231 Sculpture I (3)
- ART 261 Ceramic Survey (3)
- ART 272 Jewelry I (3)
- ART 274 Wood I (3)
- ART 294 ST: Intermedia (3)

ART 276 Fibers I 3
Any 2-D or 3-D ART course 3
Total 12

Art History. Six semester hours of upper-division courses are required, including a 20th-century and a non-Western elective. This requirement does not need to be completed before applying to the fibers professional program.

Applying to Fibers Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete ART 276 before the semester in which the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Fibers Requirements. Thirty-nine semester hours with a minimum of 30 semester hours of upper-division courses are required.

Fibers Core Requirements

ART 376 Woven Structures I 3
ART 377 Surface Design 3
ART 476 Woven Structures II 3
ART 477 Printed Textiles 3
Total 12

Fibers Electives[1]

Choose from the following 9
- ART 476 Woven Structures II (3)
- ART 477 Printed Textiles (3)
- ART 478 Advanced Surface Design (3)
- ART 494 ST: Fibers and Surface (3)

ART 494 ST: Senior Exhibition and Portfolio[2] 1–3
Total 10–12

1 Electives in fibers must include 10 to 12 semester hours of upper-division course work.

2 Course selection must include one to three semester hours of ART 494 ST: Senior Exhibition and Portfolio.

School of Art Electives in Major. Fifteen to 17 semester hours with a minimum of 12 semester hours of upper-division courses are required. These are department electives outside of fibers courses that are selected from upper-division classes in other art concentrations that are open to those admitted to professional programs in the department (ART, ARA, ARS, ARE).

Free Electives. Students must select a minimum of four semester hours of free electives.

INTERMEDIA CONCENTRATION

The intermedia concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 18 semester hours of foundations and 12 semester hours of 200-level classes which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. In addition, nine semester hours of art history is required, including six semester hours of upper division. The upper division professional program requirements include 13 semester hours of intermedia core

classes, 14 semester hours of elective intermedia courses, including ART 494 ST: Senior Exhibition and Portfolio, and nine semester hours of School of Art courses outside of intermedia (ARA, ARE, ARS, ART).

Portfolio Review. Students who have been admitted to the BFA in Intermedia before the fall of 2006 need to submit application materials, including a portfolio, for acceptance into intermedia upper-division classes (300 and 400 levels) and must have a minimum cumulative GPA of 2.70 and an art GPA of 3.00. The portfolio deadlines are October 1 for spring classes and March 1 for fall classes.

Preprofessional Intermedia Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester 2006 or later are admitted to the preprofessional program without a concentration classification (i.e., intermedia). Students interested in the Intermedia BFA program in the School of Art will pursue the preprofessional courses below.

Studio and Art History Foundations Requirements. Eighteen semester hours of required courses. See "Studio and Art History Foundations," page 443.

Preprofessional Intermedia Electives

Choose one of the following courses 3
- ART 101 Photography I (3)
- ART 204 Photography II (3)
- ART 211 Drawing II (3)
- ART 214 Life Drawing I (3)
- ART 223 Painting I (3)
- ART 227 Watercolor I (3)

Choose one of the following courses 3
- ART 231 Sculpture I (3)
- ART 261 Ceramic Survey (3)
- ART 272 Jewelry I (3)
- ART 274 Wood I (3)
- ART 276 Fibers I (3)

ART 294 ST: Introduction to Intermedia 3
Any 2-D or 3-D ART course 3
Total 12

Art History. Nine semester hours are required, including six semester hours of upper-division courses, which must include three semester hours of non-Western art and three semester hours of 20th-century art. This requirement does not need to be completed before applying to the intermedia professional program.

Applying to Intermedia Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete ART 294 ST: Introduction to Intermedia before the semester that the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Intermedia Requirements. Thirty-six semester hours with a minimum of 30 hours of upper-division courses are required.

Intermedia Core Requirements

ART 439 Mixed Media 3
ART 440 New Media Concepts 3
or ART 441 Video Art (3)
ART 443 Intermedia 3
An upper-division digital intermedia course 3
Total 12

Intermedia Electives

Choose from the following 12
- ART 345 Visualization and Prototyping (3)
- ART 346 3-D Computer Imaging and Animation (3)
- ART 348 Animation Motion Studies (3)
- ART 439 Mixed Media (3)
- ART 440 New Media Concepts (3)
- ART 441 Video Art (3)
- ART 443 Intermedia (3)
- ART 449 Computer Animation and Video (3)
- ART 450 Computer Animation and Audio (3)
- ART 470 Computer Animation Portfolio (3)
- ART 494 ST: Intermedia (3)

ART 494 ST: Senior Exhibition and Portfolio 2
Total 14

School of Art Electives in Major. Nine semester hours with a minimum of 6 semester hours of upper-division courses are required. These are department electives outside of intermedia courses that are selected from upper-division classes in other art concentrations that are open to those admitted to professional programs in the department (ART, ARA, ARS, ARE).

Free Electives. Students must select a minimum of four semester hours of free electives

METALS CONCENTRATION

The metals concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 18 semester hours of foundations requirements and 12 semester hours of 200-level classes, which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. In addition, six semester hours of upper division art history. The upper-division professional program requirements include 12 semester hours of metals core classes; 10 to 12 semester hours of elective metals courses, including ART 494 ST: Senior Exhibition and Portfolio; and 15 to 17 semester hours of School of Art courses outside of metals (ARA, ARE, ARS, ART).

Preprofessional Metals Requirements. Students who enter the university in fall semester 2006 or later are admitted to the preprofessional program without a concentration classification (i.e., metals). Students interested in the Metals BFA program will pursue the preprofessional courses below.

Studio and Art History Foundations Requirements. Eighteen semester hours of required courses. See "Studio and Art History Foundations," page 443.

Preprofessional Metals Electives

Choose one of the following courses 3
- ART 101 Photography I (3)
- ART 204 Photography II (3)
- ART 211 Drawing II (3)
- ART 214 Life Drawing I (3)
- ART 223 Painting I (3)
- ART 227 Watercolor I (3)

Choose one of the following courses 3
- ART 231 Sculpture I (3)
- ART 261 Ceramic Survey (3)
- ART 274 Wood I (3)
- ART 276 Fibers I (3)
- ART 294 ST: Intermedia (3)

ART 272 Jewelry I 3
Any 2-D or 3-D ART course 3
Total 12

Art History. Six semester hours of upper-division courses are required, including a 20th-century art and a non-Western art elective. This requirement does not need to be completed before applying to the metals professional program.

Applying to Metals Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted in the fall semester of 2006, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete the ART 272, Jewelry I, course before the semester that the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Metals Requirements. Thirty-nine semester hours with a minimum of 30 semester hours of upper-division courses are required.

Metals Core Requirements

ART 372 Jewelry II 3
ART 373 Metalworking 3
ART 472 Advanced Jewelry 3
ART 473 Advanced Metalworking 3
Total 12

Metals Electives[1]

Choose from the following 9
- ART 472 Advanced Jewelry (3)
- ART 473 Advanced Metalworking (3)
- ART 494 ST: Metals (3)
- ART 499 Individualized Instruction (3)

ART 494 ST: Senior Exhibition and Portfolio[2] 1–3
Total 10–12

1 Electives in metals must include 10 to 12 semester hours of upper-division course work.

2 Course selection must include one to three semester hours of ART 494 ST: Senior Exhibition and Portfolio.

School of Art Electives in Major. Fifteen to 17 semester hours are required with a minimum of 12 semester hours of upper-division courses. These are department electives outside of metals courses that are selected from upper-division classes in other art concentrations that are open to those admitted to professional programs in the department (ART, ARA, ARS, ARE).

Free Electives. Students must select a minimum of four semester hours of free electives.

PAINTING CONCENTRATION

The painting concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 18 semester hours of foundations requirements and 12 semester hours of 200-level classes, which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. In addition, nine semester hours of art history, including six semester hours of upper division. The upper division professional program requirements include 15 semester hours of painting core classes; seven to nine semester hours of elective painting courses, including ART 494 ST: Senior Exhibition and Portfolio; and 12 to 14 semester hours of School of Art courses outside of painting (ARA, ARE, ARS, ART).

Portfolio Review. Students who have been admitted to the BFA in Painting before the fall of 2006 need to submit application materials, including a portfolio, for acceptance into painting upper division classes (300 and 400 levels) and must have a minimum cumulative GPA of 2.70 and an art GPA of 3.00. The portfolio deadlines are October 1 for spring classes and March 1 for fall classes.

Preprofessional Painting Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester 2006 or later are admitted to the preprofessional program without a concentration classification (i.e., painting). Students interested in the Painting BFA program will pursue the preprofessional courses below.

Studio and Art History Foundations Requirements. Eighteen semester hours of required courses. See "Studio and Art History Foundations," page 443.

Preprofessional Painting Electives

ART 223 Painting I 3
ART 227 Watercolor I 3
Choose one of the following 3
- ART 231 Sculpture I (3)
- ART 261 Ceramic Survey (3)
- ART 272 Jewelry I (3)
- ART 274 Wood I (3)
- ART 276 Fibers I (3)
- ART 294 ST: Intermedia (3)

Any 2-D or 3-D ART course 3
Total 12

Art History. Nine semester hours are required, including six semester hours of upper-division courses, which must include three semester hours of non-Western art and three semester hours of 20th-century art. This requirement does not need to be completed before applying to the painting professional program.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Applying to Painting Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete the ART 223, Painting I, and ART 227, Watercolor I, courses before the semester that the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Painting Requirements. Thirty-six semester hours with a minimum of 30 semester hours of upper-division courses.

Painting Core Requirements

ART 323 Painting II	3
ART 327 Watercolor II	3
ART 423 Painting III	3
ART 425 Figure Painting	3
Total	12

Painting Electives[1]

Choose from the following	12
ART 423 Painting III(3)	
ART 425 Figure Painting (3)	
ART 427 Advanced Watermedia (3)	
ART 494 ST: Painting (3)	
ART 499 Individualized Instruction (3)	
ART 494 ST: Senior Exhibition and Portfolio[2]	1–3
Total	13–15

1 Electives in painting must include 13 to 15 semester hours of upper-division course work.

2 Course selection must include one to three semester hours of ART 494 ST: Senior Exhibition and Portfolio.

School of Art Electives in Major. Twelve to 14 semester hours with a minimum of 12 semester hours of upper-division courses are required. These are department electives outside of painting courses that are selected from upper-division classes in other art concentrations that are open to those admitted to professional programs in the department (ART, ARA, ARS, ARE).

Free Electives. Students must select a minimum of four semester hours of free electives

PHOTOGRAPHY CONCENTRATION

The photography concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The professional program in photography is fine arts versus commercially oriented.

The preprofessional program requirements include 18 semester hours of foundations requirements and 12 semester hours of 200-level classes, which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. In addition, 12 semester hours of art history, including nine semester hours of upper division. The upper-division professional program requirements include 12 semester hours of photography core classes, 10 to 12 semester hours of elective photography courses, including ART 494 ST: Senior Exhibition and Portfolio, and nine to 11 semester hours of School of Art courses outside of photography (ARA, ARE, ARS, ART)

Portfolio Review. Students who have been admitted to the BFA in Photography before the fall of 2006 need to submit application materials, including a portfolio, for acceptance into photography upper-division classes (300 and 400 levels) and must have a minimum cumulative GPA of 2.70 and an art GPA of 3.0. The portfolio deadlines are October 1 for spring classes and March 1 for fall classes.

Preprofessional Photography Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester 2006 or later are admitted to the preprofessional program without a concentration classification (i.e., photography). Students interested in the Photography BFA program will pursue the preprofessional courses below.

Studio and Art History Foundations Requirements. Eighteen semester hours of required courses. See "Studio and Art History Foundations," page 443.

Preprofessional Photography Electives

ART 101 Photography I	3
ART 204 Photography II	3
Choose one of the following courses	3
ART 231 Sculpture I (3)	
ART 261 Ceramic Survey (3)	
ART 272 Jewelry I (3)	
ART 274 Wood I (3)	
ART 276 Fibers I (3)	
ART 294 ST: Intermedia (3)	
Any 2-D or 3-D ART course	3
Total	12

Art History. Twelve semester hours are required, including nine hours of upper-division courses. Students must take ARS 250 History of Photography and three semester hours of non-Western art. This requirement does not need to be completed before applying to the photography professional program.

Applying to Photography Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete ART 201 Photography I and ART 204 Photography II before the semester in which the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Photography Requirements. Thirty-three to 36 semester hours with a minimum of 30 semester hours of upper-division courses.

Photography Core Requirements

ARA 202 Understanding Photographs	3
ART 304 Advanced Photography	3

ART 305 Color Photography I 3
ART 308 Digital Photographic Images I 3
Total 12

Photography Electives[1]
Choose from the following 9
- ART 305 Color Photography I (3)
- ART 401 Nonsilver Photography (3)
- ART 403 Senior Photographic Projects (3)
- ART 404 Portraiture Photography (3)
- ART 407 View Camera (3)
- ART 409 Photographic Exhibition (3)

ART 494 ST: Senior Exhibition and Portfolio[2] 1–3
Total 10–12

1 Electives in photography must include 10 to 12 semester hours of upper-division course work.
2 Course selection must include one to three semester hours of ART 494 ST: Senior Exhibition and Portfolio.

School of Art Electives. Nine to eleven semester hours with a minimum of 9 semester hours of upper-division courses are required. These are department electives outside of photography courses that are selected from upper-division classes in other art concentrations that are open to those admitted to professional programs in the department (ART, ARA, ARS, ARE).

Free Electives. Students must select a minimum of four semester hours of free electives

PRINTMAKING CONCENTRATION

The printmaking concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 18 semester hours of foundations requirements and 12 semester hours of 200-level classes, which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. In addition, nine semester hours of art history is required, including six semester hours of upper division and Non-Western. The upper-division professional program requirements include nine semester hours of printmaking core classes, 13 to 15 semester hours of elective printmaking courses including ART 494 ST: Senior Exhibition and Portfolio, and 12 to 14 semester hours of School of Art courses outside of printmaking (ARA, ARE, ARS, ART)

Preprofessional Printmaking Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester 2006 or later are admitted to the preprofessional program without a concentration classification (i.e., printmaking). Students interested in the Printmaking BFA program will pursue the preprofessional courses below.

Studio and Art History Foundations Requirements. Eighteen semester hours of required courses. See "Studio and Art History Foundations," page 443.

Preprofessional Printmaking Electives
ART 253 Introduction to Printmaking 3
Choose one of the following courses 3
- ART 101 Photography I (3)
- ART 204 Photography II (3)
- ART 211 Drawing II (3)
- ART 214 Life Drawing I (3)
- ART 223 Painting I (3)
- ART 227 Watercolor I (3)

Choose one of the following courses 3
- ART 231 Sculpture I (3)
- ART 261 Ceramic Survey (3)
- ART 272 Jewelry I (3)
- ART 274 Wood I (3)
- ART 276 Fibers I (3)
- ART 294 ST: Intermedia (3)

Any 2-D or 3-D ART course 3
Total 12

Art History. Nine semester hours are required, including six semester hours of upper-division courses, which must include three semester hours of non-Western art. This requirement does not need to be completed before applying to the printmaking professional program.

Applying to Printmaking Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete ART 253 Introduction to Printmaking before the semester that the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Printmaking Requirements. Thirty-six semester hours with a minimum of 30 semester hours of upper-division courses.

Printmaking Core Requirements
ART 351 Intaglio I 3
ART 352 Lithography I 3
ART 354 Screen Printing I 3
Total 9

Printmaking Electives[1]
Choose from the following 12
- ART 355 Photo Process for Printmaking I (3)
- ART 451 Advanced Intaglio (3)
- ART 452 Advanced Lithography (3)
- ART 454 Advanced Screen Printing (3)
- ART 455 Advanced Photo Processes for Printmaking (3)
- ART 456 Fine Printing and Bookmaking I (3)
- ART 457 Fine Printing and Bookmaking II (3)
- ART 458 Papermaking (3)
- ART 459 Monoprinting (3)
- ART 494 ST: Printmaking (3)

ART 494 ST: Senior Exhibition and Portfolio[2] 1–3
Total 13–15

1 Electives in printmaking must include 13 to 15 semester hours of upper-division course work.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

2 Course selection must include one to three semester hours of ART 494 ST: Senior Exhibition and Portfolio.

School of Art Electives in Major. Twelve to 14 semester hours are required with a minimum of 12 semester hours of upper-division courses. These are department electives outside of printmaking courses that are selected from upper-division classes in other art concentrations that are open to those admitted to professional programs in the department (ART, ARA, ARS, ARE).

Free Electives. Students must select a minimum of four semester hours of free electives.

SCULPTURE CONCENTRATION

The sculpture concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 18 semester hours of foundations requirements and 12 semester hours of 200-level classes, which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. In addition, six semester hours of upper-division art history is required. The upper-division professional program requirements include 12 semester hours of sculpture core classes, 13-15 semester hours of elective sculpture courses including ART 494 ST: Senior Exhibition and Portfolio, and 12 to 14 semester hours of School of Art courses outside of sculpture (ARA, ARE, ARS, ART)

Preprofessional Sculpture Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester 2006 or later are admitted to the preprofessional program without a concentration classification (i.e., sculpture). Students interested in the Sculpture BFA program will pursue the preprofessional courses below.

Studio and Art History Foundations Requirements. Eighteen semester hours of required courses. See "Studio and Art History Foundations," page 443.

Preprofessional Sculpture Electives

ART 231 Sculpture I	3
ART 274 Wood I	3
Choose one of the following courses	3
ART 101 Photography I (3)	
ART 204 Photography II (3)	
ART 211 Drawing II (3)	
ART 214 Life Drawing I (3)	
ART 223 Painting I (3)	
ART 227 Watercolor I (3)	
Any 2-D or 3-D ART course	3
Total	12

Art History. Six hours of upper-division courses are required. This requirement does not need to be completed before applying to the sculpture professional program.

Applying to Sculpture Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted in fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete ART 231 Sculpture I and ART 274 Wood I before the semester in which the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Sculpture Requirements. Thirty-nine semester hours with a minimum of 30 semester hours of upper-division courses.

Sculpture Core Requirements

ART 331 Sculpture II	3
ART 332 Sculpture III	3
ART 431 Special Problems in Sculpture	3
Total	9

Sculpture Electives[1]

Choose four from the following courses	12
ART 333 Foundry Casting Methods (3)	
ART 374 Wood II (3)	
ART 431 Special Problems in Sculpture (3)	
ART 432 Neon Sculpture (3)	
ART 435 Foundry Research Methods (3)	
ART 436 Architectural Sculpture (3)	
ART 437 Film Animation (3)	
ART 438 Experimental Systems in Sculpture (3)	
ART 474 Advanced Wood (3)	
ART 494 Special Topics in Sculpture (3)	
ART 494 ST: Senior Exhibition and Portfolio[2]	1–3
Total	13–15

1 Electives in sculpture must include 13 to 15 semester hours of upper-division course work.

2 Course selection must include one to three semester hours of ART 494 ST: Senior Exhibition and Portfolio.

School of Art Electives in Major. Fifteen to 17 semester hours are required with a minimum of 12 semester hours of upper-division courses. These are department electives outside of sculpture courses that are selected from upper-division classes in other art concentrations that are open to those admitted to professional programs in the department (ART, ARA, ARS, ARE).

Free Electives. Students must select a minimum of four semester hours of free electives.

GRADUATE PROGRAMS

The faculty in the School of Art offer programs leading to the MA degree in Art, with a concentration in art education or art history; the Master of Fine Arts degree with a concentration in ceramics, digital technology, drawing, fibers, intermedia, metals, painting, photography, printmaking, sculpture, or wood; and a PhD degree in History and Theory of Art. In cooperation with the College of Education, the Doctor of Philosophy degree is offered with a concentration in art education. For more information, see the *Graduate Catalog*.

ART AUXILIARY (ARA)

For more ARA courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D

(Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M ARA 202 Understanding Photographs. (3)
once a year
Slide lecture course in understanding photography as a fine art form.

M ARA 311 Art Appreciation and Human Development. (3)
fall
Foundations of art for children and young adults. Emphasizes learning, development, and understanding art in historical and cultural contexts. Lecture, discussion. Fee (online only). Prerequisites: ENG 101, 102; junior standing; nonmajor.
General Studies: HU

M ARA 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Art Museum Education Service Learning

M ARA 460 Gallery Exhibitions. (3)
fall and spring
Practical experience in all phases of department gallery operations and preparation of gallery publications. May be repeated for credit. Prerequisite: instructor approval.

M ARA 488 Understanding Art. (3)
fall and spring
Understanding art as an emergent cultural phenomenon with an emphasis on a critical examination of conceptual issues in art. Requires writing. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: L/HU

M ARA 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Advanced Photo Aesthetics. (3)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

ART EDUCATION (ARE)

M ARE Note 1. May be repeated once by students who are not accepted into the professional program. Contact your academic advisor in the School of Art for more information.

M ARE Note 2. Requires acceptance into the appropriate professional program or instructor approval. Contact your academic advisor in the School of Art for more information.

M ARE 250 Teaching Inquiry in Art. (3)
fall, spring, summer
Using inquiry to investigate artworks and to teach others to make and understand art. Introduces viewpoints of art. 2 hours lecture, 2 hours applied practice. See ARE Note 1. Pre- or corequisites: ARS 101, 102; 6 hours of ART (Studio) credit.

M ARE 301 Studio Art and Human Development. (3)
once a year
Study of human development in studio art from early childhood to adult years.

M ARE 370 Teaching Visual Culture. (3)
fall and spring
Explores issues and applications of everyday aesthetics that contain powerful technological, social, and economic factors. Lecture, discussion. See ARE Note 2.

M ARE 440 Disciplines of Art Education. (3)
fall and spring
Explorations in art education's disciplines, history, and people's artmaking development at diverse age levels and abilities. Lecture, discussion. See ARE Note 2.

M ARE 482 Teaching Art Processes. (3)
spring
Art traditions of the 20th century as a basis for studio and art history instruction. Meets art postbaccalaureate certification requirement. 2 hours lecture, 2 hours studio. See ARE Note 2.

M ARE 486 Art Education: Strategies and Applications. (3)
fall
Implementation and evaluation of art instruction for K–12 population. Includes teaching of Saturday classes in the Children's Art Workshop. Meets art postbaccalaureate certification requirement. Prerequisite: ARE 482.

M ARE 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Art Education. (3)

M ARE 496 Methods and Assessment of Learning in Art. (3)
once a year
Individual or group research on the assessment of art learning incorporating theory and practice. Meets art postbaccalaureate certification requirement. Prerequisites: both ARE 370 and 486 or only instructor approval.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

ART HISTORY (ARS)

For more ARS courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M ARS 100 Introduction to Art. (3)
fall, spring, summer
Understanding of art and its relationship to everyday life through painting, sculpture, architecture, and design. No credit for Art majors or non-Art majors who have completed ARS 101 or 102 or 300.
General Studies: HU

M ARS 101 Art from Prehistory Through Middle Ages. (3)
fall, spring, summer
History of Western art from the Paleolithic period through the Middle Ages.
General Studies: HU, H

M ARS 102 Art from Renaissance to Present. (3)
fall, spring, summer
History of Western art from the Renaissance to the present.
General Studies: HU, H

M ARS 201 Art of Asia. (3)
once a year
History of the art of the Asian cultures, with emphasis on China, Japan, and India. Meets non-Western art history requirement.
General Studies: HU, G, H

M ARS 202 Art of Africa, Oceania, and the Americas. (3)
spring
History of art of Africa, Oceania, and the New World. Meets non-Western art history requirement. Lecture, discussion. Cross-listed as AFH 202. Credit is allowed for only AFH 202 or ARS 202.
General Studies: HU, G, H

M ARS 250 History of Photography. (3)
once a year
History of photography from the 19th century to the present.
General Studies: HU

M ARS 300 Introduction to Art. (3)
fall and spring
Course content same as ARS 100 but requires a higher level of accomplishment and comprehension. No credit for Art majors or non-Art majors who have completed ARS 100. Fee.
General Studies: HU

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M ARS 302 Issues: Art of Africa, Oceania, and the Americas. (3)
once a year
Issues in the art of Africa, Oceania, and the Americas related to ritual, gender, transformation of tradition, and encounters with Europeans. Lecture, discussion. Prerequisite: ENG 102.
General Studies: HU, G, H

M ARS 310 The Renaissance in Tuscany. (3)
summer
Course taught in Florence, Italy. History of arts in Tuscany with focus on city of Florence from 14th through 16th centuries. Completion of ARS 101 and 102 suggested. Lecture, tours.

M ARS 340 Art in America. (3)
once a year
American art from colonial times through the Second World War. Not available to students who have completed ARS 542. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU, H

M ARS 362 Pre-Columbian Art. (3)
once a year
Architecture, sculpture, ceramics, painting, and other arts of Mesoamerica before European contact. Meets non-Western art history requirement. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU, H

M ARS 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Ancient Art
  Fee.
- Art and Culture of Ancient Egypt
  Fee.
- Manga and Anime
  Fee.
- 20th-Century Artists
  Fee.

M ARS 400 History of Printmaking. (3)
once a year
History of the print as an art form and its relation to other modes and forms of artistic expression. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU, H

M ARS 402 Art of Ancient Egypt. (3)
selected semesters
Aesthetic, philosophical, and cultural basis of Egyptian art from pre-Dynastic period through New Kingdom. Emphasis on sculpture and architectural monuments. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU, H

M ARS 404 Greek Art. (3)
once a year
History of art, architecture of Aegean civilizations (Cycladic, Minoan, Mycenaean) and of Greece to end of Hellenistic period. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU, H

M ARS 406 Roman Art. (3)
once a year
Art and architecture of Etruria, the Roman Republic, and the Roman Empire. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU, H

M ARS 410 Early Christian and Byzantine Art. (3)
once a year
Art and architecture of the early church and the Byzantine Empire from the 4th to the 15th century. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU

M ARS 412 Early Medieval Art. (3)
selected semesters
Painting, sculpture, architecture, and the minor arts from Migration, Carolingian, and Ottonian periods considered within religious, social, and economic contexts. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU, H

M ARS 414 Romanesque Art. (3)
once a year
Sculpture, painting, architecture, and minor arts in western Europe, ca. 1030–1200, considered within religious, economic, and social contexts. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU, H

M ARS 416 Gothic Art. (3)
once a year
Painting, sculpture, and architecture in western Europe during the Gothic period. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU

M ARS 417 Late Gothic Art in Central Europe. (3)
selected semesters
Sculpture, painting, and architecture of the late-Gothic style, ca. 1350–1525, considered within religious, social, economic, and political contexts. Prerequisites: both ARS 101 and 102 or only instructor approval.

M ARS 418 Renaissance Art in Northern Europe. (3)
once a year
Graphics, painting, sculpture, and architecture, ca. 1450–1550. Reformation themes and Renaissance style considered within religious, political, social, and economic contexts. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU

M ARS 420 Early Renaissance Art in Italy. (3)
selected semesters
Painting, sculpture, and architecture in Italy from 1300 to 1500. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU, H

M ARS 422 Italian High Renaissance Art and Mannerism. (3)
once a year
History of Italian art during the 16th century, including the achievements and influence of Leonardo da Vinci, Raphael, and Michelangelo. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU

M ARS 424 Italian Baroque Art. (3)
once a year
Italian painting, sculpture, and architecture of the 17th century. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU

M ARS 426 Art of the 17th Century in Northern Europe. (3)
once a year
Baroque painting, sculpture, and architecture in Flanders, the Netherlands, France, and England. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU, H

M ARS 428 Art of the 18th Century. (3)
once a year
History of painting, sculpture, architecture, graphic arts, and the decorative arts from 1700 to the French Revolution (1789). Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU, H

M ARS 430 Art of Spain and Its Colonies. (3)
once a year
Architecture, painting, and sculpture from 1500 to 1800. Colonial focus on central Mexico and the American Southwest. Prerequisite: ARS 102 or instructor approval.
General Studies: HU, H

M ARS 432 19th-Century French Art and Culture. (3)
fall
History of painting, graphic arts, sculpture, and architecture, 1800 to 1900 in France in its political, social, and economic contexts. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU, H

M ARS 434 Art and Visual Culture of 19th Century. (3)
spring
History of European art (all media) from French Revolution to Paris World Fair of 1900. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU

M ARS 436 The Artist, War, and Revolution (Versailles to Vietnam). (3)
fall
Critical study of artistic responses to war and revolution in Europe and United States from French Revolution to Vietnam conflict. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU

M ARS 438 Art of the 20th Century I. (3)
once a year
Developments and directions in art between 1900 and World War II. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU, H

M ARS 439 Art of the 20th Century II. (3)
once a year
Art since World War II, with consideration of new concepts and experimentation with media and modes of presentation. Prerequisites: a combination of ARS 101 and 102 and 438 or only instructor approval.
General Studies: HU, H

M ARS 442 Critical Issues in American Painting. (3)
once a year
Explores themes and social issues in American art with a critical study of American painting from the 18th century to 1850. Lecture, discussion. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU

M ARS 458 Critical Theories in the Visual Arts. (3)
selected semesters
Examines current critical theories through their application to all visual arts. May include new historicism, Marxism, deconstruction, post-structuralism, semiotics, Lacanian psychoanalysis, feminism, postmodernism. Lecture, discussion, student presentations. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU

M ARS 459 Writing Art Criticism. (3)
selected semesters
Traditional and contemporary approaches to the criticism of art. Students write critical essays. Latter half of the semester stresses the criticism of contemporary art in various media. Prerequisite: ARS 458 or instructor approval.

M ARS 460 Art Now. (3)
fall or spring
Critical overview of major issues and controversies of the last 10 years within the global, national, and local art scene. Lecture, discussion, gallery visits. Prerequisite: ARS 439.

M ARS 465 Native North American Art. (3)
once a year
Native American art forms of the United States and Canada from prehistoric times to the present. Meets non-Western art history requirement. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU, C, H

M ARS 466 Native American Art of the Southwest. (3)
once a year
American Indian art in the southwestern states from its origins to the present day. Meets non-Western art history requirement. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU, C, H

M ARS 468 Art of the Arctic and Northwest Coast. (3)
selected semesters
Art associated with ceremony, shamanism, and daily life in the Arctic and on the Northwest Coast. Meets non-Western art history requirement. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU, C, H

M ARS 469 Mexican Art. (3)
once a year
Art of Mexico and related Central American cultures from the prehistoric to the contemporary schools. Meets non-Western art history requirement. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU, H

M ARS 472 Art of China. (3)
once a year
Study of major forms in Chinese art: ritual bronze, sculpture, ceramic, calligraphy, painting, and architecture. Meets non-Western art history requirement. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU

M ARS 473 Art of Japan. (3)
once a year
Japanese art from the Joman period to the present. Meets non-Western art history requirement. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU

M ARS 475 Chinese Painting. (3)
once a year
From Ku K'ai-chin to Ch'i Pai-shih. Major artists, styles, and movements in Chinese painting. Meets non-Western art history requirement. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU

M ARS 480 Research Methods. (3)
fall and spring
Methodology and resource material for art historical research. Techniques of scholarly and critical writing and evaluation of bibliographic sources. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: L

M ARS 484 Internship. (1–12)
selected semesters
Topics may include the following:
- Museum

M ARS 485 Women in the Visual Arts. (3)
spring
Historical study of art by women in various media; related social, political, educational issues; representation of women in art. Lecture, discussion. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: L

M ARS 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- History of Photography. (3)
- Introduction to Museums. (3)

M ARS 498 Pro-Seminar. (1–7)
once a year
Undergraduate seminar. Problems or criticism in topics that may include the following:
- American Art. (3–6)
- American Indian Art. (3–6)
- Ancient Art. (3–6)
- Art History. (3–6)
- Baroque Art. (3–6)
- British Empire. (3–6)
- Chinese Art. (3–6)
- Medieval Art. (3–6)
- Modern Art. (3–6)
- Photographic History. (3–6)
- Pre-Columbian Art. (3–6)
- Renaissance Art. (3–6)

Prerequisite: instructor approval.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

ART (ART)

For more ART courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M ART Note 1. May be repeated once by students who are not accepted into the professional program. Contact your academic advisor in the School of Art for more information.

M ART Note 2. Requires acceptance into the appropriate professional program or instructor approval. Contact your academic advisor in the School of Art for more information.

Studio Core Curriculum

M ART 111 Drawing I: Foundations. (3)
fall, spring, summer
Fundamental, technical, and perceptual skills using common drawing media and their application to pictorial organization. 6 hours a week.

M ART 112 2-D Design. (3)
fall, spring, summer
Fundamentals of pictorial design. 6 hours a week.

M ART 113 Color. (3)
fall, spring, summer
Principles of color theory as related to the visual arts. 6 hours a week.

M ART 115 3-D Design. (3)
fall, spring, summer
Fundamentals of 3-D form. 6 hours a week. Fee.

M ART 294 Special Topics. (3)
fall and spring

Ceramics

M ART 261 Ceramic Survey. (3)
fall, spring, summer
Handforming methods, throwing on the wheel, decorative processes, and glaze application. Lab. 6 hours a week. Fee. See ART Note 1. Prerequisites: both ART 112 and 115 or only instructor approval.

M ART 360 Ceramic Throwing. (3)
fall and spring
Design analysis and production of functional pottery. Emphasizes throwing techniques, surface enrichment, and glaze application. May be repeated once for credit. 6 hours a week. Fee. See ART Note 2.

M ART 364 Ceramic Handbuilding I. (3)
fall
Search for form using handbuilding techniques. Kiln firing and related problems. Fee. See ART Note 2.

M ART 365 Ceramic Handbuilding II. (3)
spring
Continuation of ART 364 with an additional focus on large-scale works, surface treatments, and glaze decoration with related kiln firing applications. Fee. Prerequisites: a combination of ARS 101 and 102 and ART 364 or only instructor approval.

M ART 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Ceramics
  Fee.
- Turning
  Fee.

M ART 460 Ceramic Clay. (3)
spring
Research into various clay body formulations, local natural materials, slip glazes, and engobes. Lecture, lab, studio. Fee. Prerequisites: both ART 360 and 364 or only instructor approval.

M ART 463 Ceramic Glaze. (3)
fall
Glaze calculation and formulation using various glaze colors and surfaces. Lecture, lab, studio. Fee. Prerequisite: ART 460 or instructor approval.

M ART 466 Special Problems in Ceramics. (3)
fall, spring, summer
Emphasizes personal expression within structure of seminars, critiques, and studio work. Professional methods of presentation/documentation of work. May be repeated for credit. 6 hours a week. Fee. Prerequisite: ART 364 or instructor approval.

M ART 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Ceramics Printmaking
  Fee.
- Enameling
  Fee.
- Senior Exhibition and Portfolio
- Turning
  Fee.
- Vapor Glazes
  Fee.

Drawing

M ART 211 Drawing II. (3)
fall, spring, summer
Continued development of technical and perceptual skills. Emphasizes materials and pictorial content. 6 hours a week. See ART Note 1. Prerequisites: both ART 111 and 112 (or 113) or only instructor approval.

M ART 214 Life Drawing I. (3)
fall, spring, summer
Develops skill and expressiveness in drawing the basic form, construction, and gesture from the human figure. Lab. 6 hours a week. Fee. See ART Note 1. Prerequisites: both ART 111 and 112 or only instructor approval.

M ART 311 Drawing III. (3)
fall and spring
Emphasizes composition, exploration of drawing media. 6 hours a week. See ART Note 2.

M ART 314 Life Drawing II. (3)
fall and spring
Drawing from the model with greater reference to structural, graphic, and compositional concerns. 6 hours a week. Fee. See ART Note 2.

M ART 411 Drawing IV. (3)
fall and spring
Visual and intellectual concepts through problem solving and independent study. Emphasizes the individual creative statement. May be repeated for credit. 6 hours a week. Prerequisites: ART 311; instructor approval.

M ART 414 Life Drawing III. (3)
fall and spring
Various media and techniques on an advanced level. The human figure as an expressive vehicle in various contexts. May be repeated for credit. 6 hours a week. Fee. See ART Note 2.

M ART 415 Art Anatomy. (4)
selected semesters
Study of human anatomical structures as applied to the practice of figure-oriented art. 3 hours lecture, 5 hours studio a week. Fee. See ART Note 2.

M ART 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Drawing. (3)

Fibers

M ART 276 Fibers I. (3)
fall and spring
Explores traditional and contemporary materials and basic techniques related to fibers. Embroidery, feltmaking, dyeing, block printing, plaiting, 3-D structures. Fee. See ART Note 1. Prerequisites: both ART 112 and 115 or only instructor approval.

M ART 294 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Fibers for Nonmajors

Fee.

M ART 376 Woven Structures I. (3)
once a year
Explores weaver- and loom-controlled structures with an emphasis on formal issues, historic precedence, and contemporary investigations. Fee. See ART Note 2.

M ART 377 Surface Design. (3)
fall and spring
Applies dyes and pigments on cloth exploring techniques, formal issues, and content. Cyanotype, monoprinting, painting on silk, resists, stenciling. Fee. See ART Note 2.

M ART 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Fibers Design for Nonmajors
  Fee.

M ART 476 Woven Structures II. (3)
fall and spring
Emphasizes personal expressions and continues technical exploration in woven structures. May be repeated for credit. 6 hours a week. Fee. Prerequisite: ART 376 or instructor approval.

M ART 477 Printed Textiles. (3)
once a year
Techniques for screen printing on fabric exploring pattern as a compositional element. Various stencil methods, including photographic processes. May be repeated for credit. Studio. Fee. Prerequisite: ART 377 or instructor approval.

M ART 478 Advanced Surface Design. (3)
spring in odd years
Emphasizes personal expression with advanced problems in stitch resist, arashi shibori, transfers, indigo, vat and disperse dyes, and pigments. Studio. Fee. Prerequisites: both ART 377 and 477 or only instructor approval.

M ART 479 3-D Fibers. (3)
fall and spring
Explores traditional and nontraditional 3-D fiber techniques and media. Discussion, research, and critiques augment technical demonstrations. May be repeated for credit. Studio. Fee. See ART Note 2.

M ART 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- 3-D Fibers
  Fee.
- Fibers and Surface
  Fee.
- Print Textiles
  Fee.
- Senior Exhibition and Portfolio

Intermedia

M ART 294 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Digital Media
- Intermedia
- Introduction to Intermedia

M ART 345 Visualization and Prototyping I. (3)
spring in even years
Studio/seminar introduces concepts of computer visualization, modeling, and rapid prototyping in an interdisciplinary manner. Lecture, studio. See ART Note 2.

M ART 346 3-D Computer Imaging and Animation. (3)
fall and spring
3-D modeling and animation. Emphasizes concepts and fine arts applications. Studio. Fee. See ART Note 2.
General Studies: CS

M ART 348 Animation Motion Studies. (3)
fall and spring
Computer animation motion studies, modeling, and editing for fine arts. Studio. Fee. Prerequisites: ART 346; junior standing; instructor approval.

M ART 439 Mixed Media. (3)
fall and spring
Exploring visual effects by combining traditional and nontraditional methods, techniques, and concepts. May be repeated for credit. Studio. 6 hours a week. See ART Note 2.

M ART 440 New Media Concepts. (3)
fall and spring
Continued experiments with new media and interdisciplinary concerns in art. May be repeated for credit. 6 hours a week. Fee. See ART Note 2. Corequisite: ART 441.

M ART 441 Video Art. (1)
fall and spring
Utilizing video and audio equipment essential to the production of broadcast quality video art. May be repeated for credit. 2 hours a week. Corequisite: ART 440.

M ART 442 Folk/Outsider Art. (3)
fall
Explores ideas, attitudes, and art of contemporary "self-taught," "visionary," and "outsider" artists. Research and studio practice. Lecture, studio. Prerequisites: both ART 113 and 115 or only instructor approval.

M ART 443 Intermedia. (3)
fall and spring
Experimental, conceptual, and interdisciplinary studio art with emphasis on new media and technologies. May be repeated once for credit. 6 hours a week. See ART Note 2.

M ART 449 Computer Animation and Video. (3)
fall and spring
Integrates 3-D fine arts animation with video and compositing. May be repeated for credit. Studio. Fee. Prerequisite: ART 348 or instructor approval.

M ART 450 Computer Animation and Audio. (3)
fall and spring
Integrates audio with 3-D animation for fine arts applications. Includes compositing and effects. May be repeated for credit. Studio. Fee. Prerequisites: ART 449; instructor approval.

M ART 470 Computer Animation Portfolio. (3)
fall and spring
Production of videotape and CD 3-D animation portfolios for fine arts and industry integrating animation, video, and audio. May be repeated for credit. Studio. Fee. Prerequisites: ART 449; instructor approval.
General Studies: CS

M ART 484 Internship. (1–12)
selected semesters

M ART 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Digital. (3)
- Digital Individualized Study
  Fee.
- Digital Processes for Printmaking
  Fee.
- Intermedia. (3)
- Intermedia Elective. (3)
- Mixed Media. (3)
- Nonelectronic Intermedia. (3)
- Senior Exhibition and Portfolio
  Fee.
- Visualization and Prototyping II. (3)
- Web Art
  Fee.

Metals

M ART 272 Jewelry I. (3)
fall and spring
Emphasizes fabrication in jewelry making. Basic techniques of cutting and piercing, forging and soldering, and forming. Not open to seniors.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

6 hours a week. Lab. Fee. See ART Note 1. Prerequisites: both ART 112 and 115 or only instructor approval.

M ART 372 Jewelry II. (3)
fall and spring
Fabricated approach to jewelry making. Techniques in stone setting and surface embellishment. 6 hours a week. Fee. See ART Note 2.

M ART 373 Metalworking. (3)
once a year
Compression, die, and stretch forming as applied to hollow form construction. Hot and cold forging techniques as applied to smithing. 6 hours a week. Fee. Prerequisites: a combination of ARS 101 and 102 and ART 113 and 115 and 272 or only instructor approval.

M ART 472 Advanced Jewelry. (3)
fall and spring
Jewelry making with emphasis on developing personal statements and craftsmanship. May be repeated for credit. 6 hours a week. Fee. Prerequisites: ART 372; instructor approval.

M ART 473 Advanced Metalworking. (3)
once a year
Forging and forming techniques in individualized directions. May be repeated for credit. 6 hours a week. Fee. Prerequisites: ART 373; instructor approval.

M ART 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Metals. (3)
- Senior Exhibition and Portfolio

Painting

M ART 223 Painting I. (3)
fall, spring, summer
Fundamental concepts and materials of traditional and experimental painting media. Emphasizes preparation of painting supports, composition, and color. Lab. 6 hours a week. See ART Note 1. Prerequisites: both ART 111 and 113 or only instructor approval.

M ART 227 Watercolor I. (3)
fall and spring
Fundamental concepts, materials, and techniques of watercolor. Emphasizes problem solving, basic skills, composition, and color. 6 hours a week. Fee. See ART Note 1. Prerequisites: both ART 111 and 113 or only instructor approval.

M ART 323 Painting II. (3)
fall and spring
Development of competency in skills and expression. Assigned problems involve light, space, color, form, and content. 6 hours a week. See ART Note 2.

M ART 327 Watercolor II. (3)
once a year
Explorations of personal expression in watercolor. Continued development of watercolor skills using traditional and experimental materials and techniques. 6 hours a week. Fee. See ART Note 2.

M ART 423 Painting III. (3)
fall and spring
May be repeated for credit. 6 hours a week. See ART Note 2.

M ART 425 Figure Painting. (3)
fall and spring
The human figure clothed and nude as the subject for painting in selected media. May be repeated for credit. 6 hours a week. Fee. Prerequisites: both ART 314 and 323 or only instructor approval.

M ART 427 Advanced Watermedia. (3)
fall and spring
Continuation of ART 327. Advanced techniques, concepts, and methods with watercolor and other water-based media on paper. May be repeated for credit. 6 hours a week. Fee. Prerequisite: ART 327 or instructor approval.

M ART 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Painting. (3)
- Senior Exhibition and Portfolio

Photography

M ART 101 Photography I. (3)
fall and spring
Development of skills and techniques of black and white photography. Emphasizes camera work and darkroom procedures. Must be taken with ART 102. Corequisite: ART 102.

M ART 102 Photography I Lab. (0)
fall and spring
Must be taken with ART 101. Fee. Corequisite: ART 101.

M ART 204 Photography II. (3)
fall and spring
Photography as an art medium with additional exploration into personal photographic aesthetics. 6 hours a week. Fee. See ART Note 1. Prerequisite: ART 101.

M ART 294 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Digital Art. (3)

M ART 304 Advanced Photography. (3)
fall and spring
Interpretation and manipulation of light as a tool in the performance of expressive photography. 6 hours a week. Fee. See ART Note 2.

M ART 305 Color Photography I. (3)
fall and spring
Applies color transparencies and prints to photographic art. May be repeated for credit. Fee. See ART Note 2.

M ART 308 Digital Photographic Images I. (3)
fall and spring
Scanning, manipulation, refinement, and compositing of photographic images on the computer. Lab, studio. Fee. See ART Note 2.

M ART 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Digital Art. (3)

M ART 401 Nonsilver Photography. (3)
fall and spring
Recognition of the inherent characteristics of nonsilver processes and their use in communicating ideas. May be repeated for credit. 6 hours a week. Fee. Prerequisite: ART 304 or instructor approval.

M ART 403 Senior Photographic Projects. (3)
fall and spring
Technical and philosophical refinement of personal aesthetic with various photographic media. May be repeated for credit. 6 hours a week. Fee. See ART Note 2.

M ART 404 Portraiture Photography. (3)
fall and spring
Photographing people. Critical discussions and slide lectures on issues in portraiture. May be repeated for credit. 6 hours a week. Fee. See ART Note 2.

M ART 406 Photo Techniques. (3)
fall and spring
Camera and darkroom techniques with emphasis on creative control of the black and white print. 6 hours a week. Prerequisite: ART 204 or instructor approval.

M ART 407 View Camera. (3)
fall and spring
View camera and darkroom techniques. Studio, lab. Fee. See ART Note 2.

M ART 408 Digital Photographic Images II. (3)
fall and spring
Develops personal aesthetic in digital photography. May be repeated for credit. 6 hours a week. Studio. Prerequisite: ART 308 or instructor approval.

M ART 409 Photographic Exhibition. (3)
once a year
Care of photographic prints, print presentation, and exhibition. Practical experience in gallery operations. May be repeated for credit. 6 hours a week. Prerequisite: ART 304 or instructor approval.

M ART 410 Landscape Photography. (3)
fall and spring
Photographing landscapes. Critical discussion and presentations on issues in landscape photography May be repeated for credit. Studio. 6

hours a week. Prerequisites: a combination of ART 304 and 305 and 308 or only instructor approval.

M ART 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Collotype
  Fee.
- Digital Photographic Images II. (3)
  Fee.
- Digital Printing
  Fee.
- Documentary Photography
  Fee.
- Issues in Digital Photography
  Fee.
- Landscape Photography
  Fee.
- 19th-Century Photo Processes. (3)
- Photo. (3)
- Photographic Fabrications
  Fee.
- Photogravure
  Fee.
- Senior Exhibition and Portfolio

M ART 498 Pro-Seminar. (1–7)
selected semesters
Topics may include the following:
- Landscape Photography: Theory
  Fee.

Printmaking

M ART 253 Introduction to Printmaking. (3)
once a year
Introduction to basic monotype, intaglio, relief, and related techniques. Studio. Fee. See ART Note 1. Prerequisite: ART 113.

M ART 351 Intaglio I. (3)
fall and spring
Introduces contemporary and traditional developmental techniques for black and white prints. 6 hours a week. Fee. See ART Note 2.

M ART 352 Lithography I. (3)
fall and spring
Monochromatic and color planographic printmaking utilizing stone and aluminum plate processes. 6 hours a week. Fee. See ART Note 2.

M ART 354 Screen Printing I. (3)
fall and spring
Introduces paper, direct, and photographic stencil techniques. 6 hours a week. Fee. See ART Note 2.

M ART 355 Photo Process for Printmaking I. (3)
fall
Introduces photographic principles and skills for photomechanical printmaking processes, including photosilkscreen, photolitho, and photoetching. 6 hours a week. Fee. See ART Note 2.

M ART 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Relief Printmaking
  Fee.

M ART 451 Advanced Intaglio. (3)
fall and spring
Various contemporary and traditional methods of printing to achieve color prints. May be repeated for credit. 6 hours a week. Fee. Prerequisite: ART 351 or instructor approval.

M ART 452 Advanced Lithography. (3)
fall and spring
Continuation of ART 352. May be repeated for credit. 6 hours a week. Fee. Prerequisite: ART 352 or instructor approval.

M ART 453 Experimental Printmaking. (3)
fall and spring
Alternative techniques and methods to traditional approaches to printmaking. May be repeated for credit. Studio. Prerequisites: ART 351, 352, 354, 394 ST: Relief Printmaking, 456 (or 459).

M ART 454 Advanced Screen Printing. (3)
once a year
Continuation of ART 354. May be repeated for credit. 6 hours a week. Fee. Prerequisite: ART 354 or instructor approval.

M ART 455 Advanced Photo Processes for Printmaking. (3)
once a year
Continued study of photomechanical techniques and applications to printmaking or photographic processes. Fee. Prerequisite: ART 355 or instructor approval.

M ART 456 Fine Printing and Bookmaking I. (3)
once a year
Letterpress printing and typography as fine art. Study of history, alphabets, mechanics of hand typesetting, presswork, and various forms of printed matter. Fee. See ART Note 2.

M ART 457 Fine Printing and Bookmaking II. (3)
once a year
Continuation of ART 456. Bookbinding, book design and printing, advanced typography, theory, and presswork. May be repeated for credit. Fee. Prerequisites: ART 456; instructor approval.

M ART 458 Papermaking. (3)
fall and spring
History, theory, demonstrations, sheet forming, collage treatments, and 3-D approaches. May be repeated for credit. 6 hours a week. Fee. See ART Note 2.

M ART 459 Monoprinting. (3)
fall and spring
Nonmultiple printed image using a variety of technical approaches. May be repeated for credit. 6 hours a week. Fee. See ART Note 2.

M ART 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Artists' Books
  Fee.
- Experimental Paper
  Fee.
- Experimental Printmaking
  Fee.
- Relief Printmaking
  Fee.
- Senior Exhibition and Portfolio

Sculpture

M ART 231 Sculpture I. (3)
fall, spring, summer
Explores sculptural forms through concepts related to basic materials. Focuses on studio production, safety, aesthetic criticism, and history of sculpture. 6 hours a week. Fee. See ART Note 1. Prerequisites: both ART 111 and 115 or only instructor approval.

M ART 274 Wood I. (3)
fall and spring
Fundamental woodworking techniques to produce creative functional 3-D objects. 6 hours a week. Fee. See ART Note 1.

M ART 331 Sculpture II. (3)
fall and spring
Continuation of ART 231 with an emphasis on metal fabrication as an expressive sculptural process. Techniques in welding, cutting and bending of metals and their aesthetics. 6 hours a week. Fee. See ART Note 2.

M ART 332 Sculpture III. (3)
fall and spring
Explores diverse media with a focus on mold-making processes. Development of the sculpture portfolio. 6 hours a week. Fee. Prerequisites: a combination of ARS 101 and 102 and ART 331 or only instructor approval.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M ART 333 Foundry Casting Methods. (3)
fall and spring
Fine art and techniques of metal casting: mold making, foundry safety, finishing techniques, application of patinas, and history of casting. May be repeated for credit. 6 hours a week. Fee. Prerequisites: a combination of ARS 101 and 102 and ART 332 or only instructor approval.

M ART 374 Wood II. (3)
fall and spring
Individual and directed problems in wood related to the production of unique functional art objects. 6 hours a week. Fee. See ART Note 2.

M ART 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Carving
  Fee.

M ART 431 Special Problems in Sculpture. (3)
fall and spring
Development of a personal approach to sculpture. Emphasizes form, individual problems, and related color technology. Professional practices and presentation. May be repeated for credit. 6 hours a week. Fee. Prerequisites: ART 332; instructor approval.

M ART 432 Neon Sculpture. (3)
fall
Techniques for creating neon in an art context. Glass tube bending and fabrication. Construction of artworks utilizing light-generating gasses. May be repeated for credit. 6 hours a week. Fee. See ART Note 2.

M ART 435 Foundry Research Methods. (3)
fall and spring
Research in foundry techniques. Studio. Pre- or corequisite: ART 333 or instructor approval.

M ART 436 Architectural Sculpture. (3)
selected semesters
Sculptural concepts as related to architecture and other man-made environments. Scale drawing, models, and relief sculpture. May be repeated for credit. 6 hours a week. Fee. Prerequisite: ART 332 or instructor approval.

M ART 437 Film Animation. (3)
fall
Production of short 16mm films that feature articulated sculptural objects, models, dolls, puppets, and graphics through the use of single-frame filming techniques. May be repeated for credit. 6 hours a week. Fee. Prerequisite: instructor approval.

M ART 438 Experimental Systems in Sculpture. (3)
spring
Simple electrical and mechanical systems that can be utilized in the context of studio art and installations. Requires active production of studio artworks. May be repeated for credit. 6 hours a week. Fee. See ART Note 2.

M ART 474 Advanced Wood. (3)
fall and spring
Extended experience and advanced techniques in the use of wood to create functional works of art. May be repeated for credit. 6 hours a week. Fee. Prerequisites: ART 374; instructor approval.

M ART 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Advanced Sculpture
- Carving
  Fee.
- Film: Post-Production
  Fee.
- Foundry Casting Methods
  Fee.
- Foundry Research Methods
  Fee.
- Live Action Filmmaking
  Fee.
- Senior Exhibition and Portfolio
- Special Topics in Sculpture

Special Studio Art

M ART 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Guided Study

M ART 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Dance

herbergercollege.asu.edu/dance
480/965-5029
PEBE 107A

Professors: Kaplan, Murphey

Associate Professors: Jackson, Ma, Mooney

Clinical Associate Professor: Vissicaro

Assistant Professors: Dyer, Fitzgerald, Parrish, Tsukayama

Associate Research Professional: Mitchell

Senior Lecturer: Schupp

Lecturer: Valentin-Martinez

The Department of Dance is committed to providing a stimulating and diverse environment where students develop as scholars, educators, and artists through participation in innovative programs, residencies, performances, and partnerships. All students registering in a degree program enroll through the Katherine K. Herberger College of Fine Arts. Admission policies and procedures and the specific requirements of each Bachelor of Fine Arts degree concentration are available from the Department of Dance Advisement Office.

Audition/Admission. Students applying to the university as freshmen or transfer students who are interested in becoming dance majors are granted preprofessional status. Individuals intending to enroll in the undergraduate dance degree program and participate in dance major classes are required to pass an entrance audition before being admitted to the department's dance major classes. These auditions take place in the fall and spring of each academic year. Auditions, conducted by the Dance faculty, determine technical proficiency, placement, and scholarship awards. Criteria for placement in dance technique classes are published in the department's student handbook. The handbook is available through the Dance Advisement Office and on the department's Web site. Students who do not successfully

complete the audition are allowed to remain in preprofessional status for two semesters. At the end of that term they are allowed to re-audition.

By the second semester of their sophomore year all dance preprofessional students who have passed the audition must petition for admission into one of the four concentrations: choreography, dance education, dance studies, or performance. Depending upon the concentration selected, the petition process may include a technique audition, and the submission of video tapes of choreographed works, an artistic portfolio, a writing sample, and a written statement of intent and/or research interests. All students are interviewed and must have a 3.00 GPA before being accepted into an area of concentration.

Specific criteria and policies related to petition procedures for each of the concentrations are available through the Herberger College of Fine Arts (HCFA) Advisement Office and on the Web site. Admission is highly selective. Students who fail to meet the criteria for the concentrations are not dismissed from the Bachelor of Fine Arts program and may re-petition once during the following semester. If a student still fails to meet the criteria of one of the four concentrations, he or she will not be dismissed from the university altogether; the student may transfer to another program. Students should work closely with the department advisor during the decision-making process.

Scholarship Auditions. Highly competitive scholarship auditions are conducted for incoming and transfer students during the Spring Admission Audition. For more information, contact the HCFA Advisement Office.

Transfer Students, Dance Minors, and Bachelor of Interdisciplinary Studies Students. Transfer, minor, and BIS students must successfully complete the admittance audition before enrolling in Dance major courses. Additionally, transfer students who have completed music theory for dance, dance production, or choreography courses at other institutions must also take placement examinations in these areas. These examinations are offered during the August and January orientation periods.

DANCE—BFA

The faculty in the Department of Dance offer a Bachelor of Fine Arts (BFA) degree at the undergraduate level with four areas of concentration: choreography, dance education, dance studies, and performance. All new students are admitted into the preprofessional program and petition for admission into one of the concentrations during the sophomore year of study. Transfers, who have successfully completed the admission audition, may petition into one of the four concentrations after one semester in residence. Further details may be obtained from the HCFA Advisement Office.

Graduation Requirements. In addition to fulfilling the major requirements, students must meet all university graduation requirements and college degree requirements. At least 45 semester hours must be upper-division courses. See "University Graduation Requirements," page 89, and "College Degree Requirements," page 439.

Preprofessional Dance Major Program. First-semester preprofessional students who passed the audition should take the following courses:

DAN	134	Technique and Theory of Modern Dance	3
DAN	135	Technique and Theory of Ballet	2
ENG	101	First-Year Composition	3
Dance elective			2
General Studies courses			6
Total			16

Core Curriculum

The Dance major consists of a minimum of 59 semester hours in the dance core. All courses in the major must be completed with a grade of "C" (2.00) or higher. The following areas make up the core curriculum.

Technique. Twenty-six semester hours in ballet and modern technique are required.

Performance. Two upper-division courses are required.

Theory. The following dance theory courses are required:

DAH	201	Dance in World Cultures *HU, G* or DAH 191 First-Year Seminar (3)	3
DAN	221	Rhythmic Theory for Dance I	2
DAN	222	Rhythmic Theory for Dance II	2
DAN	340	Dance Kinesiology	4
Total			11

Choreography and Improvisation. The following courses are required:

DAN	264	Improvisational Structures	3
DAN	265	Approaches to Choreography	3
Total			6

History. Choose two of the following three courses:

DAH	301	Philosophy and Criticism of Dance *L/HU*	3
DAH	302	Cross-Cultural Dance Studies *L/HU, G*	3
DAH	401	Dance History *HU*	3

Production. For the concentration in dance studies, choose one of the following two courses:

DAN	210	Dance Production I*	3
DAN	211	Dance Production II*	3

* Both courses are required for performance, choreography, and dance education concentrations. Dance studies students should select one of the two courses.

Dance Concentration Curriculum. Each concentration in the dance curriculum—choreography, dance education, dance studies, and performance—is composed of specific criteria as defined by the concentration. Refer to the following for details.

Choreography Concentration

Core Curriculum. See "Core Curriculum," on this page.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Concentration Requirements. The following courses are required for the choreography concentration:

DAN	321	Music Literature for Dance 3
DAN	364	Choreography and Accompaniment 3
DAN	365	Advanced Choreography 3
DAN	480	Senior Performance in Dance 4
Total		 13

Dance Education Concentration

Core Curriculum. See "Core Curriculum," page 465.

Concentration Requirements. The following courses are required for the dance education concentration:

DAN	350	Methods of Teaching Children's Dance 3
DAN	352	Dance Education Theory 3
DAN	354	Integrated Approaches in Dance Education 3
DAN	356	Methods of Teaching Contemporary Dance Technique and Composition in Secondary Education 4
DAN	364	Choreography and Accompaniment 3
DAN	496	Senior Dance Education Capstone 4
Total		 20

A student pursuing the dance education concentration may also choose to become certified to teach dance (K–12) in Arizona public schools. In addition to the dance concentration courses, students must complete education courses, two semesters of field experience, and one semester of student teaching. Students should apply to the College of Education in the middle of the sophomore year. To be considered for admission to the Initial Teacher Certification (ITC) program, students must complete an application portfolio specified by the College of Education. Application deadlines for the ITC programs are February 1 for fall admission and September 1 for spring admission. Students should be advised that additional semester hours are required to complete certification requirements. For more information, contact the College of Education Office of Student Services, or phone 480/965-5555.

For specific information related to the ITC application deadlines and eligibility for admission, see "Initial Teacher Certification Professional Program Admission," page 350.

Additional requirements for certification are listed on the check sheet available from the College of Education or Department of Dance.

Dance Studies Concentration

Core Curriculum. See "Core Curriculum," page 465.

Concentration Requirements. The following courses are required for the dance studies concentration:

DAH	495	Theory and Methods of Dance Research 3
DAH	496	Senior Dance Studies Capstone 4
Total		 7

Eighteen additional semester hours in related fields must be approved by the BFA Dance Studies Committee. The content of related fields should support the research project.

Additional requirements are listed on the check sheet available from the Department of Dance.

Performance Concentration

Core Curriculum. See "Core Curriculum," page 465.

Concentration Requirements. The following courses are required for the performance concentration:

DAN	321	Music Literature for Dance 3
DAN	380	Performance Studies Practicum 3
DAN	480	Senior Performance in Dance 4
THP	101	Acting: An Introduction 3
Total		 13

Performance. Choose from the following four courses (six semester hours are required):

DAN	371	Dance Theatre Performance/Production 1–3
DAN	471	Dance Arizona Repertory Theatre 3–4
DAN	472	Concert Dance 2
DAN	494	ST: Guest Artists 3

Additional requirements are listed on the check sheet available from the Department of Dance.

MINOR

The department offers a minor in Dance consisting of 18 semester hours of course work, including 12 upper-division hours. A minimum grade of "B" (3.00) is required in all courses. Additional Dance minor requirements include the following:

Dance Minor Requirements

Choose from the following courses 3		
DAH	101	Introduction to Dance (3)
DAH	191	First-Year Seminar (1-3)
DAH	201	Dance in World Cultures *HU, G* (3)
Choose from the following courses 3		
DAH	301	Philosophy and Criticism of Dance *L/HU* (3)
DAH	302	Cross-Cultural Dance Studies *L/HU*, G (3)
DAH	401	Dance History *HU* (3)
Choose from the following courses[1] 2-3		
DAN	134	Technique and Theory of Modern Dance (3)
DAN	135	Technique and Theory of Ballet (2)
DAN	234	Technique and Theory of Modern Dance (3)
DAN	235	Technique and Theory of Ballet (2)
DAN	334	Technique and Theory of Modern Dance (3)
DAN	335	Technique and Theory of Ballet (2)
DAN	434	Technique and Theory of Modern Dance (3)
DAN	435	Technique and Theory of Ballet (2)
Choose from the following courses[2] 2		
DAN	130	Dance (2)
DAN	194	Special Topics (1-4)
DAN	294	Special Topics (1-4)
DAN	394	Special Topics (1-4)
Dance Electives 7–8		
Total 17–19		

[1] No more than a total of three major level techniques courses may be taken; transfer credit will not fulfill the major-level technique requirement.

[2] There is no limit on the total number of nonmajor technique courses that may be taken.

Questions about the minor may be referred to Herberger Academic Advising.

BIS CONCENTRATION

A concentration in dance is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

All students interested in the dance concentration must successfully complete the Audition/Admission. For more information, see "Audition/Admission," page 464.

GRADUATE PROGRAM

Dance—MFA

The MFA degree in Dance is a 60-semester-hour program designed to provide opportunities for the student to continue to develop in areas of dance technique, choreography, performance, and production; to gain further understanding of the philosophy, history, theory, education, and science and somatics of dance; and to begin to chart the direction of the future through technology, media opportunities, outreach, and community partnerships.

DANCE HISTORY (DAH)

M DAH 101 Introduction to Dance. (3)
fall and spring
Introduces the art and profession of dance. Explores development of modern, ballet, and other movement forms from global perspectives. Lecture, lab.
General Studies: G

M DAH 191 First-Year Seminar. (1–3)
selected semesters

M DAH 201 Dance in World Cultures. (3)
fall, spring, summer
Orientation to theory and methods of studying dance cultures around the world. Fee. Lecture, lab. Pre- or corequisite: both ENG 101 and 102 or only ENG 105.
General Studies: HU, G

M DAH 300 Focus on Dance. (3)
fall, spring, summer
Specialized study of cultural and theatrical aspects of dance, such as social dance forms, specific genres or historical periods. May be repeated for credit. Lecture, studio. Fee.
General Studies: HU

M DAH 301 Philosophy and Criticism of Dance. (3)
fall and spring
Philosophical issues in dance and dance criticism, with emphasis on written analysis and interpretation. Fee. Prerequisite: 1 semester of First-Year Composition.
General Studies: L/HU

M DAH 302 Cross-Cultural Dance Studies. (3)
fall
Examines the field of ethnochoreology, ethnographic methods, and interpretive research practices. Develops critical writing, thinking, and viewing skills for comparative dance study. Lecture, media lab. Prerequisite: DAH 201. Pre- or corequisite: DAH 191 or instructor approval.
General Studies: L/HU, G

M DAH 401 Dance History. (3)
fall and spring
History of dance with a focus on Western forms from the Renaissance to contemporary times. Fee.
General Studies: HU

M DAH 492 Honors Directed Study. (1–6)
fall and spring
May be repeated for credit. Prerequisite: honors advisor approval.

M DAH 495 Theory and Methods of Dance Research. (3)
spring
Examines modes of inquiry, data gathering techniques, data analysis and representation, prospectus design, and presentation style for dance research studies. Seminar. Fee. Prerequisite: instructor approval. Pre- or corequisite: DAH 301 or 302.

M DAH 496 Senior Dance Studies Capstone. (2)
fall and spring
Original research that integrates dance and a related field of interest. Includes production of written document and public presentation. Fall semester must be completed before spring registration. May be repeated for a total of 4 semester hours. Prerequisite: DAH 495.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

DANCE (DAN)

M DAN 130 Dance. (2)
fall, spring, summer
Introduces styles and forms of dance; ballet, modern, jazz, tap, ballroom, ethnic. May be repeated for credit. Topics may include the following:
- Ballet I
  Fee.
- Ballet II
  Fee.
- Beginning Modern I
  Fee.
- Jazz I
  Fee.
- Tap I
  Fee.
- Tap II
  Fee.

M DAN 134 Technique and Theory of Modern Dance. (3)
fall and spring
Elementary concepts of modern dance technique. Development of movement quality and performance skills. 6 hours weekly. May be repeated for credit. Fee. Prerequisites: Dance major; placement audition.

M DAN 135 Technique and Theory of Ballet. (2)
fall and spring
Elementary ballet technique with emphasis on alignment, control, and development of the feet with proper awareness of style and phrasing. 4 hours weekly. May be repeated for credit. Fee. Prerequisite: placement audition.

M DAN 194 Special Topics. (1–4)
selected semesters
Topics may include the following:
- African Dance
  Fee.
- Argentine Tango I
- Ballet I
- Beginning Ballet
  Fee.
- Big Band Swing I
- Competitive International Ballroom I
- Contemporary Dance
- Country Western I
- Hip Hop I
- Improvisation

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

- Irish Dance I
- Irish Step I
- Irish Step II
- Latin Salsa I
  Fee.
- Latin/Swing/Ballroom I
- Strictly Ballroom
- Swing/Lindy I
  Fee.
- West African Dance I

M DAN 210 Dance Production I. (3)
fall
Theory and practice of lighting, scenery, sound, and stage management for dance production. Labs cover all areas of production. Lecture, lab. Fee.

M DAN 211 Dance Production II. (3)
spring
Theory and practice of arts management and costume design for dance production. Labs cover all areas of production. Lecture, lab. Fee.

M DAN 221 Rhythmic Theory for Dance I. (2)
fall
Elements of music, music structures, and their relationship to dance. Emphasis on rhythmic analysis and dance accompaniment. Fee.

M DAN 222 Rhythmic Theory for Dance II. (2)
spring
Continuation of DAN 221 with an emphasis on small group/movement projects in relation to musical time and structure. CD-ROM work included. Fee. Prerequisite: DAN 221 or proficiency exam.

M DAN 230 Dance. (2)
fall, spring, summer
Intermediate levels. Continuation of DAN 130. May be repeated for credit.

M DAN 234 Technique and Theory of Modern Dance. (3)
fall and spring
Intermediate concepts of modern dance technique. Development of movement quality and performance skills. 6 hours weekly. May be repeated for credit. Fee. Prerequisite: placement audition.

M DAN 235 Technique and Theory of Ballet. (2)
fall and spring
Advanced study of elementary ballet technique through the traditional exercises, with proper awareness of style and phrasing. 4 hours weekly. May be repeated for credit. Fee. Prerequisite: placement audition.

M DAN 237 Beginning Pointe. (1)
fall and spring
Study of elementary pointe technique through the traditional exercises. 2 hours weekly. May be repeated for credit. Prerequisites: basic ballet training; instructor approval.

M DAN 264 Improvisational Structures. (3)
fall
Introduces basic improvisational and choreographic principles with emphasis on current media and technology, group structures, and movement invention. Lecture, studio.

M DAN 265 Approaches to Choreography. (3)
fall
Intermediate application of basic choreographic principles with emphasis on improvisation, form, content, and evaluative skills. Lecture, studio. Prerequisite: DAN 264 or instructor approval.

M DAN 294 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Argentine Tango II
- Ballet II
- Beginning Ballet
  Fee.
- Competitive International Ballroom II
- Country Western II
- Intermediate Ballet
  Fee.
- Irish Dance II
- Irish Step I
- Irish Step II
- Latin Salsa II
- Latin/Swing/Ballroom II
- Latin Team II
- Swing/Lindy II
- West African Dance II

M DAN 311 Dance for the Classroom Teacher. (3)
fall and spring
Develops teaching methodology for implementation of dance curriculum in K–12 classrooms. Lecture, lab, studio. Prerequisite: non-Dance major.

M DAN 321 Music Literature for Dance. (3)
fall and spring
Historical survey of music and compositional elements relative to dance. Emphasis on analysis of choreography from a musical standpoint. Lecture, lab, CD-ROM lab. Fee. Prerequisites: both DAN 221 and 222 or only instructor approval. Pre- or corequisite: MUS 340.

M DAN 323 Dance, Computers, and Multimedia. (3)
fall and spring
Introduces desktop multimedia as it relates to dance creation, education, production, and research. Lecture, lab. Fee. Prerequisite: ART 112 or instructor approval. Pre- or corequisites: DAN 264, 265.
General Studies: CS

M DAN 330 Dance. (2)
fall, spring, summer
Advanced levels. Continuation of DAN 230. May be repeated for credit.

M DAN 334 Technique and Theory of Modern Dance. (3)
fall and spring
Advanced concepts of modern dance technique. Development of movement quality and performance skills. 6 hours weekly. May be repeated for credit. Fee. Prerequisite: placement audition.

M DAN 335 Technique and Theory of Ballet. (2)
fall and spring
Intermediate ballet technique with emphasis on strength, dynamics, rhythmical impulses, and transitions with awareness of proper style and phrasing. 4 hours weekly. May be repeated for credit. Fee. Prerequisite: placement audition.

M DAN 337 Intermediate Pointe. (1)
fall and spring
Study of intermediate and advanced pointe technique through the traditional exercises. 2 hours weekly. May be repeated for credit. Fee. Prerequisite: DAN 237 or instructor approval.

M DAN 340 Dance Kinesiology. (4)
fall and spring
Principles of kinesiology applied to dance movement, including identification of muscular imbalances, inherited anatomical differences, and pathomechanics in dance technique. Prerequisites: both BIO 201 and admission to a Dance BFA concentration or only instructor approval.

M DAN 342 Ideokinesis. (2)
selected semesters
Study of posture using the visualization of image/goals to facilitate improved alignment and movement efficiency. May be repeated for credit. Lecture, studio.

M DAN 350 Methods of Teaching Children's Dance. (3)
fall
Theory and practice of teaching creative dance to children. Lecture, studio, field experience. Fee. Prerequisite: Dance major or instructor approval.

M DAN 351 Methods of Teaching Ballet. (3)
spring
Analysis and acquisition of teaching techniques and materials for ballet. Lecture, studio. Pre- or corequisite: DAN 352.

M DAN 352 Dance Education Theory. (3)
fall
Motivation; learning; assessment; historical, cultural, and social constructs; outreach; service; advocacy; curriculum development in dance education. Lecture, field experience. Fee. Prerequisite: Dance major or instructor approval.

M DAN 354 Integrated Approaches in Dance Education. (3)
spring
New methods of dance education pedagogy. Students gain essential skills to employ and integrate instructional technology within their dance curricula. Lecture, lab, field experience, media lab. Prerequisite: both DAN 350 and 352 or only instructor approval.

M DAN 356 Methods of Teaching Contemporary Dance Technique and Composition in Secondary Education. (4)
fall
Analysis and acquisition of skills and materials for teaching contemporary dance technique and composition in secondary education. Lecture, studio, field experience. Fee. Pre- or corequisites: both DAN 350 and 352 or only instructor approval.

M DAN 364 Choreography and Accompaniment. (3)
fall
Experience in the use of traditional and nontraditional musical structures as a basis for choreographic projects. Lecture, studio. Prerequisite: DAN 321 or instructor approval.

M DAN 365 Advanced Choreography. (3)
spring
Investigation and practice of contemporary styles of choreography. Studio. Prerequisites: DAN 264 and 265 (or their equivalents).

M DAN 371 Dance Theatre Performance/Production. (1–3)
fall and spring
Performance or technical theatre work in designated dance productions. 3 hours a week per semester hour. May be repeated for credit. Prerequisite: instructor approval.

M DAN 380 Performance Studies Practicum. (3)
spring
Focus on developing rehearsal skills and achieving performance excellence through the preparation of three completed works. Studio, lab.

M DAN 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Advanced Hip Hop
- Ballet Methodology
- Capoeira
- Competition/Exhibition
- Competition/Exhibition II
- Competitive Ballroom/Latin
- Competitive International Ballroom
- Competitive International Ballroom III
- Integrated Approaches in Dance Education
  Fee.
- Intermediate Ballet
  Fee.
- Intermediate Hip Hop
- Intermediate Modern Dance
- International Ballroom
- Latin Formation Teams
- Latin Salsa III
- Latin Salsa IV
- Latin/Swing/Ballroom III
- Pilates Mat
- Pilates/Yoga
- Swing/Latin/Ballroom III

M DAN 434 Technique and Theory of Modern Dance. (3)
fall and spring
Preparation in the performance and comprehension of professional-level modern dance technique. 6 hours weekly. May be repeated for credit. Fee. Prerequisite: placement audition.

M DAN 435 Technique and Theory of Ballet. (2)
fall and spring
Study of professional advanced ballet technique with emphasis on preparation for performance. 4 hours weekly. May be repeated for credit.Fee. Prerequisite: placement audition.

M DAN 443 Bodywork for Dancers. (2)
spring
Introduces various massage therapy modalities for dancers, including Shiatsu, Swedish massage, sports massage and proprioceptive neuromuscular facilitation techniques.

M DAN 445 Laban Movement Analysis. (3)
spring
Theory and practice of Laban movement analysis and Bartenieff fundamentals through movement investigation, observation, notation, and analysis. Lecture, studio. Prerequisite: admission to a BFA in Dance concentration.

M DAN 471 Dance Arizona Repertory Theatre. (1–4)
fall and spring
Preprofessional modern dance company, emphasizing outreach and performance. Opportunity to work with guest artists and community schools and organizations. May be repeated for credit. Lecture, studio. Fee. Prerequisite: instructor approval.

M DAN 472 Concert Dance. (2)
fall and spring
Extensive preparation of repertory or new works created by experienced choreographers. Simulates dance company experience, culminating in performance. Studio. Fee. Prerequisites: audition; instructor approval.

M DAN 480 Senior Performance in Dance. (2)
fall
Original choreography for group performance with analysis and critique of problems encountered in production. Dance majors realizing a performance capstone project must repeat this course for a total of 4 semester hours. Prerequisites: DAN 364, 365.

M DAN 484 Dance Internship. (1–3)
fall and spring

M DAN 494 Special Topics. (1–4)
once a year
Topics may include the following:
- Collaborative Multimedia
  Fee.
- Concert Dance. (2)
- Dance Education and Technology
  Fee.
- Guest Artists
- Integrative Teaching Methods
  Fee.
- Senior Dance Education Project
- Sound Design
  Fee.

M DAN 496 Senior Dance Education Capstone. (2)
fall and spring
Original dance education research that includes written document and public presentation. May be repeated for a total of 4 semester hours. Lecture, lab. Prerequisites: a combination of DAN 350 and 352 and 352 and 356 or only instructor approval.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

School of Music

herbergercollege.asu.edu/music
480/965-3371
MUSIC E185

Kimberly Marshall, Associate Director, Graduate Studies

Karen M. Bryan, Associate Director, Undergraduate Studies

Regents' Professors: Hickman, Pagano

Professors: Bailey, Britton, Cosand, Crowe, DeMars, Doan, Dreyfoos, Hackbarth, Hamilton, Hill, Humphreys, Koonce, Marshall, Oldani, Pilafian, Reber, Rikakis, Rogers, Russell, Schildkret, Sellheim, Smith, Solís, Spring, Stauffer, Sunkett, Thompson, Williamson, Wytko

Associate Professors: E. Buck, N. Buck, Bush, Carpenter, Haefer, Holbrook, Kocour, Kopta, Lyman, May, McLin, Norton, Rio, Rockmaker, Rotaru, Schuring, Wilson

Assistant Professors: Barefield, Bryan, Campbell, Cuciurean, Ericson, Feisst, FitzPatrick, Gentry, Jiang, Landschoot, Meir, Mills, Montilla, Province, Rampe, Schmidt, Sullivan, Swartz

Senior Lecturers: Crotty, Larson, Mook, Shellans

Lecturer: Tongret

The School of Music in the Katherine K. Herberger College of Fine Arts at ASU is an accredited institutional member of the National Association of Schools of Music. The requirements for entrance and graduation set forth in this catalog are in accordance with the published regulations of the association.

The School of Music strives to create an environment that enriches and enlivens the role of music in our society by providing the highest level of instruction and research for music professionals in the fields of performance, conducting, pedagogy, music education, music therapy, music history, music theory, and composition.

The following statement of basic musicianship is endorsed by the School of Music:

> All musicians, whether performers, composers, scholars, or teachers, share common professional needs. Every musician must to some extent be a performer, a listener, a historian, a composer, a theorist, and a teacher. For this reason, certain subject matter areas and learning processes are common to all baccalaureate degrees in music.
>
> Basic musicianship is developed in studies that prepare the student to function in a variety of musical roles that are supportive of his/her major concentration. All undergraduate curricula, therefore, provide the following:
>
> 1. A conceptual understanding of such musical properties as *sound, rhythm, melody, harmony, texture,* and *form* and opportunities for developing a comprehensive grasp of their interrelationships as they form the cognitive-affective basis for listening, composing and performing.
> 2. Repeated opportunities for enacting in a variety of ways the roles of listener (analysis), performer (interpretation), composer (creation), scholar (research), and teacher.
> 3. A repertory for study that embraces all cultures and historical periods.

All students registering in a School of Music major program enroll through the Katherine K. Herberger College of Fine Arts.

Audition/Admission Requirements. *All students who wish to enroll in an undergraduate music degree program are required to pass an entrance audition in their primary performing medium (instrument or voice) before being admitted to the School of Music*. Audition forms and specific audition requirements for each instrument or voice may be obtained upon request by contacting the School of Music, or by accessing the Web site at music.asu.edu. Official dates for these auditions are set for each academic year.

Until the audition process is finished, all students interested in majoring in Music at ASU enter the university in the preprofessional program. Upon successful completion of the audition, the student is admitted to his or her specified degree option.

Students may audition up to three times for admission. Students may enroll in music ensembles, concert attendance, and general studies until the audition is successfully completed. Students are encouraged to obtain additional instruction on their major instrument with a private instructor. These private instructions are not required and do not generate university course semester hours. The reauditions are heard and evaluated by School of Music faculty.

Admission to the composition concentration is subject to the approval of the composition faculty based upon an evaluation of the student's compositions and/or interview.

Diagnostic Examinations. All freshmen must take a theory diagnostic exam. If the student scores less than 70 percent, they must take an online fundamentals course before enrolling in MTC 125. All transfer students and entering freshmen with a background in piano must take a diagnostic examination in piano during orientation week of their first semester on campus. All students are required to attain a minimum level of piano proficiency.

Continuation in the composition program is subject to review in the sophomore or junior year.

All Music Education majors, including transfer and post-baccalaureate students, must perform an additional audition before being admitted to the teacher education program. Normally, this audition occurs during the sophomore year.

All students majoring in Music Therapy must pass MUE 211 Music in Recreation and a music therapy faculty review and screening interview before being passed into upper-division study.

MUSIC—BA

The Bachelor of Arts degree requires a minimum of 120 semester hours for graduation.

The Music major consists of 70 semester hours and includes the requirements that follow for each area of study.

In addition to fulfilling the major requirements, students must meet all university graduation requirements and college degree requirements. See "University Graduation Requirements," page 89, and "College Degree Requirements," page 439.

Music History. The following music history courses are required:

MHL	194 ST: Music and Culture	3
MHL	341 Music History	3
MHL	342 Music History	3
Upper-division MHL course		3
Total		12

Nine elective upper-division semester hours in music history and/or theory are also required.

Music Theory. The following music theory courses are required:

MTC	125 Basic Music Theory	3
MTC	221 Music Theory: 18th Century	3
MTC	222 Music Theory: 19th Century	3
MTC	223 Music Theory: 20th Century	3
MTC	320 Modal Counterpoint	2
	or MTC 321 Tonal Counterpoint (2)	
MTC	422 Musical Acoustics	3
Total		17

Major Performing Medium. Eight semester hours of MUP 111 Studio Instruction or MUP 311 Studio Instruction are required. At least four of these hours must be at ASU. Four semester hours of ensemble participation are required.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Diagnostic Examination. Four semesters of class piano (MUP 131, 132, 231, 232), unless waived by a diagnostic examination at the time of entrance, are required.

The remaining semester hours in music are selected by the student in consultation with an advisor. Course work may be chosen from ethnomusicology, music education, music history, music theory, and performance. Students must select sufficient elective courses to complete the 120 semester hours required for graduation.

Foreign Language. Sixteen semester hours in one language are required for the Bachelor of Arts degree.

BACHELOR OF MUSIC DEGREE

All Bachelor of Music (BM) degree programs require 120 semester hours for graduation excluding Music Education (125 to 129 semester hours) and Music Therapy (128 semester hours). The BM curriculum offers majors in Music Education, Music Therapy, Performance, and Theory and Composition.

The curricula for the Music Education and Music Therapy majors require more than 120 semester hours. A student wishing to complete these programs in four years is required to take more than 15 semester hours per semester or to attend summer sessions.

The music curriculum for the BM majors on the pages that follow consists of a minimum of 79 semester hours. In addition, the Music Education major provides certification to students interested in teaching in the public schools.

In addition to fulfilling the major requirements, students must meet all university graduation requirements and college degree requirements. See "University Graduation Requirements," page 89, and "College Degree Requirements," page 439.

MUSIC EDUCATION—BM

Students in Music Education must complete the requirements for the Initial Teacher Certification program offered through the College of Education.

Teacher Certification. The Music Education program leads to K–12 certification in music for the State of Arizona.

The undergraduate music education program contains three concentrations. The instrumental concentration is designed for those interested in teaching band in the public schools. The string concentration focuses on those who wish to teach strings and orchestra. The choral/general concentration is geared toward those interested in teaching general music or choir.

Teaching music education requires a K–12 endorsement in Arizona. All students in the Initial Teacher Certification (ITC) program take classes in elementary and secondary methods. The field experience requirement (three semesters) usually involves placements at the elementary, middle, and high school levels. Student teaching includes two experiences: elementary/middle, elementary/high, or middle/high school.

Students submit a special application to the ITC program in the College of Education. Application deadlines for the ITC program are February 1 for fall admission and September 1 for spring admission. Appointments with an advisor can be made in the Office of Student Services, College of Education, by calling 480/965-5555.

Certification is also available through the postbaccalaureate program in the College of Education. Interested students should contact an advisor in the College of Education and in music education for admission requirements to the postbaccalaureate program.

Choral-General Concentration

This degree program may include instrumental music as a minor teaching field.

Music Theory. The following music theory courses are required:

MTC	125 Basic Music Theory	3
MTC	221 Music Theory: 18th Century	3

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

MTC	222	Music Theory: 19th Century 3
MTC	223	Music Theory: 20th Century 3
Total		 12

Music History. The following music history courses are required:

MHL	194	ST: Music and Culture 3
MHL	341	Music History 3
MHL	342	Music History 3
Total		 9

Conducting. The following conducting courses are required:

MUP	209	Beginning Choral Conducting 1
MUP	339	Choral Conducting 2
Total		 3

Music Education. The following music education courses are required:

MUE	110	Introduction to Music Education 1
MUE	313	Elementary Music Methods 3
MUE	315	General Music in the Secondary Schools 2
MUE	480	Choral Methods 3
Total		 9

Major Performing Medium. Eight semester hours of MUP 111 Studio Instruction and eight semester hours of MUP 311 Studio Instruction are required to obtain a proficiency level necessary to meet the graduation recital requirement. MUP 495 Performance completes the requirement.

Minor Performing Medium. A proficiency equal to six semesters of study in keyboard or voice (whichever is not the major performing medium) is required. Students wishing to extend their proficiency beyond this level may continue to study in MUP 321 Studio Instruction.

Ensemble. Eight different semesters of participation, including at least six semesters of MUP 352 Concert Choir and/or MUP 353 University Choir, four of which must be at ASU, are required.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Instrumental Concentration

It is strongly recommended that this degree program include courses in choral music or courses in jazz education.

Music Theory. The following music theory courses are required:

MTC	125	Basic Music Theory 3
MTC	221	Music Theory: 18th Century 3
MTC	222	Music Theory: 19th Century 3
MTC	223	Music Theory: 20th Century 3
Total		 12

Music History. The following music history courses are required:

MHL	194	ST: Music and Culture 3
MHL	341	Music History 3
MHL	342	Music History 3
Total		 9

Conducting. The following conducting courses are required:

MUP	210	Beginning Instrumental Conducting 1
MUP	340	Instrumental Conducting 2
Total		 3

Music Education. The following music education courses are required:

MUE	110	Introduction to Music Education 1
MUE	315	General Music in the Secondary Schools 2
MUE	317	Educational Methods for Violin and Viola 1
MUE	318	Educational Methods for Cello and String Bass 1
MUE	327	Educational Methods for Trumpet and Horn 1
MUE	328	Educational Methods for Trombone, Euphonium, and Tuba 1
MUE	336	Educational Methods for Percussion 1
MUE	337	Educational Methods for Flute, Clarinet, and Saxophone 1
MUE	338	Educational Methods for Double Reed Instruments 1
MUE	481	Instrumental Practicum/Methods 5
MUE	482	Instrumental Practicum/Methods 5
Total		 20

Major Performing Medium. Eight semester hours of MUP 111 Studio Instruction and eight semester hours of MUP 311 Studio Instruction are required to obtain a proficiency level necessary to meet the graduation recital requirement. MUP 495 Performance completes the requirement.

Ensemble. Eight different semesters of participation in an ensemble are required, four of which must be at ASU. Two of the four ASU semesters must be in marching band. Wind and percussion players must have a minimum of six semesters of MUP 361 Marching and Concert Bands or an equivalent large ensemble.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Diagnostic Examination. Two semesters of class piano (MUP 131, 132), unless waived by a diagnostic examination at the time of entrance, are required.

Additional Requirements. One semester of class voice and one semester of a small ensemble are required.

String Concentration

Music Theory. The following music theory courses are required:

MTC	125	Basic Music Theory 3
MTC	221	Music Theory: 18th Century 3
MTC	222	Music Theory: 19th Century 3
MTC	223	Music Theory: 20th Century 3
Total		 12

Music History. The following music history courses are required:

MHL	194	ST: Music and Culture 3
MHL	341	Music History 3
MHL	342	Music History 3
Total		 9

Conducting. The following conducting courses are required:

MUP	210	Beginning Instrumental Conducting 1
MUP	340	Instrumental Conducting 2
Total		 3

Music Education. The following music education courses are required:

MUE	110	Introduction to Music Education 1
MUE	315	General Music in the Secondary Schools 2
MUE	317	Educational Methods for Violin and Viola 1
		or MUE 318 Educational Methods for Cello and String Bass (1)
MUE	327	Educational Methods for Trumpet and Horn 1
		or MUE 328 Educational Methods for Trombone, Euphonium, and Tuba (1)
MUE	335	Educational Methods for Guitar 1
MUE	336	Educational Methods for Percussion 1
MUE	337	Educational Methods for Flute, Clarinet, and Saxophone 1
		or MUE 338 Educational Methods for Double Reed Instruments (1)
MUE	482	Instrumental Practicum/Methods 5
MUE	485	String Practicum/Methods 5
Total		 18

Also required are three semesters of MUP 121 Studio Instruction on string instruments other than the major instrument, to be chosen in consultation with the music education faculty.

Major Performing Medium. Eight semester hours of MUP 111 Studio Instruction and eight semester hours of MUP 311 Studio Instruction are required to obtain a proficiency level necessary to meet the graduation recital requirement. MUP 495 Performance completes the requirement.

Ensemble. Eight different semesters of participation in an ensemble are required, four of which must be at ASU. Six semesters of MUP 345 Symphony Orchestra or an equivalent are required.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Recommended Elective. MUE 313 Elementary Music Methods is recommended.

Diagnostic Examination. Two semesters of class piano (MUP 131, 132), unless waived by a diagnostic examination at the time of entrance, are required.

Additional Requirements. One semester of class voice and one semester of a small ensemble are required.

MUSIC THERAPY—BM

Students are eligible to apply for the Certification Exam offered by the Certification Board for Music Therapists upon completion of the requirements for graduation.

Music Theory. The following music theory courses are required:

MTC	125	Basic Music Theory 3
MTC	221	Music Theory: 18th Century 3
MTC	222	Music Theory: 19th Century 3
MTC	223	Music Theory: 20th Century 3
Total		 12

Music History. The following music history courses are required:

MHL	194	ST: Music and Culture 3
MHL	201	MacLiteracy for Musicians *CS* 3
MHL	341	Music History 3
MHL	342	Music History 3
Total		 12

Conducting. One of the following two courses is required:

MUP	209	Beginning Choral Conducting 1
MUP	210	Beginning Instrumental Conducting 1

Music Education. The following music education courses are required:

MUE	211	Music in Recreation 2
MUE	313	Elementary Music Methods 3
MUE	335	Educational Methods for Guitar 1
MUE	336	Educational Methods for Percussion 1
MUE	389	Repertoire for Music Therapy 3
Total		 10

Music Therapy. The following music therapy courses are required:

MUE	161	Introduction to Music Therapy 2
MUE	261	Music Therapy as a Behavioral Science 2
MUE	361	Music Therapy Theory and Practice in Psychopathology 3
MUE	362	Music Therapy Techniques 3
MUE	381	Music Therapy Research *L* 3
MUE	384	Therapy Preclinical I 1
MUE	385	Therapy Preclinical II 1
MUE	386	Therapy Preclinical III 1
MUE	387	Therapy Preclinical IV 1
MUE	388	Therapy Preclinical V (elective) 1
MUE	441	Psychology of Music 3
MUE	475	Group Process and Music Therapy 1
MUE	476	Internship in Music Therapy 1
Total		 23

Major Performing Medium. A minimum of 12 semester hours are required in the major performing medium, which must include at least four semester hours of MUP 311 Studio Instruction.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Voice. Two semesters of study in voice are required.

Ensembles. Six semesters of ensemble participation are required with at least four semesters in large groups.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Additional Requirements. These courses are also required:

BIO	201	Human Anatomy and Physiology I *SG*	4
CDE	232	Human Development *SB*	3
PGS	101	Introduction to Psychology *SB*	3
PGS	466	Abnormal Psychology *SB*	3
PSY	230	Introduction to Statistics *CS*	3
		or STP 226 Elements of Statistics *CS* (3)	
SOC	101	Introductory Sociology *SB*	3
SPE	311	Orientation to Education of Exceptional Children *SB, C*	3
DAN dance course			3–4
Total			25–26

Diagnostic Examination. Four semesters of class piano (MUP 131, 132, 231, 232), unless waived by a diagnostic examination at the time of entrance, are required. Music therapy competencies (as established by the American Music Therapy Association) are evaluated before and after the music therapy internship, to determine entry-level skill acquisition before graduation.

PERFORMANCE—BM

Collaborative Piano Concentration

Music Theory. The following music theory courses are required:

MTC	125	Basic Music Theory	3
MTC	221	Music Theory: 18th Century	3
MTC	222	Music Theory: 19th Century	3
MTC	223	Music Theory: 20th Century	3
MTC	428	Advanced Form and Analysis	3
Total			15

Music History. The following courses are required:

MHL	194	ST: Music and Culture	3
MHL	341	Music History	3
MHL	342	Music History	3
MHL upper-division course			3
Total			12

Diction and Repertoire. The following courses are required:

MUP	250	Diction for Singers	1
MUP	451	Repertoire	2
MUP	453	Song Literature	2
MUP	454	Song Literature	2
Total			7

Conducting. One of the following two courses is required:

MUP	209	Beginning Choral Conducting	1
MUP	210	Beginning Instrumental Conducting	1

Major Performing Medium. The following courses are required:

MUP	127	Studio Instruction	16
MUP	311	Studio Instruction	8
MUP	337	Studio Instruction: Collaborative Piano	8
Total			32

In addition, each student accompanies two half recitals (MUP 495 Performance), one for a singer and one for an instrumentalist, during his or her junior year. (A half solo recital may be substituted for either of the above.) During the senior year, the student accompanies two full recitals (MUP 496 Performance), one vocal and one instrumental.

Ensemble. Two semesters of MUP 379 Chamber Music Ensembles, one semester of MUP 379 Chamber Music Ensembles: Piano, four semesters of MUP 388 Collaborative Piano, one semester of MUP 487 Collaborative Piano, and two semesters of ensemble electives (minimum of six different semesters) are required.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Guitar Concentration

Music Theory. The following music theory courses are required:

MTC	125	Basic Music Theory	3
MTC	221	Music Theory: 18th Century	3
MTC	222	Music Theory: 19th Century	3
MTC	223	Music Theory: 20th Century	3
MTC	320	Modal Counterpoint	2
		or MTC 321 Tonal Counterpoint (2)	
Total			14

Music History. The following music history courses are required:

MHL	194	ST: Music and Culture	3
MHL	341	Music History	3
MHL	342	Music History	3
MHL upper-division course			3
Total			12

Repertoire and Pedagogy. The following courses are required:

MUP	451	Repertoire	2
MUP	481	Performance Pedagogy and Materials	2
Total			4

Conducting. MUP 210 Beginning Instrumental Conducting is required.

Major Performing Medium. Sixteen semester hours of MUP 127 Studio Instruction and 16 semester hours of MUP 327 Studio Instruction are required to attain a proficiency level necessary to meet the graduation recital requirements. A half recital (MUP 495 Performance) and a full recital (MUP 496 Performance) are also required.

Ensemble. Eight semester hours of ensemble are required within a minimum of six different semesters. Four of the

eight semester hours must be MUP 379 Chamber Music Ensembles: Guitar.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Diagnostic Examination. Four semesters of class piano (MUP 131, 132, 231, 232), unless waived by a diagnostic examination at the time of entrance, are required.

Jazz Concentration

Music Theory. The following music theory courses are required:

MTC	125	Basic Music Theory 3
MTC	221	Music Theory: 18th Century 3
MTC	222	Music Theory: 19th Century 3
MTC	223	Music Theory: 20th Century 3
MTC	315	Modern Arranging 2
MTC	316	Modern Arranging 2
MTC	440	Jazz Theory and Ear Training 2
MTC	441	Jazz Composition 2
Total		 20

Music History. The following music history courses are required:

MHL	194	ST: Music and Culture 3
MHL	341	Music History 3
MHL	342	Music History 3
MHL elective		 3
Total		 12

Conducting. MUP 210 Beginning Instrumental Conducting is required.

Major Performing Medium. Eight semester hours of MUP 111 Studio Instruction and eight semester hours of MUP 311 Studio Instruction are required to obtain a proficiency level necessary to meet the graduation recital requirements. Two half recitals (MUP 495 Performance) are required, with one in the jazz idiom.

Four semesters of MUP 379 Chamber Music Ensembles: Jazz are required.

Improvisation. The following courses are required:

MUP	117	Applied Jazz Improvisation 1
MUP	141	Jazz Fundamentals 1
MUP	217	Applied Jazz Improvisation* 4
MUP	317	Applied Jazz Improvisation* 4
Total		 10

* This two-semester-hour course must be repeated for a total of four semester hours of credit.

Workshops. The following courses are required:

MUP	235	Jazz Piano 1
MUP	236	Jazz Piano 1
MUP	319	Recording Studio Techniques 2
Total		 4

Ensemble. Eight semesters of ensemble are required, including six semesters of MUP 379 Chamber Music Ensembles and two semesters of MUP 386 Jazz Band.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Diagnostic Examination. Two semesters of class piano (MUP 131, 132), unless waived by a diagnostic examination at the time of entrance, are required.

Keyboard Concentration

Music Theory. The following music theory courses are required:

MTC	125	Basic Music Theory 3
MTC	221	Music Theory: 18th Century 3
MTC	222	Music Theory: 19th Century 3
MTC	223	Music Theory: 20th Century 3
MTC	425	Studies in 20th-Century Theory 3
Total		 15

Music History. The following music history courses are required:

MHL	194	ST: Music and Culture 3
MHL	341	Music History 3
MHL	342	Music History 3
MHL	440	Music Since 1900 *L* 3
MHL upper-division course		 3
Total		 15

Repertoire and Pedagogy. The following courses are required:

MUP	440	Keyboard Harmony 1
MUP	451	Repertoire 2
MUP	481	Performance Pedagogy and Materials 2
		or MUP 482 Piano Pedagogy (2)
Total		 5

Conducting. One of the following two courses is required:

MUP	209	Beginning Choral Conducting 1
MUP	210	Beginning Instrumental Conducting 1

Harpsichord. One semester hour of harpsichord is required.

Major Performing Medium. Sixteen semester hours of MUP 127 Studio Instruction and 16 semester hours of MUP 327 Studio Instruction are required to attain a proficiency level necessary to meet the graduation recital requirements. A half recital (MUP 495 Performance) and a full recital (MUP 496 Performance) are required.

Ensemble. Eight semester hours of ensemble within a minimum of six different semesters are required, including two semesters of accompanying and two semesters of chamber music.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Music Theatre Concentration

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
Total	12

Music History. The following music history courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History	3
MHL 342 Music History	3
Total	9

Major Performing Medium. Eight semester hours of MUP 111 Studio Instruction and eight semester hours of MUP 311 Studio Instruction are required to attain a proficiency level necessary to meet the graduation requirement of a public performance of two roles, both of which must be of major proportion.

Music Theatre. Five semesters of MUP 370 Music Theatre: Techniques; four semesters of MUP 371 Music Theatre: Workshops; eight semesters of MUP 373 Music Theatre: Performance; two semesters of MUP 374 Music Theatre: Production; and one semester of MUP 451 Repertoire: Broadway Musicals are required.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Conducting. MUP 209 Beginning Choral Conducting is required.

Additional Requirements. Six semester hours in theatre and 11 semester hours in dance are required.

Diagnostic Examination. Three semesters of class piano (MUP 131, 132, 231), unless waived by a diagnostic examination at the time of entrance, are required.

Opera Option. For those students whose goal is opera performance, the following substitutions to the course of study may be made: MUP 451 Repertoire: Opera instead of MUP 451 Repertoire: Broadway Musicals, two semesters of MUP 371 Music Theatre: Workshops (Aria Preparation), and three semesters of MUP 250 Diction for Singers instead of five semester hours of dance. Permission of the director of the music theatre program is required.

Orchestral Instrument Concentration

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
Total	12

Music History. The following courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History	3
MHL 342 Music History	3
MHL upper-division course	3
Total	12

Repertoire and Pedagogy. The following courses are required:

MUP 451 Repertoire	2
MUP 481 Performance Pedagogy and Materials	2
Total	4

Conducting. The following courses are required:

MUP 210 Beginning Instrumental Conducting	1
MUP 340 Instrumental Conducting	2
Total	3

Major Performing Medium. Sixteen semester hours of MUP 127 Studio Instruction and 16 semester hours of MUP 327 Studio Instruction are required to attain a proficiency level necessary to meet the graduation recital requirements. A half recital (MUP 495 Performance) and a full recital (MUP 496 Performance) are required.

Ensemble. Eight semester hours of large ensembles within a minimum of six different semesters are required plus four semester hours of small ensembles within a minimum of four different semesters.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Diagnostic Examination. Four semesters of class piano (MUP 131, 132, 231, 232), unless waived by a diagnostic examination at the time of entrance, are required.

Voice Concentration

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
Total	12

Music History. The following music history courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History	3
MHL 342 Music History	3
MHL upper-division course	3
Total	12

Repertoire and Pedagogy. Two semester hours of MUP 451 Repertoire and two semester hours of MUP 481 Performance Pedagogy and Materials are required.

Also required are two semester hours selected from MUP 453 Song Literature or 454 Song Literature or a repeated enrollment of MUP 451 Repertoire.

Diction. Three semester hours of MUP 250 Diction for Singers is required, which includes one hour each of Italian, German, and French.

Conducting. MUP 209 Beginning Choral Conducting is required.

Major Performing Medium. Sixteen semester hours of MUP 127 Studio Instruction and 16 semester hours of MUP 327 Studio Instruction are required to attain a proficiency level necessary to meet the graduation recital requirements. A half recital (MUP 495 Performance) and a full recital (MUP 496 Performance) are required.

Ensemble. Four different semesters of large vocal ensembles are required plus four semester hours of ensembles within four different semesters to be selected from large and/or small ensembles.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Language. Sixteen semester hours are required in more than one foreign language, chosen from French, German, and Italian. A student may select one year of one language and one semester of the others, chosen in consultation with the studio teacher and advisor.

Diagnostic Examination. Four semesters of class piano (MUP 131, 132, 231, 232), unless waived by a diagnostic examination at the time of entrance, are required.

THEORY AND COMPOSITION—BM

Composition Concentration

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
MTC 320 Modal Counterpoint	2
MTC 321 Tonal Counterpoint	2
MTC 433 Orchestration	3
MTC 436 Electronic Studio Techniques I	2
Total	21

An additional five semester hours, to be selected from MTC 422, 425, 428, 429, 430, 437, and 441 are required.

Three semesters of MTC 123 Beginning Composition and four semesters of MTC 323 Composition are also required. At least three semesters of MTC 323 Composition must be taken at ASU.

Music History. The following courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History	3
MHL 342 Music History	3
MHL upper-division course	3
Total	12

Conducting. Choose between MUP 209 Beginning Choral Conducting or MUP 210 Beginning Instrumental Conducting.

Applied Music. Ten semester hours of study in applied music are required, at least eight of which must be in MUP 111 Studio Instruction.

Ensemble. Six semesters of participation in an ensemble are required.

Final Project. MTC 495 Final Project is required.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Diagnostic Examination. Four semesters of class piano (MUP 131, 132, 231, 232), unless waived by a diagnostic examination at the time of entrance, are required.

Additional Requirements. At least nine semester hours of electives to be chosen from MTC, MHL, or MUP (excluding courses taken to meet Class Piano proficiency) are required. MHL 440 Music Since 1900 may be used to satisfy the General Studies L requirement.

Theory Concentration

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
MTC 320 Modal Counterpoint	2
MTC 321 Tonal Counterpoint	2
MTC 323 Composition	2–3
MTC 422 Musical Acoustics	3
MTC 425 Studies in 20th-Century Theory	3
MTC 428 Advanced Form and Analysis	3
MTC 496 Theory Project	3
Total	30–31

Also required are 10 semester hours of electives in MTC courses at the 300 level or above, to be chosen in consultation with an advisor.

Music History. The following courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History	3
MHL 342 Music History	3
MHL upper-division course	3
Total	12

Conducting. Choose between MUP 209 Beginning Choral Conducting or MUP 210 Beginning Instrumental Conducting.

Applied Music. Twelve semester hours of study in applied music are required, eight of which must be in MUP 111 Studio Instruction.

Ensemble. Eight semesters of participation in an ensemble are required.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Final Project. MTC 496 Theory Project is required.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Diagnostic Examination. Four semesters of class piano (MUP 131, 132, 231, 232), unless waived by a diagnostic examination at the time of entrance, are required.

Additional Requirements. MHL 440 Music Since 1900 may be used to satisfy the General Studies L requirement.

MUSIC MINOR

The School of Music offers a minor in Music consisting of 25 semester hours of course work. A minimum grade of "C" (2.00) is required in all courses.

MHL 194 ST: Music and Culture	3
MHL 341 Music History	3
MHL 342 Music History	3
MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
Electives*	10
Total	25

* Electives may be chosen from MUS, MHL, MTC, and selected MUP courses. The minor does not include Studio Instruction.

Diagnostic Examination. Students pursuing minor in music must first take a Theory Diagnostic Exam.

Interested students should contact the School of Music for specific requirements and admission procedures. Electives should include a minimum four semester hours of ensemble participation.

BIS CONCENTRATION

A concentration in music is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

Students pursuing a concentration in music must first take a Theory Diagnostic Exam. Interested students should contact the School of Music for specific requirements and admission procedures.

GRADUATE PROGRAMS

The faculty in the School of Music offer graduate programs leading to the following degrees: Master of Arts, Master of Music, and Doctor of Musical Arts. Refer to the "Katherine K. Herberger College of Fine Arts Graduate Degrees and Majors" table, page 439, for a list of majors and concentrations. A document on graduate degree programs in music may be obtained by contacting the School of Music. See the *Graduate Catalog* for information on all graduate degrees.

MUSIC HISTORY/LITERATURE (MHL)

M MHL 140 Music as Culture. (3)
fall and spring
Introduces a range of practical and intellectual challenges presented by encounters with various kinds of music. Prerequisite: music major; successful completion of the School of Music entrance audition and theory diagnostic exam.

M MHL 194 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Music and Culture. (3)

M MHL 201 MacLiteracy for Musicians. (3)
fall, spring, summer
Instruction in basic Macintosh computer literacy, including generic applications and music-specific programs with hands-on experience. Lecture, lab. Fee.
General Studies: CS

M MHL 341 Music History. (3)
fall and spring
Western music from the Greeks to the present day. Need not be taken in sequence with MHL 342. Prerequisite: MTC 221.

M MHL 342 Music History. (3)
fall and spring
See MHL 341. Prerequisite: MTC 221.

M MHL 344 Music in World Cultures. (3)
spring
Examines the relations among music, dance, theatre, religion, and social status in Asia, Africa, Oceania, Europe, and the United States.
General Studies: HU, G

M MHL 352 The Evolution of Jazz. (3)
selected semesters
Origin, development, and styles of jazz music and its exponents. Prerequisite: MTC 223.
General Studies: H

M MHL 363 Survey of Russian Music. (3)
fall in odd years
Examines music and musical life in Russia, the Soviet Union, and the post-Soviet C.I.S. from the Middle Ages to the present. Lecture, discussion. Prerequisite: MHL 342 or instructor approval.
General Studies: HU

M MHL 437 Topics in 17th-Century Music. (3)
fall in odd years
Selected topics exploring the musical styles of the 17th century and their cultural contexts. Prerequisites: MHL 341, 342; MTC 223.
General Studies: L

M MHL 438 Topics in 18th-Century Music. (3)
fall in even years
Selected topics exploring the musical styles of the 18th century and their cultural contexts. Prerequisites: MHL 341, 342; MTC 223.
General Studies: H

M MHL 439 Topics in 19th-Century Music. (3)
spring
Selected topics exploring the musical styles of the 19th century and their cultural contexts. Prerequisites: MHL 341, 342; MTC 223.
General Studies: L, H

M MHL 440 Music Since 1900. (3)
fall and summer
Examines stylistic trends, major composers and their works, and cultural contexts in music since 1900. Prerequisites: MHL 341, 342; MTC 223.
General Studies: L

M MHL 456 History of Opera. (3)
spring in odd years
Development of opera from its creation ca. 1600 to present. Emphasis placed on major stylistic developments and representative works. Prerequisites: MHL 341, 342; MTC 222.

M MHL 466 North American Indian Music. (3)
spring in odd years
Various styles of Indian music in the United States, Canada, and Mexico. Open to Music majors and nonmajors.
General Studies: L/HU, C

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

MUSIC THEORY AND COMPOSITION (MTC)

M MTC 123 Beginning Composition. (1)
fall and spring
Intended for freshmen and sophomores in the composition concentration. Introduces composing. May be repeated for credit. Prerequisite: instructor approval.

M MTC 125 Basic Music Theory. (3)
fall
Notation, scales, keys, modes, intervals, chords, basic part writing and composition. Development of related aural skills through sightsinging and dictation. Prerequisite: any music major or instructor approval.

M MTC 221 Music Theory: 18th Century. (3)
spring
Styles, techniques, and idioms of 18th-century music; emphasizes analysis, composition (part writing), and related aural skills, with applications for performance. Prerequisite: MTC 125.

M MTC 222 Music Theory: 19th Century. (3)
fall
Styles, techniques, and idioms of 19th-century music; emphasizes analysis, composition (part writing), and related aural skills, with applications for performance. Prerequisite: MTC 221.

M MTC 223 Music Theory: 20th Century. (3)
spring
Styles, techniques, and idioms of 20th-century music; emphasizes innovative treatments of musical elements, analysis, and composition; related aural skills. Prerequisite: MTC 222.

M MTC 315 Modern Arranging. (2)
fall
Techniques in arranging for the contemporary jazz, radio, television, and studio orchestra. Prerequisite: MTC 223.

M MTC 316 Modern Arranging. (2)
spring
Continuation of MTC 315. Prerequisite: MTC 315.

M MTC 320 Modal Counterpoint. (2)
fall
Counterpoint based on 16th-century vocal polyphonic style. Prerequisite: MTC 221.

M MTC 321 Tonal Counterpoint. (2)
spring
Counterpoint based on 18th-century polyphonic style. Prerequisite: MTC 221.

M MTC 323 Composition. (2–3)
fall and spring
Writing music compositions, with emphasis on basic techniques and smaller structures. May be repeated for credit. Prerequisite: 3 semesters of MTC 123 or instructor approval.

M MTC 327 Intermediate Form and Analysis. (3)
fall and spring
Organizing elements in the most important contrapuntal and homophonic musical forms from the Renaissance through the 19th century. Prerequisite: MTC 222.

M MTC 422 Musical Acoustics. (3)
fall
Properties of sound and tone. Harmonic series, instruments, the ear, auditorium acoustics, and the reproduction of sound. Assumes a thorough knowledge of musical notation, intervals, scales, and harmony, or 2 years of music theory.

M MTC 425 Studies in 20th-Century Theory. (3)
fall
Continued development of analytical techniques and aural skill, with an examination of theoretical systems applicable to 20th-century music. Prerequisite: MTC 223.

M MTC 428 Advanced Form and Analysis. (3)
spring
Organizing principles of the large forms of musical composition in the 19th and 20th centuries. Prerequisite: MTC 327.

M MTC 429 Canon and Fugue. (2)
fall in odd years
Writing of canons and fugues in tonal style. Prerequisite: MTC 321.

M MTC 430 20th-Century Counterpoint. (2)
spring in even years
Counterpoint studies utilizing 20th-century idioms. Prerequisite: MTC 223.

M MTC 433 Orchestration. (3)
spring in odd years
Studies scoring music for full and chamber orchestras. Includes examination of individual orchestral instruments (characteristics and performance techniques). Prerequisite: MTC 223.

M MTC 436 Electronic Studio Techniques I. (2)
fall
Principles of analog electronic music systems and their application in the composition of electronic music. Assumes a thorough knowledge of music notation and intervals.

M MTC 437 Electronic Studio Techniques II. (2)
spring
Principles of digital electronic music systems and their applications in the composition of electronic music. Prerequisite: MTC 436.

M MTC 440 Jazz Theory and Ear Training. (2)
fall
Advanced study of jazz harmonic systems. Daily oral drills. Prerequisite: MTC 223.

M MTC 441 Jazz Composition. (2)
fall
Creative writing in the smaller forms and in the idiom of jazz. Prerequisite: MTC 321.

M MTC 495 Final Project. (0)
fall and spring
Half recital of compositions or approval of a large-scale composition or a research paper.

M MTC 496 Theory Project. (3)
fall and spring
Supervised individual writing project dealing with music theory.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

MUSIC EDUCATION (MUE)

For more MUE courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M MUE 110 Introduction to Music Education. (1)
spring
Overview of music education. Orientation to student characteristics, teacher roles, and foundations of philosophy and history. Requires school observations.

M MUE 161 Introduction to Music Therapy. (2)
fall
Overview of the profession of music therapy and its applications in mental health, rehabilitation, and special education.

M MUE 211 Music in Recreation. (2)
fall
Materials, methods, and organizational structures appropriate for recreational music. Prerequisite: ability to read music, as determined by the instructor.

M MUE 261 Music Therapy as a Behavioral Science. (2)
fall
Orientation to preclinical experience with emphasis on observation skills, assessment, goal setting, and professional ethics. Requires off-campus observations. Prerequisite: MUE 161.

M MUE 310 Music in Early Childhood Education. (3)
spring
Identifying and understanding musical needs of young children. Methods and materials for program development for classroom teachers.

M MUE 311 Music for the Classroom Teacher. (3)
fall and spring
Development of the classroom music program in the elementary school. Requires no previous music experience or course work. Prerequisite: nonmusic major or minor.

M MUE 313 Elementary Music Methods. (3)
fall
Methods of instruction, planning, and presentation of appropriate contents in music. For music educators and music therapists. Prerequisite: any music major.

M MUE 315 General Music in the Secondary Schools. (2)
fall and spring
Curriculum, student characteristics, and teaching strategies for general music. Prerequisite: any music major.

M MUE 317 Educational Methods for Violin and Viola. (1)
fall and spring
Teaching and playing skills for music teachers. 3 hours per week.

M MUE 318 Educational Methods for Cello and String Bass. (1)
fall and spring
Teaching and playing skills for music teachers. 3 hours per week.

M MUE 327 Educational Methods for Trumpet and Horn. (1)
fall and spring
Teaching and playing skills for music teachers. 3 hours per week.

M MUE 328 Educational Methods for Trombone, Euphonium, and Tuba. (1)
fall and spring
Teaching and playing skills for music teachers. 3 hours per week.

M MUE 335 Educational Methods for Guitar. (1)
fall and spring
Teaching and playing skills for music teachers. 3 hours per week.

M MUE 336 Educational Methods for Percussion. (1)
fall and spring
Teaching and playing skills for music teachers. 3 hours per week.

M MUE 337 Educational Methods for Flute, Clarinet, and Saxophone. (1)
fall and spring
Teaching and playing skills for music teachers. 3 hours per week.

M MUE 338 Educational Methods for Double Reed Instruments. (1)
fall and spring
Teaching and playing skills for music teachers. 3 hours per week.

M MUE 361 Music Therapy Theory and Practice in Psychopathology. (3)
fall
Influence of music on behavior; principles and practices of music therapy and psychiatric clients. Prerequisites: MUE 211, 261; Music Therapy major.

M MUE 362 Music Therapy Techniques. (3)
spring
Organization, administration, and use of music in rehabilitation with various client populations. Prerequisites: MUE 361; Music Therapy major.

M MUE 381 Music Therapy Research. (3)
spring
Statistics and research design appropriate for investigations in music therapy.
General Studies: L

M MUE 384 Therapy Preclinical I. (1)
fall and spring
Paired students provide music therapy for small groups at a community agency for mentally retarded, geriatric, or physically disabled clients for a minimum of 10 clock hours. Prerequisites: MUE 211, 261.

M MUE 385 Therapy Preclinical II. (1)
fall and spring
Individual placement in ASU Music Therapy Clinic.

M MUE 386 Therapy Preclinical III. (1)
fall and spring
See MUE 385.

M MUE 387 Therapy Preclinical IV. (1)
fall and spring
Individual clinical work in a community mental health facility.

M MUE 388 Therapy Preclinical V. (1)
fall and spring
See MUE 387.

M MUE 389 Repertoire for Music Therapy. (3)
spring
Music skills repertoire for music therapy, including units on brass, strings, woodwinds, electronic instruments, computer music, and improvisation techniques. Lab. Prerequisites: MUE 211; Music Therapy major.

M MUE 441 Psychology of Music. (3)
spring
Psychological and physiological aspects of music emphasizing musical behavior, function, perception, and learning. Prerequisite: junior standing or instructor approval.

M MUE 475 Group Process and Music Therapy. (1)
fall
Principles of group process, verbal counseling, professional writing, as related to music therapy practice. Prerequisites: MUE 362; Music Therapy major.

M MUE 476 Internship in Music Therapy. (1)
fall and spring
Full-time, 6-month, off-campus residency in an approved clinical institution.

M MUE 480 Choral Methods. (3)
spring
Methods of instruction, organization, and presentation of appropriate content in choral music classes. Prerequisite: Secondary Education major.

M MUE 481 Instrumental Practicum/Methods. (5)
fall
Instrumental music as a means of developing music skills, understandings, and attitudes in elementary and secondary school students. Prerequisite: Secondary Education major.

M MUE 482 Instrumental Practicum/Methods. (5)
spring
See MUE 481. Prerequisites: MUE 481 (or 485); Secondary Education major.

M MUE 485 String Practicum/Methods. (5)
fall
For students preparing to administer a string program and teach strings at the elementary level. Lecture, lab.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

MUSIC PERFORMANCE (MUP)

M MUP 100 Concert Attendance. (0)
fall and spring
6 semesters required for all music majors. A total of 4 convocations and 6 approved recitals required each semester.

M MUP 111 Studio Instruction. (2)
fall and spring
Bassoon, cello, clarinet, contrabass, cornet, euphonium, flute, guitar, harp, harpsichord, horn, oboe, organ, percussion, piano, saxophone, trombone, trumpet, tuba, viola, violin, voice. Minimum contact of 1 hour plus studio class weekly. May be repeated for credit. May not be taken for audit. Fee. Prerequisites: any music major; placement examination; audition.

M MUP 117 Applied Jazz Improvisation. (1)
fall and spring
Principles, methods, and theory of jazz performance and pedagogy. May be repeated for credit. Studio. Prerequisites: placement examination; audition.

M MUP 121 Studio Instruction. (1)
fall, spring, summer
Secondary or minor instrument instruction. Bassoon, cello, clarinet, contrabass, cornet, euphonium, flute, guitar, harp, harpsichord, horn, oboe, organ, percussion, piano, saxophone, trombone, trumpet, tuba, viola, violin, voice. Minimum contact of 1/2 hour per week. May be repeated for credit. May not be taken for audit. Fee. Prerequisites: any music major; instructor approval.

M MUP 127 Studio Instruction. (4)
fall and spring
Bassoon, cello, clarinet, contrabass, cornet, euphonium, flute, guitar, harp, harpsichord, horn, oboe, organ, percussion, piano, saxophone, trombone, trumpet, tuba, viola, violin, voice. Minimum contact of 1 hour plus studio class weekly. May be repeated for credit. May not be taken for audit. Fee. Prerequisites: Performance major; placement examination; audition.

M MUP 131 Class Piano. (1)
fall and spring
4-semester sequence (with MUP 132, 231, and 232) designed for those with little or no piano experience. Emphasizes keyboard technique, sight reading, simple accompaniments, and improvisation. 2 hours per week. May not be taken for audit. Prerequisite: any music major.

M MUP 132 Class Piano. (1)
spring
See MUP 131.

M MUP 133 Class Voice. (1)
fall and spring
4-semester sequence (with MUP 134, 233, and 234) open to all students. 2 hours per week. May not be taken for audit.

M MUP 134 Class Voice. (1)
fall and spring
See MUP 133. Prerequisite: MUP 133 or instructor approval.

M MUP 141 Jazz Fundamentals. (1)
fall
Principles, methods, and theory of jazz performance and pedagogy.

M MUP 209 Beginning Choral Conducting. (1)
fall and spring
Essentials of choral conducting techniques. 2 hours per week.

M MUP 210 Beginning Instrumental Conducting. (1)
spring
Essentials of instrumental conducting techniques. 2 hours per week.

M MUP 217 Applied Jazz Improvisation. (2)
fall and spring
Emphasizes basic jazz literature, chord symbol reading, melodic patterns and concepts, ear training, analysis of improvised solos, and pedagogical issues. May be repeated for credit. Studio. Prerequisites: MUP 117 (2 semesters); placement examination; audition.

M MUP 231 Class Piano. (1)
fall
See MUP 131.

M MUP 232 Class Piano. (1)
spring
See MUP 131.

M MUP 233 Class Voice. (1)
fall and spring
See MUP 133. Prerequisite: MUP 134 or instructor approval.

M MUP 234 Class Voice. (1)
fall and spring
See MUP 133. Prerequisite: MUP 233 or instructor approval.

M MUP 235 Jazz Piano. (1)
fall
2-semester sequence (with MUP 236) designed for jazz keyboard experience. Emphasizes chord symbol reading, simple improvisation, and voicing. 2 hours per week. Prerequisite: MUP 132.

M MUP 236 Jazz Piano. (1)
spring
See MUP 235. Prerequisite: MUP 132.

M MUP 237 Fretboard Harmony. (1)
fall and spring
Scales, chords, harmony, basic improvisation for the guitar. 2 hours per week.

M MUP 250 Diction for Singers. (1)
fall and spring
Use of phonetics in the study of song and opera literature. Language emphasis differs each semester. May be repeated for credit.

M MUP 301 Advanced Class Piano. (1)
fall
Required for the choral-general concentration of the Music Education major. Open to other music majors who have completed MUP 232. Emphasizes accompaniments, ensemble playing, score reading, advanced harmonizations, repertoire, technique, and improvisation. 2 hours per week. May not be taken for audit. Prerequisites: MUP 232 (or proficiency); any music major; placement examination.

M MUP 302 Advanced Class Piano. (1)
spring
Required for the choral-general concentration of the Music Education major. Open to other music majors who have completed MUP 301. A sequential continuation of MUP 301 skills that include both group and studio instruction. 2 hours per week. May not be taken for audit. Prerequisites: MUP 301 (or proficiency); any music major; placement examination.

M MUP 311 Studio Instruction. (2)
fall and spring
See MUP 111. Fee.

M MUP 317 Applied Jazz Improvisation. (2)
fall and spring
Emphasizes listening, analysis, and performance of advanced jazz literature and composition in contemporary styles. May be repeated for credit. Studio. Prerequisites: MUP 217 (2 semesters); placement examination; audition.

M MUP 319 Recording Studio Techniques. (2)
spring
Study of both analog and digital recording methods. Includes lab time on recording console and tape machines. Lab.

M MUP 321 Studio Instruction. (1)
fall, spring, summer
See MUP 121. Fee.

M MUP 327 Studio Instruction. (4)
fall and spring
See MUP 127. Fee.

M MUP 337 Studio Instruction: Collaborative Piano. (2)
spring
Repertoire to be selected from vocal and instrumental literature. 1 hour lesson per week. May be repeated for credit. Prerequisites: Performance major with a concentration in collaborative piano; placement examination.

M MUP 339 Choral Conducting. (2)
fall and spring
Elements of choral conducting technique and interpretation. 3 hours per week. Prerequisite: MUP 209.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M MUP 340 Instrumental Conducting. (2)
fall
Fundamentals of score reading and interpretation of instrumental music. 3 hours per week. Prerequisite: MUP 210.

M MUP 344 Chamber Orchestra. (1)
fall and spring
Important masterpieces from all periods of music are performed throughout the year. May be repeated for credit. Prerequisite: audition with director.

M MUP 345 Symphony Orchestra. (1)
fall and spring
Over a 4-year period, the student is introduced to the masterpieces of symphony orchestra literature. 3 times per week. May be repeated for credit. Prerequisite: audition with director.

M MUP 346 Sinfonietta. (1)
fall and spring
Symphonic orchestra that presents approximately six concerts annually, performing masterpieces of the classical repertoire. 3 times per week. May be repeated for credit. Prerequisite: audition with director.

M MUP 350 Choral Union. (1)
fall and spring
Open to all students in the university and to interested singers in the community by audition. Preparation and performance of the larger choral works. 2 hours per week. May be repeated for credit. Prerequisite: audition with director.

M MUP 352 Concert Choir. (1)
fall and spring
Important masterpieces from all periods of music are performed. May be repeated for credit. Prerequisite: instructor approval.

M MUP 353 University Choir. (1)
fall and spring
4 hours per week. May be repeated for credit. Prerequisite: instructor approval.

M MUP 355 Sun Devil Singers. (1)
fall and spring
Rehearsal and performance of music for mixed voices. 3 hours per week. May be repeated for credit. Prerequisites: audition with director; instructor approval.

M MUP 357 Women's Chorus. (1)
fall and spring
2 hours per week. May be repeated for credit. Prerequisite: instructor approval.

M MUP 361 Marching and Concert Bands. (1)
fall and spring
Staging of formations and drills for football games and other events (fall); masterpieces of symphonic band literature (spring). Meets daily. May be repeated for credit. Prerequisite: audition with director.

M MUP 362 Wind Ensemble. (1)
fall and spring
Rehearsal and performance of literature for wind ensemble. 2 hours per week in fall, 4 hours in spring. Performing ensemble. May be repeated for credit. Prerequisite: instructor approval.

M MUP 363 Chamber Winds. (1)
fall and spring
Rehearsal and performance of advanced literature for chamber winds. 2 hours per week. Performing ensemble. May be repeated for credit. Prerequisite: instructor approval.

M MUP 370 Music Theatre: Techniques. (1)
fall and spring
Exercises and improvisations for the singer/actor emphasizing body awareness, basic music theater performance skills, and freedom of the vocal and breath mechanisms. Section 1 (Movement for Singers); Section 2 (Expression); Section 3 (Interpretation); Section 4 (Advanced Expression); Section 5 (Advanced Interpretation). Sections 2 through 5 must be taken in sequence. Each section: 3 hours per week. May be repeated for credit.

M MUP 371 Music Theatre: Workshops. (1)
fall and spring
Development of specific skills for musical-dramatic interpretation. Section 1 (Aria Preparation); Section 2 (Broadway I); Section 3 (Broadway II). Each section: 1 hour lecture, demonstration, 1 lab per week. May be repeated for credit.

M MUP 372 Music Theatre: Orchestras. (1)
fall and spring
Participation in Lyric Opera Theatre productions. Section 1 (Orchestra); Section 2 (Chamber Orchestra); Section 3 (Chamber Ensemble). May be repeated for credit. Prerequisites: audition with director; instructor approval.

M MUP 373 Music Theatre: Performance. (1)
fall and spring
Participation in Lyric Opera Theatre productions. Section 1 (Principal Roles); Section 2 (Chorus). May be repeated for credit. Prerequisites: audition with director; instructor approval.

M MUP 374 Music Theatre: Production. (1)
fall and spring
Participation in Lyric Opera Theatre productions. Section 1 (Vocal Performance); Section 2 (Technical Music Theatre); Section 3 (Problems in Production) to be taken concurrently with MUP 373, Section 2. May be repeated for credit.

M MUP 376 New Music Ensemble. (1)
fall and spring
Rehearsal and performance of music written in the last 20 years. May be repeated for credit. Prerequisite: instructor approval.

M MUP 377 Brass Choir. (1)
fall and spring
Specializing in public performance of music written for brass instruments. 2 hours per week. May be repeated for credit. Prerequisite: instructor approval.

M MUP 379 Chamber Music Ensembles. (1)
fall and spring
Brass, guitar, keyboard, mixed, percussion, string, vocal, and woodwind ensembles. 2 hours per week. May be repeated for credit. Prerequisite: instructor approval.

M MUP 385 Percussion Ensemble. (1)
fall and spring
Rehearsal and performance of standard and original repertoire for the percussion ensemble and related instruments. 2 hours per week. May be repeated for credit. Prerequisite: instructor approval.

M MUP 386 Jazz Band. (1)
fall and spring
Rehearsal and performance of new, traditional, and Latin literature for jazz bands. 4 hours per week. May be repeated for credit. Prerequisite: instructor approval.

M MUP 387 Ethnomusicology Ensembles. (1)
fall and spring
Performance learning experience for the music of various cultures of the world. May be repeated for credit. Prerequisite: knowledge of instrument or instructor approval.

M MUP 388 Collaborative Piano. (1)
fall and spring
Piano accompaniments found in vocal and instrumental literature; discussion of styles and performance practices; experience in public performance. 2 hours per week. May be repeated for credit. Prerequisite: Performance major with a concentration in collaborative piano or instructor approval.

M MUP 440 Keyboard Harmony. (1)
fall
Performance-oriented class emphasizing chord progressions, harmonization, figured bass realization, stylistic improvisation, transposition, open score reading, and sight reading. Prerequisite: Performance major with a concentration in keyboard or instructor approval.

M MUP 451 Repertoire. (2)
fall and spring
Literature available for performance in all performing media. May be repeated for credit. Prerequisite: junior standing in major performance field.

M MUP 453 Song Literature. (2)
once a year
Early Italian, English, German, and French art song.

M MUP 454 Song Literature. (2)
once a year
American, Russian, Spanish, Scandinavian, and contemporary song.

M MUP 481 Performance Pedagogy and Materials. (2)
fall and spring
Principles and methods of performance techniques for each performance field. May be repeated for credit. Prerequisite: senior standing or instructor approval.

M MUP 482 Piano Pedagogy. (2)
selected semesters
Continuation of MUP 481 (Piano). Problems and techniques of teaching intermediate to advanced piano students. Prerequisites: junior standing in Performance (keyboard or collaborative piano concentration); instructor approval.

M MUP 487 Collaborative Piano. (1)
fall and spring
Piano accompaniments found in vocal and instrumental literature; discussion of styles and performance practices; experience in public performance. 2 hours per week. May be repeated for credit. May not be taken for audit. Prerequisite: Performance major with a concentration in collaborative piano or keyboard.

M MUP 495 Performance. (0)
fall
For candidates of a BM degree in which 1/2 recital is a requirement. Prerequisite: BM degree candidate.

M MUP 496 Performance. (0)
fall
For candidates of a BM degree in which a full recital is a requirement. Prerequisites: BM degree candidate; MUP 495.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

MUSIC (MUS)

For more MUS courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M MUS 100 Fundamentals of Music Notation. (3)
fall and spring
Provides nonmusic majors with sufficient symbol literacy to begin work in the field of musical learning. Credit not applicable toward any music degree.

M MUS 340 Survey of Music History. (3)
fall, spring, summer
Major composers, compositions, and periods in the history of music. Credit does not apply to major requirements for music degrees. Fee.
General Studies: HU, H

M MUS 347 Jazz in America. (3)
fall, spring, summer
Current practices employed by contemporary jazz musicians; the historical development of jazz techniques. Credit does not apply to major requirements for music degrees. Lecture, discussion. Cross-listed as AFH 347. Credit is allowed for only AFH 347 or MUS 347. Fee.
General Studies: HU, C

M MUS 354 Popular Music. (3)
fall, spring, summer
Emphasizes historical, cultural, and performance patterns in a variety of popular idioms such as, but not limited to, rock, folk, jazz, and Afro-American music. May be repeated for credit when topics vary. Credit does not apply to major requirements for music degrees. Fee.
General Studies: HU

M MUS 355 Survey of American Music. (3)
fall, spring, summer
Growth and development of American music. Credit does not apply to major requirements for music degrees. Fee.
General Studies: HU, C, H

M MUS 356 Survey of the Musical Theatre. (3)
once a year
Music's place in the theatre, viewed in terms of historical importance and relative function. Credit does not apply to major requirements for music degrees. Fee.
General Studies: HU

M MUS 410 History of Women in Music. (3)
fall
Surveys musical achievements of women as well as the historical contexts that shaped and defined their artistic development. Pre- or corequisite: ENG 102 or 105.
General Studies: HU, C, H

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

School of Theatre and Film

herbergercollege.asu.edu/theatre
480/965-5337
GHALL 232

Linda Essig, Chair

Professors: Barker, Bedard, Eckard, Edwards, Essig, Giner, Honegger, Knapp, Saldaña, Thomson, Valenti

Associate Professors: Acker, Anderson, Furr-Soloman, Reyes, Riske, Sterling, Underiner

Assistant Professors: Gharavi, McMahon, Ocampo-Guzman, Pinholster, Rivera-Servera, Woodson

Clinical Assistant Professors: Coffman, Thacker

For advising purposes, all students registering in a Theatre degree program enroll through the Katherine K. Herberger College of Fine Arts. Special advising check sheets, providing complete information regarding requirements and suggested electives, are available in the School of Theatre and Film office and on its Web site for the BA degree program.

PREMAJOR PROGRAM AND INTERVIEWS/ AUDITIONS FOR THE BA IN THEATRE

Effective fall 2006, all undergraduate students applying for and gaining admission to ASU as a potential Theatre major will be first admitted to the premajor program in Theatre. This classification will remain in effect until the student has passed an entry interview or audition to the BA Theatre program.

Entry interviews or auditions will be held three times per year: early April for entering freshman who have not yet begun their course work, late October for currently enrolled students and transfer students who will begin in the spring semester, and mid-February for students starting in spring

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

semester or who fail to meet entry criteria the first time. Once entry criteria have been met, the student's major code will be changed to Theatre and he or she will be able to register for majors-only courses.

Incoming freshman and transfer students who are unable to travel to the Tempe campus in April can be admitted into the premajor program and interview or audition in late October for formal admission as a Theatre major. Specific dates for interviews or auditions can be obtained from the Herberger College of Fine Arts and the School of Theatre and Film.

If a student fails to pass the entry criteria, he or she will remain in the premajor program for a maximum of one year with the following provisos: (1) continued advising through the Herberger College of Fine Arts; (2) placement in General Studies courses appropriate to the planned major, including THE 125 Orientation to Theatre to better prepare for subsequent admission interview or auditions. The student can seek formal entry (no more than two times), once in each of the following semesters (excluding winter and summer sessions). If a student fails to pass the entry criteria after three attempts, he or she will work with the School of Theatre and Film and Herberger College of Fine Arts advisors to choose another major suited to his or her interests.

Transfer students should seek formal entry through successful passage of the interview or audition process before the start of their first semester so that they can transfer in as Threatre majors. If they are unable to meet entry criteria, then the provisos listed in the above paragraph will apply. Transfer students who do not meet entry criteria on their first attempt will be required to take THE 125 Orientation to Theatre to better prepare them for a subsequent successful interview/audition process.

Criteria for Formal Admission to the BA in Theatre Program

In addition to the scheduled interview or audition with faculty, premajors in Theatre must submit the following application materials to be considered for admission as a Theatre major in the Herberger College of Fine Arts:

1. a three-page, double-spaced essay answering the question: "Why are the threatre and the performing arts important, and how will their study further your own goals?";
2. a short (no more than two-pages, double spaced) critical essay about a theatrical production or film the student has seen;
3. at least one and no more than three letters of reference from a teacher or someone with whom the student has had professional and/or artistic interaction. (Do not submit letters from relatives or close friends. These letters may be mailed directly to the Herberger College of Fine Arts [see the address below] or included with your application materials); and
4. one item of the students's choosing from among the following:
   a. an additional writing sample of any length on a theatre or film topic of the student's choice;
   b. two one-minute audition monologues (one contemporary, one not);
   c. a portfolio of at least ten images of theatrical design, visual arts, or production activity that may include scene or costume sketches, lighting storyboards, drafting, artwork, or audio material;
   d. an original ten-minute play;
   e. a two to three page essay answering the question, "How does threatre benefit children and adolescents?";
   f. an original screenplay of any length; or
   g. an original video (no more than ten minutes in length).

The admissions committee will be composed of a cross-disciplinary group of theatre faculty appointed on staggered terms. The committee provides students with written feedback on their materials submitted for admission.

All admissions materials should be mailed to:

STUDENT ACADEMIC SERVICES
HERBERGER COLLEGE OF FINE ARTS
ARIZONA STATE UNIVERSITY
PO BOX 872102
TEMPE AZ 85287-2102

Admissions materials should be received by January 15 for mid-February interviews or auditions; by March 1 for early April interviews or auditions; and by September 15 for October interviews or auditions. Students can call 480/965-4495 with any questions about the application process or to schedule an interview or audition.

Freshmen and sophomores who meet university and departmental standards must receive a grade of "C" (2.00) or higher in all major courses and a 2.50 cumulative GPA during their first semester to continue in the BA Theatre program. Students failing to meet these requirements have one semester of departmental probation to receive a "C" (2.00) or higher in major courses and raise their cumulative GPA to 2.50. Students failing to meet the above requirements by the end of the first year (two semesters) are asked to seek advising regarding other majors.

THEATRE—BA

The major in Theatre consists of 57 or 58 semester hours. The following 33 or 34 semester hours of core courses are required of all BA degree candidates:

THE	125	Orientation to Theatre	1
THE	220	Principles of Dramatic Analysis *L*	3
THE	320	History of the Theatre I *HU, H*	3
THE	321	History of the Theatre II *HU, H*	3
THE	440	Experimental Theatre and Performance	3
THP	102	Acting: Fundamentals	3
THP	218	The Director's Vision	3
THP	301	Theatre Production	1
THP	301	Theatre Production*	1
THP	313	Fundamentals of Design	3
THP	428	Theatre and the Future	3
Total			27

* One semester hour must involve running a production.

One of the following two courses (three or four semester hours) is required:

THP 213 Introduction to Technical Theatre 4
THP 214 Introduction to Costuming 3

Three semester hours of departmental approved course work in dramatic literature are also required. Check the department advising office for a list of eligible courses.

Twenty-four semester hours of THE and THP electives are selected by the student and advisor to complete the 57 or 58 semester hours required in the major. These 24 semester hours can constitute an optional focus area for the student, which involves enrolling in related course work from one of six subject areas in Theatre: (1) theatre and performance studies; (2) directing and performance; (3) design and production; (4) playwriting and dramaturgy; (5) theatre for youth; and (6) film. A list of recommended courses appropriate to each area is available from the department advising office. Undergraduate students interested in pursuing Arizona teacher certification or endorsement for Theatre are encouraged to pursue the focus area in theatre for youth, then obtain postbaccalaureate teacher certification through the ASU College of Education or another Arizona educational institution. General Studies courses make up 35 semester hours of the total courses required. Additional elective courses are selected with an advisor to meet the total 120 semester hours required for the degree.

Within the major, only courses with a grade of "C" (2.00) or higher may be applied toward graduation.

Students who transfer 55 semester hours or more are required to enter with and retain a 2.50 GPA in theatre courses and a 2.00 cumulative GPA.

Acting Concentration

The major in Theatre with a concentration in acting prepares students for both advanced graduate study in the field and independent career pursuits in performance. In addition to required core courses, the acting concentration consists of 23 or 24 semester hours. The following nine semester hours are required:

THP 272 Acting: Introduction to Movement 3
THP 277 Acting: Introduction to Voice 3
THP 285 Acting: Beginning Scene Study 3

One of the following two courses (two or three semester hours) is also required toward the end of the program of study:

THP 388 Acting: Audition Techniques 3
THP 489 Acting: Career Development 2

Twelve semester hours in acting elective course work completes the concentration.

Students are strongly encouraged to apply for admission to the concentration at the end of the freshman year to allow for three academic years of supervision. Transfer students should apply for the concentration at the end of their first semester at ASU. Admission requirements include an audition with a committee of acting faculty members (conducted at the end of each semester) plus the submission of a one-page letter of intent, a résumé, and an unofficial transcript (minimum 2.50 overall GPA and a 3.00 Theatre GPA required). Retention in the concentration is based on satisfactory artistic work and growth, production participation, evidence of a strong work ethic, and maintenance of a minimum 2.50 overall GPA and a 3.00 Theatre GPA.

Eligible students denied admission into the acting concentration can reapply the following year.

Scenography Concentration

The major in Theatre with a concentration in scenography prepares students for advanced graduate study in the field and entry-level careers in performance design and technology. In addition to core course requirements, the concentration in scenography consists of 24 or 25 semester hours. Twelve semester hours from among the following are required:

THP 317 Stage Management 3
THP 340 Scene Design 3
THP 345 Lighting Design 3
THP 350 Sound Design 3
THP 430 Costume Design 3
THP 442 Drawing 3
THP 494 ST: Technical Direction 3
THP 494 ST: Multimedia Design in Theatre 3

One of the following two courses (three or four semester hours), not taken as part of the core, is also required:

THP 213 Introduction to Technical Theatre 4
THP 214 Introduction to Costuming 3

Nine semester hours in theatre design or theatre technology elective course work, which may be accomplished through production courses, completes the concentration.

Application for admission into the concentration is suggested at the end of the freshman year to allow three years of academic supervision. Transfer students should apply for the concentration during their first semester at ASU. Admission requirements include an interview with design and production faculty (conducted at the end of each semester) and submission of a letter of intent, a portfolio, and an unofficial transcript (a minimum GPA of 2.50 is required). A résumé is optional. Design and production faculty will meet monthly with students as a group to monitor personal progress, to assess portfolio development, and to develop a community. Retention in the program is based on satisfactory artistic growth (as evidenced in a mandatory portfolio reflecting work completed during each semester), production participation, and maintenance of a 2.50 GPA. For more information, see the *BA in Scenography Concentration Handbook*.

Eligible students denied admission into the scenography concentration can appeal in writing to the director of the undergraduate scenography program.

FILM—BA

Admission to the BA in Film (Film and Media Production)

The BA in Film is a joint effort of the Katherine K. Herberger College of Fine Arts (HCFA) and the College of Liberal Arts and Sciences (CLAS). Students take a core group

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

of six courses spread across both colleges before seeking admission to the concentration in film and media production offered by the School of Theatre and Film or the concentration in film and media studies offered by CLAS. Students in the premajor program, exploratory students, or others can apply for admission to the BA in Film with a concentration in film and media production in the semester in which they are completing the 18-semester hour core of BA in Film courses. Applicants to the film and media production concentration must have a minimum GPA of 3.00 in the core classes.

These courses must be completed with a minimum 3.00 GPA by the end of the semester in which application is made to the BA in Film with a concentration in film and media production.

FMS	100	Introduction to Film (CLAS)	3
FMS	200	Film History (CLAS)	3
FMS	270	Race and Ethnicity in American Film (CLAS)	3
THE	201	Film: The Creative Process I: Production Survey (HCFA) (formerly THE 300)	3
THE	400	FOF: Introduction to Ethics in Entertainment* (HCFA)	3
THP	261	Introduction to Screenwriting (HCFA)	3

* Course renumbering is in process; see an academic advisor to confirm course eligibility.

Students interested in the film and media production concentration must submit the following application materials by the first week of March to be considered for acceptance:

1. interview with faculty—the interview date for students is the first week of April;
2. a three-page, double-spaced essay answering the question "Why do you want to study film and media production, and how will this study further your own goals?";
3. a short (no more than two-page, double-spaced) critical essay about a film the applicant has seen;
4. at least one and no more than three letters of reference from teachers or others with whom the applicant has had a professional and/or artistic interaction;
5. one of the following:
   a. an original screenplay of any length
   b. an original video (no more than 10 minutes in length) on DVD or VHS.

Transfer students who are eligible to apply to the film program who are unable to travel to the Tempe campus in April can be admitted into the premajor program and interview in October for formal admission to the major.

All supplemental materials should be sent to:

STUDENT ACADEMIC SERVICES
HERBERGER COLLEGE OF FINE ARTS
ARIZONA STATE UNIVERSITY
PO BOX 872102
TEMPE AZ 85287-2102

Materials should be received by March 1, 2006. Call 480/965-4495 with any questions about the application process or interviews.

The admissions committee is made up of a cross-disciplinary group of theatre/film faculty appointed on staggered terms. The committee provides students with written feedback on the material submitted for admission.

Film and Media Production Concentration

The BA in Film with a concentration in film and media production consists of 57 semester hours. The following are required of all students:

FMS	100	Introduction to Film	3
FMS	200	Film History	3
FMS	270	Race and Ethnicity in American Film	3
THE	201	Film: The Creative Process I: Production Survey	3
THE	220	Principles of Dramatic Analysis	3
THE	400	Introduction to Ethics in Entertainment*	3
THE	403	Independent Film	3
THP	261	Introduction to Screenwriting	3
THP	387	Acting: TV and Film	3
THP	428	Theatre and the Future (capstone)	6
THP	494	ST: Business Ethics in Entertainment Media	3
Selected FMP courses*			9

* Course renumbering is in process; see an academic advisor to confirm course eligibility.

Total of required courses: 45 semester hours; an additional 12 hours of approved courses in production are also required.

A minimum GPA of 3.00 must be maintained in all required courses for continuation in the concentration.

GRADUATION REQUIREMENTS

In addition to fulfilling the major requirements, students must meet all university graduation requirements. See "University Graduation Requirements," page 89.

MINOR

The department offers a minor in Theatre consisting of 22 semester hours of course work. The following courses are required:

THE	100	Introduction to Theatre *HU*	3
THE	300	Film: The Creative Process I *HU*	3
THE	320	History of the Theatre I *HU, H*	3
THP	101	Acting: An Introduction	3
THP	301	Theatre Production	1
Concentration area*			9
Total			22

* Also required are three three-hour courses within the same curricular area. Contact the department for options and course requirements.

Courses ordinarily limited to majors only are available to minors on a second-priority basis; that is, minors may not preregister for these courses, but are allowed to register after all majors' needs have been met. All prerequisites for the minor courses must be met (see course listings). Transfer students may transfer up to nine semester hours toward their minor. A "C" (2.00) or higher is required for all courses in the minor.

BIS CONCENTRATION

A concentration in theatre is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

GRADUATE PROGRAMS

The faculty in the School of Theatre and Film offer programs leading to the MA degree in Theatre; the Master of Fine Arts degree in Theatre with concentrations in directing, integrated digital media, performance, performance design, and theatre for youth; the PhD degree in Theatre with concentrations in theatre and performance of the Americas and theatre for youth; and, in conjunction with the Department of English, an interdisciplinary Master of Fine Arts degree in Creative Writing (playwriting). See the *Graduate Catalog* for details.

FILM AND MEDIA PRODUCTION (FMP)

M FMP 194 Special Topics. (1–4)
selected semesters
M FMP 294 Special Topics. (1–4)
selected semesters
M FMP 394 Special Topics. (1–4)
selected semesters
M FMP 484 Internship. (1–12)
selected semesters
M FMP 494 Special Topics. (1–4)
selected semesters
M FMP 498 Pro-Seminar. (1–7)
selected semesters
M FMP 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

THEATRE (THE)

For more THE courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M THE 100 Introduction to Theatre. (3)
fall, spring, summer
Surveys theatre production from the Greeks to contemporary theatre. Taught in conjunction with distance learning. Lecture, discussion, guest artists. Fee. Prerequisite: nonmajor.
General Studies: HU

M THE 125 Orientation to Theatre. (1)
fall
Orientation to university and department resources and procedures. Career planning and guidance. Attendance and written responses to theatre productions. Required for BA Theatre majors. Prerequisite: Theatre premajor or major.

M THE 201 Film: The Creative Process I. (3)
fall, spring, summer
History, elements, and techniques of theatrical film: cinematography, directing, acting, scriptwriting, producing, and criticism. Lecture, demonstration via film, video, and DVD. Fee.
General Studies: HU

M THE 220 Principles of Dramatic Analysis. (3)
fall and spring
Analysis, evaluation, and interpretation of dramatic literature for theatrical production. Emphasizes the traditional canon of dramatic literature and traditional structures and forms of drama. Prerequisites: ENG 101 (or 105 or 107); Theatre major. Prerequisite with a grade of "B" (3.00) or higher: THE 125.
General Studies: L

M THE 301 Film: The Creative Process II. (3)
fall and spring
Advanced study of contemporary cinema history and film techniques; analyzes social changes in film, multicultural filmmaking, and the star system. Lecture, demonstration via film, video, and DVD. Prerequisite: THE 201.
General Studies: HU

M THE 320 History of the Theatre I. (3)
fall and spring
Traces major developments in theatre production and dramatic literature from their beginnings to the mid-17th century. Lecture, student presentations. Prerequisite: Theatre major or minor.
General Studies: HU, H

M THE 321 History of the Theatre II. (3)
spring
Traces major developments in theatre production and dramatic literature from the mid-17th century to the 20th century. Lecture, student presentations. Prerequisite: Theatre major or minor.
General Studies: HU, H

M THE 322 Theatre History and Culture. (3)
fall, spring, summer
Critically examines major developments in theatre history, historiography, and dramatic literature. Internet. Prerequisite: nonmajor.
General Studies: HU, H

M THE 325 Play Reading for Educational Theatre. (1)
fall and spring
Assigned independent readings in plays for secondary school play production. Prerequisite: written instructor approval.

M THE 400 Focus on Film. (3)
fall and spring
Specialized study of prominent film artists, techniques, and genres. Emphasizes the creative process. May be repeated for credit. Topics may include the following:
- Film Production Part I
  Fee.
- Film Production Part II
  Fee.

Prerequisite: ENG 102 or 105 or 108.

M THE 403 Independent Film. (3)
once a year
Examines the independent film movement from the French New Wave to contemporary independent filmmakers. Lecture, demonstration via film, video, and DVD.
General Studies: HU

M THE 404 Foreign Films and Filmmakers. (3)
fall and spring
Films and filmmakers from Europe, Asia, Australia, the Far East, South America, and the Caribbean. Emphasizes cultural content and filmmaking philosophies.
General Studies: G

M THE 405 Film: Great Performers and Directors. (3)
fall, spring, summer
Examines processes and influences of one or more great film performers and/or directors. May be repeated for credit when topics vary. Topics may include the following:
- Alfred Hitchcock
  Fee.
- Hollywood Rebels
  Fee.

General Studies: HU

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M THE 406 American Multicultural Film. (3)
fall and spring
Examines Native, African, Asian, and Latina and Latino American films and film artists in cinema history and production. Internet course. Fee. Prerequisite: ENG 102 or 105 or 108.
General Studies: HU, C

M THE 422 Latina and Latino Theatre. (3)
selected semesters
Readings, discussion, video of dramatic literature and production styles of Latina and Latino playwrights and theatre companies in the United States. Prerequisite: ENG 102 or 105 or 108.

M THE 423 African American Theatre. (3)
selected semesters
Readings, discussion, video of the history and dramatic literature of African American playwrights and theatre companies in the United States. Prerequisite: ENG 102 or 105 or 108.
General Studies: C

M THE 424 Trends in Theatre for Youth. (3)
selected semesters
Surveys the history, literature, and contemporary practices in theatre for youth.

M THE 426 Theatre of the Americas. (3)
fall and spring
Selected studies in pre-Columbian theatre forms and texts of the Aztecs, Mayans, Caribbean islands, and North American Indians. Internet course. Prerequisite: ENG 102 or 105 or 108.

M THE 430 History of Costume: Western Tradition. (3)
selected semesters
Studies major costume styles throughout history of Western civilization and how these fashions reflected society. Explores how styles can be used by theatrical costumers.

M THE 440 Experimental Theatre and Performance. (3)
fall and spring
Explores 20th-century modernist theatrical forms and movements and development of alternative strategies for analyzing contemporary theatre and performance. Prerequisites: THE 220, 320, 321; Theatre major.

M THE 480 Methods of Teaching Theatre. (3)
spring
Applies materials, techniques, and theories for theatre with 9th- through 12th-grade students. Emphasizes curriculum development and praxis. Prerequisite: Theatre Education or Theatre for Youth majors or instructor approval.

M THE 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Ethics in Entertainment
- Performance Technology I
  Fee.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

THEATRE PERFORMANCE AND PRODUCTION (THP)

For more THP courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M THP 101 Acting: An Introduction. (3)
fall, spring, summer
Introduces basic principles of acting. Topics include terminology, scene and character analysis, exercises and improvisation, audition preparation. Studio. Prerequisite: nonmajor.

M THP 102 Acting I: Fundamentals. (3)
fall and spring
Explores and applies basic principles of acting. Topics include terminology, scene and character analysis, exercises and improvisation, audition preparation. Studio. Prerequisite: Theatre major.

M THP 201 Theatre Production Crew. (1)
fall and spring
Participation in university mainstage theatre production backstage and board operations. May be repeated for credit. Lab. Prerequisites: application; written instructor approval.

M THP 213 Introduction to Technical Theatre. (4)
fall and spring
Procedures of technical theatre production and demonstration. Topics include design and construction of scenery, lighting, and properties. 3 hours lecture, 3 hours lab. Fee. Prerequisite: Theatre major.

M THP 214 Introduction to Costuming. (4)
fall and spring
Basic principles of costume design, construction, and survey of selected historical periods, including makeup styles. Costume design project and production experience. 3 hours lecture, 2 hours lab. Fee. Prerequisite: Theatre major.

M THP 218 The Director's Vision. (3)
fall and spring
History, theory, and principles of directing. Examines director's role and responsibilities, play selection, conceptualizing, ground plans, blocking. Fee. Prerequisites: THE 220; THP 102.

M THP 260 Introduction to Playwriting. (3)
selected semesters
Basic skills of playwriting, including exercises in monologues, scenes, and conflict and resolution, leading to completion of a one-act play. Prerequisite: ENG 101 or 105 or 107.

M THP 261 Introduction to Screenwriting. (3)
once a year
Basic skills of screenwriting, including exercises in conflict and resolution, plot points, and theories of three-act structure and design. Prerequisite: ENG 101 or 105 or 107.

M THP 272 Acting: Introduction to Movement. (3)
fall and spring
Movement vocabulary and physical training in relaxation, alignment, conditioning, and stage presence. Application to performance. Studio. Prerequisite with a grade of "B" (3.00) or higher: THP 101 or 102 or written instructor approval.

M THP 277 Acting: Introduction to Voice. (3)
fall and spring
Exercises and techniques to free the voice and improve quality and projection. Application to performance. Studio. Prerequisite with a grade of "B" (3.00) or higher: THP 101 or 102 or written instructor approval.

M THP 285 Acting II: Beginning Scene Study. (3)
fall and spring
Rehearsal techniques and application of action to dramatic text. Emphasizes realistic drama. Studio. Prerequisite with a grade of "B" (3.00) or higher: THP 101 or 102 or written instructor approval. Pre- or corequisite: THE 220.

M THP 301 Theatre Production. (1–2)
fall and spring
Participation in university mainstage theatre productions (e.g., acting, construction, stage management). May be repeated for credit. Lab. Prerequisites: THP 213 (or 214 or written instructor approval); application.

M THP 307 Acting: Research and Performance. (1–3)
once a year
Acting in theatre projects, productions, or collaborative performances in directing classes. May be repeated for credit. Studio. Prerequisite: written instructor approval.

M THP 311 Improvisation with Youth. (3)
fall, spring, summer
Basic materials, techniques, and theories for facilitating improvisational drama with children and youth. Not open to freshmen.

M THP 312 Puppetry and Children. (3)
fall, spring, summer
Construction and manipulation of puppets; practice in performance skills. Emphasizes educational and recreational uses of puppetry by and with children. Fee. Prerequisite: junior standing or above.

M THP 313 Fundamentals of Design. (3)
fall and spring
Art and practice of scenic, costume, and lighting design for the theatre and the media. Prerequisite: THP 213 or 214.

M THP 317 Stage Management. (3)
selected semesters
Readings in stage management and participation as a stage manager in a university theatre production. Prerequisite: written instructor approval.

M THP 318 Directing for the Stage. (3)
fall and spring
Director's approach to text analysis and articulation of ideas. Basic tools, rehearsal schedules, staging, rehearsal and audition techniques, scene work. Prerequisites: THP 213, 218; instructor approval.

M THP 320 Acting: Solo and Collaborative Performance. (3)
once a year
Creation and development of original performance art works combining text, movement, multimedia, visual art; the actor as writer, designer, performer. Studio. Prerequisite: written instructor approval.

M THP 322 Acting: Voice-Overs and Radio Drama. (3)
selected semesters
Applies effective vocal techniques to commercials, books on tape, radio dramas. Preparation of audition tape, performance in radio drama. Studio. Prerequisite: written instructor approval.

M THP 331 Costume Construction. (3)
selected semesters
Uses of materials and techniques for stage costumes with actual construction of period apparel. Prerequisite: THP 214 or instructor approval.

M THP 340 Scene Design. (3)
once a year
Studio projects in designing scenery for contemporary stages. Fee. Prerequisite: THP 213 or written instructor approval. Prerequisite with a grade of "C" (2.00) or higher: THE 220.

M THP 345 Lighting Design. (3)
once a year
Principles and theory of stage lighting design, including design process and execution, equipment, and light plots. Lecture, lab. Fee. Prerequisite: THP 213 or written instructor approval. Prerequisite with a grade of "C" (2.00) or higher: THE 220.

M THP 350 Sound Design. (3)
once a year
Introduces the equipment, process, and recording techniques used in sound design for the theatre. Lecture, studio. Fee. Prerequisite with a grade of "C" (2.00) or higher: THE 220.

M THP 360 Intermediate Playwriting. (3)
once a year
Continued development of skills in playwriting through specific exercises and completion of a full-length play. Prerequisite: ENG 210 Introduction to Creative Writing (drama) or THP 260.

M THP 372 Acting: Advanced Movement. (3)
once a year
Movement techniques for the classical and nonrealistic theatre. Studio. Prerequisite: THP 272 or written instructor approval.

M THP 377 Acting: Voice and Speech. (3)
once a year
Introduces phonetic alphabet, exercises, and techniques for voice and speech improvement. Application to performance. Studio. Prerequisite: THP 277.

M THP 378 Acting: Stage Dialects. (3)
once a year
Major dialects needed for actors; techniques for researching and learning dialects; phonetic analysis of dialects. Studio. Prerequisite: THP 377 or written instructor approval.

M THP 385 Acting: Classical Scene Study. (3)
once a year
Rehearsal and performance of Shakespeare and other classical playwrights. Emphasizes understanding poetic language, vocal and physical skills. Studio. Prerequisites: THP 377; written instructor approval.

M THP 386 Acting: The Meisner Approach. (3)
fall and spring
Improvisations and exercises developed by Sanford Meisner applied to scene work. Studio. Prerequisite with a grade of "B" (3.00) or higher: THP 101 or 102 or written instructor approval.

M THP 387 Acting: TV and Film. (3)
fall and spring
Professional television and film acting techniques, terminology, and on-camera experience. Studio. Fee. Prerequisite with a grade of "B" (3.00) or higher: THP 101 or 102 or written instructor approval.

M THP 388 Acting: Audition Techniques. (3)
once a year
Techniques and preparation for stage, commercial, and TV/film auditions utilizing monologues, cold readings, and personal style. Studio. Prerequisite with a grade of "B" (3.00) or higher: THP 101 or 102 or written instructor approval.

M THP 394 Special Topics. (1–4)
fall and spring

M THP 401 Theatre Practicum. (1–2)
fall and spring
Production assignments for advanced students of technical production, stage and business management, and design. May be repeated for credit. Prerequisites: THP 301; written instructor approval.

M THP 406 Advanced Scenography. (3)
selected semesters
Process of production collaboration among scenographers, directors, and playwrights. Taught in conjunction with THP 519. Prerequisites: a combination of THP 214 and 340 and 345 or both THP 313 and 340.

M THP 411 Methods of Teaching Drama. (3)
fall
Applies materials, techniques, and theories with grades K–8 youth. Regular participation with children. Prerequisite: THP 311 or written instructor approval.

M THP 418 Directing the Actor. (3)
once a year
Practical applications of directing for the stage. Rehearsal and presentation of scenes and short plays. Prerequisites: THP 318; instructor approval.

M THP 428 Theatre and the Future. (3)
fall and spring
Capstone course exploring visions of the future of theatre. Results in a project in creative or scholarly form. Prerequisites: THE 440; senior standing; Theatre major.

M THP 430 Costume Design. (3)
selected semesters
Principles of costume design with projects in both modern and period styles. Includes budgets and fabric/pattern estimates. Lecture, studio. Prerequisite: THP 214.

M THP 431 Advanced Costume Construction. (3)
selected semesters
Specialized training in costume construction problems and crafts with projects in tailoring, millinery, and period accessories. Prerequisites: both THP 214 and 331 or only instructor approval.

M THP 435 Advanced Technical Theatre. (3)
selected semesters
Selection of materials, drafting of working drawings, tool operation, and construction techniques. 2 hours lecture, 2 hours lab. Prerequisites: both THP 340 and 345 or only written instructor approval.

M THP 440 Advanced Scene Design. (3)
selected semesters
Advanced studio projects in designing scenery for a variety of stage forms. Fee. Prerequisite: THP 340 or written instructor approval.

M THP 441 Scene Painting. (3)
selected semesters
Studio projects in painting stage scenery. Fee. Prerequisite: THP 340 or written instructor approval.

M THP 442 Drawing. (3)
selected semesters
Techniques in drawing and rendering for scenic, costume, and lighting design. Prerequisite: written instructor approval.

M THP 444 Drafting for the Stage. (3)
selected semesters
Fundamentals of and practice in graphic techniques for the stage. Introduces computer-aided design for the stage. 2 hours lecture, 3 hours studio. Fee. Prerequisites: THP 213; written instructor approval.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

The Katherine K. Herberger College of Fine Arts Department of Dance is one of the nation's leading contemporary dance and dance education programs.

Tim Trumble photo

M THP 460 Advanced Playwriting. (3)
selected semesters
Practice and study of creating characters, dialogue, scenes, plays, and monologues for the stage, culminating in a full-length script. May be repeated for credit. Studio, lecture. Prerequisite: instructor approval.

M THP 461 Scripts in Progress. (3)
fall and spring
Studio work with the instructor, centered on revisions of original plays. May be repeated for credit. Studio. Prerequisite: THP 460 or written instructor approval.

M THP 445 Advanced Lighting Design. (3)
selected semesters
Specialized techniques in stage lighting. Advanced application of design process, graphic techniques of design presentation, and use of qualities of light. Lecture, class workshops. Fee. Prerequisite: THP 345 or written instructor approval.

M THP 450 Theatre Organization and Management. (3)
once a year
Overview of nonprofit arts: organizational design, strategic planning, financial management, and leadership. Prerequisite: written instructor approval.

M THP 481 Secondary School Play Production. (3)
fall
Methods of directing, designing, and coordinating play production experiences at the secondary school level. Off-campus practicum. Prerequisite: THP 318 or instructor approval.

M THP 482 Theatre for Social Change. (3)
fall and spring
Interactive theatre techniques (e.g., Boal, drama therapy, playback theatre) to examine and combat institutional, social, cultural, interpersonal, and personal oppressions. Lecture, lab.
General Studies: C

M THP 483 Acting: Viewpoints and Composition. (3)
spring
Training in Anne Bogart's viewpoints and composition techniques; application to rehearsal and performance, and creating new work. Studio. Prerequisite: THP 285 or written instructor approval.

M THP 484 Internship. (1–4)
selected semesters

M THP 489 Acting: Career Development. (2)
selected semesters
Familiarization with the business of acting: self-promotional tools and techniques, marketing strategies, finances, interview skills, and actor unions. Studio. Prerequisites with a grade of "B" (3.00) or higher: both THP 101 (or 102) and junior (or senior) standing or only written instructor approval.

M THP 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Advanced Screenwriting
- Business Ethics in Entertainment Media
- Multimedia Design in Theatre
- Performance and Technology
- Problems in Directing
- Storytelling
- Student Production Board
- Technical Direction
- Theory and Practice of Performance

M THP 498 Pro-Seminar. (1–7)
once a year
Topics may include the following:
- Directing. (1–6)
- Theatre-for-Youth Tour. (1–6)
- Theatre in Education. (1–6)

Prerequisite: written instructor approval.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Walter Cronkite School of Journalism and Mass Communication

cronkite.asu.edu

Christopher Callahan, MPA, Dean

PURPOSE AND PHILOSOPHY

The faculty of the Walter Cronkite School of Journalism and Mass Communication offer a strong professional program that values applied scholarship. Faculty members combine excellent professional experiences with outstanding records as productive scholars.

The primary mission of the school is to

1. prepare students for careers in journalism and related fields;
2. examine mass communication through research and teaching, thereby preparing informed life-long consumers of the mass media; and
3. develop new approaches to practicing journalism in a university setting, providing ample opportunities for students and faculty to serve audiences beyond the classroom.

To that end, the school offers classroom instruction in a blend of conceptual courses (such as media law, media ethics, media history and media management) and professional skills courses (such as print and broadcast writing, editing, reporting, and production techniques). The school also offers on-campus media work experiences, including the campus newspaper *The State Press*; The Blaze radio station; "Newswatch," a weekly student-produced cable television news magazine; "ASU Web Devil"; and "Channel 2," the student-run campus cable station. Off-campus work experience opportunities include internships at newspapers, magazines, and television and radio stations. Other off-campus options include: public relations, visual journalism, sales and promotions, and media analysis and criticism.

ADMISSION

Preprofessional Admission

Students admitted to ASU must meet additional requirements to be admitted to the Walter Cronkite School of Journalism and Mass Communication with preprofessional status. Preprofessional admission to the school does not guarantee admission to the upper-division professional program. Preprofessional students must possess a minimum 2.50 GPA with at least 12 semester hours earned before they are permitted to enroll in school courses at the 200 level. All preprofessional students who intend to take courses beyond the 100 level must pass an English proficiency examination administered by the school.

Professional Program Admission

Admission to the Walter Cronkite School of Journalism and Mass Communication professional program, which enrolls students in their junior and senior years, is competitive and based on available resources. Once a student is granted admission, the upper-division professional program may require two years to complete.

A separate application procedure is required for entry to the upper-division professional program. To be eligible to apply for admission to the professional program, students must

1. be admitted to ASU as a classified student;
2. have completed at least 56 semester hours by the close of the semester in which the application is submitted;
3. have completed lower-division courses or their equivalents, as specified below;
4. have completed, with a passing score, the English proficiency examination administered by the school; and
5. have at least a 2.50 cumulative and major GPA.

Preprofessional status students must complete the following courses:

JMC	201	Journalism Newswriting *L*	3
MCO	110	Introduction to Mass Communication *SB*	3
		or MCO 120 Media and Society *SB* (3)	
Total			6

To be considered for admission to the school's upper-division professional program, students must obtain an application form from the school office in STAUF A231, or online at cronkite.asu.edu. Precise application procedures and submission deadlines are outlined on the form. *Completion of the minimum requirements for eligibility does not*

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

guarantee admission to the upper-division professional program. The admissions committee considers a variety of criteria, including major and cumulative GPA, media experience, writing ability, and commitment to the field. Students may apply twice.

ADVISING

Students should follow the sequence of courses outlined on school curriculum check sheets, their online degree audit, and the advice of the school's academic advisors. Students who enroll as preprofessional or who seek and ultimately gain professional status should meet regularly with their Walter Cronkite School of Journalism and Mass Communication academic advisor. Conscientious, careful planning and early advising are crucial to students who desire to progress through the program in a timely fashion.

DEGREES

The school offers a program leading to the Bachelor of Arts degree in Journalism and Mass Communication. Students select one of five concentrations: journalism, media analysis and criticism, media management, media production, or strategic media and public relations.

The school offers a program leading to the graduate degree Master of Mass Communication.

The Stauffer Communication Arts Building Tim Trumble photo

TRANSFER STUDENTS

Transfer students must be formally admitted to ASU to be considered for admission to the professional program in the Walter Cronkite School of Journalism and Mass Communication.

Students completing their first two years of course work at a community college or four-year institution other than ASU should consult the school's academic advisors at least one full semester before they hope to be considered for admission to the school's professional program. Transfer student admission to ASU does not guarantee admission to the upper-division professional program.

PROGRAM REQUIREMENTS

Because the Walter Cronkite School of Journalism and Mass Communication is accredited by the Accrediting Council on Education in Journalism and Mass Communication, its students are required to take a minimum of 80 semester hours in courses outside the major of Journalism and Mass Communication, with no fewer than 65 semester hours in liberal arts and sciences. This requirement ensures that students receive a broad academic background.

At least 18 semester hours of major courses required by the school, including one writing course, must be taken at ASU. A student must receive a grade of "C" (2.00) or higher in all courses taken in the major and in the required related area.

BA REQUIREMENTS

All students are required to demonstrate proficiency in a language other than English (a spoken language or American Sign Language). Proficiency is defined as completing the second semester intermediate level, or higher, of a language other than English with a grade of "C" (2.00) or higher.

The undergraduate major in Journalism and Mass Communication consists of a minimum of 30 semester hours in Walter Cronkite School of Journalism and Mass Communication courses.

Required core courses (12 of the 30 to 39 hours are required of all students in all five concentrations):

JMC	201	Journalism Newswriting *L* 3
MCO	110	Introduction to Mass Communication *SB* 3
		or MCO 120 Media and Society *SB* (3)
MCO	302	Media Research Methods 3
MCO	402	Mass Communication Law *L* 3
Total		 12

Students complete the required core courses of the major (12 semester hours), plus the required courses of one concentration area (15 semester hours), and elective courses (from three to 12 hours) from other areas in the major.

These courses are in addition to other degree requirements. See "University Graduation Requirements," page 89.

Related Area. Each student is required to complete a 12-semester-hour related area to complement the courses taken in the major and concentration areas.

GENERAL STUDIES REQUIREMENTS

Students must satisfy the university General Studies requirement found in "General Studies," page 93. Students are advised to review carefully the appropriate school curriculum check sheet to ensure that courses taken move the student toward graduation with the least amount of delay and difficulty. Note that all three General Studies awareness areas are required.

General education requirements for the Walter Cronkite School of Journalism and Mass Communication follow.

Students are required to take one course in each of the following areas: communication (applied speech), computer science, economics, English composition (beyond the freshman level), English literature, history, mathematics (numeracy requirement), two natural science lab courses, philosophy, political science (either POS 110 or 310), and psychology.

MINOR IN MASS COMMUNICATION

The Walter Cronkite School of Journalism and Mass Communication offers a minor in Mass Communication consisting of the required course MCO 120 Media and Society and 12 additional semester hours (nine of which must be upper-division hours) of Tempe campus resident credit taken from a list of approved courses. The following courses are included:

JMC 200 Introduction to Electronic Media 3
JMC 270 Public Relations Techniques 3
MCO 240 Media Issues in American Pop Culture 3
MCO 418 History of Mass Communication *SB, H* 3
MCO 430 International Mass Communication *G* 3
MCO 435 Emerging Media Technologies 3
MCO 450 Visual Communication *HU* 3
MCO 456 Political Communication *SB* 3
MCO 460 Race, Gender, and Media *C* 3
MCO 473 Sex, Love, and Romance in the Mass Media *SB* 3
MCO 494 Special Topics 3

To take upper-division courses, the student must be at least a sophomore (25 semester hours). To pursue the minor in Mass Communication, the student must maintain a minimum 2.00 overall GPA, obtain a minimum grade of "C" (2.00) in each course in the minor, and have a major other than Journalism and Mass Communication.

BIS CONCENTRATION

A concentration in mass communication is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

SCHOOL OF EXTENDED EDUCATION

The university-wide School of Extended Education provides an interactive link between ASU and the diverse communities it serves. The college assesses lifelong learning requirements and works in partnership with campuses, other colleges, and the community to serve learners, using a network of locations, programs, schedules, and technologies.

For more information, see "School of Interdisciplinary Studies," page 139, or access the Web site at www.asu.edu/xed.

GRADUATE PROGRAM

Master of Mass Communication. The curriculum for the MMC degree is designed to help students achieve intellectual and professional growth, to prepare students for positions in the mass media, and to enable those currently in the media to advance their careers. For more information, see the *Graduate Catalog*.

Walter Cronkite School of Journalism and Mass Communication

cronkite.asu.edu
480/965-5011
STAUF A231

Christopher Callahan, Dean

Professors: Callahan, Craft, Cronkite, Doig, Godfrey, Merrill, Sylvester, Watson

Associate Professors: Allen, Barrett, Bramlett-Solomon, Galician, Matera, Russell, Russomanno

Assistant Professors: Gavrilos, Schwalbe, Silcock, Thornton, Wu

Clinical Professors: Itule, Leigh

Lecturer: Casavantes

Senior Administrative Professional: Leigh

JOURNALISM AND MASS COMMUNICATION (JMC)

M JMC 200 Introduction to Electronic Media. (3)
fall, spring, summer
Surveys electronic media in the United States: history, regulation, organization, programming, and effects. Prerequisites: MCO 110 (or 120); successful completion of English proficiency exam; JMC major.

M JMC 201 Journalism Newswriting. (3)
fall, spring, summer
Writing news for the print media. Fee. Prerequisites: ENG 101 (or 105); MCO 110 (or 120); successful completion of English proficiency exam; JMC major.
General Studies: L

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M JMC 202 Radio-Television Writing. (3)
fall and spring
Writing for electronic media, news, and continuity. Fee. Prerequisites: MCO 110 (or 120); successful completion of English proficiency exam; JMC major.
General Studies: L

M JMC 235 Electronic Media Production. (3)
fall and spring
Introduces basic concepts of audio and video production. Introduces operation of portable cameras, recorders, microphones, lights, editing, and postproduction equipment. Prerequisites: MCO 110 (or 120); successful completion of English proficiency exam; JMC major.

M JMC 270 Public Relations Techniques. (3)
fall, spring, summer
Theory and practice of publicity, public relations, and related techniques and procedures. Prerequisite: MCO 110 or 120.

M JMC 300 Advanced Broadcast Newswriting. (3)
fall and spring
Technique and practice in newswriting for broadcast and cable applications. Fee. Prerequisites: JMC 201; JMC professional status.

M JMC 301 Reporting. (3)
fall and spring
Fundamentals of news gathering, interviewing, and in-depth reporting. Fee. Prerequisites: JMC 201; JMC professional status.
General Studies: L

M JMC 313 Introduction to Editing. (3)
fall and spring
Copyediting and headline writing. Electronic editing on personal computer terminals. Fee. Prerequisites: JMC 301; JMC professional status.

M JMC 315 Broadcast News Reporting. (3)
fall and spring
News and information practices of networks, stations, and industry. Practice in writing, reporting, and editing with emphasis on audio. Prerequisites: JMC 301; JMC professional status.
General Studies: L

M JMC 330 Advanced Broadcast Reporting. (3)
fall and spring
News and information practices of networks, stations, and industry. Advanced practice in writing, reporting, and editing with emphasis on video. Prerequisites: JMC 300, 301; JMC professional status.

M JMC 332 Electronic Media Programming. (3)
fall and spring
Programming theory and evaluation, regulation, ethics, and responsibilities and basics of audience psychographics and effects. Prerequisites: JMC 200; JMC professional status.

M JMC 345 Videography. (3)
fall and spring
Develops an understanding of visual storytelling and how to craft a good, compelling story with pictures and sound. Lecture, lab. Fee. Prerequisites: JMC 235; JMC professional status.

M JMC 351 Photojournalism I. (3)
fall and spring
Basic camera, lighting, and scanning skills. Discusses ethics. Emphasizes shooting pictures for newspaper assignments on deadline. Students should have a 35mm (film) camera. Fee. Prerequisite: JMC 201 or instructor approval.

M JMC 401 Advanced Public Relations. (3)
fall and spring
Advanced theory and practice of publicity, public relations, and related techniques and procedures. Prerequisites for undergraduates: JMC 270; JMC professional status.

M JMC 412 Editorial Interpretation. (3)
selected semesters
The press as an influence on public opinion. Role of the editorial in analyzing and interpreting current events. Prerequisites for undergraduates: JMC 301; JMC professional status.

M JMC 413 Advanced Editing. (3)
fall and spring
Theory and practice of newspaper editing, layout and design, picture and story selection. Fee. Prerequisites for undergraduates: JMC 313; JMC professional status.

M JMC 414 Electronic Publication Design. (3)
fall and spring
Theory, organization, and practice of layout, typography, and design in traditional and multimedia publishing. Fee. Prerequisites for undergraduates: JMC 270; JMC professional status.

M JMC 415 Writing for Public Relations. (3)
fall and spring
Development of specific writing techniques for the practitioner in public relations agencies and divisions of major organizations. Fee. Prerequisites for undergraduates: JMC 270; JMC professional status.

M JMC 417 Public Relations Campaigns. (3)
fall and spring
Theory, principles, and literature of public relations and how they relate to audiences, campaigns, and ethics. Prerequisite: JMC 401. Prerequisite for undergraduates: JMC professional status.

M JMC 420 Reporting Public Affairs. (3)
fall and spring
Instruction and assignments in reporting the courts, schools, government, city hall, social problems, and other areas involving public issues. Prerequisites for undergraduates: JMC 301; JMC professional status.

M JMC 425 Online Media. (3)
fall and spring
Focuses on the Internet from the perspective of the journalist—the best way to tell a story using words, photos, video, and audio. Lecture, lab. Fee. Prerequisites: JMC 201 (or its equivalent); JMC professional status.

M JMC 433 Media Sales and Promotion. (3)
fall and spring
Basics of electronic media marketing practices, including commercial time sales techniques and radio/TV promotion fundamentals. Prerequisites for undergraduates: JMC 200; JMC professional status.

M JMC 437 Documentary Production. (3)
fall
Emphasizes individual production projects of the student's own conception and design utilizing studio, field, and postproduction techniques. Prerequisites for undergraduates: JMC 235; JMC professional status.

M JMC 440 Magazine Writing. (3)
fall and spring
Writing and marketing magazine articles for publication. Prerequisites for undergraduates: JMC 301; JMC professional status.

M JMC 445 Science Writing. (3)
once a year
Develops writing, interviewing, reporting skills, and an understanding of key concepts in science. Lecture, lab. Fee. Prerequisites: student in BA in Journalism and Mass Communication or MMC in Mass Communication; instructor approval.

M JMC 451 Photojournalism II. (3)
spring
Emphasizes shooting and Photoshop skills for newspaper and magazine assignments. Film and digital photography, flash and studio lighting. Fee. Prerequisite: JMC 351. Prerequisite for undergraduates: JMC professional status.

M JMC 452 Photojournalism III. (3)
fall
Continued practice in shooting (film and digital) and Photoshop skills for newspapers and magazines. Emphasizes single images, picture stories, editorial illustrations, and portfolio development. 2 hours lecture, 2 hours lab. Fee. Prerequisite: JMC 451. Prerequisite for undergraduates: JMC professional status.

M JMC 465 Precision Journalism. (3)
fall and spring
Advanced reporting methods using Internet research and data analysis tools for beat and investigative stories. Lecture, lab. Fee. Prerequisites for undergraduates: JMC 301; JMC professional status.

M JMC 470 Depth Reporting. (3)
fall and spring
Introduces strategies for writing in-depth newspaper or magazine articles. Lecture, lab. Fee. Prerequisites for undergraduates: JMC 301; JMC professional status; instructor approval.

M JMC 472 Media Management. (3)
fall and spring
Management principles and practices, including organization, procedures, policies, personnel problems, and financial aspects of station management. Pre- or corequisites for undergraduates: JMC 332; JMC professional status.

M JMC 475 Television Newscast Production. (3)
fall and spring
Writing, reporting, and production of the television newscast. Prerequisite: instructor approval. Prerequisite for undergraduates: JMC professional status.

M JMC 494 Special Topics. (1–4)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

MASS COMMUNICATION (MCO)

M MCO 110 Introduction to Mass Communication. (3)
fall and spring
Organization, function, and responsibilities of the media and adjunct services. Primary emphasis on newspapers, radio, television, and magazines. Credit is allowed for only MCO 110 or 120. Prerequisite: ENG 101 or 105 or 107.
General Studies: SB

M MCO 120 Media and Society. (3)
fall, spring, summer
Role of newspapers, magazines, radio, television, and motion pictures in American society. Credit is allowed for only MCO 120 or 110. Designed for nonmajors.
General Studies: SB

M MCO 240 Media Issues in American Pop Culture. (3)
fall and spring
Examines the production and consumption of popular culture as disseminated by the mass media with emphasis on the societal implications. Lecture, discussion.

M MCO 302 Media Research Methods. (3)
fall, spring, summer
Surveys research methods used in the social sciences, with a focus on mass communication. Prerequisite: JMC professional status.

M MCO 402 Mass Communication Law. (3)
fall, spring, summer
Legal aspects of the rights, privileges, and obligations of the press, radio, and television. Prerequisites: 87 earned hours; JMC professional status.
General Studies: L

M MCO 418 History of Mass Communication. (3)
fall
American journalism from its English and colonial origins to the present day. Development and influence of newspapers, magazines, radio, television, and news gathering agencies.
General Studies: SB, H

M MCO 421 Media Problems. (3)
fall and spring
Trends and problems of the mass media, emphasizing editorial decisions in the processing of information. Prerequisite: JMC professional status.

M MCO 430 International Mass Communication. (3)
fall and spring
Comparative study of communication and media systems. Information gathering and dissemination under different political and cultural systems.
General Studies: G

M MCO 435 Emerging Media Technologies. (3)
selected semesters
Surveys new telecommunication technologies in a convergent environment.

M MCO 440 Applied Media Research. (3)
fall and spring
Design, conduct, and analysis of applied media research. Students participate in the Cactus State Poll. Lab setting. Prerequisite: JMC professional status.

M MCO 450 Visual Communication. (3)
fall, spring, summer
Theory and tradition of communication through the visual media with emphasis on the continuity of traditions common to modern visual media.
General Studies: HU

M MCO 453 American Political Film. (3)
spring
Studies the depiction of the American political process, especially the electoral process, through film. Lecture, discussion.

M MCO 456 Political Communication. (3)
fall
Theory and research related to political campaign communication. The persuasive process of political campaigning, the role of the media, the candidate, and image creation.
General Studies: SB

M MCO 460 Race, Gender, and Media. (3)
spring and summer
Reading seminar designed to give a probing examination of the interface between AHANA Americans and the mass media in the United States. Lecture, discussion. Cross-listed as AFR 460. Credit is allowed for only AFR 460 or MCO 460.
General Studies: C

M MCO 464 Media and Politics: The Fourth Estate. (3)
spring
Understanding and articulation of the place of the press as the Fourth Estate in the political life of the U.S.

M MCO 470 Issues Management and Media Strategy. (3)
selected semesters
Strategic aspects of media planning and management in public relations, public affairs, crisis communication lobbying, media ethics, and government relations. Seminar. Prerequisite: JMC professional status.

M MCO 473 Sex, Love, and Romance in the Mass Media. (3)
fall, spring, summer
The role of the mass media in constructing and/or reinforcing unrealistic mythic and stereotypic images of sex, love, and romance. Lecture, discussion. Prerequisites for nonmajors: 24 hours; 2.00 GPA. Prerequisites for majors: 40 hours; 2.50 GPA.
General Studies: SB

M MCO 494 Special Topics. (3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

College of Law

www.law.asu.edu

Patricia D. White, JD, Dean

PURPOSE

As the only law school in the fifth largest U.S. metropolitan area and Arizona's capital, the College of Law plays a significant role in the legal profession nationally and serves as the region's principal intellectual center for the profession. In addition to training men and women for the profession and related assignments, the college contributes to the creation and administration of law and justice through the efforts of its faculty and students.

ORGANIZATION

Law Building and Law Library

The John S. Armstrong Law Building is located on the east side of the university's Tempe campus. The Law Building provides every modern facility for legal education and has been described by experts involved in law building planning as setting a new standard in functional design.

The award-winning John J. Ross–William C. Blakley Law Library, named in memory of two prominent Phoenix attorneys, is one of the finest law libraries in the Southwest. The library houses a collection of more than 414,000 volumes and microform volume equivalents. The collection includes a broad selection of case reports and statutes as well as legal treatises, periodicals, encyclopedias, digests, citators, and administrative materials. The collection also includes a growing selection of special materials dealing with international law, Indian law, Mexican law, English legal history, and law and technology.

The library, housed in a dramatic and functional building that opened in August 1993, is also a selective U.S. government depository. The building provides accessible shelving for the expanding collections and comfortable study space at carrels, tables, and lounge seating located throughout the library. Additionally, the law library has a 20-station computer lab, LEXIS and WESTLAW rooms with 10 stations each, 27 meeting and study rooms, a microforms facility, and a classroom. Both buildings are equipped with wireless Ethernet access.

Students may access other campus libraries, including the Charles Trumbull Hayden Library, the Daniel E. Noble Science and Engineering Library, the Architecture and Environmental Design Library, and the Music Library. The collections maintained in all university libraries comprise more than three million volumes.

Special Programs

Center for the Study of Law, Science, and Technology. The center, founded by the Arizona Board of Regents in 1984, is the oldest, largest, and most comprehensive multidisciplinary research center focusing on the intersection of law and science. The center is known as a national leader in training law students to understand and manage the legal implications of new technologies. The center anticipates issues raised by new knowledge, stimulates dialogue between legal and scientific scholars, and conducts research that promotes the legal community's engagement with scientific and technological developments. The unique breadth of faculty expertise within the College of Law—29 faculty members are center fellows—supports course offerings in a broad range of law, science, and technology subjects, such as scientific evidence, intellectual property and cyberlaw, behavioral biology, health care and bioethics, information and communication technologies, statistics and mathematical methods, biotechnology, environmental and natural resource law and policy, and risk management. A certificate program provides coherence and structure to student academic development; there are specializations in biotechnology, environmental law, health care law, and intellectual property. Externships in the local legal community provide students with hands-on experience under the guidance of skilled practitioners. The center's Technology Ventures Clinic provides a unique applied clinical experience where students evaluate inventions generated by ASU researchers, devise marketing strategies, and file patent documentation. The center is a key player in several contemporary debates within the legal academic community. For example, it sponsors an annual conference on genetics and the law. It also sponsors a speaker series each semester that attracts the country's best legal scholars. The center also copublishes, with the American Bar Association Section of Science and Technology Law, *Jurimetrics: The Journal of Law, Science, and Technology*, the oldest and most widely circulated journal in the field of law and science. Students serve as editors and officers of the journal, editing articles for publication, conducting research, and developing and writing articles under the direction of the faculty editor.

Indian Legal Program. The Indian Legal Program was established in 1988 to provide legal education to law students on topics in Indian law, generate scholarship in Indian law, and provide public service to tribal governments. The college is a strong choice for students interested in studying Native American legal systems, federal Indian law, and the

complex issues confronting Indian nations and individuals. Through a Certificate in Indian Law, the college provides its students with a quality legal education and an opportunity to gain specific knowledge and expertise in Indian law.

Students have the opportunity to participate in all phases of the Indian Legal Program and gain an in-depth understanding of the legal issues affecting Indian tribes and people. Courses on Federal Indian law and seminars on advanced Indian law topics such as tribal law and government, gaming, and American Indian cultural resources protection are part of the curriculum. Students also have the opportunity to participate in internships with local tribal courts, the Native American Rights Fund, the U.S. Department of the Interior, or the Senate Committee on Indian Affairs in Washington, D.C. This variety of academic and work experience provides students with an outstanding legal education and a firm grounding in both the theoretical and practical aspects of Indian law.

Clinical Program. The College of Law's Clinical Program provides second- and third-year students with an opportunity to handle actual cases with the direct guidance of skilled faculty members. The college offers seven real-client clinics: Civil Practice Clinic, Criminal Practice Clinic, Immigration Law and Policy Clinic, Indian Legal Clinic, Mediation Clinic, Public Defender Clinic, and Technology Ventures Clinic. The college's extensive and diverse clinical program allows students to choose among a variety of different work environments.

The Civil Practice Clinic, for example, operates as a functioning law firm within the college, while students in the criminal litigation clinics work in prosecution or public defender agencies in the Phoenix area. Students in the Mediation Clinic learn how to facilitate the resolution of disputes without litigation, and students serve as mediators in real disputes in the small claims court system. Students in the Technology Ventures Clinic work collaboratively with students from other disciplines to analyze technology portfolios and participate in an intellectual property review process for technologies. Students provide legal assistance to tribal communities and governments through the Indian Legal Clinic. Immigration Law and Policy Clinic students counsel and represent immigrants detained for immigration violations. To help prepare for participation in a clinic, second-year students are offered "simulation-based" courses in lawyering theory and practice, trial advocacy, pretrial practice, and negotiation.

Committee on Law and Philosophy. Both the College of Law and the College of Liberal Arts and Sciences have groups of excellent faculty with expertise in the philosophy of the law and related areas of moral and political philosophy. These faculty members have been brought together to form the Committee on Law and Philosophy. The overall goal of the committee is to create and maintain a rich and active intellectual community in this area and to use the resources of that community to offer conferences, lectures, courses, and seminars. Areas of particular interest to members of the committee include criminal law theory, punishment, forgiveness, constitutional interpretation, human rights theory, law and literature, law and religion, and political obligation.

ADMISSION

First-year students are admitted only for the fall semester. The formal requirements for admission to the College of Law are (1) an undergraduate degree from an accredited four-year college or university and (2) a score on the Law School Admission Test (LSAT), administered by Law Services, Box 2000, Newtown, Pennsylvania 18940, in centers throughout the country.

For more information regarding admission, call 480/965-1474 or write

ADMISSIONS OFFICE
COLLEGE OF LAW
ARIZONA STATE UNIVERSITY
PO BOX 877906
TEMPE AZ 85287-7906

Retention Standards

To be eligible to continue in the college, students must maintain a cumulative weighted GPA of 70 or higher at the end of each semester or summer session. Any student who fails to achieve a 70 GPA in any one semester, regardless of the cumulative GPA, is automatically placed on probation. Continuation of enrollment for probationary students is upon such terms and conditions as the college may impose.

A student whose cumulative GPA falls below the required level or whose semester GPA is less than 70 in two consecutive semesters is dismissed but may apply to the Office of the Dean for readmission. The Office of the Dean refers the application to a faculty Committee on Readmission. Cases in which the GPA deficiency is slight and evidence of extenuating circumstances is convincing, readmission may be granted on a probationary status after a review of the reasons contributing to unsatisfactory performance and a finding that there is substantial prospect for acceptable academic performance. Continuation in the College of Law thereafter may be conditioned on achieving a level of performance higher than the overall 70 GPA. Further detailed information concerning the college's retention standards can be found in the *Statement of Student Policies*, which is available on the college's Web site at www.law.asu.edu.

Honor Code. The legal profession, a self-regulating association, depends on the integrity, honor, and personal morality of each member. Similarly, the integrity and value of an ASU College of Law degree depends on a reputation for fair competition. The college's *Honor Code* is intended as a measure to preserve the integrity of the school's diploma and create an arena in which students can compete fairly and confidently. Copies of the *Honor Code* are available from the college's Student Services Office.

ACCREDITATION

The college is fully accredited by the American Bar Association and is a member of the Association of American Law Schools.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

College of Law Graduate Degrees and Majors

Major	Degree	Concentration	Administered By
Biotechnology and Genomics	LLM	—	College of Law
Law	JD	—	College of Law
Legal Studies	MLS	—	College of Law
Tribal Policy, Law, and Government	LLM	—	College of Law

JURIS DOCTOR DEGREE

The College of Law offers a three-year program of professional studies at the graduate level leading to the degree of Juris Doctor. For more information on degrees, see the "College of Law Graduate Degrees and Majors" table, on this page and the "Concurrent and Dual Degrees" table, page 169. For more information on degrees and courses, see the *Graduate Catalog*.

Course of Study

The program of study in the College of Law is designed for full-time students. In the first year of the three-year program, the course of study is prescribed and incorporates the time-proven techniques of legal education. This first year gives students—by the "case method," by the "problem method," by "moot court," and through other techniques—an intensive exposure to basic legal processes.

As a part of the program, first-year students are assigned to small sections. In the Legal Research and Writing program, first-year students prepare legal briefs and memoranda and receive feedback through the use of practice examinations. The program focuses on the development of writing and organizational skills necessary for success in law school and the practice of law. The second and third years cover a wide range of courses varying in format as well as subject matter, allowing students to pursue both the basic subjects of law study and specialized interests. By offering great freedom in the selection of subjects, the educational experience of the second and third years is in sharp contrast to the curriculum of the first year. In addition, the college offers a number of faculty-supervised clinical education programs and a program of supervised externships.

MORE INFORMATION

Further detailed information concerning the course of study, admission practices, expenses, and financial assistance can be found on the college's Web site at www.law.asu.edu. To request application forms, call 480/965-7207 or write

ADMISSIONS OFFICE
COLLEGE OF LAW
ARIZONA STATE UNIVERSITY
PO BOX 877906
TEMPE AZ 85287-7906

For general information about the College of Law, call 480/965-1474, or access the Web site at www.law.asu.edu.

Law

www.law.asu.edu
480/965-6181
LAW 101

Patricia D. White, Dean

Gary Merchant, Executive Director
Center for the Study of Law, Science, and Technology

Catherine O'Grady, Executive Director, Clinical Programs

Jeffrie G. Murphy, and James Nickel, Codirectors,
Committee on Law and Philosophy

Rebecca Tsosie, Executive Director,
Indian Legal Program

Judith M. Stinson, Director,
Legal Research and Writing and Academic Success Programs

Regents' Professors: Kaye, Murphy

Professors: Abbott, Bartels, Bender, Berch, Calleros, Clinton, Ellman, Feller, Gorman, Gover, Grey, Guerin, Kader, Karjala, Lowenthal, Lynk, Marchant, Nickel, O'Grady, Rose, Saks, Schatzki, Schroeder, Spritzer, Stanton, Strouse, Tsosie, Weinstein, M. White, P. White, Winer

Visiting Professors: Anderson, Barnes, Farringer-Parker, Menhkus, Plunkett

Associate Professors: Brauner, Chodorow, Demaine, Fellmeth, Gopolan, Kittrie, Sigler, Sylvester

Clinical Professors: Dallyn, Dauber, Stinson, Trotta, Warne

Clinical Associate Professors: Cruz, Davis, Herrera, Hinshaw, Langenfeld, Noreuil, Popko

LAW (LAW)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

College of Liberal Arts and Sciences

clas.asu.edu

David A. Young, PhD, Vice President and Dean

PURPOSE

Like all major research universities, Arizona State University provides the means for undergraduates to acquire a liberal education, an education that broadens students' understanding in the major areas of human knowledge while providing students with in-depth knowledge in their chosen areas of focus. While the professional schools and colleges can and do provide for important dimensions of a liberal education, the central academic setting for accomplishing this basic university purpose is the College of Liberal Arts and Sciences (CLAS). The college provides a particularly rich and varied set of opportunities for students to gain the kind of liberal education that helps to prepare them for a lifetime of continued learning and application of knowledge in a diverse and ever-changing world.

As a consequence of the wide range of subjects CLAS offers in the humanities, the natural sciences and mathematics, and the social and behavioral sciences, instruction is provided in a number of core areas for undergraduate students from all of the other colleges. Students with majors in business, education, engineering, nursing, and other professional colleges rely on CLAS for basic foundation courses. CLAS also offers the majority of courses meeting the General Studies requirement.

CLAS initiated and continues to participate actively with the Barrett Honors College. It also offers advising to undergraduates who are working out their undergraduate programs or are planning for graduate studies.

Most of the university faculty's engagement in the discovery and creation of knowledge and its dissemination occurs in CLAS. As an integral part of this activity, CLAS offers a wide range of graduate training programs leading to a master's or doctoral degree. For graduate degree application information, see the *Graduate Catalog* and contact either the Division of Graduate Studies or the academic unit

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

in which the degree of interest would be earned, the latter in order to receive detailed information on particular degree requirements.

ORGANIZATION

CLAS consists of the School of Global Studies, the Hugh Downs School of Human Communication, the School of Human Evolution and Social Change, the School of Justice and Social Inquiry, the School of Life Sciences, 20 academic departments, several interdisciplinary programs, 10 centers, and several research institutes and laboratories. The college offers 40 programs leading to a bachelor's degree, 31 programs leading to a master's degree, 22 programs leading to a doctoral degree, and interdisciplinary graduate programs in cooperation with other colleges. Undergraduate customized interdisciplinary degrees are also available.

For more information, access the college's Web site at clas.asu.edu.

ADMISSION

Any entering ASU student who has met the minimum university entrance requirements can be admitted to a CLAS program.

Any student who is in university good standing, who wishes to major in a subject offered by CLAS and to follow a program of study in the major may transfer into the college. Current ASU students who are changing their majors to CLAS from another ASU college are encouraged to first contact the advisor in the department they are moving to.

Transfer Students. The university standards for evaluation of transfer credit are listed under "Transfer Credit," page 71. All students who meet the university standards are admissible to CLAS. Transfer students are urged to contact the relevant academic department or the Office of Undergraduate Programs in FOUND 110, to ensure a smooth transition to CLAS. Students who have transferred course credit from institutions other than Arizona community colleges or public universities must have their transcripts evaluated by an advisor in FOUND 110. Students who have attended only Arizona community colleges, Northern Arizona University, or the University of Arizona have evaluations performed in the department of the major.

Courses transferred from two-year colleges are accepted as lower-division credit only. Students are urged to choose their community college courses carefully, in view of the fact that a minimum of 45 semester hours of work taken at the university must be upper-division credit (see "Community Colleges," page 72).

ADVISING

All students are urged to seek advising in the appropriate college unit before registration. Students must follow the calendar published in the *Schedule of Classes* each semester for information and deadlines pertaining to enrollment, adding/dropping classes, and withdrawals.

In addition to information provided by an advisor, students must read the requirements for university General Studies, college graduation, and major degree requirements in their edition of the ASU *General Catalog*. See "General Studies," page 93, "University Graduation Requirements," page 89, "College Graduation Requirements," page 503, and the section of the department offering the major. The ASU *General Catalog* is the governing source for all degree requirements.

Regular Advising. All students are strongly urged to seek advising in the appropriate college unit before registration.

Advising Locations. CLAS students should seek routine advising at the locations shown in the "Advising Locations" table, on this page.

The Office of Undergraduate Programs, in FOUND 110, is the central resource center for academic information in the college. Requests from students, departmental advisors, and faculty for clarification of rules, procedures, and advising needs of the college and university should be directed to that office.

Advising Locations

Student	Location
Career advising (all majors)	FOUND 110 (480/965-6506)
Declared majors in academic good standing	Department of major

Mandatory Advising. The following categories of Liberal Arts and Sciences students *must* receive advising and *must* be cleared on the Mandatory Advising Computer System (MACS) before their classes are scheduled:

1. students in their first semester at ASU;
2. students on probation;
3. students with a cumulative GPA of less than 2.00;
4. students in their first three semesters (in selected departments);
5. other students with "special admissions" status; and
6. students who have been disqualified (these students are allowed to attend ASU summer and winter sessions only and must be advised in the Office of Undergraduate Programs in FOUND 110).

Students in the above mandatory advising categories should consult an advisor in the appropriate advising location listed in the previous section. Students are encouraged to check their mandatory advising status each semester before attempting registration transactions.

Advising for Preprofessional Programs. Special advising is available for students planning to enter the fields listed in the "Advising for Preprofessional Programs" table, page 501. The professional programs shown in the table are not majors in themselves; that is, there are no majors called "premedical," "prelaw," etc. In each program, the student must select an established major in CLAS or in one of the other colleges.

Pre-Health Professions. Students pursuing admission to professional schools in the health professions must choose a major offered by ASU. However, specific courses must be taken to prepare the student to take the MCAT or other entrance examinations and to succeed in postbaccalaureate training. Therefore, students who plan to pursue a health

Advising for Preprofessional Programs

Professional Field	Office Where Advisor Is Located
Dentistry[1, 2]	Pre-Health Professions, LSC 206C
Foreign service	Department of chosen major
Law	Office of Undergraduate Programs, FOUND 110
Medicine[1]	Pre-Health Professions, LSC 206C
Ministry	Department of Religious Studies, ECA 365
Occupational therapy[1]	Pre-Health Professions, LSC 206C
Optometry[1, 2]	Pre-Health Professions, LSC 206C
Osteopathy[1]	Pre-Health Professions, LSC 206C
Pharmacy[1]	Pre-Health Professions, LSC 206C
Physical therapy[1]	Pre-Health Professions, LSC 206C
Podiatry[1, 2]	Pre-Health Professions, LSC 206C

[1] Students preparing for a career in these areas should register in the Pre-Health Professions office, 480/965-2365.

[2] No school in Arizona offers a program in dentistry, optometry, or podiatry. Students interested in pursuing these professions should confer with Pre-Health Professions advisors concerning out-of-state schools where they may complete their training.

profession should meet regularly with the Pre-Health Professions office for guidance. While this guidance does not replace the need to meet with an advisor in the department of the student's major, pre-health advising is a necessary supplement. To schedule a meeting with Pre-Health Professions, located in LSC 206, call 480/965-2365.

Prelaw. The American Bar Association does not recommend any specific major for students who wish to apply to law school upon graduation. ASU does not have a "prelaw" degree program. Therefore, students should select a major that interests them. Recent surveys of law school graduates indicate that students would be well advised to take one or two semesters of accounting as a supplement to their major curriculum. In addition, the American Bar Association recommends a variety of courses in the classics, in economics, and in mathematical reasoning. Courses that engage the student in intense critical analysis and a substantial amount of writing are also recommended. As the student approaches the second semester of his or her junior year, the student should contact the prelaw advisor in the college or department of his or her major to obtain information regarding the procedure to apply to law school.

Career Advising: CLASWorks. A degree in the liberal arts and sciences prepares a student for careers that include but are not limited to business, government/public service, nonprofit organizations, the arts, science and research, and most corporate environments. By the time of graduation, CLAS students have developed the ability to solve problems, analyze data, communicate ideas, and execute complex plans. To identify career paths that best fit a student's interests and talents, the Office of Undergraduate Programs offers individualized career advising. To make an appointment, call 480/965-6506.

Internships. All students are encouraged to complete at least one internship before graduation. Many CLAS disciplines have well-established internship programs, so students should begin with their academic departments. Contact information may be found on the Web at clas.asu.edu/students/clasworks. To develop a successful internship experience, students are encouraged to meet with the director of CLASWorks for a career advising session soon after arriving on campus.

DEGREES

Majors. Programs leading to the BA and BS degrees are offered by CLAS, with majors in the subjects listed in the "College of Liberal Arts and Sciences Baccalaureate Degrees and Majors" table, page 502. Each major is administered by the academic department indicated.

Concurrent degrees and second baccalaureate degrees. Students who wish to pursue a concurrent degree in CLAS may not double count courses from one major to the other. Each major must consist of a minimum of 30 semester hours unique to that major. Students who wish to obtain concurrent degrees must realize that there are certain combinations that would not be approved because there is too great an overlap between the courses required for each major. Similarly, students who earn one baccalaureate degree may not earn a second baccalaureate degree in the same major or in a major that does not contain 30 core hours unique to that major. For example, a student may not pursue a degree in two life science fields (with the exception of Clinical Laboratory Sciences).

Minors. Although not required for graduation, special college-approved minors are available in most departments. Check department program descriptions for details. Minors must have at least 18 hours of designated courses, including at least 12 hours of upper-division work. The college requires a grade of at least "C" (2.00) in all upper-division courses in the minor. Some departments have stricter requirements. A minimum of six upper-division hours in the minor must be taken in residence at the Tempe campus.

University policies prohibit the "double-counting" of courses from the major for the minor. Specific questions concerning double-counting, as well as general questions about the approval processes for minors, should be taken up with an academic advisor in the department offering the minor or the Office of Undergraduate Programs in FOUND 110.

Refer to the CLAS portion of the "ASU Minors" table, page 127.

Graduate Degrees. See the "College of Liberal Arts and Sciences Graduate Degrees and Majors" table, page 506. Refer to the *Graduate Catalog* for requirements.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

College of Liberal Arts and Sciences Baccalaureate Degrees and Majors

Major	Degree	Concentration[1]	Administered By
African and African American Studies	BA	Humanities/arts; politics and society; or social and behavioral sciences	African and African American Studies Program
American Indian Studies	BS	—	American Indian Studies Program
Anthropology	BA	—	School of Human Evolution and Social Change
Asian Languages (Chinese/ Japanese)	BA	—	Department of Languages and Literatures
Biochemistry	BA	—	Department of Chemistry and Biochemistry
	BS	Optional: medicinal chemistry[1]	Department of Chemistry and Biochemistry
Biology	BS	Optional: biology and society[1]	School of Life Sciences
Chemistry	BA	—	Department of Chemistry and Biochemistry
	BS	Optional: environmental chemistry[1]	Department of Chemistry and Biochemistry
Chicana and Chicano Studies	BA	Humanities/cultural sciences or social sciences/policy	Department of Chicana and Chicano Studies
Clinical Laboratory Sciences	BS	—	School of Life Sciences
Communication	BA, BS	—	Hugh Downs School of Human Communication
Computational Mathematical Sciences	BS	—	Department of Mathematics and Statistics
Conservation Biology	BS	—	School of Life Sciences
Economics	BS	—	Department of Economics[2]
English	BA	Creative writing, linguistics, or literature	Department of English
Family and Human Development	BS	Optional: family studies/child development[1]	Department of Family and Human Development
Film	BA	Film and media studies	College of Liberal Arts and Sciences
French	BA	—	Department of Languages and Literatures
Geography	BA, BS	Meteorology-climatology or urban studies	Department of Geography
Geological Sciences	BS	—	Department of Geological Sciences
German	BA	—	Department of Languages and Literatures
Global Studies	BA	—	School of Global Studies
History	BA	—	Department of History
Integrated Studies	BA, BS	—	College of Liberal Arts and Sciences
Italian	BA	—	Department of Languages and Literatures
Justice Studies	BS	—	School of Justice and Social Inquiry
Kinesiology	BS	Exercise science, movement science, or teacher preparation[2]	Department of Kinesiology
Liberal Studies[3]	BLS	—	College of Liberal Arts and Sciences

[1] If a major offers concentrations, one must be selected unless noted as *optional*.

[2] The department is in the W. P. Carey School of Business, which also offers this major, with different requirements.

[3] This degree program has special eligibility requirements; for more information, contact the Office of Undergraduate Programs.

College of Liberal Arts and Sciences Baccalaureate Degrees and Majors (continued)

Major	Degree	Concentration[1]	Administered By
Mathematics	BA	—	Department of Mathematics and Statistics
	BS	Optional: statistics[1]	Department of Mathematics and Statistics
Microbiology	BS	—	School of Life Sciences
Molecular Biosciences/ Biotechnology	BS	—	School of Life Sciences
Philosophy	BA	—	Department of Philosophy
Physics	BS	—	Department of Physics and Astronomy
Plant Biology	BS	Environmental science and ecology or plant biochemistry and molecular biology	School of Life Sciences
Political Science	BA, BS	—	Department of Political Science
Psychology	BA, BS	—	Department of Psychology
Religious Studies	BA	—	Department of Religious Studies
Russian	BA	—	Department of Languages and Literatures
Sociology	BA	—	Department of Sociology
Spanish	BA	—	Department of Languages and Literatures
Speech and Hearing Science	BS	—	Department of Speech and Hearing Science
Women and Gender Studies	BA	—	Women and Gender Studies Program

[1] If a major offers concentrations, one must be selected unless noted as *optional*.

[2] The department is in the W. P. Carey School of Business, which also offers this major, with different requirements.

[3] This degree program has special eligibility requirements; for more information, contact the Office of Undergraduate Programs.

SCHOOL OF EXTENDED EDUCATION

The university-wide School of Extended Education provides an interactive link between ASU and the diverse communities it serves. The college assesses lifelong learning requirements and works in partnership with campuses, other colleges, and the community to serve learners, using a network of locations, programs, schedules, and technologies.

For more information, see "School of Extended Education," page 134, or access the Web site at www.asu.edu/xed.

UNIVERSITY GRADUATION REQUIREMENTS

In addition to fulfilling college and major requirements, students must meet all university graduation requirements. For complete information, see "University Graduation Requirements," page 89.

General Studies Requirement

All students enrolled in a baccalaureate degree program must satisfy a university requirement of a minimum of 35 hours of approved course work in General Studies, as described in "General Studies," page 93. Note that all three General Studies awareness areas are required. Consult an advisor for an approved list of courses.

General Studies courses are listed in the "General Studies Courses" table, page 96, in the course descriptions, in the *Schedule of Classes*, and in the *Summer Sessions Bulletin*.

COLLEGE GRADUATION REQUIREMENTS

All students in the College of Liberal Arts and Sciences (CLAS) must complete the university General Studies requirement as well as all requirements in the major. In addition, the college has established requirements that are specific to the Bachelor of Arts and Bachelor of Science degrees.

A. Bachelor of Arts Degrees. Students pursuing BA degrees in the CLAS must demonstrate intermediate proficiency in a second language by completing the courses specified below with a grade of "C" (2.00) or higher in each course. Second language course requirements consist of
   1. completion of second language course work at the intermediate level (202 or equivalent, those students completing this requirement in

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Ancient Greek must take both GRK 301 and 302; students completing the requirement in Portuguese or Romanian must complete POR 314 or ROM 314);
2. a foreign language course at the 300 level or higher taught in the foreign language and having 202 or its equivalent as a prerequisite;
3. completion of secondary education at a school in which the language of instruction is not English: or
4. completion of SHS 202 American Sign Language IV or its equivalent.

B. Bachelor of Science degrees. Students pursuing BS degrees in the CLAS must complete six semester hours (two courses) of "Science and Society" courses. Students should consult with an advisor in the department or school of their major for a list of appropriate courses.

C. All students are required to take a minimum of MAT 119 or higher. A grade of "C" (2.00) or higher must be earned in the chosen mathematics course.

Major Requirements

Each student is required to select a major from among the fields of study offered by CLAS. The requirements for completion of the major are described under departmental listings.

A. The major department may require up to 45 semester hours of course work. The minimum is 30 hours. A maximum of 15 additional hours may be required in related courses and prerequisites. No more than 60 semester hours of course work may be required to complete the major, related courses, and prerequisites. Some departments require calculus-level mathematics; up to five of these semester hours may be excluded from the 60-hour maximum because they satisfy the mathematics proficiency requirement. A minimum of 12 upper-division hours in the major must be taken in residence.

B. No credit is granted toward fulfilling major or minor requirements in any upper-division course in that subject field unless the grade in that course is at least a "C" (2.00). In CLAS, the assignment of a grade of "Y" indicates a level of performance that would have resulted in a grade of at least "C" (2.00) had the normal grading scheme been used.
See the individual departments for other minimum grade requirements.

C. Major fields of study are classified into the following three divisions:
1. Humanities:
Asian Languages (Chinese/Japanese) (CHI/JPN)
English (ENG)
French (FRE)
Film and Media Studies (FMS)
German (GER)
History (HST)
Italian (ITA)
Philosophy (HPS, PHI)
Religious Studies (REL)
Russian (RUS)
Spanish (SPA)
2. Natural sciences and mathematics:
Biochemistry (BCH)
Biology (BIO)
Chemistry (CHM)
Clinical Laboratory Sciences (CLS)
Computational Mathematical Sciences (MAT)
Conservation Biology (BIO)
Geological Sciences (GLG)
Kinesiology (KIN)
Mathematics (MAT)
Microbiology (MIC)
Molecular Biosciences/Biotechnology (MBB)
Physics (AST, PHS, PHY)
Plant Biology (PLB)
Psychology (PGS, PSY)
Speech and Hearing Science (SHS)
3. Social Sciences:
African and African American Studies (AFH, AFR, AFS)
American Indian Studies (AIS)
Anthropology (ASB)
Chicana and Chicano Studies (CSH, CSS)
Communication (COM)
Economics (ECN)
Family and Human Development (CDE, FAS)
Geography (GCU, GPH)
Global Studies (SGS)
Justice and Social Inquiry (JUS)
Political Science (POS)
Sociology (SOC)
Women and Gender Studies (WSH, WST)

General Electives

Most CLAS majors can meet all of the above requirements with fewer than the 120 semester hours required for graduation. Remaining hours are general electives that may be selected from any of the departments of CLAS and from the offerings of the other colleges.

Declaration of Graduation. The declaration of graduation, which is required by university regulations during the semester in which an undergraduate earns the 87th hour, must be filed and approved at least two weeks before the preregistration period for the subsequent semester. Students should run a new Degree Audit Reporting System report every semester to gauge how well they are meeting all requirements for graduation. Students should contact the Office of Undergraduate Programs, in FOUND 110, regarding college graduation rules and deadlines. Deadlines for filing the declaration of graduation after enrolling in the 87th hour are March 1 and October 1 of each year. Students with 87 hours must have a college-approved declaration of graduation before registering for the next semester.

Credit Requirement. All candidates for graduation in the BA and BS degree curricula are required to complete at least 120 semester hours, of which at least 45 hours must consist of upper-division courses. A minimum ASU cumulative GPA of 2.00 is required for graduation.

Concurrent Degrees. Students who wish to obtain concurrent degrees must realize that there are certain combinations that would not be approved because there is too great an overlap between the courses required for each major. For example, students may not obtain concurrent degrees in two life sciences. Students who wish to obtain concurrent degrees may not double-count courses from one major to the next, but must have at least 30 different semester hours in each major.

Course Load. The normal course load is 15 to 16 semester hours. First-semester freshmen and entering transfer students are not permitted to register for more than 18 semester hours in the initial semester. Other students who wish to register for more than 18 hours must have a GPA of at least 3.00 and must file a petition in the Office of Undergraduate Programs, in FOUND 110, before registration. Any petition for an overload in excess of 21 hours must be presented to the Standards Committee of the college. No student should assume that his or her petition for overload will be granted.

SPECIAL CREDIT OPTIONS

Pass/Fail Grade Option. The pass/fail grade option is intended to broaden the education of Liberal Arts and Sciences undergraduates by encouraging them to take advanced courses outside their specialization. A mark of "P" contributes to the student's earned hours but does not affect the GPA. A failing grade is computed into the GPA.

Only CLAS students with at least 60 semester hours may take courses under the pass/fail option. The option may be used under the following conditions:

1. enrollment for pass/fail needs the approval of the instructor and the college;
2. enrollment under this option must be indicated during registration and may not be changed after the late registration period; and
3. a maximum of 12 hours taken for pass/fail may be counted toward graduation.

Students may not enroll under the pass/fail option in the following courses:

1. those taken to satisfy the second language or First-Year Composition requirements;
2. those in the student's major, minor, or certificate program;
3. those counted toward or required to supplement the major;
4. those counted as 499 Individualized Instruction;
5. those taken for honors credits; or
6. those counted toward satisfying the CLAS graduation requirements or the General Studies requirement.

Audit Grade Option. A student may choose to audit a course in which he or she attends regularly scheduled class sessions but earns no credit. The student should obtain the instructor's approval before registering for the course. For more information, see "Grading System," page 82.

Note: This grade option may not be changed after the drop/add period.

Independent Learning. Study by Independent Learning is not a normal part of a degree program; special circumstances must exist for a degree-seeking student to take Independent Learning courses. Any enrollment in such courses must have the prior approval of the college.

ACADEMIC STANDARDS

The standards for GPA and the terms of probation, disqualification, reinstatement, and appeal are identical to those of the university as set forth under "Retention and Academic Standards," page 86, except that the disqualified student in CLAS is suspended for at least two regular semesters at the university. When students are placed on probation, one of three things can happen:

1. the student may raise his or her cumulative GPA to academic good standing (see "Academic Good Standing," page 86) by taking new classes and be removed from probation after the fall or spring semester;
2. the student may receive the required semester GPA, but not raise the cumulative GPA to academic good standing, in which case, the student may continue on probation, earning the required semester GPA, for as many semesters as it takes to raise the cumulative GPA to good standing; or
3. the student may fail to achieve the required semester GPA and be disqualified.

Students who leave the university for a semester or more while on probation are not automatically readmitted. Such students, as well as all disqualified students, should contact the Office of Undergraduate Programs in FOUND 110, regarding procedures and guidance for reinstatement and returning to good standing. By following recommendations and meeting established standards for summer school work or course work at other institutions, the possibility of successful reinstatement is enhanced. Academic discipline is one of the functions of the Office of Undergraduate Programs. All students having academic difficulties of any kind should contact this office. Also available in this office is information on policies and procedures of the college on academic honesty, student grievances with respect to grades, and various petitions regarding college standards and graduation requirements.

Academic honesty is expected of all students in all examinations, papers, academic transactions, and records. The possible sanctions include, but are not limited to, appropriate grade penalties, loss of registration privileges, disqualification, and dismissal.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

College of Liberal Arts and Sciences Graduate Degrees and Majors

Major	Degree	Concentration[1]	Administered By
Anthropology	MA	Archaeology, bioarchaeology, linguistics, museum studies, physical anthropology, or social-cultural anthropology	School of Human Evolution and Social Change
	PhD	Archaeology, physical anthropology, or social-cultural anthropology	School of Human Evolution and Social Change
Asian Languages and Civilizations—Chinese/Japanese	MA	—	Department of Languages and Literatures
Audiology	AuD	—	Department of Speech and Hearing Science
Biology	MS, PhD	Optional: ecology[1]	School of Life Sciences
Chemistry	MS, PhD	Analytical chemistry, biochemistry, geochemistry, inorganic chemistry, organic chemistry, physical chemistry, or solid-state chemistry	Department of Chemistry and Biochemistry
Communication	MA	—	Hugh Downs School of Human Communication
	PhD	Communicative development, intercultural communication, or organizational communication	Hugh Downs School of Human Communication
Communication Disorders	MS	—	Department of Speech and Hearing Science
Computational Biosciences	PSM	—	College of Liberal Arts and Sciences
Creative Writing[2]	MFA	—	Creative Writing Committee
English	MA	Comparative literature, English linguistics, literature and language, or rhetoric and composition	Department of English
	PhD	Literature or rhetoric/composition and linguistics	Department of English
Family and Human Development	MS	Optional: family studies[1]	Department of Family and Human Development
Family Science	PhD	Optional: marriage and family therapy[1]	Department of Family and Human Development
French	MA	Comparative literature, linguistics, or literature	Department of Languages and Literatures
Geographic Information Systems	MAS	—	Department of Geography
Geography	MA, PhD	—	Department of Geography
Geological Sciences	MS, PhD	—	Department of Geological Sciences
German	MA	Comparative literature, language and culture, or literature	Department of Languages and Literatures
History	MA	Asian history, British history, European history, Latin American history, public history, U.S. history, or U.S. Western history	Department of History
	PhD	Asian history, British history, European history, Latin American history, or U.S. history	Department of History

[1] If a major offers concentrations, one must be selected unless noted as *optional*.

[2] This program is administered by the Division of Graduate Studies.

[3] Students may pursue this degree only in conjunction with the doctoral degree in the same unit, which admits students to only the doctoral degree program.

College of Liberal Arts and Sciences Graduate Degrees and Majors (continued)

Major	Degree	Concentration[1]	Administered By
Justice Studies	MS	—	School of Justice and Social Inquiry
	PhD	Optional: criminal and juvenile justice; dispute resolution; law, justice, and minority populations; law, policy, and evaluation; or women, law, and justice[1]	School of Justice and Social Inquiry
Kinesiology	MS	—	Department of Kinesiology
	PhD	Biomechanics, motor behavior/sport psychology, or physiology of exercise	Committee on Exercise Science
Liberal Studies	MLSt	—	College of Liberal Arts and Sciences
Materials Science[2]	MS	—	Committee on the Science and Engineering of Materials
Mathematics	MA	—	Department of Mathematics and Statistics
	PhD	Optional: computational biosciences[1]	Department of Mathematics and Statistics
Microbiology	MS, PhD	—	School of Life Sciences
Molecular and Cellular Biology	MS	—	Interdisciplinary Committee on Molecular and Cellular Biology
	PhD	Optional: computational biosciences[1]	Interdisciplinary Committee on Molecular and Cellular Biology
Natural Science	MNS	Biology, microbiology, or plant biology	School of Life Sciences
		Chemistry	Department of Chemistry and Biochemistry
		Geological sciences	Department of Geological Sciences
		Mathematics	Department of Mathematics and Statistics
		Physics	Department of Physics and Astronomy
Philosophy	MA, PhD	—	Department of Philosophy
Physics	MS, PhD	—	Department of Physics and Astronomy
Plant Biology	MS, PhD	Optional: ecology or photosynthesis[1]	School of Life Sciences
Political Science	MA, PhD	American politics, comparative politics, international relations, or political theory	Department of Political Science
Psychology	MA[3]	—	Department of Psychology
	PhD	Behavioral neuroscience, clinical psychology, cognitive/behavioral systems, developmental psychology, quantitative research methods, or social psychology	Department of Psychology
Religious Studies	MA, PhD	—	Department of Religious Studies
Science and Engineering of Materials[2]	PhD	High-resolution nanostructure analysis or solid-state device materials design	Committee on the Science and Engineering of Materials
Sociology	MA, PhD	—	Department of Sociology
Spanish	MA	Comparative literature, language and culture, linguistics, or literature	Department of Languages and Literatures
	PhD	Cultural studies or literature	Department of Languages and Literatures

[1] If a major offers concentrations, one must be selected unless noted as *optional*.

[2] This program is administered by the Division of Graduate Studies.

[3] Students may pursue this degree only in conjunction with the doctoral degree in the same unit, which admits students to only the doctoral degree program.

College of Liberal Arts and Sciences Graduate Degrees and Majors (continued)

Major	Degree	Concentration[1]	Administered By
Speech and Hearing Science	PhD	Developmental neurolinguistic disorders, neuroauditory processes, or neurogerontologic communication disorders	Department of Speech and Hearing Science
Statistics[2]	MS	—	Committee on Statistics
Teaching English as a Second Language	MTESL	—	Department of English

[1] If a major offers concentrations, one must be selected unless noted as *optional*.

[2] This program is administered by the Division of Graduate Studies.

[3] Students may pursue this degree only in conjunction with the doctoral degree in the same unit, which admits students to only the doctoral degree program.

STUDENT RESPONSIBILITIES

Any student enrolling in courses offered by CLAS is expected to follow the rules and deadlines specified in this catalog and the current *Schedule of Classes*. Students are urged to meet with their departmental academic advisors before registration. Students with additional questions or problems are also urged to meet with advisors in the Office of Undergraduate Programs, in FOUND 110, regarding the academic rules of the college and the university.

SPECIAL PROGRAMS

Barrett Honors College. CLAS works closely with the Barrett Honors College, which affords qualified undergraduates opportunities for enhanced educational experiences. For a complete description of requirements and opportunities, see "The Barrett Honors College," page 145.

CLASWorks. The college provides a comprehensive career management program for all CLAS majors: CLASWorks. This program includes a first-year seminar as well as an upper-division course in career management. Individualized advising sessions, career events, and a Web-based list of CLASWorks contacts are available. Students are encouraged to meet with the director of CLASWorks during their first semester at ASU to explore opportunities in full- and part-time employment, volunteerism, and internships. For more information, call 480/965-6506, or access the Web site at clas.asu.edu/students/clasworks.

Integrated Studies. An Integrated Studies major leading to the BA or BS degree provides students of outstanding ability in the humanities, natural sciences and mathematics, and social and behavioral sciences opportunities to pursue courses of study that cut across departmental boundaries and focus on specific topics or problem areas. Completion of 32 semester hours at ASU with a GPA of at least 3.25 and three letters of recommendation from ASU faculty members are required for admission. For more information about degree requirements, visit the Office of Undergraduate Programs in FOUND 110.

Learning Communities. These nine to 12 semester hour communities allow students to explore an important topic in depth, in mainly small classes, while earning a number of General Studies credits and completing their university writing requirement. The CLAS Learning Communities offer students an opportunity to learn how to think about issues on multiple levels and apply skills across different domains. Course material and extracurricular activities are integrated to enhance the student's intellectual development. Each Learning Community is limited to fewer than 100 students, enabling the student to develop a supportive network of peers on campus. For more information, including residence hall information, access the Web site at clas.asu.edu/students/learningcommunities.

Bachelor of Liberal Studies. The College of Liberal Arts and Sciences offers a 120-semester-hour undergraduate degree completion program in Liberal Studies to Arizona students who have previously earned 60 to 90 semester hours at one of the Arizona universities or community colleges and meet our eligibility requirements. This degree completion program is most suitable for working adults since courses will be offered online and via independent study. There will be registration and individualized instruction fees in addition to tuition. For more information on eligibility requirements, call the Office of Undergraduate Programs at 480/965-6506.

Washington Semester Program. Students have a variety of opportunities for practicum and internship experiences that enable them to meld classroom learning with practical application. Among the several individual departmental programs that provide internships for majors, the Department of Political Science is the ASU sponsor of the Washington Semester Program. The program provides students a one-semester opportunity to study in Washington, D.C., through any one of several programs sponsored by the American University. The program is available to outstanding juniors or seniors and requires careful planning with an academic advisor early in the student's career. For more information, call the Department of Political Science at 480/965-6551.

Military Officer Training. The Departments of Aerospace Studies and Military Science offer programs leading to commissions in the armed forces, but they do not offer majors or minors. For more information, see the appropriate department descriptions in this catalog.

Certificate Programs and Areas of Emphasis

Certificates are available from numerous units in CLAS, and one collegewide Enriched College Degree Certificate is available to any major in the college as shown in the "CLAS Certificates" table, page 510. Areas of emphasis are also available in some of the same subjects (e.g., Latin American Studies).

Enriched College Degree. CLAS offers an Enriched College Degree Certificate, available to any student within the university.

The Enriched College Degree Certificate consists of a minimum of 15 semester hours with a minimum of "C" (2.00) grade credit. The certificate consists of

1. a theme requirement composed of a three-course sequence outside the student's major, characterized by an identifiable theme of intellectual relevance for students (courses used for the theme requirement cannot be from one's major, minor, or another certificate);
2. an approved upper-division bridge course selected to address the relationships among areas of inquiry and means of acquiring knowledge; and
3. an approved upper-division course in spoken English to provide a meaningful opportunity for substantive oral presentations.

For more information, visit the CLAS Office of Undergraduate Programs, in FOUND 110, or call 480/965-6506.

Asian Studies. Asian and East Asian Studies certificates are offered through the Center for Asian Studies. The certificates provide students with official transcript recognition of specialization in Asian Studies related to their major area of study.

The certificate curriculum includes 24 semester hours of course work:

1. 15 semester hours of upper-division area studies course work in at least three disciplines outside of languages and literature courses (such as anthropology, art, geography, history, political science, and religious studies); and
2. nine additional semester hours may be some combination of lower- and/or upper-division courses. Six hours may be satisfied with language and literature courses limited to 321 and above.

In addition, certificate students must demonstrate proficiency in an Asian language at the intermediate level. The language requirement can be satisfied by completing the 201 and 202 sequence, one year of study abroad at the intermediate level, or satisfactory placement on a proficiency exam. Asian languages include Chinese, Hindu/Urdu, Indonesian, Japanese, Korean, Lao, Thai, and Vietnamese. Students pursuing an East Asian Certificate must fulfill the language requirement in either Chinese, Japanese, or Korean, and the 15 hours of upper-division course work must be courses with significant focus on East Asia chosen in consultation with the Center for Asian Studies advisor.

A graduate certificate in Asian Studies is also available. For more information, see the *Graduate Catalog*.

BIS Concentrations. An Asian studies concentration is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

An Asian Studies concentration requires 23 to 25 semester hours of course work:

1. one year of an Asian language consisting of 10 semester hours of lower-division courses or six semester hours of upper-division courses;
2. 12 semester hours of upper-division area studies courses drawn from at least two disciplines outside of languages and literatures; and
3. three to six semester hours of lower- or upper-division approved area studies courses; three of these remaining hours may be satisfied with languages and literatures courses limited to 321 and above.

BIS students pursuing an Asian Studies concentration will be required to consult with the academic advisor of the Center for Asian Studies as well as the BIS advisor. Students are strongly encouraged, but not required, to continue Asian language study beyond the concentration requirement.

Civic Education. See "Certificate in Civic Education," page 629.

Classical Studies. Students admitted to undergraduate degree programs in any field are eligible for the Classical Studies certificate program. In addition to the course work and examinations required in the student's major, the student is responsible for fulfilling the following minimum requirements:

1. five semesters of ancient Greek (17 semester hours; GRK 301 and 302 may be repeated for credit) or Latin (19 semester hours) language and literature instruction;
2. two semesters (six semester hours), in courses related to classical studies (to be approved by coordinators of the certificate);
3. a thesis (three semester hours), a Barrett Honors College thesis (six semester hours) or two additional courses at or above the 300 level (six semester hours); and
4. a minimum grade of "C" (2.00) in each course leading to the certificate.

Students interested in the Classical Studies certificate program need to submit an application before being accepted into the program. For more information, call the program coordinators at 480/965-1110 or 727-6512.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

CLAS Certificates

Certificate Program	Administered By	Page
College of Liberal Arts and Sciences Enriched Certificate	CLAS	509
African and African American Studies Certificate	African and African American Studies Program	519
African and African Diaspora Studies, Graduate Certificate in[1]	African and African American Studies Program	—
American Indian Studies Certificate	American Indian Studies Program	523
Asian Pacific American Studies Certificate	Asian Pacific American Studies Program	524
Asian Studies Certificate[2]	Center for Asian Studies	509
Asian Studies, Graduate Certificate in[1]	Center for Asian Studies	—
Atmospheric Sciences, Graduate Certificate in[1]	CLAS and Ira A. Fulton School of Engineering	—
Civic Education Certificate	Department of Political Science	629
Classical Studies Certificate	Department of Languages and Literatures	509
Early Intervention Certificate	Department of Family and Human Development and School of Social Work	511
East Asian Studies Certificate	Center for Asian Studies	509
Ethics Certificate	Department of Philosophy	511
Geographic Information Science Certificate	Department of Geography	511
Geographic Information Science, Interdisciplinary Certificate in[1]	CLAS and Division of Graduate Studies	—
Healthcare Organizations and Society, Certificate in	School of Life Sciences and the W. P. Carey School of Business	511
History and Philosophy of Science Certificate	School of Life Sciences	512
International Studies Certificate	Department of Political Science	630
Islamic Studies Certificate	Department of Religious Studies	512
Jewish Studies Certificate	Jewish Studies Committee	512
Latin American Studies Certificate[2]	Latin American Studies Center	512
Linguistics, Graduate Certificate in[1]	Committee on Linguistics	—
Medieval and Renaissance Studies Certificate	Arizona Center for Medieval and Renaissance Studies (ACMRS)	513
Medieval Studies Certificate[1]	ACMRS	—
Museum Studies Certificate[1]	School of Human Evolution and Social Change	—
Renaissance Studies Certificate[1]	ACMRS	—
Russian and East European Studies Certificate[2]	Russian and East European Studies Center	513
Scandinavian Studies Certificate	Department of Languages and Literatures	513
Scholarly Publishing Certificate[1]	Department of History	—
Southeast Asian Studies Certificate	Program for Southeast Asian Studies	514
Statistics, Certificate in[1]	Committee on Statistics and the Division of Graduate Studies	—
Symbolic Systems, Certificate in	Department of Philosophy	514
Translation Certificate	Department of Languages and Literatures	583
Women and Gender Studies Certificate	Women and Gender Studies Program	514
Writing Certificate	Department of English	538

[1] For more information, see the *Graduate Catalog*.

[2] Emphases are also available in these programs.

BIS Concentration. Concentrations in (1) classical studies—Greek or (2) classical studies—Latin are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

Early Intervention. The Early Intervention Certificate is cross-disciplinary and is certified by the Arizona Early Intervention Program in the Arizona State Department of Economic Security. Students interested in earning the certificate must make formal application to the director of the Early Intervention Training Program. Students must have completed 56 semester hours and have a cumulative GPA of at least 2.50. Students are required to complete the application form for the Early Intervention Certificate.
The proposed certificate entails 17 semester hours of required course work. All 17 semester hours must be ASU credit.

Required Courses
CDE 337 Early Childhood Intervention 3
SWU 437 Infant Family Assessment and Observation *L*/*SB* 3
or CDE 437 Infant Family Assessment and Observation *L*/*SB* (3)
SWU 446 Risk and Variation in Child Development.....3
or CDE 444 Risk and Variation in Child Development (3)
Choose from the following combinations.....8
CDE 338 Child Development Practicum (3)
FAS 484 Internship (5)
— *or* —
SWU 412 Field Instruction I (5)
SWU 414 Field Instruction II (3)

All students admitted by the program are advised by the director of the Early Intervention Training Program through completion of the certificate requirements. Advising includes identifying field placements for FAS 484 and SWU 412 and SWU 414. Completion of the certificate is verified by completion of all required courses with a grade of "C" (2.00) or higher in each course.

Ethics. This certificate is designed to give students a richer understanding of systematic philosophical thinking about ethics. Students with majors in business, nursing, journalism, and public administration, among others, may well find that training in ethics is beneficial for their career goals. The certificate program permits some flexibility about course selection, thereby facilitating the interests of many students. For more information, visit the Department of Philosophy in COOR 3309, or call 480/965-3394.

BIS Concentration. A concentration in ethics is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

Geographic Information Science. The cross-disciplinary undergraduate certificate in Geographic Information Science (GIS) is designed for undergraduates wishing to pursue a GIS-related career. The certificate is awarded to students completing the following 19 semester hours with a grade of "C" (2.00) or higher.

Required Courses
CSE 100 Principles of Programming with C++ *CS* 3
GCU 495 Quantitative Methods in Geography *CS* 3
GPH 370 Geographic Information Technologies *CS* 3
GPH 373 Geographic Information Science I *CS* 4
GPH 473 Geographic Information Science II *CS* 3
Elective (choose from the courses below) 3
ABS 485 GIS in Natural Resources (3)
ABS 586 Remote Sensing in Environmental Resources (4)
GCU 361 Urban Geography *SB* (3)
GCU 441 Economic Geography *SB* (3)
GCU 442 Geographical Analysis of Transportation *SB* (3)
GPH 371 Introduction to Cartography and Georepresentation *CS* (3)
GPH 372 Air Photo Interpretation (3)
GPH 471 Geographics: Interactive and Animated Cartography and Geovisualization *CS* (3)
GPH 481 Environmental Geography (3)
GPH 483 Geographic Information Analysis (3)
GPH 484 Internship: GIS-Based (3)
PLB 434 Landscape Ecological Analysis and Modeling (3)

For more information, call the Department of Geography at 480/965-7533.

Healthcare Organizations and Society. The certificate program is designed to allow undergraduate students interested in healthcare and the healthcare industry to access a broad range of disciplinary approaches and issues relevant to the subject.

To complete the certificate, students must take 18 semester hours of course work. Before starting the program students should seek advice and information in the School of Life Sciences Student Services Office in the College of Liberal Arts and Sciences or Business Honors advising in the W. P. Carey School of Business.

The course work must conform to the following structure and must be drawn from the three areas listed below. Additional courses are permissible with the approval of an advisor. In addition, students must meet the following requirements:

1. complete 18 semester hours, 12 of which must be in the upper division;
2. earn a "C" or higher in all upper-division courses taken for the certificate; and
3. complete at least 12 of the semester hours for the certificate in residence at ASU.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Overview of the U.S. Healthcare Industry. HSM 220 Health Care Organizations is required. HSM 498 PS: Health Economics is required for business students. HSM 561 Biostatistics may be taken by petition. No more than three courses in this area may be taken.

Ethical and Legal Issues in Healthcare. PHI 320 Bioethics is required. A second course is also required, PAF 460 Public Service Ethics or HSM 498 PS: Legal and Ethical Issues in Healthcare. No more than three courses in this area may be taken.

Anthropological, Historical, and Social Perspectives on Healthcare. One course is required. No more than two courses in this area may be taken, from among ASB 462 Medical Anthropology: Culture and Health, HPS 331 History of Medicine, and SOC 427 Sociology of Health and Illness.

For more information, visit the School of Life Sciences in LSC 206, or call 480/727-6277. Or visit Business Honors in the W. P. Carey School of Business in BA 150, or call 480/965-8710.

History and Philosophy of Science. The School of Life Sciences offers an undergraduate History and Philosophy of Science Certificate. The certificate program is designed to give students an understanding of both traditional philosophic issues surrounding science and the historical development of concrete scientific theories and ideas. The philosophic questions, of the belief-worthiness and interpretation of scientific claims as well as norms within or about science, both enrich and are enriched by their combination with historical study. Such philosophic and historical study will also often include the examination of contemporary sciences and their place within the larger society.

The certificate requires 18 semester hours bearing a PHI or HPS prefix of which 12 semester hours must be upper-division. Included within the 18 semester hours, at least nine must bear the HPS prefix. PHI 314 Philosophy of Science is also required. All courses counting toward the certificate must be approved for this purpose by an undergraduate advisor and passed with a grade of "C" (2.00) or higher.

For more information, visit the School of Life Sciences in LSC 206, or call 480/727-6277.

International Studies. See "Certificate in International Studies," page 630.

Islamic Studies Certificate. Students admitted to undergraduate degree programs in any field are eligible for the Islamic Studies Certificate program. Students who complete all the requirements of their major, their college, and the certificate program receive the certificate plus transcript recognition of their particular emphasis. The certificate program is designed to prepare students for graduate programs in Religious Studies, Islamic studies, and area studies or for any academic discipline (such as professional programs in international law and business) that focuses on global Muslim societies. Students must complete a minimum total of 26 semester hours, chosen in consultation with the Islamic Studies program coordinator. A minimum grade of "C" (2.00) is required in each course. To earn the certificate, students must complete these requirements:

1. eight semester hours of Arabic, Indonesian, or another language approved by the program coordinator; students who are native speakers of these languages or who otherwise have equivalent knowledge substitute two additional courses approved by the program coordinator;
2. nine semester hours from REL 260 Introduction to Islam, REL 365 Islamic Civilization, and REL 366 Islam in the Modern World;
3. three semester hours taken from REL 394 (topics may vary) or REL 460 Studies in Islamic Religion (topics may vary); and
4. six semester hours drawn from an approved list of courses in Arabic, anthropology, French, geography, history, religious studies, Spanish or from other courses approved by the program coordinator.

Direct inquiries about the program to the Department of Religious Studies, ECA 377, or call 480/965-7145.

Jewish Studies. The Jewish studies program is designed with the following goals in mind:

1. to examine the history and culture of the Jews;
2. to provide a model for interdisciplinary teaching and research;
3. to generate and facilitate research on Judaica;
4. to provide the community with programs, courses, and research furthering the understanding of Judaica; and
5. to stand as an example of the university's commitment to a program of meaningful ethnic studies on a firm academic base.

The Certificate of Concentration in Jewish Studies may be combined with a major in any college. For information about the program, visit the Jewish Studies program office in the Department of Religious Studies, or access the Web site at asu.edu/clas/jewishstudies/certificateinfo.htm.

BIS Concentration. A concentration in Jewish studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

Latin American Studies. The Latin American Studies Certificate program is designed to give students an understanding of culture, economies, political structures, and the history of Latin American nations. The Departments of Economics, Geography, History, Languages and Literatures (Spanish and Portuguese), and Political Science; the School of Human Evolution and Social Change; and the W. P. Carey School of Business offer courses that combine to make up the interdisciplinary certificate. Students must complete 30 semester hours of upper-division courses from the above departments/colleges with a concentration in Latin America—15 semester hours in the major subject and 15 semester hours in other disciplines. The certificate

requires Spanish or Portuguese proficiency through the 313 level of conversation and composition. Only language courses above 313 in literature and civilization count toward a major or interdisciplinary areas of preparation. Spanish and Portuguese courses above 313 in grammar and phonology do not count toward the major requirements. The Latin American Studies Center offers the area of emphasis for students who do not wish to attain a high level of language proficiency.

For more information, visit the Latin American Studies Center in COOR 4450, or call 480/965-5127.

BIS Concentration. A concentration in Latin American studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

Medieval and Renaissance Studies. An undergraduate Certificate in Medieval and Renaissance Studies is offered by the Arizona Center for Medieval and Renaissance Studies (ACMRS). In addition to the course work and examinations required in a student's major field of interest, the following minimum requirements must be fulfilled to earn the certificate:

1. six to eight semester hours of classical Latin and six to eight semester hours of Latin (classical and/or medieval) or of a vernacular language of the period (e.g., Old English, Old Norse, Old French, Renaissance Italian);
2. six to eight semester hours of course work in medieval and renaissance studies outside the major discipline;
3. three semester hours of thesis on a topic concerning the Middle Ages or Renaissance. The thesis may be used to fulfill the Honors College thesis requirement for students enrolled in the Barrett Honors College; and
4. a minimum of a "C" (2.00) average in all course work leading to the certificate.

Students interested in the certificate program need to complete an application form before being accepted into the program. Applications are available by calling ACMRS at 480/965-5900 or visiting COOR 4429.

See the *Graduate Catalog* for information about the Certificate in Medieval Studies and the Certificate in Renaissance Studies, and "Arizona Center for Medieval and Renaissance Studies," page 44, for information about the center.

BIS Concentration. A concentration in medieval and Renaissance studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

Museum Studies. See the *Graduate Catalog* or contact the Department of Anthropology for more information.

Russian and East European Studies. Undergraduate students may complete an interdisciplinary certificate program in Russian and East European studies while pursuing a bachelor's degree in their chosen field. The requirements for the Russian and East European Studies Certificate comprise (1) three years (22 semester hours) of Russian or another Eurasian or East European language and (2) 30 upper-division semester hours in Russian, East European, and Eurasian area-related course work.

At least three disciplines must be represented in the area-related course work, and at least 12 semester hours must be outside the Department of Languages and Literatures (i.e., non-RUS and non-FLA courses). Fulfillment of these requirements is certified by the Russian and East European Studies Center and is recognized on the transcript by a bachelor's degree with "Major in [Discipline], and Certificate in Russian and East European Studies." The purpose of this undergraduate certificate program is to encourage students majoring in a chosen discipline to develop special competency in Russian or East European language and area studies. A student with a major in any department may pursue this certificate.

For more information, call 480/965-4188, or visit COOR 4465.

BIS Concentration. A concentration in Russian and East European studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

Scandinavian Studies. Students admitted to undergraduate degree programs in any field are eligible for the Scandinavian Studies Certificate program. In addition to the course work and examinations required in the student's major, the student is responsible for fulfilling the following minimum requirements (21 semester hours) before the certificate is issued:

1. six semester hours of Norwegian or Swedish at the 200 level or above;
2. three semester hours in SCA 250 Introduction to Scandinavian Culture;
3. nine semester hours of upper-division course work in Scandinavian Studies outside the student's major discipline;

4. a minimum of a "C" (2.00) average in all course work leading to the certificate; and
5. three semester hours in an independent study thesis on a topic concerning Scandinavian Studies. The thesis may be used to fulfill the Barrett Honors College thesis requirement for students enrolled in the Barrett Honors College.

Students who test out of the basic language courses would, with advising, take other approved courses to fulfill the minimum requirement of 21 semester hours.

For more information, call the Department of Languages and Literatures at 480/965-6281.

BIS Concentration. A concentration in Scandinavian studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

Scholarly Publishing. See the *Graduate Catalog* for information on this certificate program.

Southeast Asian Studies. A Certificate in Southeast Asian Studies is available to any undergraduate student. The certificate program offers two options: (1) an area studies specialization emphasizing courses in the social sciences and humanities and requiring one year of Indonesian, Thai, or Vietnamese and (2) a language specialization requiring a two-year sequence in a Southeast Asian language and a proportional number of area studies courses.

Students wishing to study a Southeast Asian language other than those offered on campus may transfer credits earned at the Southeast Asian Studies Summer Institute, a consortium for intensive language and area studies, or at other accredited programs. Qualified students may request placement testing on other national languages of the region, administered in accordance with the national American Council of Teachers in Foreign Languages (ACTFL) guidelines.

The ASU curriculum includes

1. language instruction in Indonesian, Thai, or Vietnamese;
2. ASB/GCU/HST/POS/REL 240 Introduction to Southeast Asia;
3. HST 391 Modern Southeast Asia;
4. electives in the social sciences and humanities on the history, geography, culture, politics, and religion of the region; and
5. a culminating capstone seminar in which the students share multidisciplinary approaches to the region and integrate knowledge of Southeast Asia with their respective disciplinary orientations.

Courses counting toward the Certificate in Southeast Asian Studies fulfill requirements for undergraduate majors and General Studies in the social and behavioral sciences, humanities, literacy, and global and historical awareness areas. A two-year sequence in Southeast Asian language study meets the foreign language requirement for undergraduates in CLAS.

For more information, visit the Program for Southeast Asian Studies in COOR 6611 or call 480/965-4232.

BIS Concentrations. Concentrations in Southeast Asian studies (area studies option or language option) are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

Symbolic Systems. The Department of Philosophy offers a Certificate in Symbolic Systems. The certificate program takes an interdisciplinary approach to cognition, computation, and meaning. Course work is divided evenly between philosophy, psychology, and computer science in order to expose students to the subject matter from a conceptual, empirical, and practical point of view. The certificate may interest students with majors in any of the three disciplines on topics of common interest.

The certificate consists of 28 semester hours approved by an advisor in the Department of Philosophy and divided evenly between computer science and engineering, psychology, and philosophy as follows:

1. CSE 205, 210, and 240;
2. PSY 230 and 290 and either PSY 323, 324, or 437; and
3. either PHI 319, or 333, either PHI 315 or 317, and either PHI 312 or 314.

Students must satisfy the prerequisites for the listed courses. With written approval from the director of undergraduates studies in the Department of Philosophy, one substitution course from outside this list is allowed. All courses must be passed with a minimum grade of "C" (2.00).

For more information, visit the Department of Philosophy in COOR 3309, or call 480/965-3394.

Translation. See "Translation Certificate (Spanish/English)," page 583, for information about the Certificate in Translation.

Women and Gender Studies. Women and Gender Studies provides students with an intensive interdisciplinary liberal arts education that enables them to write well, think critically, and analyze problems effectively.

The certificate program is equivalent to an interdisciplinary minor, consisting of 18 credit hours, and is open to graduate as well as undergraduate students. Students pursuing a certificate in Women and Gender Studies must consult with the Women and Gender Studies advisor to select appropriate courses and fulfill requirements.

A Certificate of Concentration in Women and Gender Studies is awarded for the successful completion of WST 100 (or 300) and WST 377 or 378 and an additional 12

semester hours from the list of approved Women and Gender Studies courses.

Inquiries about the certificate program should be addressed to the Women and Gender Studies Program academic advisor in ECA 209, 480/965-2358, where the current list of approved courses is available.

GENERAL INFORMATION

Research Centers. To expand educational horizons and to enrich the curriculum, CLAS maintains the following research centers:

Arizona Center for Medieval and Renaissance Studies
Center for Asian Studies
Center for Biology and Society
Center for Film and Media Research
Center for Metabolic Biology
Center for Meteorite Studies
Center for Solid State Science
Center for the Study of Early Events in Photosynthesis
Center for the Study of Religion and Conflict
Exercise and Sport Research Institute
Hispanic Research Center
Institute of Human Origins
Joan and David Lincoln Center for Applied Ethics
Latin American Studies Center
Russian and East European Studies Center

CLAS also participates with the College of Education and the Ira A. Fulton School of Engineering in maintaining the Center for Research on Education in Science, Mathematics, Engineering, and Technology. See "Research Centers," page 39, for more information.

Courses. The faculty also offers the following LIA courses to familiarize students with available resources and services for research purposes.

For information on these courses, see the *Schedule of Classes,* visit the Office of Undergraduate Programs in FOUND 110, or call 480/965-6506.

LIBERAL ARTS AND SCIENCES (LIA)

M LIA 191 First-Year Seminar. (1–3)
selected semesters
Fee.

M LIA 194 Special Topics. (1–4)
fall
Topics may include the following:
- Student Success Seminar. (1)

M LIA 294 Special Topics. (1–4)
fall
Topics may include the following:
- Introduction to Liberal Arts and Sciences. (1)

M LIA 394 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Career Management for CLAS Majors. (1–3)
  Fee.

M LIA 484 CLAS Internship. (1–12)
fall, spring, summer

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

HUMANITIES (HUM)

As of fall 2005, the BA degree in Interdisciplinary Humanities was disestablished. A limited number of HUM courses are offered each semester. Access www.asu.edu/aad/catalogs/courses for the most current list of courses.

Department of Aerospace Studies

Air Force ROTC

www.asu.edu/clas/afrotc
480/965-3181
SS 352

Col. David W. Guthrie, Chair

Professor: Guthrie

Assistant Professors: Kwasnoski, Marks, Thomas

PURPOSE

The Department of Aerospace Studies curriculum consists of the general military course and history for freshmen and sophomores (AES 101, 102, 103, 104, 201, 202, 203, 204) and the professional officer course for juniors and seniors (AES 301, 302, 303, 304, 401, 402, 403, 404).

General Qualifications. Students entering the Air Force Reserve Officers' Training Corps (AFROTC) must meet the following requirements:

1. be a citizen of the United States (noncitizens may enroll but must obtain citizenship before commissioning);
2. be of sound physical condition; and
3. be at least 17 years of age for scholarship appointment or admittance to the Professional Officer Course (POC).

Additionally, scholarship recipients must be able to fulfill commissioning requirements by age 27. If designated for flying training, the student must be able to complete all commissioning requirements before age 29; persons in other categories must be able to complete all commissioning requirements before age 35.

FOUR-YEAR PROGRAM (GMC AND POC)

A formal application is not required for students entering the four-year program. A student may enter the program by simply registering for one of the general military course (GMC) classes at the same time and in the same manner as other courses. GMC students receive two semester hours for each AES 100- and 200-level class completed for a total of

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

eight semester hours. GMC students not on AFROTC scholarship incur no military obligation. Each candidate for commissioning must pass an Air Force aptitude test and a physical examination and be selected by a board of Air Force officers. If selected, the student then enrolls in the POC the last two years of the AFROTC curriculum. Students attend a four-week field training course at an Air Force base normally between the sophomore and junior years. Upon successful completion of the POC and the college requirements for a degree, the student is commissioned in the U.S. Air Force as a second lieutenant. The new officer then enters active duty or may be granted an educational delay to pursue graduate work.

TWO-YEAR PROGRAM (POC)

The basic requirement for entry into the two-year program is that the student have two academic years of college work remaining, either at the undergraduate or graduate level. Applicants seeking enrollment in the two-year program must pass an Air Force aptitude test and medical examination and be selected by a board of Air Force officers. After successfully completing a six-week field training course at an Air Force base, the applicant may enroll in the professional officer course (POC) in the AFROTC program. Upon completion of the POC and the college requirements for a degree, the student is commissioned.

Note: This program is subject to change without notice.

Qualifications. The following requirements must be met for admittance to the POC:

1. The four-year student must successfully complete the general military course and the four-week field training course.
2. The two-year applicant must complete a six-week field training course.
3. All students must pass the Air Force Officer Qualifying Test (AFOQT).
4. All students must pass the Air Force physical examination.
5. All students must maintain the minimum GPA required by the college.
6. All students must meet the physical fitness requirements.

Pay and Allowances. POC members in their junior and senior years receive $350 and $400 respectively per month for a maximum of 20 months of POC attendance. Students are also paid to attend field training. In addition, uniforms, housing, and meals are provided during field training at no cost to the student. Students are reimbursed for travel to and from field training.

Scholarships. AFROTC offers scholarships annually to outstanding young men and women on a nationwide competitive basis. Scholarships can cover college tuition for nonresident students and provide an allowance for books, fees, supplies and equipment, and a monthly tax-free allowance of $250 to $400 depending on the year. Scholarships are available on a four-, three-, or two-year basis. To qualify for a four- or three-year scholarship, a student must be a U.S. citizen and submit an application before December 1 of the senior year in high school. Interested students should consult their high school counselors or contact AFROTC at ASU for application forms to be submitted to

HQ AFROTC
MAXWELL AFB
AL 36112-6663

Applications can also be submitted online at www.afrotc.com.

Students enrolled in AFROTC at ASU are eligible for a limited number of three- or two-year scholarships. Those students interested must apply through the Department of Aerospace Studies. Consideration is given to academic grades, the score achieved on the AFOQT, and physical fitness. A board of officers considers an applicant's personality, character, and leadership potential.

AEROSPACE STUDIES (AES)

M AES 101 Air Force Today I. (2)
fall
Introduces U.S. Air Force and AFROTC. Topics include: the Air Force mission and organization, customs and courtesies, officer opportunities, officership, and professionalism.

M AES 102 Leadership Lab. (0)
fall
Emphasizes common Air Force customs and courtesies, drill and ceremonies, health and physical fitness through group participation. Corequisite: AES 101.

M AES 103 Air Force Today II. (2)
spring
Continuation of AES 101. Topics include: the Air Force mission and organization, customs and courtesies, officer opportunities, officership, and professionalism. Prerequisite: AES 101 or department approval.

M AES 104 Leadership Lab. (0)
spring
Continuation of AES 102 with more in-depth emphasis on learning the environment of an Air Force officer. Corequisite: AES 103.

M AES 201 The Evolution of USAF Air and Space Power I. (2)
fall
Further preparation of the AFROTC candidate. Topics include: Air Force heritage and leaders, communication skills, ethics, leadership, quality Air Force, and values. Prerequisite: AES 103 or department approval.

M AES 202 Leadership Lab. (0)
fall
Application of advanced drill and ceremonies, issuing commands, knowing flag etiquette, and developing, directing, and evaluating skills to lead others. Corequisite: AES 201.

M AES 203 The Evolution of USAF Air and Space Power II. (2)
spring
Continuation of AES 201. Topics include: the Air Force mission and organization, customs and courtesies, officer opportunities, officership, and professionalism. Prerequisite: AES 201 or department approval.

M AES 204 Leadership Lab. (0)
spring
Continuation of AES 202 with emphasis on preparation for field training. Corequisite: AES 203.

M AES 301 Air Force Leadership Studies I. (3)
fall
Study of communication skills, leadership and quality management fundamentals, leadership ethics, and professional knowledge required of an Air Force officer. Prerequisite: AES 203 or department approval.
General Studies: L

M AES 302 Leadership Lab. (0)
fall
Advanced leadership experiences applying leadership and management principles to motivate and enhance the performance of other cadets. Corequisite: AES 301.

M AES 303 Air Force Leadership Studies II. (3)
spring
Continuation of AES 301. Topics include: communication skills, ethics, leadership, professional knowledge, and quality management required of an Air Force officer. Prerequisite: AES 203 or department approval.
General Studies: L

M AES 304 Leadership Lab. (0)
spring
Continuation of AES 302 with emphasis on planning the military activities of the cadet corps and applying advanced leadership methods. Corequisite: AES 303.

M AES 401 National Security Affairs. (3)
fall
Examines advanced ethics, Air Force doctrine, national security process, and regional studies. Special topics include: civilian control of the military, military justice, and officership. Prerequisite: AES 303 or department approval.
General Studies: L

M AES 402 Leadership Lab. (0)
fall
Advanced leadership experience demonstrating learned skills in planning and controlling the military activities of the corps. Corequisite: AES 401.

M AES 403 Preparation for Active Duty II. (3)
spring
Continuation of AES 401. Topics include: civilian control of the military, doctrine, ethics, military justice, the national security process, and officership. Prerequisite: AES 401 or department approval.

M AES 404 Leadership Lab. (0)
spring
Continuation of AES 402 with emphasis on preparation for transition from civilian to military life. Corequisite: AES 403.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

African and African American Studies Program

www.asu.edu/clas/aframstu

480/965-4399

COWDN 224

Mary Margaret Fonow, Interim Director

CORE FACULTY

Professors: Boulin Johnson, Reyes
Associate Professor: Bontemps
Assistant Professors: Hinds, Robillard, Usman
Clinical Associate Professor: Cox
Visiting Assistant Professor: Gallab

AFFILIATED FACULTY

Art
Professors: Sweeney, Young
Associate Professor: Umberger

Asian Pacific American Studies
Assistant Professor: Rosa

Community Resources and Development
Associate Professor: Teye

English
Professors: Lester, Miller
Associate Professor: Fulton
Lecturer: Fuse

History
Associate Professors: Barnes, El Hamel
Assistant Professor: Whitaker

Human Communication
Professors: Jain, Martin
Associate Professors: Davey, Davis

Human Evolution and Social Change
Associate Professor: Winkelman

Journalism and Mass Communication
Associate Professor: Bramlett-Solomon

Justice and Social Inquiry
Professors: Jurik, Romero, Zatz
Assistant Professor: Quan

Languages and Literatures
Assistant Professors: Ali, McElroy

Music
Professors: Pilafian, Smith, Solís, Sunkett

Political Science
Professor: Iheduru
Associate Professor: Mitchell

Psychology in Education
Professor: Hood

Religious Studies
Associate Professors: Moore, Umar

Sociology
Professor: Cobas
Associate Professor: Keith
Instructor: Williams

Theatre and Film
Professor: Edwards

Women and Gender Studies
Professor: Rothschild
Associate Professor: Leong
Assistant Professor: Anderson

The African and African American Studies program offers an interdisciplinary examination of the many ways in which African and African-descended peoples have created robust lives for themselves and, in turn, contributed to the creation of the modern world. The program's mission

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

is advanced by its core undergraduate curriculum and certificate and minor programs that examine the culture, arts, history, politics, economics, and current status of African Americans, Africans and the African Diaspora everywhere, especially in the Caribbean, Central America, and South America. The curriculum combines a research-based understanding of the humanities, social and behavioral sciences, and the arts with practical applications (internships, community/civic engagement, and research projects) to prepare students for lifelong learning, advanced study in a variety of fields, and successful careers and productive public service in an increasingly diverse society, especially in Arizona.

AFRICAN AND AFRICAN AMERICAN STUDIES—BA

Course Requirements. The major in African and African American Studies (AAAS) requires 45 semester hours of course work. A minimum of 30 semester hours must be AFH, AFR, and AFS courses. The remaining course work must be in a related field approved by an AAAS advisor. All students in the major are required to take the following 15 semester hours of core courses:

AFH 300 Precolonial Africa 3
AFS 200 Introduction to African and African Diaspora Studies....3
AFS 301 Race and Racism in Africa/African Diaspora 3
AFS 312 Contemporary African and African Diaspora Women 3
AFS 484 Field Experience/Internship 3
or AFS 498 Pro-Seminar (3)

Regional Emphasis Area. In addition to the 15-semester-hour core curriculum, students in the AAAS program may choose a 15-semester-hour regional emphasis area in Africa, Caribbean and Afro-Latin America, or African America. The courses that satisfy the requirements for each regional emphasis area are grouped thematically (History; Governance and Politics; Family, Health, Gender, and Society; and Culture and Literature) to provide students a variety of choices to satisfy their academic interests.

Africa Emphasis Area Requirements. Students who opt for the Africa regional emphasis area must take:

AFH 335 Survey of African Literatures....3
or AFS 355 Democracy and Civil Society in Africa (3)
AFS 340 The Making of Modern Africa....3
Related courses* 9
Total 15

* Six semester hours of Africa-related courses (i.e., 50 percent or more Africa content) at the 300 level and three semester hours of courses at the 400 level are required. At least nine of the 15 hours in this emphasis area must be completed at ASU.

Caribbean and Afro-Latin American Emphasis Area Requirements. Students who opt for the Caribbean and Afro-Latin America regional emphasis area must take:

AFH 318 African and African Diaspora Women Writers 3
or AFH 319 Black Experience in Latin America (3)
AFS 345 The Making of the Caribbean Society 3
Related courses* 9
Total 15

* Six semester hours of Caribbean and Afro-Latin American-related courses (i.e., 50 percent or more Caribbean and Afro-Latin American content) at the 300 level and three semester hours of courses at the 400 level are required. At least nine of the 15 semester hours in this emphasis area must be completed at ASU.

African America Emphasis Area Requirements. Students who opt for the African America regional emphasis area must take:

AFH 318 African and African Diaspora Women Writers 3
or AFR 210 Introduction to African American Studies *C* (3)
AFS 363 African American History to 1865 *SB, C, H* 3
or AFH 364 African American History Since 1865 *SB, C, H* (3)
Related courses* 9
Total 15

* Six semester hours of African American-related courses (i.e., 50 percent or more African American content) at the 300 level and three semester hours of courses at the 400 level are required. At least nine of the 15 semester hours in this emphasis area must be completed at ASU.

Thematic Emphasis Area. Students in the African and African American Studies program may also opt for a 15-semester-hour thematic emphasis area by taking the following courses:

AFH 305 The Global History of the Trans-Atlantic Slave Trade ..3
or AFS 415 Black Political Thought and the Limits of Liberal Democracy (3)
Related courses* 12
Total 15

* Twelve semester hours of courses chosen from at least three thematic areas listed below; or from other African and African American Studies-related courses (i.e., 50 percent or more thematic content) at the 300 and 400 levels are required. At least nine of the 15 semester hours in this emphasis area must be completed at ASU.

History
AFH 300 Precolonial Africa 3
AFH 305 The Global History of the Trans-Atlantic Slave Trade ..3
AFH 319 Black Experience in Latin America 3
AFH 465 Harlem Renaissance: A Cultural History: 1877–1945....3
AFS 340 The Making of Modern Africa....3
AFS 345 The Making of the Caribbean Society 3
AFS 363 African American History to 1865 *SB, C, H*....3
AFS 364 African American History Since 1865 *SB, G, H*....3
AFS 366 African Archaeology: Precolonial Urban Culture *SB, C, H*....3
AFS 466 Peoples and Cultures of Africa *SB, G, H* 3

Governance and Politics
AFR 210 Introduction to African American Studies *C*....3
AFS 200 Introduction to African and African Diaspora Studies....3
AFS 301 Race and Racism in Africa/African Diaspora....3
AFS 304 Islands of Globalization: Caribbean Political Economy 3
AFS 320 Africa: Politics, Environment, and Development 3

AFS 327 Human Rights in Africa 3
AFS 355 Democracy and Civil Society in Africa 3

Culture and Literature
AFH 303 African and African American Art 3
AFH 318 African and African Diaspora Women Writers 3
AFH 331 Studies in African American Women Writers of Pre-Harlem Renaissance 3
AFH 333 American Ethnic Literature *L/HU, C* 3
AFH 335 Survey of African Literatures 3
AFH 353 African American Literature: Beginnings Through the Harlem Renaissance *L/HU, C* 3
AFH 354 African American Literature: Harlem Renaissance to the Present 3
AFH 459 Studies in African American/Caribbean Literatures *L* ...3

Gender, Family, and Society
AFR 375 Race, Gender, and Sport *SB, C* 3
AFR 428 Critical Race Theory 3
AFR 460 Race, Gender, and Media *C* 3
AFS 312 Contemporary African and African Diaspora Women ...3
AFS 360 Black Families in the Diaspora: U.S. and Caribbean.....3
AFS 370 Family, Ethnic, and Cultural Diversity *SB, C* 3

Of the remaining course work, 15 hours may be taken in related area courses (i.e., non-African and African American Studies programs prefixes with at least 50 percent African, Caribbean, and Afro-Latin American, or African American continent) in consultation with the AAAS advisor and/or director.

Students are expected to fulfill the college's language requirement in African languages or any of the languages spoken by the African Diaspora, such as Arabic, French, Portuguese, and Spanish.

CERTIFICATE IN AFRICAN AND AFRICAN AMERICAN STUDIES

Course Requirements. The certificate requires 24 semester hours. Fifteen core hours must be taken from the following courses:

AFH 353 African American Literature: Beginnings Through the Harlem Renaissance *L/HU, C* 3
or AFH 354 African American Literature: Harlem Renaissance to the Present *L/HU, C* (3)
AFR 210 Introduction to African American Studies *C* 3
AFR 429 African American Studies Theory and Methods 3
AFS 363 African American History to 1865 *SB, C, H* 3
AFS 364 African American History Since 1865 *SB, C, H* 3

In addition, one course from each of the three concentrations (i.e., social and behavioral sciences, humanities/arts, politics and society) must be taken. These courses are in addition to the required core courses. Courses should be selected in consultation with the major advisor.

MINOR IN AFRICAN AND AFRICAN AMERICAN STUDIES

Course Requirements. The minor requires 18 semester hours. All African and African American Studies minors must take the following six core hours:

AFH 300 Precolonial Africa 3
AFS 200 Introduction to African and African Diaspora Studies...3
Choose one of the following regional courses 3
AFH 319 Black Experience in Latin America (3)
AFR 210 Introduction to African American Studies *C* (3)
AFS 340 The Making of Modern Africa (3)
AFS 355 Democracy and Civil Society in Africa (3)
Related courses* 9
Total 18

* Nine semester hours are required, with one 300 or 400 level course from each of the following thematic areas: Culture and Literature; Politics and Governance; and Family, Gender, and Society. At least 50 percent of the course content (which may or may not be AFH or AFS) must deal with African peoples inside and outside the African continent. At least nine of the 15 semester hours in this certificate must be completed at ASU.

BIS CONCENTRATION

A concentration in African and African American studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

AFRICAN AND AFRICAN AMERICAN STUDIES HUMANITIES (AFH)

M AFH Note 1. Completion of the First-Year Composition requirement (ENG 101 and 102 [or 105] or ENG 107 and 108 with a grade of "C" [2.00] or higher) is a prerequisite for all English courses above the 100 level.

M AFH Note 2. A term paper or equivalent out-of-class written work is required in all upper-division (300- and 400-level) ENG courses.

M AFH Note 3. English majors and minors are expected to have completed ENG 200 before taking 400-level literature courses.

M AFH 202 Art of Africa, Oceania, and the Americas. (3)
spring
History of art of Africa, Oceania, and the New World. Meets non-Western art history requirement. Lecture, discussion. Cross-listed as ARS 202. Credit is allowed for only AFH 202 or ARS 202.
General Studies: HU, G, H

M AFH 300 Precolonial Africa. (3)
fall
Surveys social, economic, political, cultural, and economic institutions and civilizations of Africa before European colonialism. Lecture, discussion, films.

M AFH 303 African and African American Art. (3)
fall, spring, summer
Anthropological perspective of African and African American visual art traditions from the past to 1970. Lecture, discussion, video and slide films.

M AFH 305 The Global History of the Trans-Atlantic Slave Trade. (3)
selected semesters
Origins, development, abolition, and impact of Atlantic slave trade as a global economic enterprise and great human tragedy; slavery experience. Lecture, discussion, films.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M AFH 318 African and African Diaspora Women Writers. (3)
spring
Intersection of race, class, gender, and ethnicity in black women's fiction from the United States, the Caribbean, and Africa. Lecture, discussion, films.

M AFH 319 Black Experience in Latin America. (3)
selected semesters
Examines several aspects of the experience of Africans in the Latin America diaspora; comparisons with United States. Lecture, discussion, films. Prerequisite: sophomore standing.

M AFH 331 Studies in African American Women Writers of Pre-Harlem Renaissance. (3)
fall
Focuses on novels, short stories, essays, speeches, and dramas that gave "voices" to African American woman in pre-Harlem Renaissance era. May be repeated for credit when topics vary. Lecture, discussion, films.

M AFH 333 American Ethnic Literature. (3)
once a year
Examines America's multiethnic identity through works of literature that depict American ethnic, gender, and class sensibilities. Cross-listed as ENG 333. Credit is allowed for only AFH 333 or ENG 333. See AFH Notes 1, 2.
General Studies: L/HU, C

M AFH 335 Survey of African Literatures. (3)
selected semesters
Intersection of colonialism, race, class, gender, nationalism, postcoloniality, social transformation, and ethnicity in African writers' fiction and literary production. Lecture, discussion, films.

M AFH 347 Jazz in America. (3)
fall, spring, summer
Current practices employed by contemporary jazz musicians; the historical development of jazz techniques. Credit does not apply to major requirements for music degrees. Lecture, discussion. Cross-listed as MUS 347. Credit is allowed for only AFH 347 or MUS 347. Fee.
General Studies: HU, C

M AFH 353 African American Literature: Beginnings Through the Harlem Renaissance. (3)
fall
Historical survey of African American literary traditions and cultural contexts from slavery through the 1930s. Cross-listed as ENG 353. Credit is allowed for only AFH 353 or ENG 353. See AFH Notes 1, 2.
General Studies: L/HU, C

M AFH 354 African American Literature: Harlem Renaissance to the Present. (3)
spring
Historical survey of African American literary traditions and cultural contexts from the 1920s to the present. Cross-listed as ENG 354. Credit is allowed for only AFH 354 or ENG 354. See AFH Notes 1, 2.
General Studies: L/HU, C

M AFH 459 Studies in African American/Caribbean Literatures. (3)
selected semesters
Studies in African American or Caribbean literatures according to genre, period, theory, or selected authors. May be repeated for credit when topics vary. Cross-listed as ENG 459. Credit is allowed for only AFH 459 or ENG 459. See AFH Notes 1, 2, 3. Topics may include the following:
- African American Short Story
  General Studies: L

M AFH 465 Harlem Renaissance: A Cultural History: 1877–1945. (3)
spring
Socio-political, historical contexts and worldwide ramifications of the cultural productions (theater, music, visual arts, and literature) of the Harlem Renaissance. Lecture, discussion, films.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

AFRICAN AND AFRICAN AMERICAN STUDIES (AFR)

M AFR 191 First Year Seminar. (1–3)
selected semesters

M AFR 194 Special Topics. (1–4)
selected semesters

M AFR 210 Introduction to African American Studies. (3)
fall
Examines the political, historical, and cultural origins of African American studies as an academic discipline. Lecture, discussion.
General Studies: C

M AFR 294 Special Topics. (1–4)
selected semesters

M AFR 298 Honors Directed Study. (1–6)
selected semesters

M AFR 317 Genes, Race, and Society. (3)
spring
Examines history of biological and social constructions of "race" in western society. Lecture, discussion.
General Studies: SB, C, H

M AFR 375 Race, Gender, and Sport. (3)
fall and spring
Interdisciplinary examination of the social concepts of race and gender and their economic impact on sports in America. Lecture, discussion. Prerequisite: ENG 102 (or its equivalent) or instructor approval.
General Studies: SB, C

M AFR 394 Special Topics. (1–4)
selected semesters

M AFR 428 Critical Race Theory. (3)
spring
Examines ways in which race has been historically utilized, constructed, and contested in American civil society. Lecture, discussion.

M AFR 429 African American Studies Theory and Methods. (3)
spring
Examines social and behavioral science theories and methodological procedures pertaining to African Americans. Prerequisite: senior standing.

M AFR 460 Race, Gender, and Media. (3)
spring and summer
Reading seminar designed to give a probing examination of the interface between AHANA Americans and the mass media in the United States. Lecture, discussion. Cross-listed as MCO 460. Credit is allowed for only AFR 460 or MCO 460.
General Studies: C

M AFR 484 Internship. (1–12)
selected semesters

M AFR 490 Field Studies in the Diaspora. (3)
spring
Introduces methods and principles of research applied to Black communities within and outside Arizona. Involves working with field officer and faculty. Lecture, field study. Prerequisite: senior standing. Pre- or corequisite: AFR 429.

M AFR 492 Honors Directed Study. (1–6)
selected semesters

M AFR 493 Honors Thesis. (1–6)
selected semesters
General Studies: L

M AFR 494 Special Topics. (1–4)
selected semesters

M AFR 497 Honors Colloquium. (1–6)
selected semesters

M AFR 498 Pro-Seminar. (3)
spring
Topic is selected by instructor in consultation with the student. Designed to integrate and develop research skills. Required for majors. Prerequisite: senior standing. Pre- or corequisite: AFR 429.

M AFR 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

AFRICAN AND AFRICAN AMERICAN STUDIES SOCIAL SCIENCE (AFS)

M AFS 200 Introduction to African and African Diaspora Studies. (3)
spring
Introduces the study of African and African-descended peoples; theory, themes, and perspectives. Lecture, discussion.

M AFS 202 Ethnic Relations in the United States. (3)
fall and spring
Processes of intercultural relations; systems approach to history of U.S. interethnic relations; psychocultural analysis of contemporary U.S. ethnic relations. Lecture, discussion. Cross-listed as ASB 202. Credit is allowed for only AFS 202 or ASB 202.
General Studies: SB, C, H

M AFS 210 Introduction to Ethnic Studies in the U.S. (3)
fall and spring
Covers diversity of experiences and relations among racial and ethnic groups in the United States. Lecture, discussion. Cross-listed as APA 210/CCS 210. Credit is allowed for only AFS 210 or APA 210 or CCS 210.
General Studies: C

M AFS 301 Race and Racism in Africa/African Diaspora. (3)
spring
Construction of race, racism, and race relations in Africa/African Diaspora; practices of agency to challenge ethnicity, racism, and racial oppression. Lecture, discussion, films.

M AFS 304 Islands of Globalization: Caribbean Political Economy. (3)
spring
Impact of globalization on the economic, political, and social condition of the islands and mainland countries of the Caribbean. Lecture, discussion, films.

M AFS 310 African/African American Psychology. (3)
fall and spring
Historical and contemporary overview of the development of African/Black psychology and African American frame of reference. Lecture, discussion.

M AFS 312 Contemporary African and African Diaspora Women. (3)
selected semesters
Explores recent literary, theoretical, and methodological themes concerning the study of African/African Diaspora women and the phenomena of modernization. Lecture, discussion, films.

M AFS 320 Africa: Politics, Environment, and Development. (3)
selected semesters
Uses African experience to understand the consequences of human environment relationships, wealth and power differentials, and individual and global citizenship. Lecture, discussion, films. Prerequisite: sophomore standing.

M AFS 327 Human Rights in Africa. (3)
selected semesters
Comparative study of human rights focusing on colonial and post-colonial Africa from historical and contemporary perspectives. Lecture, discussion, films. Prerequisite: junior standing.

M AFS 340 The Making of Modern Africa. (3)
spring
Events and processes leading to the colonization of Africa and subsequent changes in African societies under colonial rule and independence. Lecture, discussion, films. Prerequisite: ENG 102.

M AFS 345 The Making of the Caribbean Society. (3)
selected semesters
Historical socioeconomic and political factors and institutions creating the wider Caribbean from the 15th century to the present. Lecture, discussion, films.

M AFS 355 Democracy and Civil Society in Africa. (3)
selected semesters
Examines contending perspectives on the state and civil society and democratic struggles using sub-Saharan Africa and case study. Lecture, discussion, films. Prerequisite: junior standing.

M AFS 360 Black Families in the Diaspora: U.S. and Caribbean. (3)
fall
Comparative study of historical and current themes in the structure and internal dynamics of African Diaspora families. Lecture, discussion, films.

M AFS 363 African American History to 1865. (3)
once a year
The African American in American history, thought, and culture from slavery to 1865. Cross-listed as HST 333. Credit is allowed for only AFS 363 or HST 333.
General Studies: SB, C, H

M AFS 364 African American History Since 1865. (3)
once a year
The African American in American history, thought, and culture from 1865 to the present. Cross-listed as HST 334. Credit is allowed for only AFS 364 or HST 334.
General Studies: SB, C, H

M AFS 366 African Archaeology: Precolonial Urban Culture. (3)
fall and spring
Overview of African civilization from the last 10,000 years up to 1850 via archaeological, documentary, and oral data. Lecture, discussion. Cross-listed as ASB 366. Credit is allowed for only AFS 366 or ASB 366.
General Studies: SB, G, H

M AFS 370 Family, Ethnic, and Cultural Diversity. (3)
fall and spring
Integrative approach to understanding historical and current issues related to the structure and internal dynamics of diverse American families. Lecture, discussion. Cross-listed as FAS 370. Credit is allowed for only AFS 370 or FAS 370. Prerequisite: PGS 101 or SOC 101.
General Studies: SB, C

M AFS 415 Black Political Thought and the Limits of Liberal Democracy. (3)
selected semesters
Black political and social thought; conflict between liberal democratic ideals and structures of domination and exploration from African Diaspora perspectives. Lecture, discussion, films.

M AFS 466 Peoples and Cultures of Africa. (3)
fall and spring
Survey of African peoples and their cultures, external contact, and changes. Meets non-Western requirement. Lecture, discussion. Cross-listed as ASB 466. Credit is allowed for only AFS 466 or ASB 466.
General Studies: SB, G, H

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

American Indian Studies Program

www.asu.edu/clas/americanindian
480/965-3634
AG 372

Eddie F. Brown, Director

Professor: Brown

Associate Professors: Lujan, Riding In

Assistant Professors: Miller, Vicenti Carpio

The American Indian Studies Program is an academic discipline that emphasizes the political and cultural experience of the various American Indian Nations and peoples of the United States. Course work focuses on the cultures, arts, history, and contemporary experiences of the various American Indian nations. The curriculum also concentrates on the practical application for professional career development, preparation for advanced degree programs, and preparation for service to Indian governments and reservations. It emphasizes scholarly expertise in selected fields of study and its practical application to community service.

AMERICAN INDIAN STUDIES—BS

Students pursuing a BS degree in American Indian Studies gain a broad knowledge of American Indian nations and peoples, with particular emphasis on Southwest American Indian nations. The degree program offers courses that provide students with intellectual and practical knowledge pertaining to American Indian cultures, history, law, literature, language, art, and government.

Students are required to take 42 semester hours, including 24 hours of required courses and 18 hours in one of two areas of emphasis: (1) legal policy, community, and nation building; or (2) arts, languages, and cultures. Contact the program office for a current list of elective courses. Students must receive a minimum grade of "C" (2.00) in required and emphasis courses. The following courses are required for all students majoring in American Indian Studies:

AIS	180	Introduction to American Indian Studies *C*	3
AIS	280	American Indian Sovereignty and the Courts *C*	3
AIS	285	Federal Indian Policy	3
AIS	370	American Indian Languages and Cultures	3
AIS	380	Contemporary Issues of American Indian Nations	3
AIS	394	ST: Basic Statistical Analysis*	3
AIS	420	American Indian Studies Research Methods *L*	3
AIS	498	Pro-Seminar	3

* Until American Indian Studies is able to offer its own course in statistical research methods, students must take JUS 302, or a comparable course, in consultation with an advisor.

To assure the breadth and depth of their education, all American Indian Studies undergraduates must complete the requirements of the university General Studies program and the College of Liberal Arts and Sciences. For descriptive information on university requirements, see "General Studies," page 93, and "University Graduation Requirements," page 89. For descriptive information on College of Liberal Arts and Sciences requirements, see "College Graduation Requirements," page 503.

As part of the College of Liberal Arts and Sciences living-learning community concept, students learn scientific methods together during class and share the same residence hall.

Tim Trumble photo

MINOR IN AMERICAN INDIAN STUDIES

The minor in American Indian Studies is designed for students interested in developing an understanding of American Indian issues and analyzing issues through critical inquiry. Fifteen semester hours are required, including AIS 180, 380, and 385 and six elective semester hours from the two areas of emphasis. No pass/fail or credit/noncredit course work may be applied to the minor. A minimum of nine hours must be in resident credit at the Tempe campus. Students must receive a minimum grade of "C" (2.00) for all courses in the minor and meet all course eligibility requirements.

CERTIFICATE IN AMERICAN INDIAN STUDIES

The certificate program recognizes the need for training American Indian and non-Indian students for employment and leadership roles in American Indian government, in state/federal agencies, in education programs, and in urban and Indian community programs.

To this end, the American Indian Studies Certificate program seeks to address the myriad of contemporary social, political, and economic problems and issues impacting American Indian people.

The program provides students with

1. useful knowledge pertaining to American Indian sovereignty, government, law, history, economic development, and culture;
2. practical experience in the form of an off-campus internship working in an American Indian government, a community program, an educational entity, an urban program, or a state/federal agency; and
3. educational skills so that graduates can pursue jobs with an American Indian focus.

A certificate in American Indian Studies requires the completion of 21 semester hours. A minimum of 12 hours must be upper division, and a minimum grade of "C" (2.00) or higher is required except for the AIS Internship course, which requires a passing "Y" grade.

AIS	180	Introduction to American Indian Studies *C*	3
AIS	280	American Indian Sovereignty and the Courts *C*	3
AIS	380	Contemporary Issues of American Indian Nations	3
AIS	484	Internship	3
AIS	494	ST: Law, Policy, and American Indians	3
Emphasis courses*			6

* Select courses from the two areas of emphasis; contact the program office for a current list.

For more information, call the director of the American Indian Studies Program at 480/965-3634.

BIS CONCENTRATION

A concentration in American Indian studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

AMERICAN INDIAN STUDIES (AIS)

M AIS 180 Introduction to American Indian Studies. (3)
once a year
Introduction to the study of American Indian justice issues from an interdisciplinary perspective. Primary topics include sovereignty, law, and culture.
General Studies: C

M AIS 194 Special Topics. (1–4)
fall and spring

M AIS 280 American Indian Sovereignty and the Courts. (3)
fall
Examines the sovereign status of American Indians and legal relationships between the tribes and the U.S. government. Lecture, discussion.
General Studies: C

M AIS 285 Federal Indian Policy. (3)
spring
Examines the sovereign status of American Indians and legal relationships between the tribes and the U.S. government. Lecture, discussion.

M AIS 294 Special Topics. (1–4)
selected semesters

M AIS 370 American Indian Languages and Cultures. (3)
fall
Emphasizes understanding of Indian language families and the relationship of oral traditions to culture. Prerequisite: AIS 180.

M AIS 380 Contemporary Issues of American Indian Nations. (3)
spring
Survey of legal, socioeconomic, political, and educational state of contemporary reservation and urban Indians. Prerequisite: AIS 180.

M AIS 394 Special Topics. (1–4)
fall and spring
Topics may include the following:
- American Indian World Views and Philosophies. (3)
- Basic Statistical Analysis. (3)

M AIS 420 American Indian Studies Research Methods. (3)
fall
Survey of diverse research methods, including statistical, historical, interpretative, and narrative approaches. Prerequisite: AIS 180.
General Studies: L

M AIS 484 Internship. (1–12)
selected semesters
Fee.

M AIS 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Law, Policy, and American Indians. (3)

M AIS 498 Pro-Seminar. (1–7)
selected semesters

M AIS 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Asian Pacific American Studies Program

asu.edu/clas/apas
480/965-9711
SS 100

Karen J. Leong, Director

CORE FACULTY

Associate Professors: Leong, Li, Nakagawa
Assistant Professor: Rosa
Assistant Director and Advisor: Kuo

AFFILIATED FACULTY

Community Resources and Development
Professor: Yoshioka

English
Assistant Professor: Sadowski-Smith
Lecturer: Fuse

Global Studies
Assistant Professor: Wang

Human Communication
Associate Professor: Martínez

Human Evolution and Social Change
Professor: Eder

Justice and Social Inquiry
Professors: Romero, Jurik
Assistant Professor: Quan

Languages and Literatures
Associate Professor: Choi

Nursing
Assistant Professor: Chia-Chen Chen

Social and Behavioral Sciences (West campus)
Assistant Professor: Guevarra

Social Work
Professor: Segal
Associate Professor: Steiner
Assistant Professor: Kang

Sociology
Associate Professor: Menjivar

Women and Gender Studies
Associate Professor: Leong

PURPOSE

Asian Pacific American Studies is an interdisciplinary undergraduate program that addresses the historical and contemporary experiences of Asian Americans and Pacific Islanders, what they have contributed to our society, and the complexity of racial formations in the U.S.

The program is designed to help students of all ethnicities

1. to think critically, develop clear written arguments, and present their perspectives effectively;
2. to learn about Asian American and Pacific Islander experiences and communities in Arizona, nationally, and within a larger global context; and
3. to prepare students to participate in an increasingly diverse and global U.S. society.

The certificate program provides students with opportunities to think critically about interethnic cooperation and conflict in the formation of social institutions and communities. The program also encourages students to learn about local Asian American and Pacific Islander communities and organizations through research, courses, and community internships.

CERTIFICATE IN ASIAN PACIFIC AMERICAN STUDIES

Course Requirements. The certificate program requires 18 semester hours. Twelve core hours must be fulfilled by the following courses:

APA	200	Introduction to Asian Pacific American Studies *HU/SB, C*	3
APA	360	Asian Pacific American Experience *HU/SB, C*	3
APA	450	Asian Pacific American Contemporary Issues *SB, C*	3
APA	484	Internship or APA 494 ST: Asian Pacific American Communities (3)	3

The remaining six semester hours must be filled by courses from an approved list, including any additional courses with an APA prefix, as well as COM 263 and MCO 460.

Students must apply for the certificate program through the Asian Pacific American Studies Program office. For more information, call the program director at 480/965-9711.

BIS CONCENTRATION

A concentration in Asian Pacific American studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

ASIAN PACIFIC AMERICAN STUDIES (APA)

M APA 194 Special Topics. (1–4)
fall and spring

M APA 200 Introduction to Asian Pacific American Studies. (3)
fall and spring
Examines historical and contemporary issues facing Asian Americans and Pacific Islanders in the United States. Lecture, discussion.
General Studies: HU/SB, C

M APA 210 Introduction to Ethnic Studies in the U.S. (3)
fall and spring
Covers diversity of experiences and relations among racial and ethnic groups in the United States. Lecture, discussion. Cross-listed as AFS 210/CCS 210. Credit is allowed for only AFS 210 or APA 210 or CCS 210.
General Studies: C

M APA 294 Special Topics. (1–4)
fall and spring
Open to all students. May be repeated for credit.

M APA 310 Asian Pacific American Arts and Cultures. (3)
fall and spring
Explores Asian Pacific American cultural expression in art, literature, film, theatre, dance, and music. Lecture, discussion.
General Studies: HU, C

M APA 315 Asian Pacific American Literature. (3)
fall
Explores the literary history, critical reception, and major theories in Asian Pacific American poetry, fiction, and prose. Lecture, discussion.
General Studies: HU, C

M APA 330 Asian Pacific American Genders and Sexualities. (3)
spring
Explores gender and sexuality issues as they relate to Asian Pacific American experiences, including interracial relationships, stereotypes, feminism, queer theory. Lecture, discussion.
General Studies: SB, C

M APA 340 Asian Pacific Americans and Media. (3)
fall
Analyzes social construction of Asian Pacific American media images and resistance to those images in various historical contexts. Lecture, discussion.
General Studies: HU, C

M APA 345 Asian Pacific Americans and Film. (3)
spring
Examines representations of Asian Pacific Americans in narrative, popular, experimental, and documentary film. Lecture, discussion.
General Studies: C, H

M APA 360 Asian Pacific American Experience. (3)
fall and spring
Historical and contemporary experiences of Asian Pacific American racial/ethnic groups in the United States. Lecture, discussion. Topics may include the following:
- Chinese American
- Filipina and Filipino American
- Japanese American
- Korean American
- Pacific Islander
- South Asian American
- Southeast Asian American

General Studies: HU/SB, C

M APA 394 Special Topics. (1–4)
fall and spring
Open to all students. May be repeated for credit. Topics may include the following:
- Asian Pacific American Immigration Issues
- Asian Pacific American Legal History
- Asian Pacific American Women Issues and Identities
- Asian Pacific Americans and Politics

M APA 450 Asian Pacific American Contemporary Issues. (3)
fall and spring
Focuses on issues shaping Asian Pacific American communities, including immigration, politics, education, health, family, gender, youth, interracial relations, and other contemporary topics. Lecture, discussion. Prerequisite: APA 200 or instructor approval.
General Studies: SB, C

M APA 484 Internship. (1–12)
fall and spring
Fee.

M APA 494 Special Topics. (1–4)
fall and spring
Open to all students. May be repeated for credit. Topics may include the following:
- Asian Pacific American Communities. (3)
- Asian Pacific American Leadership
- Voices and Visions: Asian Pacific American Women, Issues, and Identities

M APA 498 Pro-Seminar. (1–7)
fall and spring

M APA 499 Individualized Instruction. (1–3)
fall and spring

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Department of Chemistry and Biochemistry

chemistry.asu.edu
480/965-3461
PS D102

Robert E. Blankenship, Chair

Regents' Professors: Angell, Buseck, Pettit

Professors: Allen, Blankenship, Fromme, Fuchs, Glick, Gould, Gust, Holloway, Kouvetakis, Lohr, A. Moore, T. Moore, Petuskey, Rose, Shock, Skibo, Steimle, Wang, Williams, Woodbury, Yarger

Associate Professors: Anbar, Bond-Robinson, Booksh, Francisco, Hayes, Richert, Wolf

Assistant Professors: Chaput, Chen, Ghirlanda, Hartnett, Häussermann, Herckes, Levitus, Matyushov, Seo, Wachter, Yan

Senior Lecturers: Bauer, Marks

Lecturers: Briggs, Lefler, Pruis

CHEMISTRY—BA

The BA degree in Chemistry consists of 46 semester hours. Required courses are as follows:

Choose between the course combinations below..... 8 or 9
- CHM 113 General Chemistry I *SQ* (4)
- CHM 115 General Chemistry with Qualitative Analysis *SQ* (5)
- CHM 117 General Chemistry for Majors I *SQ** (4)
- CHM 118 General Chemistry for Majors II *SQ** (4)

Choose between the course combinations below.....8
- CHM 333 Organic Chemistry for Majors I* (3)
- CHM 334 Organic Chemistry for Majors II* (3)
- CHM 337 Organic Chemistry Laboratory for Majors I* (1)
- CHM 338 Organic Chemistry Laboratory for Majors II* (1)

——— *or* ———

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

CHM 233 General Organic Chemistry I (3)
CHM 234 General Organic Chemistry II (3)
CHM 237 General Organic Chemistry Laboratory I (1)
CHM 238 General Organic Chemistry Laboratory II (1)
CHM 325 Analytical Chemistry 3
CHM 326 Analytical Chemistry Laboratory 1
CHM 341 Elementary Physical Chemistry 3
CHM 343 Physical Chemistry Laboratory 1
CHM 453 Inorganic Chemistry 3
CHM electives 2
Minimum total ..... 29 or 30

* CHM 117, 118, 333, 334, 337, and 338 are strongly recommended for qualified students.

Related courses must include the following:

MAT 270 Calculus with Analytic Geometry I *MA* 4
MAT 271 Calculus with Analytic Geometry II *MA* 4
PHY 111 General Physics *SQ*[1, 2] 3
PHY 112 General Physics *SQ*[1, 2] 3
PHY 113 General Physics Laboratory *SQ*[1, 2] 1
PHY 114 General Physics Laboratory *SQ*[1, 2] 1
Total 16

1 More advanced PHY courses may be taken in place of PHY 111, 112, 113, and 114.
2 Both PHY 111 and 113 or PHY 112 and 114 must be taken to secure SQ credit.

The remaining courses to complete the major are determined by students in consultation with their advisors.

CHEMISTRY—BS

The program consists of 46 semester hours in chemistry and 20 hours of related courses outside the major. Required courses are as follows:

Choose between the course combinations below..... 8 or 9
CHM 113 General Chemistry I *SQ* (4)
CHM 115 General Chemistry with Qualitative Analysis *SQ* (5)
——— *or* ———
CHM 113 General Chemistry I *SQ* (4)
CHM 116 General Chemistry II *SQ* (4)
——— *or* ———
CHM 117 General Chemistry for Majors I *SQ** (4)
CHM 118 General Chemistry for Majors II *SQ** (4)
Choose between the course combinations below.....8
CHM 333 Organic Chemistry for Majors I* (3)
CHM 334 Organic Chemistry for Majors II* (3)
CHM 337 Organic Chemistry Laboratory for Majors I* (1)
CHM 338 Organic Chemistry Laboratory for Majors II* (1)
——— *or* ———
CHM 233 General Organic Chemistry I (3)
CHM 234 General Organic Chemistry II (3)
CHM 237 General Organic Chemistry Laboratory I (1)
CHM 238 General Organic Chemistry Laboratory II (1)
Total ..... 16 or 17

* CHM 117, 118, 333, 334, 337, and 338 are strongly recommended for qualified students.

Additional required chemistry courses are as follows:

CHM 240 Introduction to Physical Chemistry *CS*[1] 3
CHM 325 Analytical Chemistry 3
CHM 326 Analytical Chemistry Laboratory 1
CHM 327 Instrumental Analysis 3
CHM 328 Instrumental Analysis Laboratory 2
CHM 345 Physical Chemistry I 3
CHM 346 Physical Chemistry II 3
CHM 348 Physical Chemistry Laboratory I *L*[2] 1
CHM 349 Physical Chemistry Laboratory II *L*[2] 1
CHM 452 Inorganic Chemistry Laboratory *L*[2] 1
CHM 453 Inorganic Chemistry 3
CHM 460 Biological Chemistry 3
Chemistry elective (choose from the courses below) 3
CHM 302 Environmental Chemistry (3)
CHM 392 Introduction to Research Techniques (1–3)
CHM 424 Separation Science (3)
CHM 431 Qualitative Organic Analysis (3)
CHM 471 Solid-State Chemistry (3)
CHM 481 Geochemistry (3)
CHM 485 Meteorites and Cosmochemistry (3)
Total 30

1 Completing MAT 274 and 342 satisfies CHM 240 requirement.
2 CHM 348, 349, and 452 must all be taken to secure L credit.

Additional required related field courses are as follows:

MAT 270 Calculus with Analytic Geometry I *MA* 4
MAT 271 Calculus with Analytic Geometry II *MA* 4
MAT 272 Calculus with Analytic Geometry III *MA* 4
PHY 121 University Physics I: Mechanics *SQ*[1] 3
PHY 122 University Physics Laboratory I *SQ*[1] 1
PHY 131 University Physics II: Electricity and Magnetism *SQ*[2] 3
PHY 132 University Physics Laboratory II *SQ*[2] 1
Total 20

1 Both PHY 121 and 122 must be taken to secure SQ credit.
2 Both PHY 131 and 132 must be taken to secure SQ credit.

Transfer students are interviewed and advised of possible preparatory work. They must contact the department to arrange for the interview before registration. See "College Graduation Requirements," page 503.

CHEMISTRY—BS

Environmental Chemistry Concentration

The program consists of a minimum of 40 semester hours in chemistry or biochemistry and 26 hours of related courses. Required courses are as follows:

CHM 113 General Chemistry I *SQ* 4
CHM 115 General Chemistry with Qualitative Analysis *SQ* 5

Choose between the course combinations below.....8
CHM 333 Organic Chemistry for Majors I* (3)
CHM 334 Organic Chemistry for Majors II* (3)
CHM 337 Organic Chemistry Laboratory for Majors I* (1)
CHM 338 Organic Chemistry Laboratory for Majors II* (1)
——— *or* ———
CHM 233 General Organic Chemistry I (3)
CHM 234 General Organic Chemistry II (3)
CHM 237 General Organic Chemistry Laboratory I (1)
CHM 238 General Organic Chemistry Laboratory II (1)
Total 17

* CHM 117, 118, 333, 334, 337, and 338 are strongly recommended for qualified students.

Additional required chemistry and biochemistry courses are as follows:

CHM 240 Introduction to Physical Chemistry *CS*[1] 3
CHM 302 Environmental Chemistry 3
CHM 303 Environmental Chemistry Laboratory *L** 2
CHM 327 Instrumental Analysis.....3
CHM 328 Instrumental Analysis Laboratory.....2
CHM 345 Physical Chemistry I.....3
CHM 348 Physical Chemistry Laboratory I *L**.....1
CHM 460 Biological Chemistry 3
CHM 481 Geochemistry 3
Total 23

* CHM 303 or both CHM 349 and 452 must also be taken with CHM 348 to secure L credit.

Additional required related field courses are as follows:

GLG 321 Mineralogy.....3
MAT 270 Calculus with Analytic Geometry I *MA*.....4
MAT 271 Calculus with Analytic Geometry II *MA* 4
MAT 272 Calculus with Analytic Geometry III *MA* 4
PHY 121 University Physics I: Mechanics *SQ*[1] 3
PHY 122 University Physics Laboratory I *SQ*[1] 1
PHY 131 University Physics II: Electricity and Magnetism *SQ*[2] 3
PHY 132 University Physics Laboratory II *SQ*[2].....1
Related field elective (choose from the courses below).....3–4
BIO 320 Fundamentals of Ecology (3)
BIO 426 Limnology *L* (4)
GLG 461 Geomicrobiology (3)
Total 26–27

[1] Both PHY 121 and 122 must be taken to secure SQ credit.
[2] Both PHY 131 and 132 must be taken to secure SQ credit.

American Chemical Society Certification. A student who satisfactorily completes the BS in Chemistry program is certified by the Department of Chemistry and Biochemistry to the American Chemical Society (ACS) as having met the specific requirements for undergraduate professional training in chemistry. Graduates meeting ACS guidelines can receive a certificate to indicate this fact.

BIOCHEMISTRY—BA

The program consists of a minimum of 38 semester hours in chemistry and biochemistry and 18 semester hours of related courses. Required courses are as follows:

Choose between the course combinations below..... 8 or 9
CHM 113 General Chemistry I *SQ* (4)
CHM 115 General Chemistry with Qualitative Analysis *SQ* (5)
——— *or* ———
CHM 113 General Chemistry I *SQ* (4)
CHM 116 General Chemistry II *SQ* (4)
——— *or* ———
CHM 117 General Chemistry for Majors I *SQ** (4)
CHM 118 General Chemistry for Majors II *SQ** (4)
Choose between the course combinations below.....8
CHM 333 Organic Chemistry for Majors I* (3)
CHM 334 Organic Chemistry for Majors II* (3)
CHM 337 Organic Chemistry Laboratory for Majors I* (1)
CHM 338 Organic Chemistry Laboratory for Majors II* (1)
——— *or* ———
CHM 233 General Organic Chemistry I (3)
CHM 234 General Organic Chemistry II (3)
CHM 237 General Organic Chemistry Laboratory I (1)
CHM 238 General Organic Chemistry Laboratory II (1)
Total ..... 16 or 17

* CHM 117, 118, 333, 334, 337, and 338 are strongly recommended for qualified students.

Additional required chemistry and biochemistry courses are as follows:

BCH 461 General Biochemistry 3
BCH 462 General Biochemistry 3
BCH 467 Analytical Biochemistry Laboratory *L* 3
CHM 302 Environmental Chemistry 3
or CHM 325 Analytical Chemistry (3)
CHM 341 Elementary Physical Chemistry[1] 3
Chemistry electives (choose from the courses below).....6
BCH 392 Introduction to Research Techniques (1–3)
BCH 463 Biophysical Chemistry (3)
BCH 464 Biophysical Chemistry Laboratory (2)
BCH 465 Protein and Nucleic Acid Biochemistry (3)
CHM 302 Environmental Chemistry (3)
CHM 325 Analytical Chemistry (3)
CHM 326 Analytical Chemistry Laboratory (1)
CHM 327 Instrumental Analysis (3)
CHM 328 Instrumental Analysis Laboratory (2)
CHM 392 Introduction to Research Techniques (1–3)
CHM 424 Separation Science (3)
CHM 452 Inorganic Chemistry Laboratory *L*[2] (1–2)
CHM 453 Inorganic Chemistry (3)
CHM 471 Solid-State Chemistry (3)
CHM 481 Geochemistry (3)
Total 21

[1] CHM 345 may be taken in place of CHM 341.
[2] Both CHM 348 and 349 must also be taken with CHM 452 to secure L credit.

Additional required related field courses are as follows:

Choose from the course combinations below ..... 11 or 12
BIO 187 General Biology I *SG* (4)
BIO 188 General Biology II *SQ* (4)
BIO 340 General Genetics (4)
——— *or* ———
BIO 187 General Biology I *SG* (4)
BIO 188 General Biology II *SQ* (4)
BIO 353 Cell Biology (3)
——— *or* ———
MBB 245 Cellular and Molecular Biology *SQ* (4)
MBB 343 Genetic Engineering and Society *L* (4)
MBB 350 Applied Genetics (4)

Choose between the course combinations below.....7
MAT 251 Calculus for Life Sciences *MA*[1] (3)
PHY 101 Introduction to Physics *SQ*[2] (4)
——— *or* ———
MAT 210 Brief Calculus *MA*[1] (3)

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

PHY 101 Introduction to Physics *SQ*[2] (4)

Total ..... 18 or 19

[1] MAT 270 may be taken in place of MAT 210 or 251.
[2] The combination of PHY 111, 112, 113, and 114 may be taken in place of PHY 101.

BIOCHEMISTRY—BS

The program consists of 36 semester hours in chemistry and biochemistry and 31 semester hours of related courses. Required courses are as follows:

Choose between the course combinations below ..... 8 or 9
- CHM 113 General Chemistry I *SQ* (4)
- CHM 115 General Chemistry with Qualitative Analysis *SQ* (5)

— or —

- CHM 113 General Chemistry I *SQ* (4)
- CHM 116 General Chemistry II *SQ* (4)

— or —

- CHM 117 General Chemistry for Majors I *SQ** (4)
- CHM 118 General Chemistry for Majors II *SQ** (4)

Choose between the combinations of courses below 8
- CHM 333 Organic Chemistry for Majors I* (3)
- CHM 334 Organic Chemistry for Majors II* (3)
- CHM 337 Organic Chemistry Laboratory for Majors I* (1)
- CHM 338 Organic Chemistry Laboratory for Majors II* (1)

— or —

- CHM 233 General Organic Chemistry I (3)
- CHM 234 General Organic Chemistry II (3)
- CHM 237 General Organic Chemistry Laboratory I (1)
- CHM 238 General Organic Chemistry Laboratory II (1)

Total ..... 16 or 17

* CHM 117, 118, 333, 334, 337, and 338 are strongly recommended for qualified students.

Additional required chemistry and biochemistry courses are as follows:

BCH 461 General Biochemistry 3
BCH 462 General Biochemistry 3
BCH 463 Biophysical Chemistry 3
BCH 464 Biophysical Chemistry Laboratory 2
BCH 467 Analytical Biochemistry Laboratory *L* 3
CHM 341 Elementary Physical Chemistry* 3
Chemistry elective (choose from the courses below) 3
- BCH 392 Introduction to Research Techniques (1–3)
- BCH 465 Protein and Nucleic Acid Biochemistry (3)
- CHM 325 Analytical Chemistry (3)
- CHM 327 Instrumental Analysis (3)
- CHM 424 Separation Science (3)
- CHM 431 Qualitative Organic Analysis (3)
- CHM 453 Inorganic Chemistry (3)
- CHM 471 Solid-State Chemistry (3)
- CHM 481 Geochemistry (3)
- CHM 485 Meterorites and Cosmochemistry (3)

Total 20

* CHM 345 may be taken in place of CHM 341.

Additional required related field courses are as follows:

BIO 187 General Biology I *SG* 4
BIO 188 General Biology II *SQ* 4
BIO 340 General Genetics 4
BIO 353 Cell Biology 3
MAT 270 Calculus with Analytic Geometry I *MA* 4
MAT 271 Calculus with Analytic Geometry II *MA* 4
PHY 111 General Physics *SQ*[1] 3
PHY 112 General Physics *SQ*[2] 3
PHY 113 General Physics Laboratory *SQ*[1] 1
PHY 114 General Physics Laboratory *SQ*[2] 1

Total 31

[1] Both PHY 111 and 113 must be taken to secure SQ credit.
[2] Both PHY 112 and 114 must be taken to secure SQ credit.

Additional biology courses selected from BIO 343, 351, 360, 441, 450, and 465 are strongly recommended.

Additional biochemistry and chemistry courses, including CHM 392 Introduction to Research Techniques, may be taken by students and should be chosen in consultation with an advisor.

BIOCHEMISTRY—BS

Medicinal Chemistry Concentration

The program consists of a minimum of 41 semester hours in chemistry or biochemistry and 26 hours of related courses. Required courses are as follows:

Choose between the course combinations below ..... 8 or 9
- CHM 113 General Chemistry I *SQ* (4)
- CHM 115 General Chemistry with Qualitative Analysis *SQ* (5)

— or —

- CHM 113 General Chemistry I *SQ* (4)
- CHM 116 General Chemistry II *SQ* (4)

— or —

- CHM 117 General Chemistry for Majors I *SQ** (4)
- CHM 118 General Chemistry for Majors II *SQ** (4)

Choose between the combinations of courses below 8
- CHM 333 Organic Chemistry for Majors I* (3)
- CHM 334 Organic Chemistry for Majors II* (3)
- CHM 337 Organic Chemistry Laboratory for Majors I* (1)
- CHM 338 Organic Chemistry Laboratory for Majors II* (1)

— or —

- CHM 233 General Organic Chemistry I (3)
- CHM 234 General Organic Chemistry II (3)
- CHM 237 General Organic Chemistry Laboratory I (1)
- CHM 238 General Organic Chemistry Laboratory II (1)

Total ..... 16 or 17

* CHM 117, 118, 333, 334, 337, and 338 are strongly recommended for qualified students.

Additional required chemistry and biochemistry courses are as follows:

BCH 461 General Biochemistry 3
BCH 462 General Biochemistry 3
BCH 463 Biophysical Chemistry 3
BCH 467 Analytical Biochemistry Laboratory *L* 3
CHM 341 Elementary Physical Chemistry 3
CHM 343 Physical Chemistry Laboratory 1
CHM 433 Advanced Organic Chemistry I 3
CHM 435 Medicinal Chemistry 3
Chemistry or biochemistry elective (choose from the courses below) 3
- BCH 465 Protein and Nucleic Acid Biochemistry (3)
- CHM 434 Advanced Organic Chemistry II (3)

CHM 453 Inorganic Chemistry (3)

Total 25

Additional required related field courses are as follows:

Choose between the course combinations below.....4
BIO 187 General Biology I *SG* (4)
——— *or* ———
BIO 188 General Biology II *SQ* (4)
——— *or* ———
MBB 245 Cellular and Molecular Biology *SQ* (4)

Total 4

Additional required related field courses are as follows:

BIO 353 Cell Biology.....3
BIO 360 Animal Physiology[1].....3
MAT 270 Calculus with Analytic Geometry I *MA*.....4
MAT 271 Calculus with Analytic Geometry II *MA*.....4
PHY 111 General Physics *SQ*[2].....3
PHY 112 General Physics *SQ*[3].....3
PHY 113 General Physics Laboratory *SQ*[2].....1
PHY 114 General Physics Laboratory *SQ*[3].....1

Total 22

[1] BIO 340 may be taken in place of BIO 360.
[2] Both PHY 111 and 113 must be taken to secure SQ credit.
[3] Both PHY 112 and 114 must be taken to secure SQ credit.

MINOR IN CHEMISTRY

A minor in Chemistry is awarded to students who complete the following required courses:

CHM 113 General Chemistry I *SQ*[1].....4
CHM 115 General Chemistry with Qualitative Analysis *SQ*.....5
CHM 325 Analytical Chemistry.....3
CHM 326 Analytical Chemistry Laboratory.....1
Choose between the course combinations below.....8
BCH 361 Principles of Biochemistry (3)
BCH 367 Elementary Biochemistry Laboratory (1)
CHM 231 Elementary Organic Chemistry *SQ*[2] (3)
CHM 235 Elementary Organic Chemistry Laboratory *SQ*[2] (1)
——— *or* ———
CHM 233 General Organic Chemistry I (3)
CHM 234 General Organic Chemistry II (3)
CHM 237 General Organic Chemistry Laboratory I (1)
CHM 238 General Organic Chemistry Laboratory II (1)
Choose between the course combinations below..... 4 or 8
CHM 341 Elementary Physical Chemistry (3)
CHM 343 Physical Chemistry Laboratory (1)
——— *or* ———
CHM 345 Physical Chemistry I (3)
CHM 346 Physical Chemistry II (3)
CHM 348 Physical Chemistry Laboratory I (1)
CHM 349 Physical Chemistry Laboratory II (1)

Minimum total 25

[1] Equivalent courses may be taken in place of CHM 113, 115, or 116.
[2] Both CHM 231 and 235 must be taken to secure SQ credit.

MINOR IN BIOCHEMISTRY

A minor in Biochemistry is awarded to students who complete the following required courses:

BCH 461 General Biochemistry 3
BCH 462 General Biochemistry 3
Choose between the course combinations below..... 8 or 9
CHM 113 General Chemistry I *SQ* (4)
CHM 115 General Chemistry with Qualitative Analysis *SQ* (5)
——— *or* ———
CHM 113 General Chemistry I *SQ* (4)
CHM 116 General Chemistry II *SQ* (4)
——— *or* ———
CHM 117 General Chemistry for Majors I *SQ*[1] (4)
CHM 118 General Chemistry for Majors II *SQ*[1] (4)
Choose between the combinations of courses below.....8
CHM 333 Organic Chemistry for Majors I[1] (3)
CHM 334 Organic Chemistry for Majors II[1] (3)
CHM 337 Organic Chemistry Laboratory for Majors I[1] (1)
CHM 338 Organic Chemistry Laboratory for Majors II[1] (1)
——— *or* ———
CHM 233 General Organic Chemistry I (3)
CHM 234 General Organic Chemistry II (3)
CHM 237 General Organic Chemistry Laboratory I (1)
CHM 238 General Organic Chemistry Laboratory II (1)
CHM 341 Elementary Physical Chemistry[2] 3

Minimum total ..... 24 or 25

[1] CHM 117, 118, 333, 334, 337, and 338 are strongly recommended for qualified students.
[2] CHM 345 may be taken in place of CHM 341.

BIS CONCENTRATION

A concentration in chemistry is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

SECONDARY EDUCATION—BAE

Chemistry. This degree is offered through the Initial Teacher Certification (ITC) program in the College of Education. Students pursuing a major in Secondary Education have an advisor in the College of Education and an advisor within the department of their academic specialization area.

See "College of Education," page 349, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Academic Specialization ITC Admission Requirements. The following courses must be completed with a "C" (2.00) or higher before applying to the ITC program: CHM 113, 116, 233, and 237. The following courses may be in progress when applying to the ITC program but must be completed with a "C" (2.00) or higher before starting the program: CHM 234 and 238.

The academic specialization requires 46 semester hours. Required courses are as follows:

CHM	113	General Chemistry I *SQ* 4
CHM	116	General Chemistry II *SQ* 4
CHM	233	General Organic Chemistry I 3
CHM	234	General Organic Chemistry II 3
CHM	237	General Organic Chemistry Laboratory I 1
CHM	238	General Organic Chemistry Laboratory II 1
CHM	325	Analytical Chemistry 3
CHM	326	Analytical Chemistry Laboratory 1
CHM	341	Elementary Physical Chemistry 3–6
		or CHM 345 Physical Chemistry I (3)
		and CHM 346 Physical Chemistry II (3)
CHM	453	Inorganic Chemistry 3
Choose two of the courses below 6		
BCH	361	Principles of Biochemistry (3)
CHM	302	Environmental Chemistry (3)
CHM	453	Inorganic Chemistry (3)
Total 32–35		

Additional required related field courses are as follows:

MAT	270	Calculus with Analytic Geometry I *MA* 4
MAT	271	Calculus with Analytic Geometry II *MA* 4
PHY	111	General Physics *SQ** 3
PHY	112	General Physics *SQ** 3
PHY	113	General Physics Laboratory *SQ** 1
PHY	114	General Physics Laboratory *SQ** 1
Total 16		

* Both PHY 111 and 113 or PHY 112 and 114 must be taken to secure SQ credit.

Teaching Methods

CHM	480	Methods of Teaching Chemistry 3
SED	494	ST: Methods of Teaching Science 3

GRADUATE PROGRAMS

The faculty in the Department of Chemistry and Biochemistry offer programs leading to the degrees of Master of Natural Science, MS, and PhD. See the *Graduate Catalog* for requirements.

The department participates in the interdisciplinary program for the MS and PhD degrees in Molecular and Cellular Biology. For more information, visit the program office in LSE 411, or call 480/965-1768.

BIOCHEMISTRY (BCH)

M BCH 361 Principles of Biochemistry. (3)
fall, spring, summer
Structures, properties, and functions of proteins, enzymes, nucleic acids, carbohydrates, and lipids; the utilization and synthesis of these materials by living systems, and the relationship of these processes to energy production and utilization. Credit is allowed for only BCH 361 or 461. Prerequisite: CHM 231. Pre- or corequisite: CHM 234 or 334.

M BCH 367 Elementary Biochemistry Laboratory. (1)
fall, spring, summer
Qualitative/quantitative analyses of constituents of biological systems, enzyme activity measurements and metabolic studies. 1 hour conference, 3 hours lab. Pre- or corequisite: BCH 361 or instructor approval.

M BCH 392 Introduction to Research Techniques. (1–3)
fall, spring, summer
Instrumental methods and philosophy of research by actual participation in chemical research projects. May be repeated for total of 6 semester hours. Prerequisite: advisor and research supervisor approval.

M BCH 461 General Biochemistry. (3)
fall and spring
Structure, chemistry, and metabolism of biomolecules and their role in the biochemical processes of living organisms. Credit is allowed for only BCH 461 or 361. Prerequisite: CHM 234 or 334. Corequisite: CHM 341 or 346.

M BCH 462 General Biochemistry. (3)
fall and spring
Continuation of BCH 461. Prerequisite: BCH 461 or instructor approval.

M BCH 463 Biophysical Chemistry. (3)
spring
Principles of physical chemistry as applied to biological systems. Prerequisite: CHM 341 or 346.

M BCH 464 Biophysical Chemistry Laboratory. (2)
fall and spring
Introduces physical methods in modern biochemistry. Pre- or corequisite: BCH 463.

M BCH 465 Protein and Nucleic Acid Biochemistry. (3)
spring
Structure and function of proteins and nucleic acids, including protein folding, enzymology, proteomics, DNA/RNA structure, replication, transcription, and genomics. Prerequisite: BCH 462 or instructor approval.

M BCH 467 Analytical Biochemistry Laboratory. (3)
fall and spring
Quantitative analysis, separation and purification of biological molecules. Applies chemical and physical methods to the characterization of biological macromolecules. 1 conference, 1 hour lecture, 5 hours lab. Prerequisite: BCH 461. Corequisite: BCH 462.
General Studies: L

M BCH 484 Internship. (3)
selected semesters

M BCH 494 Special Topics. (1–4)
selected semesters
Various topics.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

CHEMISTRY (CHM)

For more CHM courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M CHM 101 Introductory Chemistry. (4)
fall, spring, summer
Elements of general chemistry. Adapted to the needs of students in nursing and kinesiology and those preparing for general chemistry. Recommended for General Studies credit. Normally followed by CHM 231. Cannot be used for major credit in chemical or biochemical sciences. Credit is allowed for only CHM 101 or 107. 3 hours lecture, 1 hour discussion, 2 hours lab. Fee.
General Studies: SQ

M CHM 107 Chemistry and Society. (4)
fall and spring
General chemical principles and concepts presented in context of social and technological issues, e.g., energy, pollution, global warming, and others. Recommended for General Studies credit. Cannot be used for major credit in chemical or biochemical sciences. Credit is allowed for only CHM 107 or 101. 3 hours lecture, 1 hour discussion, 2 hours lab. Fee.
General Studies: SQ, G

M CHM 113 General Chemistry I. (4)
fall, spring, summer
Principles of chemistry. Adapted to the needs of students in the physical, biological, and earth sciences. Credit is allowed for only CHM 113 or 117. 3 hours lecture, 1 hour discussion, 2 hours lab. Fee. Prerequisite: MAT 106 (or 3 semesters of high school algebra). 1 year of high school chemistry recommended.
General Studies: SQ

M CHM 114 General Chemistry for Engineers. (4)
fall and spring
Chemical principles with emphasis toward engineering. Students without high school chemistry or chemical engineering majors must enroll in the CHM 113, 116 sequence instead of CHM 114. 3 hours lecture, 1 hour discussion, 2 hours lab. Fee. Prerequisites: MAT 106 (or 3 semesters of high school algebra); 1 year of high school chemistry.
General Studies: SQ

M CHM 115 General Chemistry with Qualitative Analysis. (5)
fall, spring, summer
Continuation of CHM 113. Equilibrium theory, thermodynamics, kinetics, electrochemistry, nuclear chemistry, descriptive chemistry. Lab includes qualitative analysis. Credit is allowed for only CHM 115 or 116 or 118. 3 hours lecture, 2 hours discussion, 4 hours lab. Fee. Prerequisite: CHM 113 or 2 years of high school chemistry.
General Studies: SQ

M CHM 116 General Chemistry II. (4)
fall and spring
Continuation of CHM 113. Equilibrium theory, thermodynamics, kinetics, electrochemistry, nuclear chemistry, descriptive chemistry. Credit is allowed for only CHM 116 or 115 or 118. 3 hours lecture, 1 hour discussion, 2 hours lab. Fee. Prerequisite: CHM 113 or 2 years of high school chemistry.
General Studies: SQ

M CHM 117 General Chemistry for Majors I. (4)
fall
Atomic and molecular structure, properties and physical states of matter, chemical analysis, bonding, stoichiometry. Credit is allowed for only CHM 117 or 113. 3 hours lecture, 1 conference, 2 hours lab. Fee. Prerequisites: 3 years of high school mathematics; minimum of 1 year of high school physics. Prerequisite with a grade of "B" (3.00) or higher: minimum of 1 year of high school chemistry.
General Studies: SQ

M CHM 118 General Chemistry for Majors II. (4)
spring
Atomic and molecular structure, properties and physical states of matter, chemical analysis, bonding, stoichiometry. Credit is allowed for only CHM 118 or 115 or 116. 3 hours lecture, 1 conference, 2 hours lab. Fee. Prerequisite: CHM 117. Corequisite: MAT 270.
General Studies: SQ

M CHM 231 Elementary Organic Chemistry. (3)
fall, spring, summer
Surveys organic chemistry, with emphasis on the reactivity of basic functional groups. Credit is allowed for only CHM 231 or 233 or 333. Prerequisite with a grade of "B" (3.00) or higher: CHM 101 or 114 or 115 or 116 or 117 or 1 year of high school chemistry or instructor approval.
General Studies: SQ (if credit also earned in CHM 235)

M CHM 233 General Organic Chemistry I. (3)
fall, spring, summer
Chemistry of organic compounds. Credit is allowed for only CHM 233 or 231 or 333. Prerequisite: CHM 115 or 116 or 118.

M CHM 234 General Organic Chemistry II. (3)
fall and spring or summer
Continuation of CHM 233. Credit is allowed for only CHM 234 or 334. Prerequisite: CHM 233.

M CHM 235 Elementary Organic Chemistry Laboratory. (1)
fall, spring, summer
Organic chemistry experiments in synthesis, purification, analysis, and identification. Lab. Fee. Pre- or corequisite: CHM 231.
General Studies: SQ (if credit also earned in CHM 231)

M CHM 237 General Organic Chemistry Laboratory I. (1)
fall, spring, summer
Microscale organic chemical experiments in separation techniques, synthesis, analysis and identification, and relative reactivity. Credit is allowed for only CHM 237 or 337. 4 hours lab. Fee. Corequisite: CHM 233.

M CHM 238 General Organic Chemistry Laboratory II. (1)
fall and spring or summer
Continuation of CHM 237. Credit is allowed for only CHM 238 or 338. 4 hours lab. Fee. Prerequisite: CHM 237. Corequisite: CHM 234.

M CHM 240 Introduction to Physical Chemistry. (3)
spring
Introduces mathematical/computational methods in chemical kinetics, thermodynamics, quantum chemistry. Mathematical-based computer laboratory. 2 hours lecture, 4 hours lab. Fee. Prerequisite with a grade of "C" (2.00) or higher: MAT 272.
General Studies: CS

M CHM 302 Environmental Chemistry. (3)
spring
Explores major environmental issues, problems, and solutions from analytical and chemistry perspectives. Prerequisites: CHM 114 (or 115 or 116 or 118), 231 (or 233).

M CHM 303 Environmental Chemistry Laboratory. (2)
spring
Lab in environmental chemistry to complement CHM 302. First-hand experience with sampling methods, analytical techniques, and environmental lab methods. Lab. Fee. Prerequisite: CHM 231 or 233. Pre- or corequisite: CHM 302.
General Studies: L (if credit also earned in CHM 348)

M CHM 325 Analytical Chemistry. (3)
fall and summer
Principles and methods of chemical analysis. Prerequisite: CHM 115 or 116.

M CHM 326 Analytical Chemistry Laboratory. (1)
fall and summer
Experiments in chemical analysis. 4 hours lab. Fee. Corequisite: CHM 325.

M CHM 327 Instrumental Analysis. (3)
spring
Principles of instrumental methods in chemical analysis. Electroanalytical and optical techniques. Prerequisites: CHM 325, 326. Pre- or corequisite: CHM 346.

M CHM 328 Instrumental Analysis Laboratory. (2)
spring
Experiments in chemical analysis by electroanalytical and optical techniques. 6 hours lab. Fee. Corequisite: CHM 327.

M CHM 333 Organic Chemistry for Majors I. (3)
fall
Structures, reaction mechanisms and kinetics, and systematic syntheses of organic compounds. Credit is allowed for only CHM 333 or 231 or 233. Prerequisite: CHM 115 or 118. Corequisite: CHM 337.

M CHM 334 Organic Chemistry for Majors II. (3)
spring
Continuation of CHM 333. Credit is allowed for only CHM 334 or 234. Prerequisite: CHM 333. Corequisite: CHM 338.

M CHM 337 Organic Chemistry Laboratory for Majors I. (1)
fall
Emphasizes mechanisms, kinetics, and products of organic reactions. Credit is allowed for only CHM 337 or 237. 1 conference, 3 hours lab. Fee. Pre- or corequisite: CHM 333.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M CHM 338 Organic Chemistry Laboratory for Majors II. (1)
spring
Continuation of CHM 337. Credit is allowed for only CHM 338 or 238. 1 conference, 3 hours lab. Fee. Prerequisite: CHM 337. Corequisite: CHM 334.

M CHM 341 Elementary Physical Chemistry. (3)
fall
Thermodynamics, equilibrium, states of matter, solutions, and chemical kinetics. For students in premedical, biological, and educational curricula. Prerequisites: CHM 115 (or 114 or 118 or 325), 231 (or 233); MAT 271; PHY 112.

M CHM 343 Physical Chemistry Laboratory. (1)
fall
Physical chemistry experiments. Credit is allowed for only CHM 343 or both CHM 348 and 349. 1 hour conference, 3 hours lab. Fee. Corequisite: CHM 341 or 345.

M CHM 345 Physical Chemistry I. (3)
fall
Introduces quantum chemistry with application to electronic structure and dynamics of atoms and molecules. Prerequisite: only CHM 240 or both MAT 272 and 274 (with grades of "C" (2.00) or higher).

M CHM 346 Physical Chemistry II. (3)
spring
Introduces equilibrium and statistical thermodynamics. Laws of thermodynamics, equations of state, multicomponent chemical and phase equilibria, and electrochemistry. Prerequisite: CHM 345. Corequisite: MAT 274.

M CHM 348 Physical Chemistry Laboratory I. (1)
fall
Laboratory experiments in spectroscopy and computational chemistry. Credit is allowed for both CHM 348 and 349 or only CHM 343. 4 hours lab. Fee. Pre- or corequisite: CHM 345.
General Studies: L (if credit also earned in only CHM 303 or both CHM 349 and 452)

M CHM 349 Physical Chemistry Laboratory II. (1)
spring
Laboratory experiments in thermodynamics, electrochemistry, and computational chemistry. Credit is allowed for both CHM 349 and 348 or only CHM 343. 4 hours lab. Fee. Pre- or corequisite: CHM 346.
General Studies: L (if credit also earned in CHM 348 and 452)

M CHM 392 Introduction to Research Techniques. (1–3)
fall, spring, summer
Instrumental methods and philosophy of research by actual participation in chemical research projects. May be repeated for a total of 6 semester hours. Prerequisite: approval of advisor and research supervisor.

M CHM 424 Separation Science. (3)
selected semesters
Basic theory and practical aspects of gas, liquid, ion-exchange, and gel-permeation chromatographies, and other important industrial and research techniques. 2 hours lecture, 4 hours lab. Fee. Prerequisite: CHM 234 or 334 or 346 or instructor approval.

M CHM 433 Advanced Organic Chemistry I. (3)
fall
Reaction mechanisms, reaction kinetics, linear free energy relationships, transition state theory, and Woodward-Hoffmann rules. Prerequisites: both CHM 234 (or 334) and 341 (or 346) or only instructor approval.

M CHM 434 Advanced Organic Chemistry II. (3)
spring
Continuation of CHM 433. Prerequisite: CHM 433 (or CHM 531) or instructor approval.

M CHM 435 Medicinal Chemistry. (3)
spring
Principles of medicinal and pharmaceutical chemistry. Drug design, synthesis, and mechanism of action. Prerequisites: a combination of BCH 361 (or 461) and BIO 353 and CHM 234 (or 334) or only instructor approval.

M CHM 452 Inorganic Chemistry Laboratory. (1–2)
spring
Preparation and characterization of typical inorganic substances, emphasizing methods and techniques. 1 conference, 5 hours lab. Fee. Prerequisite: instructor approval.
General Studies: L (if credit also earned in CHM 348 and 349)

M CHM 453 Inorganic Chemistry. (3)
fall
Principles and applications of inorganic chemistry. Prerequisite: CHM 341 or 346.

M CHM 460 Biological Chemistry. (3)
spring
Structure and function of macromolecules and their involvement in the processing of energy and information by living cells. Prerequisites: CHM 334, 346, 453.

M CHM 471 Solid-State Chemistry. (3)
fall
Crystal chemistry, thermodynamics and electrochemistry of solids, nonstoichiometric compounds, diffusion and solid-state reactions, crystal growth, and selected topics. Pre- or corequisite: CHM 346 or instructor approval.

M CHM 480 Methods of Teaching Chemistry. (3)
spring
Organization and presentation of appropriate content of chemistry; preparation of reagents, experiments, and demonstrations; organization of stock rooms and laboratories; experience in problem solving. Fee. Prerequisite: instructor approval.

M CHM 481 Geochemistry. (3)
spring
Origin and distribution of the chemical elements. Geochemical cycles operating in the earth's atmosphere, hydrosphere, and lithosphere. Cross-listed as GLG 481. Credit is allowed for only CHM 481 or GLG 481. Prerequisite: CHM 341 (or 346) or GLG 321.

M CHM 483 Astrobiology. (3)
fall and spring
Origin, early evolution, distribution, and future of life on Earth and elsewhere in the cosmos. May be repeated for credit. Lecture, discussion, video conferences, possible field trips. Cross-listed as AST 460/BIO 460/GLG 460/MIC 475. Credit is allowed for only AST 460 or BIO 460 or CHM 483 or GLG 460 or MIC 475. Prerequisite: instructor approval.

M CHM 484 Internship. (3)
selected semesters

M CHM 485 Meteorites and Cosmochemistry. (3)
selected semesters
Chemistry of meteorites and their relationship to the origin of the earth, solar system, and universe. Cross-listed as GLG 485. Credit is allowed for only CHM 485 or GLG 485. Prerequisite: CHM 341 or 346.

M CHM 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Chemistry of Global Climate Change. (3)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Chicana and Chicano Studies

www.asu.edu/clas/chicana
480/965-5091
COOR 6633

Carlos Vélez-Ibáñez, Chair

Regents' Professor: Candelaria

Professors: Espinosa, Vélez-Ibáñez

Associate Professors: Bernardi, Escobar, Magaña

Assistant Professors: Danielson, García, Leaños, Szkupinski-Quiroga

Faculty Associate: Lacayo-Salas

The Department of Chicana and Chicano Studies (CCS) is an interdisciplinary degree program whose central mission is to increase the direct participation of Mexican Americans and Latinos in the human and capital development of American society. This mission is advanced by the department's core undergraduate curriculum and related programs that examine the culture, artistic achievements, history, and status of people of Mexican descent and other Latinas and Latinos living in the U.S. The curriculum combines a research-based understanding of the humanities, social sciences, and the arts with practical CCS applications (such as studio formats, internships, and community research projects) as preparation for successful careers and productive public service in diverse communities.

CHICANA AND CHICANO STUDIES—BA

The major in Chicana and Chicano Studies requires 45 semester hours of course work. A minimum of 30 semester hours must be in CCS, CSH, and CSS courses. The remaining course work must be in a related field and approved by an advisor. All CCS majors must take 15 semester hours in the following core courses:

CCS	101	Introduction to Chicana and Chicano Studies *C*	3
CCS	111	Introduction to Chicana and Chicano Culture *C*	3
CCS	498	Pro-Seminar	3
HST	331	Mexican American History to 1900 *SB, C, H*	3
HST	332	Mexican American History Since 1900 *SB, C, H*	3

Within the 45 semester hours, CCS majors must also take 18 semester hours in one of two concentrations—humanities/cultural studies or social sciences/policy—and 12 hours in the other concentration for a total of 45 semester hours.

Majors are expected to fulfill the college's language requirement in Spanish. Although the department advisor can make exceptions on a case-by-case basis, all majors must demonstrate proficiency in Spanish.

All Chicana and Chicano Studies majors must take an established minor or credential of at least 18 semester hours in another field.

CHICANA AND CHICANO STUDIES MINOR

The Chicana and Chicano Studies minor requires 18 semester hours of course work. All Chicana and Chicano Studies minors must take the following courses:

CCS	101	Introduction to Chicana and Chicano Studies *C* or CCS 111 Introduction to Chicana and Chicano Culture *C* (3)	3
HST	332	Mexican American History Since 1900 *SB, C, H*	3
Total			6

Students must also take at least three semester hours in both CCS concentrations: humanities/cultural studies and social sciences/policy.

Within the 18-semester-hour requirement, students must take a minimum of 12 semester hours in CCS, CSH, and CSS courses. Any courses taken in a related field must be approved by an advisor.

BIS CONCENTRATION

A concentration in Chicana and Chicano studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

SECONDARY EDUCATION—BAE

Chicana and Chicano Studies. Applications are not being accepted at this time.

CHICANA AND CHICANO STUDIES (CCS)

M CCS 101 Introduction to Chicana and Chicano Studies. (3)
fall
Historical and contemporary issues in the Chicana and Chicano community; focus on economic, sociological, cultural, and political status of Chicanas and Chicanos in the U.S.
General Studies: C

M CCS 111 Introduction to Chicana and Chicano Culture. (3)
fall
Interdisciplinary analysis of customs, values, belief systems, and cultural symbols; special attention is given to cultural continuity and change.
General Studies: C

M CCS 210 Introduction to Ethnic Studies in the U.S. (3)
fall and spring
Covers diversity of experiences and relations among racial and ethnic groups in the United States. Lecture, discussion. Cross-listed as AFS 210/APA 210. Credit is allowed for only AFS 210 or APA 210 or CCS 210.
General Studies: C

M CCS 300 Chicana and Chicano Culture and Society. (3)
fall
Intensive analysis of how Mexican American writers, artists, film makers, entertainers, and academicians have interpreted aspects of the Chicana and Chicano experience.
General Studies: C

M CCS 446 Teaching Chicana and Chicano Studies in the Schools. (3)
selected semesters
Approaches/techniques for infusion of Chicana and Chicano Studies content into elementary and secondary curriculum; designed for teachers who work with Chicana and Chicano students.

M CCS 498 Pro-Seminar. (3)
once a year
Required courses for majors on topic selected by instructor; writing-intensive course related to the development of interdisciplinary research skills.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

CHICANA AND CHICANO STUDIES HUMANITIES (CSH)

M CSH Note 1. With the exception of omnibus courses, all FMS courses have a teaching method of lecture, discussion, and screening.

M CSH Note 2. Completion of the First-Year Composition requirement (ENG 101 and 102 [or 105] or ENG 107 and 108 with a grade of "C" [2.00] or higher) is a prerequisite for all English courses above the 100 level.

M CSH Note 3. A term paper or equivalent out-of-class written work is required in all upper-division (300- and 400-level) ENG courses.

M CSH 210 Chicana and Chicano Poetry. (3)
fall
Writing seminar on Chicana and Chicano poetics and intensive creative writing workshop. Workshop, seminar.

M CSH 220 Chicana and Chicano Cultural Expression. (3)
once a year
Interrelation between economic, social, and political status and forms of artistic expression; i.e., music, dance, drama, literature, and graphic arts.

M CSH 270 Race and Ethnicity in American Cinema. (3)
fall and summer
Explores how Hollywood shapes perceptions of race and ethnicity in American society. Cross-listed as FMS 270. Credit is allowed for only CSH 270 or FMS 270. Fee. See CSH Note 1.
General Studies: HU, C

M CSH 310 Chicana and Chicano Folklore. (3)
once a year
Analyzes Chicana and Chicano folk beliefs, traditions, and practices.
General Studies: HU, C

M CSH 350 Mexican and Mexican American Artistic Production. (3)
once a year
Overview of Mexican and Mexican American artistic production from colonial times to present; emphasis on religious and folk art.
General Studies: HU, C, G

M CSH 351 Contemporary Chicana and Chicano Art. (3)
once a year
Intensive analysis of contemporary Chicana and Chicano art movement as appraised within the context of contemporary American art and the art of Mexico.
General Studies: HU, C

M CSH 363 Chicana and Chicano Literature. (3)
fall
Development of Chicana and Chicano literature; study of genres and themes; attention to literary antecedents. Cross-listed as ENG 363. Credit is allowed for only CSH 363 or ENG 363. See CSH Notes 2, 3.
General Studies: L/HU, C

M CSH 484 Internship. (3)
selected semesters

M CSH 485 Chicana Writers. (3)
once a year
Critical reading of Mexican American women authors; emphasis on contemporary (post-1970) poetry, novels, short stories, and essays.
General Studies: HU, C

M CSH 498 Pro-Seminar. (3)
once a year
Required course for majors on topic selected by instructor; writing-intensive course related to the development of interdisciplinary research skills.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

CHICANA AND CHICANO STUDIES SOCIAL SCIENCE (CSS)

M CSS 315 Chicano Family Structures and Perceptions. (3)
once a year
Traditional and changing family relationships; emphasis on gender and intergenerational relations and impact of modern society on traditional family values.

M CSS 330 Chicana and Chicano Politics and Policy. (3)
once a year
Historical/contemporary analysis of Chicana and Chicano political ideologies, attitudes, strategies, and movements; relations with governmental agencies; and public policy issues.
General Studies: C

M CSS 331 Policy Issues in Chicana and Chicano Urban Settings. (3)
spring
Historical, demographic, and sociological overview of the status of Chicanas and Chicanos in urban settings as well as the public policy relevance.
General Studies: C

M CSS 335 Latino Health Issues. (4)
spring and summer
Health issues among Chicanos and other U.S. Latinos; interplay among political economy, health, family, culture, and community. 3 hours lecture, 1 hour lab, field research. Prerequisite: instructor approval.
General Studies: SB, C

M CSS 336 Issues in Immigration and Migration. (3)
once a year
Historical/contemporary overview of Mexican immigration into and within the U.S.; factors affecting population movement, settlement patterns, and migrants' incorporation into society.
General Studies: C, H

M CSS 432 Issues in Chicana and Chicano Gender. (3)
once a year
Analyzes social construction of gender identities; emphasizes impact of American and Mexican cultural values on normative gender relations.
General Studies: C

M CSS 490 Field Studies in the Chicana and Chicano Community. (3)
once a year
Introduces principles and methods of qualitative research applied to the Chicana and Chicano community.

M CSS 498 Pro-Seminar. (3)
once a year
Required course for majors on topic selected by instructor; writing-intensive course related to the development of interdisciplinary research skills. Prerequisites: both CCS 101 and HST 331 (or 332), or only instructor approval.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Computational Biosciences

Professional Science Master's Degree

www.asu.edu/compbiosci

480/965-9845

PSA 216

Rosemary Renaut, Director

GRADUATE PROGRAMS

The Professional Science Master's (PSM) degree in Computational Biosciences is administered by an interdisciplinary committee. The faculty participating in this PSM degree program are drawn from departments that include Biology, Chemistry and Biochemistry, Computer Science Engineering, Health Management and Policy, Mathematics and Statistics, and Plant Biology.

For more information, contact the program office or refer to the *Graduate Catalog*.

COMPUTATIONAL BIOSCIENCES (CBS)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Economics

ECONOMICS—BS

The program of study for the BS degree is designed for students planning to seek employment upon completion of their undergraduate studies or for students intending to go on to graduate school or law school. It provides students with the analytical and quantitative skills employers and graduate schools expect of individuals holding an economics degree. Students interested in pursing a PhD in economics are strongly encouraged to minor or major in mathematics as well.

Requirements for the College of Liberal Arts and Sciences BS in Economics consist of three parts: the university requirements for all students at ASU, see "University Graduation Requirements," page 89; the requirements of the College of Liberal Arts and Sciences, see "College Graduation Requirements," page 503; and the requirements of the Department of Economics.

The W. P. Carey School of Business also offers a BS degree in Economics. Faculty listings, course descriptions, and the major requirements in the W. P. Carey School of Business are listed under "Department of Economics," page 298.

Requirements of the Department of Economics. The program consists of at least 45 semester hours of course work distributed between economics and related fields as shown below. Only courses in which a student receives a grade of "C" (2.00) or higher may be used to meet these requirements. Students must meet all prerequisites and course requirements as listed in this catalog. These include

A calculus and statistics: MAT 210 and 211; or MAT 270, 271, and 272; or MAT 290 and 291; STP 226 or QBA 221;

B. principles of economics: ECN 211 and 212;

C. completion of 24 semester hours in economics courses and quantitative business analysis courses at the 300 level or above. At least four of these courses must be at the 400 level or above. These 24 hours must include

1. economic theory: ECN 313 and 314;
2. econometrics and statistics: ECN 410 or 425 or QBA 321 or STP 421;
3. a capstone course or honors thesis: ECN 475 or 493;
4. economics electives at the 300 level or above to fill out the remaining hours, including a maximum of three hours of ECN 484 Economics Internship and excluding ECN 475 and 493, which cannot be used to satisfy this requirement; and

D. electives chosen from the Approved List of Related Field Courses to fill out the remaining semester hours.

Latin American Studies Certificate or Emphasis. Students majoring in Economics may elect to pursue a Latin American Studies Certificate or emphasis, combining courses from the major with selected outside courses of wholly Latin American content. See "Latin American Studies," page 512, for more information.

Certificate in International Business Studies. Students majoring in Economics may elect to pursue a Certificate in International Business Studies, combining courses from the major with selected international business courses. For more information see "Certificate in International Business Studies," page 304.

Certificate in Quality Analysis. Students majoring in Economics may elect to pursue a Certificate in Quality Analysis, combining courses from the major with selected quantitative business analysis courses. For more information, see "Certificate in Quality Analysis," page 294.

MINOR

Minor in General Economics. This minor (and BIS area of concentration) requires 18 semester hours of course work which includes ECN 211 and 212, and 12 hours of economics courses at the 300 level or above for which all prerequisites have been met. Only courses in which a student

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

receives a grade of "C" (2.00) or higher may be used to meet these requirements.

Minor in Economics for Students Planning a Career in Law. This minor requires 18 semester hours of course work that includes ECN 211, 212, 314, 450, 453, and one additional economics course at the 300 level or above for which all prerequisites have been met. Only courses in which a student receives a grade of "C" (2.00) or higher may be used to meet these requirements.

Honors Students

Students admitted to the Barrett Honors College may substitute ECN 213 Honors Macroeconomics for ECN 211 and 313, and ECN 214 Honors Microeconomics for ECN 212 and 314. These courses with grades of "C" (2.00) or higher satisfy the prerequisites and pre/corequisites for all upper-division economics courses.

BIS CONCENTRATIONS

Concentrations in (1) economics and (2) economics for students planning a career in law are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

SECONDARY EDUCATION—BAE

This degree is offered through the Initial Teacher Certification (ITC) program in the College of Education. Students pursuing a major in Secondary Education (Economics) have an advisor in the College of Education and an advisor within the Department of Economics.

See "College of Education," page 349, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

Academic Specialization ITC Admission Requirements. The following courses must be completed with a grade of "C" (2.00) or higher before applying to the ITC professional program:

ECN	211	Macroeconomic Principles *SB*	3
ECN	212	Microeconomic Principles *SB*	3
ECN	313	Intermediate Macroeconomic Theory *SB*	3
ECN	314	Intermediate Microeconomic Theory *SB*	3
MAT	210	Brief Calculus *MA*	3

Economics. The major teaching field consists of 45 semester hours and six hours in teaching methods. A minimum grade of "C" (2.00) is required in all academic specialization courses. Required major courses are as follows:

ECN	211	Macroeconomic Principles *SB*	3
ECN	212	Microeconomic Principles *SB*	3
ECN	313	Intermediate Macroeconomic Theory *SB*	3
ECN	314	Intermediate Microeconomic Theory *SB*	3
MAT	210	Brief Calculus *MA*	3
Choose one of the following courses			3
QBA	221	Statistical Analysis *CS* (3)	
STP	226	Elements of Statistics *CS* (3)	
Choose one of the following courses			3
ECN	410	Applied Business Forecasting (3)	
ECN	425	Introduction to Econometrics *CS* (3)	
QBA	321	Applied Quality Analysis I (3)	
Choose one of the following courses			3
ECN	475	Capstone in Economics *L* (3)	
ECN	493	Honors Thesis *L* (3)	
Upper-division economics electives			12
Related area course*			9
Total			45

* Choose courses in consultation with an economics advisor.

Teaching Methods

SED	480	Special Methods of Teaching Social Studies	3
Additional teaching methods course*			3
Total			6

* Choose courses in consultation with an education advisor.

Social Studies. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

GRADUATE PROGRAMS

The faculty in the Department of Economics offer programs leading to the MS and PhD degrees. See the *Graduate Catalog* for requirements.

For faculty and course descriptions, see "Department of Economics," page 298.

COURSES

For courses, see "Economics (ECN)," page 299.

Department of English

www.asu.edu/clas/english
480/965-3168
LL 542

Neal A. Lester, Chair

Regents' Professors: Candelaria, Carlson, Dubie, Ríos

Professors: Adams, Bjork, Boyer, Brack, Crowley, Goldberg, Helms, Hogue, Horan, Lehman, Lester, Major, Miller, A. Nilsen, D. Nilsen, Pritchard, Rhodes, Roen, Tobin, van Gelderen

Associate Professors: Baker, Bates, Bivona, Castle, Corse, Fulton, Gerson, M. Goggin, Lussier, McNally, Nelson, Perry, Privateer, Savard, Scarberry-Garcia, Schwalm, Tohe, Voaden, Webb

Assistant Professors: Bernick, Blasingame, Fox, P. Goggin, James, Lockard, Milun, Parchesky, Sadowski-Smith, Thompson

Senior Lecturers: Cook, Duerden, Dugan, Dwyer, Heenan, Norton, Sudol, Wheeler

Lecturers: Baldini, Binkley, Cutrara, Duttagupta, Ellis, Fuse, Newton, Sands

Service Professional: McNeil

Associate Instructional Professional: Glau

ENGLISH—BA

The faculty in the Department of English offer courses in comparative literature, creative writing, English as a second language, English education, English linguistics, film and media studies, literature and language, and rhetoric and composition. Undergraduate degrees include the BA degree in English, with a concentration in creative writing, linguistics, or literature, and a Secondary Education Bachelor of Arts in Education degree. The faculty also offer a Writing Certificate. Students should work with advisors to design an individual program of study that takes full advantage of the diversity within the department as well as interdisciplinary and multicultural contexts available in the college and university.

The BA degree in English with a concentration in creative writing consists of 45 semester hours. Application to the program requires a minimum cumulative GPA of 3.00. Students must also have completed 45 hours of course work. Required courses are as follows:

ENG	200	Critical Reading and Writing About Literature *L/HU* 3
ENG	210	Introduction to Creative Writing 3
ENG	221	Survey of English Literature *HU* 3
		or ENG 222 Survey of English Literature *HU, H* (3)
ENG	241	Literatures of the United States to 1860 *HU* 3
ENG	242	Literatures of the United States, 1860 to Present *HU* 3
ENG	310	Intermediate Creative Writing 3
ENG	411	Advanced Creative Writing 3
ENG	495	Literary Forms: Theory and Practice 3
ENG	498	PS: Directions in Creative Writing 3
ENG	498	Pro-Seminar 3
Total		30

Six additional hours must be chosen from a course list supplied by the departmental advisor.

The nine remaining hours needed to complete the 45 semester hours are electives chosen from the department's offerings at the 200 level and above. At least 18 of the 45 hours must be taken at the 300 or 400 level. At least 12 of these upper-division semester hours must be completed at the Tempe campus, including at least one ENG 310 or ENG 411 writing workshop in the student's chosen genre. A grade of "C" (2.00) or higher is required in all courses taken for the major. A 3.00 GPA in the major is required for graduation.

The BA degree in English with a concentration in linguistics consists of 42 semester hours. Required courses are as follows:

ENG	200	Critical Reading and Writing About Literature *L/HU* 3
ENG	213	Introduction to the Study of Language 3
ENG	221	Survey of English Literature *HU* 3
		or ENG 222 Survey of English Literature *HU, H* (3)
		or ENG 241 Literatures of the United States to 1860 *HU* (3)
		or ENG 242 Literatures of the United States, 1860 to Present *HU* (3)
ENG	312	English in Its Social Setting *L/HU/SB* 3
ENG	313	Phonology and Morphology *L* 3
ENG	314	Modern Grammar 3
ENG	413	History of the English Language *HU* 3
ENG	414	Studies in Linguistics (repeated for a total of nine semester hours) 9

Twelve additional hours are electives, chosen in consultation with the student's advisor. These courses must be at the 200 level or above. At least one must be a three-semester-hour course in a modern language other than English at the 400 level or above. A grade of "C" (2.00) or higher is required in all courses taken for the major. *No course may be used to satisfy more than one requirement.*

The BA degree in English with a concentration in literature consists of 45 semester hours. Required courses are as follows:

ENG	200	Critical Reading and Writing About Literature *L/HU* 3
ENG	221	Survey of English Literature *HU* 3
ENG	222	Survey of English Literature *HU, H* 3
ENG	241	Literatures of the United States to 1860 *HU* 3
ENG	242	Literatures of the United States, 1860 to Present *HU* 3
ENG	421	Shakespeare *HU* 3

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Courses taken to fulfill the areas and periods listed below can be used to satisfy more than one of these requirements:

Upper-division course in critical theory (3)
Upper-division course in gender, American ethnic literatures, and/or postcolonial studies (3)
Course in the history and/or structure of language (3)
Upper-division course in literature before 1660, exclusive of ENG 303, 321, 355, 356, and 421 (3)
Upper-division course in literature between 1660 and 1900 (3)
Upper-division course in literature after 1900 (3)

Additional hours needed to complete the 45 hours are electives chosen from the department's offerings at the 200 level and above. At least 18 of the 45 hours must be taken at the 300 or 400 level. A grade of "C" (2.00) or higher is required in all courses taken for the major.

MINORS

The minor in English with a concentration in linguistics consists of 24 semester hours. Required courses are as follows:

ENG 200 Critical Reading and Writing About Literature *L/HU* 3
ENG 213 Introduction to the Study of Language 3
ENG 221 Survey of English Literature *HU* 3
or ENG 222 Survey of English Literature *HU, H* (3)
or ENG 241 Literatures of the United States to 1860 *HU* (3)
or ENG 242 Literatures of the United States, 1860 to Present *HU* (3)
ENG 312 English in Its Social Setting *L/HU/SB* 3
ENG 314 Modern Grammar....3
ENG 413 History of the English Language *HU*....3

The six additional hours are electives chosen from the department's offerings, with at least one course (three hours) required at the 300 or 400 level. A grade of "C" (2.00) or higher is required in all courses for the minor.

The minor in English with a concentration in literature consists of 24 semester hours. These courses are required:

ENG 200 Critical Reading and Writing About Literature *L/HU* 3
ENG 221 Survey of English Literature *HU* 3
or ENG 222 Survey of English Literature *HU, H* (3)
ENG 241 Literatures of the United States to 1860 *HU*....3
or ENG 242 Literatures of the United States, 1860 to Present *HU* (3)
ENG 321 Introduction to Shakespeare *L/HU*....3
or ENG 421 Shakespeare *HU* (3)

Also required are two upper-division courses in literature (six hours) and two electives (six hours) chosen from among the department's offerings, with at least one course (three hours) at the 300 or 400 level. A grade of "C" (2.00) or higher is required in all courses taken for the minor.

BIS CONCENTRATIONS

Four concentrations in English (creative writing, linguistics concentration, literature concentration, and writing certificate) are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

WRITING CERTIFICATE

The Writing Certificate consists of 19 semester hours. Initial entry into the program requires a minimum GPA of 3.00 in ENG 101 and 102, 105, or 107 and 108. Students must also have completed at least 30 hours of course work and must have a minimum GPA of 3.00. Required courses are as follows:

ENG 216 Persuasive Writing on Public Issues *L* 3
or ENG 412 Creative Nonfiction (3)
ENG 301 Writing for the Professions *L*....3
ENG 372 Document Production *L* 3
ENG 472 Rhetorical Studies *L*....3
ENG 484 Internship: Writing Certificate 3
ENG 498 PS: Writing Certificate Portfolio....1
Total 16

Also required is an additional writing course in English (three hours) or a writing or design course (three hours) selected from an approved list of courses from across campus. All students are required to submit a portfolio before receiving the certificate.

SECONDARY EDUCATION—BAE

This degree is offered through the Initial Teacher Certification (ITC) program in the College of Education. Students pursuing a major in Secondary Education with an academic specialization in English have an advisor in the College of Education and an advisor within the Department of English.

See "College of Education," page 349, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

Academic Specialization ITC Admission Requirements. The following courses must be completed with a grade of "C" (2.00) or higher before applying to the ITC professional program:

ENG 200 Critical Reading and Writing About Literature *L/HU* 3
At least three additional required courses in the academic specialization 9

English. The major teaching field consists of 39 semester hours with an additional six hours of teaching methods in English. A grade of "C" (2.00) or higher is required in all academic specialization courses. Required courses are as follows:

ENG 200 Critical Reading and Writing About Literature *L/HU*....3
ENG 212 English Prose Style *L* 3
or ENG 215 Strategies of Academic Writing *L* (3)

or ENG 216 Persuasive Writing on Public Issues *L* (3)
or ENG 217 Writing Reflective Essays *L* (3)
ENG 221 Survey of English Literature *HU* 3
ENG 222 Survey of English Literature *HU, H* 3
ENG 241 Literatures of the United States to 1860 *HU* 3
ENG 242 Literatures of the United States, 1860 to Present *HU* 3
ENG 312 English in Its Social Setting *L/HU/SB* 3
or ENG 314 Modern Grammar (3)
ENG 421 Shakespeare *HU* 3
or ENG 422 Studies in Shakespeare *HU* (3)
ENG 471 Literature for Adolescents *HU* 3
An upper-division course in women's literature or American ethnic literature 3
Electives 3
Upper-division electives 6
Total 39

Teaching Methods

ENG 480 Methods of Teaching English: Composition *L* 3
ENG 482 Methods of Teaching English: Language *L* 3
Total 6

GRADUATE PROGRAMS

The faculty in the Department of English offer programs leading to the MA degree in English (with concentrations in comparative literature, English linguistics, literature and language, and rhetoric and composition), Master of Fine Arts degree in Creative Writing (options include fiction, nonfiction, and poetry), Master of Teaching English as a Second Language degree, and PhD degree in English with two concentrations, one in literature and one in rhetoric/composition and linguistics. See the *Graduate Catalog* for requirements.

ENGLISH (ENG)

For more ENG courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M ENG Note 1. Completion of the First-Year Composition requirement (ENG 101 and 102 [or 105] or ENG 107 and 108 with a grade of "C" [2.00] or higher) is a prerequisite for all English courses above the 100 level.

M ENG Note 2. A term paper or equivalent out-of-class written work is required in all upper-division (300- and 400-level) ENG courses.

M ENG Note 3. English majors and minors are expected to have completed ENG 200 before taking 400-level literature courses.

M ENG 101 First-Year Composition. (3)
fall, spring, summer
Discovering, organizing, and developing ideas in relation to the writer's purpose, subject, and audience. Emphasizes modes of written discourse and effective use of rhetorical principles. Foreign students, see ENG 107. Prerequisite: see "University Testing Requirements," page 75, and "First-Year Composition Requirement," page 89.

M ENG 102 First-Year Composition. (3)
fall, spring, summer
Critical reading and writing; emphasis on strategies of academic discourse. Requires research paper. Foreign students, see ENG 108. Prerequisite with a grade of "C" (2.00) or higher: ENG 101.

M ENG 105 Advanced First-Year Composition. (3)
fall and spring
Concentrated composition course for students with superior writing skills; intensive reading; research papers; logical and rhetorical effectiveness. Credit is allowed for only ENG 105 or First-Year Composition. Prerequisite: see "University Testing Requirements," page 75, and "First-Year Composition Requirement," page 89.

M ENG 107 English for Foreign Students. (3)
fall and spring
For students from non-English-speaking countries who have studied English in their native countries, but who require practice in the idioms of English. Intensive reading, writing, and discussion. Satisfies the graduation requirement of ENG 101.

M ENG 108 English for Foreign Students. (3)
fall and spring
For foreign students; critical reading and writing; strategies of academic discourse. Requires research paper. Satisfies graduation requirement of ENG 102. Prerequisite with a grade of "C" (2.00) or higher: ENG 107.

M ENG 114 English Grammar and Usage. (3)
fall and spring
Fundamentals of English grammar (word and phrase structure) and of English usage (punctuation, grammatical correctness).

M ENG 200 Critical Reading and Writing About Literature. (3)
fall and spring
Introduces the terminology, methods, and objectives of the study of literature, with practice in interpretation and evaluation. See ENG Note 1. Prerequisite: English major or minor.
General Studies: L/HU

M ENG 201 World Literature. (3)
fall
Classical and medieval periods. Selections from the great literature of the world in translation and lectures on the cultural background. See ENG Note 1.
General Studies: HU, G, H

M ENG 202 World Literature. (3)
spring
Renaissance and modern periods. Selections from the great literature of the world in translation and lectures on the cultural background. See ENG Note 1.
General Studies: HU, H

M ENG 204 Introduction to Contemporary Literature. (3)
once a year
Poetry, fiction, drama, and possibly other genres. See ENG Note 1.
General Studies: HU

M ENG 210 Introduction to Creative Writing. (3)
fall and spring
Beginning writing of poetry, fiction, drama, or mixed genre. Separate sections for each genre. Each genre may be taken once. See ENG Note 1.

M ENG 212 English Prose Style. (3)
selected semesters
Analysis and practice of writing in various classical and modern prose styles. See ENG Note 1. Prerequisite: preferably English major or both approval of advisor and instructor. Prerequisite with a grade of "B" (3.00) or higher: ENG 102 or 105.
General Studies: L

M ENG 213 Introduction to the Study of Language. (3)
fall and spring
Language as code; phonetics, phonology, morphology, and syntax; the lexicon; language acquisition; sociolinguistics. See ENG Note 1.

M ENG 215 Strategies of Academic Writing. (3)
fall and spring
Advanced course in techniques of analyzing and writing academic expository prose. Writing is research based. See ENG Note 1.
General Studies: L

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M ENG 216 Persuasive Writing on Public Issues. (3)
fall and spring
Advanced course in techniques of analyzing and writing persuasive arguments addressing topics of current public interest. Papers are research based. See ENG Note 1.
General Studies: L

M ENG 217 Writing Reflective Essays. (3)
fall and spring
Critical examination of the influences discourse has on formation of identity; narrative analyses of self and culture. See ENG Note 1.
General Studies: L

M ENG 218 Writing About Literature. (3)
fall and spring
Advanced writing course requiring analytical and expository essays about fiction, poetry, and drama. For non-English majors. See ENG Note 1.
General Studies: L/HU

M ENG 221 Survey of English Literature. (3)
fall and spring
Medieval, Renaissance, and 18th-century literature. Emphasizes major writers and their works in their literary and historical contexts. See ENG Note 1.
General Studies: HU

M ENG 222 Survey of English Literature. (3)
fall and spring
Romantic, Victorian, and 20th-century literature. Emphasizes major writers and their works in their literary and historical contexts. See ENG Note 1.
General Studies: HU, H

M ENG 241 Literatures of the United States to 1860. (3)
fall and spring
Survey of literary movements and genres from colonization to the Civil War. See ENG Note 1.
General Studies: HU

M ENG 242 Literatures of the United States, 1860 to Present. (3)
fall and spring
Survey of literary movements and genres from the Civil War to the present. See ENG Note 1.
General Studies: HU

M ENG 245 Popular Culture Issues. (3)
fall and spring
Selected topics in various forms of popular culture related to written texts. May be repeated for credit when topics vary. See ENG Note 1.
General Studies: L

M ENG 301 Writing for the Professions. (3)
fall and spring
Advanced practice in writing and editing expository prose. Primarily for preprofessional majors. See ENG Notes 1, 2.
General Studies: L

M ENG 302 Business Writing. (3)
selected semesters
Advanced interdisciplinary writing course designed to improve the workplace writing competence of W. P. Carey School of Business professional and preprofessional students. Lecture, discussion, case studies, cooperative learning, interactive, Internet, student presentations. See ENG Notes 1, 2. Prerequisite: prebusiness or business major.

M ENG 303 Classical Backgrounds of English Literature. (3)
selected semesters
Readings of Greek and Latin literature in translation as they relate to literature in English. See ENG Notes 1, 2.
General Studies: HU

M ENG 307 Writing Science Fiction. (3)
selected semesters
Writing science fiction, primarily the short story. Lecture, workshop, online supplements. See ENG Notes 1, 2.

M ENG 310 Intermediate Creative Writing. (3)
fall and spring
Separate sections for fiction and poetry. May be taken once for poetry, once for fiction. Lecture, writing assignments, discussion, criticism. See ENG Notes 1, 2. Prerequisite: ENG 210 or instructor approval.

M ENG 312 English in Its Social Setting. (3)
fall and spring
Introduces the sociolinguistic study of the English language. See ENG Notes 1, 2.
General Studies: L/HU/SB

M ENG 313 Phonology and Morphology. (3)
spring
Introduces English morphology, phonology, etymology, and phonetic aspects of rhyme, alliteration, and other sound-based literary devices. See ENG Notes 1, 2.
General Studies: L

M ENG 314 Modern Grammar. (3)
fall and spring
Modern descriptive models of English grammar. See ENG Notes 1, 2.

M ENG 315 Medieval Literature in Translation. (3)
once a year
Medieval literature (insular and continental) in translation, from Beowulf to Malory (excluding Chaucer), emphasizing cultural and intellectual backgrounds. Lecture, discussion. See ENG Notes 1, 2.

M ENG 321 Introduction to Shakespeare. (3)
fall and spring
Shakespeare's major comedies, histories, and tragedies. See ENG Notes 1, 2.
General Studies: L/HU

M ENG 325 Restoration and the 18th Century. (3)
once a year
Writers and movements in nondramatic literature of the restoration and early 18th century. Lecture, discussion. See ENG Notes 1, 2.

M ENG 326 English Drama 1660–1800. (3)
once a year
English drama 1660–1800. See ENG Notes 1, 2.
General Studies: HU

M ENG 328 The Novel to Jane Austen. (3)
selected semesters
From origins of prose fiction through the 18th century. See ENG Notes 1, 2.
General Studies: HU, H

M ENG 329 19th-Century British Fiction. (3)
selected semesters
Includes such authors as Austen, Dickens, Eliot, and Conrad. See ENG Notes 1, 2.
General Studies: L/HU

M ENG 330 19th-Century British Poetry. (3)
selected semesters
Romantic and Victorian poets studied in context. Lecture, discussion. See ENG Notes 1, 2.

M ENG 331 American Drama. (3)
once a year
Major works in the development of American drama from its beginnings to the present. See ENG Notes 1, 2.
General Studies: L/HU

M ENG 333 American Ethnic Literature. (3)
once a year
Examines America's multiethnic identity through works of literature that depict American ethnic, gender, and class sensibilities. Cross-listed as AFH 333. Credit is allowed for only AFH 333 or ENG 333. See ENG Notes 1, 2.
General Studies: L/HU, C

M ENG 335 American Poetry. (3)
selected semesters
Themes and developments in American poetry. Lecture, discussion. See ENG Notes 1, 2.

M ENG 337 Major American Novels. (3)
once a year
Major American novels studied in their ethnically diverse literary, historical, and cultural contexts. See ENG Notes 1, 2.
General Studies: L/HU

M ENG 342 20th-Century British and Irish Literature. (3)
selected semesters
Major works in the development of literature since 1900, studied in their historical and cultural contexts. Lecture, discussion. See ENG Notes 1, 2.
General Studies: HU

M ENG 345 Selected Authors or Issues. (3–4)
selected semesters
Different topics may be offered. Film topics with lab may carry 4 credits. May be repeated for credit when topics vary. See ENG Notes 1, 2.

M ENG 352 Short Story. (3)
fall and spring
Development of the short story as a literary form; analysis of its technique from the work of representative authors. See ENG Notes 1, 2.
General Studies: L/HU

M ENG 353 African American Literature: Beginnings Through the Harlem Renaissance. (3)
fall
Historical survey of African American literary traditions and cultural contexts from slavery through the 1930s. Cross-listed as AFH 353. Credit is allowed for only AFH 353 or ENG 353. See ENG Notes 1, 2.
General Studies: L/HU, C

M ENG 354 African American Literature: Harlem Renaissance to the Present. (3)
spring
Historical survey of African American literary traditions and cultural contexts from the 1920s to the present. Cross-listed as AFH 354. Credit is allowed for only AFH 354 or ENG 354. See ENG Notes 1, 2.
General Studies: L/HU, C

M ENG 355 European Dramatic Traditions. (3)
selected semesters
Development of European drama since Aeschylus. See ENG Notes 1, 2.
General Studies: L/HU

M ENG 356 The Bible as Literature. (3)
fall and spring
Readings in the Jewish and Christian Scriptures in modern translation. See ENG Notes 1, 2.
General Studies: HU

M ENG 359 American Indian Literatures. (3)
selected semesters
Selected oral traditions and contemporary works by American Indian authors. See ENG Notes 1, 2.
General Studies: L/HU, C

M ENG 360 Western American Literature. (3)
once a year
Critical examination of ideas and traditions of the literature of the western United States, including the novel. See ENG Notes 1, 2.
General Studies: L/HU

M ENG 363 Chicana and Chicano Literature. (3)
fall
Development of Chicana and Chicano literature; study of genres and themes; attention to literary antecedents. Cross-listed as CSH 363. Credit is allowed for only CSH 363 or ENG 363. See ENG Notes 1, 2.
General Studies: L/HU, C

M ENG 364 Women and Literature. (3)
selected semesters
Approaches to issues of gender and representation in literature by and about women. See ENG Notes 1, 2.
General Studies: HU

M ENG 365 History of Film. (3–4)
selected semesters
Development of motion pictures. 3 hours lecture, screenings. See ENG Notes 1, 2.
General Studies: HU

M ENG 369 Science Fiction Studies. (3)
selected semesters
Examines science fiction in cultural context. May be repeated for credit. Lecture, discussion, face-to-face, hybrid, or online. See ENG Notes 1, 2.

M ENG 372 Document Production. (3)
fall and spring
Introduces document design and production. Practice in critique and in writing the content of publications. Lecture, discussion. See ENG Notes 1, 2. Prerequisite: instructor approval.
General Studies: L

M ENG 374 Technical Editing. (3)
fall and spring
Fundamentals of editing technical and professional materials. Role of editors in analyzing, revising, and polishing manuscripts. Successful writer-editor dialogues. See ENG Notes 1, 2.

M ENG 385 Career Development for English Majors. (3)
selected semesters
Theoretical and practical aspects of career planning related to skills and interests developed in English studies. Lecture, discussion, workshop. See ENG Notes 1, 2.
General Studies: L

M ENG 400 History of Literary Criticism. (3)
selected semesters
Major critics and critical traditions in the Western world. See ENG Notes 1, 2, 3. Prerequisite: 6 hours in literature or instructor approval.
General Studies: L/HU, H

M ENG 401 Topics in Critical Theory. (3)
selected semesters
Major critical schools of recent decades—postcolonialist, psychoanalytic, deconstructionist, feminist, new historicist. May be repeated for credit when topics vary. Lecture, discussion. See ENG Notes 1, 2, 3. Prerequisite: 6 hours in literature or instructor approval.

M ENG 409 Advanced Screenwriting. (3)
selected semesters
Applies the principles taught in a complete feature-length screenplay. See ENG Notes 1, 2. Prerequisite: instructor approval.

M ENG 411 Advanced Creative Writing. (3)
fall and spring
Poetry, fiction, and drama for experienced writers, emphasizing individual style. Each genre may be taken once. See ENG Notes 1, 2. Prerequisite: ENG 310 or instructor approval.

M ENG 412 Creative Nonfiction. (3)
selected semesters
Lectures, discussion, and criticism concerning techniques of writing creative nonfiction for publication. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 411 or instructor approval.

M ENG 413 History of the English Language. (3)
once a year
Development of English from the earliest times to the modern period. See ENG Notes 1, 2. Prerequisite: junior standing or instructor approval.
General Studies: HU

M ENG 414 Studies in Linguistics. (3)
fall and spring
Relationship of linguistics to literature, gender, power, and other social issues. May be repeated for credit. See ENG Notes 1, 2. Prerequisite: ENG 213 or 312 or 314 or 413 or instructor approval.

M ENG 415 Topics in Medieval Literature and Culture. (3)
selected semesters
Interdisciplinary approach to medieval literature, emphasizing cultural and historical context. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 221 or instructor approval.
General Studies: HU

M ENG 416 Chaucer in Middle English. (3)
once a year
Yearly alternate between Chaucer's *The Canterbury Tales* and *Troilus and Criseyde*. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 221 or instructor approval.
General Studies: HU

M ENG 418 Renaissance Literature. (3)
once a year
Selected topics, authors, contexts, and themes in Renaissance literature. See ENG Notes 1, 2, 3. Prerequisite: ENG 221 or instructor approval.
General Studies: L/HU

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M ENG 419 English Literature in the Early 17th Century. (3)
once a year
Topics, authors, and themes in English literature, 1603–1660. See ENG Notes 1, 2, 3. Prerequisite: ENG 221 or instructor approval.
General Studies: HU

M ENG 421 Shakespeare. (3)
fall and spring
A selection of Shakespeare's works in different genres. See ENG Notes 1, 2, 3. Prerequisite: ENG 221 or instructor approval.
General Studies: HU

M ENG 422 Studies in Shakespeare. (3)
once a year
Topics for close examination in selected dramatic and/or nondramatic works. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 421 or instructor approval.
General Studies: HU

M ENG 423 Renaissance Drama. (3)
spring
Topics, authors, and themes in the drama of the Tudor and early Stuart periods. See ENG Notes 1, 2, 3. Prerequisite: ENG 221 or instructor approval.
General Studies: L/HU

M ENG 424 Milton. (3)
once a year
Selected prose and poetry, emphasizing *Paradise Lost, Paradise Regained,* and *Samson Agonistes.* See ENG Notes 1, 2, 3. Prerequisite: ENG 221 or instructor approval.
General Studies: HU

M ENG 425 Studies in Romanticism. (3)
fall
Romanticism in continental, British, and American literature and culture. May be repeated for credit when topics vary. Lecture, discussion. See ENG Notes 1, 2, 3. Prerequisite: ENG 222 or 241 or instructor approval.
General Studies: HU

M ENG 427 Studies in 18th-Century Literature and Culture. (3)
selected semesters
Literary, social, and cultural issues of the period studied in an interdisciplinary format. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 221 or 222 or instructor approval.
General Studies: HU

M ENG 429 Studies in European Literature and Culture. (3)
selected semesters
Literary, cultural, and historical issues. May be repeated for credit when topics vary. Lecture, discussion. See ENG Notes 1, 2, 3. Topics may include the following:

- Feminist Political Writing in Contemporary Europe. (3)
  Examines the discourse of gender-politics in Central Eastern Europe before and after Soviet hegemony. Cross-listed as FLA 461. Credit is allowed for only ENG 429 or FLA 461.
- Literature and Film in 20th-Century Eastern Europe. (3)
  Evaluates literary texts and films as a massive propaganda machine of the totalitarian state. Cross-listed as FLA 476. Credit is allowed for only ENG 429 or FLA 476.
- Literature and Politics in Pre- and Post-Communist Europe. (3)
  Interdisciplinary examination of the cultures of Eastern Europe from WWI to the present. Cross-listed as FLA 472. Credit is allowed for only ENG 429 or FLA 472.
- Politics of Drama in 20th-Century Europe. (3)
  Interdisciplinary examination of European drama before and after WWII. Cross-listed as FLA 464. Credit is allowed for only ENG 429 or FLA 464.

M ENG 430 Studies in Victorian Literature and Culture. (3)
once a year
Literary, social, and cultural issues of the period studied in an interdisciplinary format. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 222 or instructor approval.
General Studies: L/HU

M ENG 434 Studies in the Literature and Culture of the Americas. (3)
selected semesters
Literature and culture of North America, South America, and the Caribbean. May be repeated for credit when topics vary. Lecture, discussion. See ENG Notes 1, 2, 3. Prerequisite: ENG 241 or 242 or instructor approval.
General Studies: HU, C

M ENG 436 Studies in Anglophone Literature and Culture. (3)
selected semesters
Literary, social, and cultural issues of English-speaking former colonial territories. May be repeated for credit when topics vary. Lecture, discussion. See ENG Notes 1, 2, 3. Prerequisite: ENG 222 or 242 or instructor approval.

M ENG 440 Studies in American Literature and Culture. (3)
once a year
Various genres in their literary, political, theoretical, and historical contexts. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 241 or 242 or instructor approval.
General Studies: HU

M ENG 442 Studies in 20th-Century British and Irish Literature and Culture. (3)
once a year
Major literary genres (novel, poetry, and drama) in their cultural and historical contexts. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 222 or instructor approval.

M ENG 444 Studies in American Romanticism. (3)
once a year
Fiction, poetry, and essays of such 19th-century authors as Hawthorne, Emerson, Melville, Thoreau, Fuller, Whitman, and Dickinson. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 241 or instructor approval.
General Studies: HU

M ENG 445 Studies in American Realism. (3)
once a year
Writers and influences that shaped the development of literary realism. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 242 or instructor approval.
General Studies: L/HU

M ENG 448 Studies in Irish Literature and Culture. (3)
selected semesters
Themes and problems pertaining to Irish literature, film, and social and cultural history. May be repeated for credit when topics vary. Lecture, discussion. See ENG Notes 1, 2, 3. Prerequisite: ENG 222 or instructor approval.
General Studies: HU

M ENG 452 Studies in the Novel. (3)
selected semesters
May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 221 or 222 or 241 or 242 or instructor approval.
General Studies: HU

M ENG 453 Studies in the American Novel. (3)
fall and spring
Poetics and politics of the novel, 18th through 21st centuries. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 241 or 242 or instructor approval.
General Studies: HU

M ENG 457 Studies in American Poetry. (3)
selected semesters
May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 241 or 242 or instructor approval.
General Studies: HU

M ENG 459 Studies in African American/Caribbean Literatures. (3)
selected semesters
Studies in African American or Caribbean literatures according to genre, period, theory, or selected authors. May be repeated for credit when topics vary. Cross-listed as AFH 459. Credit is allowed for only AFH 459 or ENG 459. See ENG Notes 1, 2, 3. Topics may include the following:

- African American Short Story
  General Studies: L

M ENG 461 Studies in Women and Literature. (3)
selected semesters
Advanced topics in literature by or about women. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3.
General Studies: HU

M ENG 464 Studies in Drama. (3)
selected semesters
Selected topics in the history and theory of the genre. See ENG Notes 1, 2, 3. Prerequisite: ENG 221 or 222 or 241 or 242 or instructor approval.
General Studies: L/HU

M ENG 465 Studies in Film. (3–4)
selected semesters
Advanced topics in cinema. May be repeated for credit when topics vary. Lecture, viewing, discussion. See ENG Notes 1, 2.

M ENG 469 Science and Literature. (3)
selected semesters
Historical and theoretical links between science and literature, from Francis Bacon to the present, examined in cultural context. May be repeated for credit when topics vary. Lecture, discussion. See ENG Notes 1, 2, 3.
General Studies: L/HU

M ENG 470 Symbols and Archetypes in Children's Literature. (3)
fall
Various critical approaches and recurring themes studied in relation to classical and contemporary children's literature. Lecture, discussion, reading. See ENG Notes 1, 2, 3.
General Studies: L/HU

M ENG 471 Literature for Adolescents. (3)
fall and spring
Prose and poetry that meet the interests and capabilities of junior high and high school students. Stresses recent literature. Requires passing grade of at least "C" (2.00) before students are permitted to student teach in English. See ENG Notes 1, 2, 3.
General Studies: HU

M ENG 472 Rhetorical Studies. (3)
fall and spring
Developments in theory and practice of major rhetorical inquiries. Seminar, workshop. See ENG Notes 1, 2. Prerequisite: junior standing.
General Studies: L

M ENG 476 Studies in Folklore. (3)
selected semesters
Surveys the history, genres, and dynamics of folklore, with emphasis on oral traditions. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3.
General Studies: HU

M ENG 478 Studies in Modernism. (3)
selected semesters
Cultural, historical, and literary problems in American and European modernism. Lecture, discussion. See ENG Notes 1, 2, 3. Prerequisite: ENG 222 or instructor approval.
General Studies: HU

M ENG 479 Studies in Postmodernism. (3)
selected semesters
Literary, social, and cultural issues. May be repeated for credit when topics vary. Lecture, discussion. See ENG Notes 1, 2, 3. Prerequisite: ENG 222 or 242 or instructor approval.

M ENG 480 Methods of Teaching English: Composition. (3)
fall or spring and summer
Methods of instruction, organization, and presentation of appropriate content in the teaching of composition and other writing skills. See ENG Notes 1, 2.
General Studies: L

M ENG 482 Methods of Teaching English: Language. (3)
fall or spring and summer
Methods of instruction, organization, and presentation of appropriate content in language and usage for junior and senior high schools. Lecture, discussion, lab. See ENG Notes 1, 2.
General Studies: L

M ENG 484 Internship. (1–12)
fall and spring
Selected from the following areas. May be repeated for credit. See ENG Notes 1, 2. Topics may include the following:
- General. (1–12)
- Service Learning. (3)
  Fee.
- Writing Certificate. (3)

M ENG 493 Honors Thesis. (1–6)
selected semesters
General Studies: L

M ENG 495 Literary Forms: Theory and Practice. (3)
selected semesters
Types, history, analysis of traditional forms and contemporary adaptations. Separate sections for poetry, fiction. Each genre may be taken once. See ENG Notes 1, 2. Prerequisite: ENG 411 in same genre or instructor approval.

M ENG 498 Pro-Seminar. (1–7)
fall and spring
Selected from the following areas. May be repeated for credit when topics vary. See ENG Notes 1, 2. Topics may include the following:
- Directions in Creative Writing. (3)
- Introduction to Graduate Studies. (1)
- Issues in Creative Writing. (3)
- Writing Certificate Portfolio. (1)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

LINGUISTICS (LIN)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

WRITING ACROSS THE CURRICULUM (WAC)

For more WAC courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M WAC 101 Introduction to Academic Writing. (3)
fall and spring
Combines classroom and supplemental instruction to teach academic genres of writing, including definition, summary, and analysis.

M WAC 107 Introduction to Academic Writing for International Students. (3)
fall and spring
For students from non-English-speaking countries. Combines classroom and supplemental instruction with intensive reading, writing, and discussion.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Department of Family and Human Development

www.asu.edu/clas/fhd
480/965-6978
COWDN 106

Richard A. Fabes, Chair

Professors: Christopher, Fabes, Griffin, Ladd, Martin, Roosa

Associate Professors: Dumka, Hanish, Madden-Derdich, Neff, Updegraff

Assistant Professors: Gager, Simpkins, Spinrad, Umaña-Taylor, Valiente

Senior Lecturers: Bodman, Weigand

FAMILY AND HUMAN DEVELOPMENT—BS

For the BS degree in Family and Human Development at the Tempe campus, students must pursue the concentration in family studies/child development. The mathematics proficiency must be met by completing MAT 142 or higher.

Family Studies/Child Development

The concentration in family studies/child development consists of the following core courses:

CDE	232	Human Development *SB*	3
CDE	338	Child Development Practicum	3
CDE	430	Infant/Toddler Development in the Family *SB*	3
FAS	331	Marriage and Family Relationships *SB*	3
FAS	361	Introduction to Family/Child Research Methods *L*	3
FAS	370	Family, Ethnic, and Cultural Diversity *SB, C*	3
FAS	431	Parent-Adolescent Relationships *SB*	3
FAS	435	Advanced Marriage and Family Relationships *L/SB*	3
FAS	484	Internship	3
		or FAS 390 Supervised Research Experience (3)	
FAS	498	Pro-Seminar	3
Total			30

In addition, 12 semester hours of unrestricted electives must be taken from the following:

CDE	337	Early Childhood Intervention	3
CDE	437	Infant Family Assessment and Observation *L/SB*	3
CDE	444	Risk and Variation in Child Development	3
CDE	498	Pro-Seminar	3
		or FAS 498 Pro-Seminar (3)	
FAS	301	Introduction to Parenting	3
FAS	330	Personal Growth in Human Relationships *SB*	3
FAS	332	Human Sexuality *SB*	3
FAS	390	Supervised Research Experience	1–3
FAS	440	Fundamentals of Marriage and Family Therapy	3
FAS	484	Internship	1–3
FAS	499	Individualized Instruction	3
		or CDE 499 Individualized Instruction (3)	

One statistics course is required; students may choose from courses such as PSY 230 Introduction to Statistics or EDP 454 Statistical Data Analysis in Education.

FAMILY AND HUMAN DEVELOPMENT MINOR

The minor in Family and Human Development consists of 18 semester hours in which students specialize in family studies/child development.

At least 12 of the 18 semester hours must be in upper-division courses.

Students take the following courses:

CDE	232	Human Development *SB*	3
FAS	331	Marriage and Family Relationships *SB*	3
FAS	440	Fundamentals of Marriage and Family Therapy	3
Total			9

Three courses (or nine semester hours) must be selected from the following and at least one course must be a CDE course:

CDE	337	Early Childhood Intervention	3
CDE	430	Infant/Toddler Development in the Family *SB*	3
CDE	444	Risk and Variation in Child Development	3
CDE	498	Pro-Seminar	3
		or FAS 498 Pro-Seminar (3)	
FAS	370	Family, Ethnic, and Cultural Diversity *SB, C*	3
FAS	431	Parent-Adolescent Relationships *SB*	3

BIS CONCENTRATION

A concentration in family studies/child development is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

SECONDARY EDUCATION—BAE

Family and Human Development. Applications are not being accepted at this time.

GRADUATE PROGRAMS

The faculty in the Department of Family and Human Development offer programs leading to the MS and PhD degrees. See the *Graduate Catalog* for requirements.

CHILD DEVELOPMENT (CDE)

M CDE 232 Human Development. (3)
fall, spring, summer
Lifespan development from conception through adulthood, with emphasis on family influences. Recognizes individuality within the universal pattern of development.
General Studies: SB

M CDE 337 Early Childhood Intervention. (3)
fall and spring
Explores how child development theory affects practice with children and families, emphasizing development of young children and early intervention. Cross listed as SWU 337. Credit is allowed for only CDE 337 or SWU 337. Prerequisite: CDE 232 or SWU 301 (or their equivalents).

M CDE 338 Child Development Practicum. (2–4)
fall, spring, summer session 1
Supervised practicum in the Child Development Lab preparing students for work in child care centers and agencies serving young children and families. May be repeated for credit. Lab. Prerequisite: CDE 232.

M CDE 430 Infant/Toddler Development in the Family. (3)
fall and spring
Examines the development of infants/toddlers, the socialization processes of families, and the interactions of these processes. Prerequisite: CDE 232 (or its equivalent).
General Studies: SB

M CDE 437 Infant Family Assessment and Observation. (3)
fall
Examines strategies for implementing developmental assessments and observations of young children and their families. Cross-listed as SWU 437. Credit is allowed for only CDE 437 or SWU 437. Prerequisite: CDE 232 or SWU 301 (or their equivalents).
General Studies: L/SB

M CDE 444 Risk and Variation in Child Development. (3)
fall and spring
Impact that constitutional and environmental risk factors have on young children and their families. Cross-listed as SWU 446. Credit is allowed for only CDE 444 or SWU 446. Prerequisite: CDE 232 or SWU 301 (or their equivalents).

M CDE 498 Pro-Seminar. (1–7)
fall and spring

M CDE 499 Individualized Instruction. (3)
fall and spring

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

FAMILY STUDIES (FAS)

For more FAS courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M FAS 301 Introduction to Parenting. (3)
fall and spring
Integrated approach to understanding parenting and parent-child interactions. Television course. Prerequisites: PGS 101; SOC 101 (or its equivalent).

M FAS 330 Personal Growth in Human Relationships. (3)
fall and spring
Personal development and behavior as related to competency in interpersonal relationships within the family. Processes of family interaction. Prerequisites: PGS 101; SOC 101 (or its equivalent).
General Studies: SB

M FAS 331 Marriage and Family Relationships. (3)
fall and spring
Issues, challenges, and opportunities relating to present-day marriage and family living. Factors influencing interrelations within the family. Prerequisite: a course in psychology or sociology.
General Studies: SB

M FAS 332 Human Sexuality. (3)
fall and spring
Relationship of sexuality to family life and to major societal issues. Emphasizes developing healthy, positive, and responsive ways of integrating sexual and other aspects of human living. Prerequisite: PGS 101.
General Studies: SB

M FAS 361 Introduction to Family/Child Research Methods. (3)
fall and spring
Examines basic methods applied to family/child research, critiques current research literature, and applies methods in current topics. Prerequisites: CDE 232; FAS 331.
General Studies: L

M FAS 370 Family, Ethnic, and Cultural Diversity. (3)
fall and spring
Integrative approach to understanding historical and current issues related to the structure and internal dynamics of diverse American families. Lecture, discussion. Cross-listed as AFS 370. Credit is allowed for only AFS 370 or FAS 370. Prerequisite: PGS 101 or SOC 101.
General Studies: SB, C

M FAS 390 Supervised Research Experience. (1–3)
fall, spring, summer
Practical, firsthand experience within current faculty research projects in family studies or child development. "Y" grade only; may be repeated for total of 6 hours. Prerequisites: FAS 361; 3.00 GPA in major; approval of supervising faculty member before registration.

M FAS 431 Parent-Adolescent Relationships. (3)
fall
Dynamics of the relationships between parents and adolescents. Developmental characteristics of adolescence and the corresponding adult stage. Prerequisites: CDE 232; FAS 331.
General Studies: SB

M FAS 435 Advanced Marriage and Family Relationships. (3)
fall and spring
Recent research, issues, and trends relating to marriage and family interaction. Influence of family composition, physical environment, family patterns, and values on family dynamics. Prerequisites: FAS 331, 361.
General Studies: L/SB

M FAS 440 Fundamentals of Marriage and Family Therapy. (3)
fall and spring
Introduces the fundamental orientations of marriage and family therapy. Prerequisite: CDE 232 or PGS 101 or SOC 101.

M FAS 484 Internship. (1–12)
fall and spring

M FAS 498 Pro-Seminar. (1–7)
fall and spring

M FAS 499 Individualized Instruction. (3)
fall, spring, summer

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Film and Media Studies

480/965-6747
LL 641

Students interested in the BA in Film in the College of Liberal Arts and Sciences (CLAS) complete a concentration in film and media studies, and students accepted into the BA in Film in the Katherine K. Herberger College of Fine Arts complete a concentration in film and media production. The concentrations include core courses and electives in the areas of critical studies and film production.

The faculty in the CLAS include a range of nationally and internationally recognized film and media scholars, several of whom received their terminal degrees from the

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

nations's top film and media programs. Their expertise is reflected in a cutting-edge curriculum based on rigorous theoretical, historical, and critical models of film analysis as well as proficiency with newer technologies such as DVDs, Internet, video games, and Web sites.

Program Requirements (45 semester hours)

Core Requirements (24 semester hours). To provide students pursuing the BA in Film with a concentration in film and media studies with basic visual literacy and technical understanding, they take the following core courses:

FMS	100	Introduction to Film 3
FMS	110	New Media and New Worlds *L* 3
FMS	200	Film History *HU* 3
FMS	270	Race and Ethnicity in American Cinema *C* 3
FMS	490	Capstone Seminar *HU, G* 3
THE	201	Film: The Creative Process I 3
THE	400	Focus on Film 3
THP	261	Introduction to Screenwriting 3
Total		 24

Film and Media Studies students select one area of emphasis (21 semester hours composed of 12 hours in one area of emphasis and three hours in each of the remaining areas). See an academic advisor for course lists within the following areas of emphasis:

digital and interactive media
media literacy and technology
national and global media
social identities in the media.

For more information, call the College of Liberal Arts and Sciences Film and Media Studies office at 480/965-6747 or the Office of Undergraduate Programs in CLAS at 480/965-6506.

Students interested in the BA in Film with a concentration in film and media production take core courses and electives in that area. For more information, visit the Katherine K. Herberger College of Fine Arts, GHALL 132, or call 480/965-5337.

FILM AND MEDIA STUDIES (FMS)

M FMS Note 1. With the exception of omnibus courses, all FMS courses have a teaching method of lecture, discussion, and screening.

ENG Note 2. With the exception of FMS 490, all FMS courses numbered 300 and higher have a prerequisite of ENG 102 (or 105 or 108) and FMS 100 with a grade of "C" or higher.

M FMS 100 Introduction to Film. (3)
fall and spring
Introduces the narrative structure, visual style, and cultural elements of film. Fee. See FMS Note 1.

M FMS 110 New Media and New Worlds. (3)
fall and spring
Explores the cultural effects of new media technologies. Fee. See FMS Note 1.
General Studies: L

M FMS 200 Film History. (3)
spring
Introduces the technological, aesthetic, social, and economic aspects of international film history. Fee. See FMS Note 1.
General Studies: HU

M FMS 270 Race and Ethnicity in American Cinema. (3)
fall and summr
Explores how Hollywood shapes perceptions of race and ethnicity in American society. Cross-listed as CSH 270. Credit is allowed for only FMS 270 or CSH 270. Fee. See FMS Note 1.
General Studies: HU, C

M FMS 294 Special Topics. (1–4)
selected semesters

M FMS 300 Media and Cultural Studies. (3)
once a year
The history of media and its cultural impact. Fee. See FMS Notes 1, 2.
General Studies: HU

M FMS 340 Contemporary American Film and Popular Culture. (3)
fall
Analyzes American films, television programs, and music as popular cultural documents. Fee. See FMS Notes 1, 2.
General Studies: HU

M FMS 350 Virtual Reality in Film and Media. (3)
fall
Analyzes virtual reality in films, media, and fiction. Fee. See FMS Notes 1, 2.

M FMS 351 Digital, Cyberspace, and Information Cultures. (3)
selected semesters
Analyzes modern cultural and digital technologies. Fee. See FMS Notes 1, 2.
General Studies: L

M FMS 394 Special Topics. (1–4)
selected semesters

M FMS 440 Los Angeles: Movies and Culture. (3)
selected semesters
Explores film treatment of the historical culture of Los Angeles. Cross-listed as HUM 440. Credit is allowed for only FMS 440 or HUM 440. Fee. See FMS Notes 1, 2.
General Studies: HU, C

M FMS 441 Global Cinema. (3)
selected semesters
Examines how film represents three important dimensions of globalization: its relationship to national culture, terrorism, and immigration. Fee. See FMS Notes 1, 2.
General Studies: HU, G

M FMS 450 Technology, Culture, and Media. (3)
spring
Studies the socio-political relationships among technology, culture, and media. Fee. See FMS Notes 1, 2.
General Studies: L/HU

M FMS 460 Masculinity and Film. (3)
spring
Examines the representation of masculinity and the male body in film. Fee. See FMS Notes 1, 2.
General Studies: HU

M FMS 461 Film Theory and Criticism. (3)
selected semesters
Examines the major positions and issues in film theory from an historical perspective. Fee. See FMS Notes 1, 2.
General Studies: HU

M FMS 480 Globalization, Technology, and Culture. (3)
selected semesters
Studies the socio-political relationship between media and the evolution of globalization. Fee. See FMS Notes 1, 2.
General Studies: HU, G

M FMS 484 Internship. (1–12)
selected semesters
See FMS Notes 1, 2.

M FMS 490 Capstone Seminar. (3)
once a year
Capstone seminar. See FMS Note 1. Prerequisites: major in Film and Media Studies; senior standing.
General Studies: HU

M FMS 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Film Theory and Criticism. (3)

spring
Examines the major positions and issues in film theory from a historical perspective. See FMS Notes 1, 2.

- Masculinity and Film. (3)
  spring
  Examines the representation of masculinity and the male body in film. See FMS Notes 1, 2.

M FMS 498 Pro-Seminar. (1–7)
selected semesters
Topics may include the following:

- Capstone Seminar. (3)
  once a year
  See FMS Note 1.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Department of Geography

geography.asu.edu
480/965-7533
SCOB 330

Richard Aspinall, Chair

Professors: Arreola, Aspinall, Balling, Brazel, Cerveny, Dorn, Gober, Ó hUallacháin, Pasqualetti, Zehnder

Associate Professors: Ellis, Fall, Kuby, McHugh, Wentz

Assistant Professors: Edsall, Keys, Larson, Li, Lukinbeal, Myint, Schmeeckle, Torrens

Lecturers: Larson-Keagy, Shaeffer

Geography is a discipline that integrates the physical and human dimensions of the world in the study of places, people, and environments. The mission of the Department of Geography is the creation, dissemination, and application of geographic knowledge and scholarship in a liberal arts and sciences tradition.

Undergraduate students may choose to pursue a BA degree in Geography, BS degree in Geography, BAE degree in Secondary Education, or minor in Geography. A grade of "C" (2.00) or higher is necessary in all required Department of Geography courses. Both BA and BS degrees in Geography consist of a minimum of 45 semester hours. A minor consists of a minimum of 18 semester hours.

GEOGRAPHY—BA

A student choosing a BA degree in Geography may be interested in a liberal arts and sciences focus on the breadth of the field. A BA degree may also focus on a geographic region. In either case, the student crafts an individualized program of study in consultation with an advisor.

The BA degree consists of courses in core geographic knowledge (10–11 semester hours), core geographic skills (12 semester hours), a regional course (three semester hours), and electives (12 semester hours), for a minimum of 37 semester hours in geography. At least 18 semester hours in geography must be in upper-division courses. The remaining hours are made up of electives from geography courses or related fields of study, chosen in consultation with an advisor.

Core Geographic Knowledge

GCU	102	Introduction to Human Geography *SB*	3
GCU	121	World Geography* *SB, G*	4
GPH	111	Introduction to Physical Geography *SQ*	4
		or GPH 411 Physical Geography (3)	
Total			10–11

* Completion of three semester hours of transfer course work can also be used to fulfill this requirement.

Core Geographic Skills

GCU	495	Quantitative Methods in Geography *CS*	3
GCU	496	Geographic Research Methods *L*	3
GPH	371	Introduction to Cartography and Georepresentation *CS*	3
GPH	491	Geographic Field Methods	3
Total			12

Geographic Region

Choose one of the courses below, in consultation with an advisor. 3

GCU	322	Geography of U.S. and Canada *SB, C* (3)
GCU	323	Geography of Latin America *SB, G* (3)
GCU	325	Geography of Europe *SB, G* (3)
GCU	326	Geography of Asia *SB, G* (3)
GCU	327	Geography of Africa *SB, G* (3)
GCU	328	Geography of Middle East and North Africa *SB, G* (3)
GCU	332	Geography of Australia and Oceania *SB, G* (3)
GCU	344	Geography of Hispanic Americans *SB, C* (3)
GCU	421	Geography of Arizona and Southwestern United States *SB, C* (3)
GCU	423	Geography of South America *SB, G* (3)
GCU	424	Geography of Mexico and Middle America *SB, G* (3)
GCU	425	Geography of the Mexican American Borderland *L/SB, G* (3)
GCU	426	Geography of Russia and Surroundings *SB, G* (3)
GCU	433	Geography of Southeast Asia (3)
GPH	433	Alpine and Arctic Environments *G* (3)

A student can design, in consultation with an advisor, a general BA degree in Geography. In addition, there are three cooperative programs whereby a student receives a BA degree in Geography and an emphasis in Asian Studies, Southeast Asian Studies, or Latin American Studies.

Asian and Southeast Asian Certificates. Students majoring in Geography may elect to pursue an Asian or Southeast Asian certificate. For more information, see "Asian Studies," page 509, and "Southeast Asian Studies," page 514.

Latin American Studies Emphasis. Students majoring in Geography may elect to pursue a Latin American studies concentration combining courses from the major with

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

selected outside courses of wholly Latin American content. At least 30 upper-division semester hours of the program must be in Latin American content courses, including 15 hours in geography (or in courses approved by the Department of Geography advisor) and 15 in other disciplines. A reading knowledge of either Spanish or Portuguese is required and a reading knowledge of the other language is suggested. The program must be approved by the Latin American Studies Center. See "Latin American Studies," page 512, for more information.

GEOGRAPHY—BS

The BS degree consists of courses in core geographic knowledge (10–11 semester hours), core geographic skills (12 semester hours) and a geographic techniques course (from three to four semester hours), and electives (12 semester hours)—for a minimum of 37 semester hours in geography. At least 18 semester hours in geography must be in upper-division courses. The remaining hours are made up of electives from geography courses or related fields of study, chosen in consultation with an advisor.

Core Geographic Knowledge

GCU	102	Introduction to Human Geography *SB*	3
GCU	121	World Geography* *SB, G*	4
GPH	111	Introduction to Physical Geography *SQ*	4
		or GPH 411 Physical Geography (3)	
Total			10–11

* Completion of three semester hours of transfer course work can also be used to fulfill this requirement.

Core Geographic Skills

GCU	495	Quantitative Methods in Geography *CS*	3
GCU	496	Geographic Research Methods *L*	3
GPH	371	Introduction to Cartography and Georepresentation *CS*	3
GPH	491	Geographic Field Methods	3
Total			12

Core Geographic Techniques

Choose one of the courses below, in consultation with an advisor. 3–4

- GPH 372 Air Photo Interpretation (3)
- GPH 373 Geographic Information Science I *CS* (4)
- GPH 471 Geographics: Interactive and Animated Cartography and Geovisualization *CS* (3)

The remaining four courses (12 semester hours) of geography electives and nine hours of geography or related fields of study vary among the options available for a BS degree in Geography. There are two specific departmental concentrations: meteorology-climatology and urban studies. In addition, a student can design, in consultation with an advisor, an individualized BS degree emphasizing other areas within the major.

Meteorology-Climatology Concentration. See an undergraduate advisor in the Department of Geography for the latest National Weather Service certification requirements. The required courses for the meteorology-climatology concentration include a minimum of 40 semester hours in geography plus course work in mathematics and physics:

Core Courses

GCU	102	Introduction to Human Geography *SB*	3
GCU	121	World Geography* *SB, G*	4
GCU	495	Quantitative Methods in Geography *CS*	3
GCU	496	Geographic Research Methods *L*	3
GPH	111	Introduction to Physical Geography *SQ*	4
		or GPH 411 Physical Geography (3)	
GPH	370	Geographic Information Technologies *CS*	3
GPH	371	Introduction to Cartography and Georepresentation *CS*	3
GPH	491	Geographic Field Methods	3
Total			25–26

* Completion of three semester hours of transfer course work can also be used to fulfill this requirement.

Required Meteorology Courses

GPH	213	Introduction to Climatology *SG**	3
GPH	215	Introduction to Climatology Laboratory *SG**	1
GPH	409	Synoptic Meteorology I	4
GPH	410	Synoptic Meteorology II	4
GPH	412	Physical Climatology	3
		or GPH 413 Meteorological Instruments and Measurement (3)	
		or GPH 414 Climate Change *G* (3)	
Total			15

* Both GPH 213 and 215 must be taken to secure SG credit.

Mathematics and Physics-Related Courses

MAT	270	Calculus with Analytic Geometry I *MA*	4
MAT	271	Calculus with Analytic Geometry II *MA*	4
MAT	272	Calculus with Analytic Geometry III *MA*	4
PHY	121	University Physics I: Mechanics *SQ*[1]	3
PHY	122	University Physics Laboratory I *SQ*[1]	1
PHY	131	University Physics II: Electricity and Magnetism *SQ*[2]	3
PHY	132	University Physics Laboratory II *SQ*[2]	1
Total			20

[1] Both PHY 121 and 122 must be taken to secure SQ credit.
[2] Both PHY 131 and 132 must be taken to secure SQ credit.

Urban Studies Concentration. The required courses for the urban studies concentration are as follows:

Core Courses

GCU	102	Introduction to Human Geography *SB*	3
GCU	121	World Geography* *SB, G*	4
GCU	495	Quantitative Methods in Geography *CS*	3
GCU	496	Geographic Research Methods *L*	3
GPH	111	Introduction to Physical Geography *SQ*	4
		or GPH 411 Physical Geography (3)	
GPH	371	Introduction to Cartography and Georepresentation *CS*	3
GPH	373	Geographic Information Science I *CS*	4
GPH	491	Geographic Field Methods	3
Total			26–27

* Completion of three semester hours of transfer course work can also be used to fulfill this requirement.

Required Urban Studies Courses

GCU	361	Urban Geography *SB*	3
GCU	484	Human Geography Internship	3
		or GPH 484 Internship (3)	

or one upper-division course outside the department in a related field of study chosen in consultation with an advisor (3)

Choose one of the courses below 3
- GCU 351 Population Geography *SB, G* (3)
- GCU 357 Social Geography *SB* (3)
- GCU 364 Energy in the Global Arena *SB, G* (3)
- GCU 441 Economic Geography *SB* (3)
- GCU 442 Geographical Analysis of Transportation *SB* (3)
- One upper-division GCU or GPH course chosen in consultation with an advisor (3)

Choose two of the courses below 6
- GCU 359 Cities of the World I *SB, G, H* (3)
- GCU 360 Cities of the World II *SB, G* (3)
- GCU 444 Geographic Studies in Urban Transportation *SB* (3)
- GCU 494 ST: Geography of Phoenix (3)

Urban studies total 15

MINOR IN GEOGRAPHY

A minor in Geography is awarded to students who complete a minimum of 18 hours in geography. A grade of "C" (2.00) or higher is required for all courses taken for the minor.

The following lower-division courses are required:

GCU 102 Introduction to Human Geography *SB* 3
GPH 111 Introduction to Physical Geography *SQ* 4
or GPH 411 Physical Geography (3)

Total 6–7

The remaining courses are selected in conjunction with an advisor. At least one course should be a geographic skill, these include: Geographic Information Technologies (GPH 370), Introduction to Cartography and Georepresentation (GPH 371), Air Photo Interpretation (GPH 372), Geographic Information Science I (GPH 373), or Geographic Field Methods (GPH 491). At least four courses should be upper-division courses in geography.

UNDERGRADUATE CERTIFICATE IN GEOGRAPHIC INFORMATION SCIENCE

This cross-disciplinary certificate is designed for undergraduates wishing to pursue a GIS-related career. The certificate is awarded to students completing the following 19 semester hours with a grade of "C" or higher.

Required courses

CSE 100 Principles of Programming with C++ *CS* 3
or CSE 110 Principles of Programming with Java *CS* (3)
GCU 495 Quantitative Methods in Geography *CS* 3
GPH 370 Geographic Information Technologies *CS* 3
GPH 373 Geographic Information Science I *CS* 4
GPH 473 Geographic Information Science II *CS* 3

Elective Courses

Choose one of the courses below 3
- ABS 485 GIS in Natural Resources (3)
- ABS 586 Remote Sensing in Environmental Resources (4)
- CSE 181 Applied Problem Solving with Visual BASIC *CS* (3)
- GCU 361 Urban Geography *SB* (3)
- GCU 441 Economic Geography *SB* (3)
- GCU 442 Geographical Analysis of Transportation *SB* (3)
- GCU 484 Human Geography Internship (3)
- GPH 371 Introduction to Cartography and Georepresentation *CS* (3)
- GPH 372 Air Photo Interpretation (3)
- GPH 471 Geographics: Interactive and Animated Cartography and Geovisualization *CS* (3)
- GPH 481 Environmental Geography (3)
- GPH 483 Geographic Information Analysis (3)
- GPH 484 Internship: GIS based (3)
- PLB 434 Landscape Ecological Analysis and Modeling (3)

Total 19

BIS CONCENTRATIONS

Five concentrations in Geography (geography, environmental geography, geographical information science, geography for business, and international geography) are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Two double concentrations are also available: the global family (in conjunction with family resources and human development) and environmental science (in conjunction with plant biology). Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

SECONDARY EDUCATION—BAE

This degree is offered through the Initial Teacher Certification (ITC) program in the College of Education. Students pursuing a major in Secondary Education (Geography) have an advisor in the College of Education and an advisor within the Department of Geography.

See "College of Education," page 349, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

Academic Specialization ITC Admission Requirements. At least three required courses in the academic specialization must be completed with a grade of "C" (2.00) or higher before applying to the ITC professional program.

Geography. The major teaching field consists of 30 semester hours and six hours in teaching methods. A grade of "C" (2.00) or higher is required in all academic specialization courses. Required major courses are as follows:

GCU 102 Introduction to Human Geography *SB* 3
GCU 121 World Geography *SB, G* 4
GCU 141 Introduction to Economic Geography *SB, G* 3
or GCU 322 Geography of U.S. and Canada *SB, C* (3)
or GCU 351 Population Geography *SB, G* (3)
or GCU 361 Urban Geography *SB* (3)
GPH 111 Introduction to Physical Geography *SQ* 4

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

GPH	210 Society and Environment *G*	3
	or GPH 211 Landform Processes *L* (3)	
	or GPH 212 Introduction to Meteorology *SQ*[1] (3)	
	and GPH 214 Introduction to Meteorology Lab *SQ*[1] (1)	
	or GPH 314 Global Change *HU*, *G* (3)	
Electives[2]		12–13
Minimum total		30

[1] Both GPH 212 and 214 must be taken to secure SQ credit.

[2] Electives must be upper-division geography courses chosen in conjunction with an advisor to reach the 30-semester-hour major requirement.

Teaching Methods

GCU	414 Teaching Geography Standards	3
SED	480 Special Methods of Teaching Social Studies	3
	or GCU 494 ST: Geography Methods	
Total		6

CULTURAL GEOGRAPHY (GCU)

For more GCU courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M GCU 102 Introduction to Human Geography. (3)
fall, spring, summer
Systematic study of human use of the earth. Spatial organization of economic, social, political, and perceptual environments. Fee.
General Studies: SB

M GCU 121 World Geography. (4)
fall, spring, summer
Description and analysis of areal variations in social, economic, and political phenomena in major world regions.
General Studies: SB, G

M GCU 141 Introduction to Economic Geography. (3)
fall
Production, distribution, and consumption of various types of commodities of the world and relationships to the activities of humans.
General Studies: SB, G

M GCU 200 Orientation to Geography. (1)
fall
Basic introduction to the Department of Geography faculty, undergraduate graduation requirements, and possible jobs and skills in geography. Cross-listed as GPH 200. Credit is allowed for only GCU 200 or GPH 200.

M GCU 240 Introduction to Southeast Asia. (3)
fall and spring
Interdisciplinary introduction to the cultures, religions, political systems, geography, and history of Southeast Asia. Cross-listed as ASB 240/HST 240/POS 240/REL 240. Credit is allowed for only ASB 240 or GCU 240 or HST 240 or POS 240 or REL 240.
General Studies: HU/SB, G

M GCU 253 Introduction to Cultural and Historical Geography. (3)
selected semesters
Cultural patterns, including such phenomena as language, religion, and various aspects of material culture. Origins and diffusion and division of the world into cultural areas.
General Studies: SB, G

M GCU 294 Special Topics. (4)
once a year
Topics include global awareness.

M GCU 322 Geography of U.S. and Canada. (3)
fall
Spatial distribution of relevant physical, economic, and cultural phenomena in the United States and Canada.
General Studies: SB, C

M GCU 323 Geography of Latin America. (3)
fall and spring
Spatial distribution of relevant physical, economic, and cultural phenomena in South, Middle, and Caribbean America.
General Studies: SB, G

M GCU 325 Geography of Europe. (3)
spring
Broad and systematic overview of Europe, emphasizing physical, economic, and cultural phenomena.
General Studies: SB, G

M GCU 326 Geography of Asia. (3)
once a year
Spatial distribution of relevant physical, economic, and cultural phenomena in Asia, excluding the former Soviet Union.
General Studies: SB, G

M GCU 327 Geography of Africa. (3)
selected semesters
Spatial distribution of relevant physical, economic, and cultural phenomena in Africa.
General Studies: SB, G

M GCU 328 Geography of Middle East and North Africa. (3)
selected semesters
Spatial distribution of relevant physical, economic, and cultural phenomena in the Middle East and North Africa. Prerequisite: GCU 121 or instructor approval.
General Studies: SB, G

M GCU 332 Geography of Australia and Oceania. (3)
selected semesters
Spatial distribution of relevant physical, economic, and cultural phenomena in Australia, New Zealand, and Pacific Islands.
General Studies: SB, G

M GCU 344 Geography of Hispanic Americans. (3)
fall
Examines the homelands, migrations, settlements, landscapes, roles, and selected cultural traditions of Hispanic Americans.
General Studies: SB, C

M GCU 350 The Geography of World Crises. (3)
fall and spring
Contemporary world crises viewed from a perspective of geographic concepts and techniques.
General Studies: SB, G

M GCU 351 Population Geography. (3)
fall
Demographic patterns; spatial, temporal, and structural investigation of the relationship of demographic variables to cultural, economic, and environmental factors.
General Studies: SB, G

M GCU 352 Political Geography. (3)
selected semesters
Relationship between the sociophysical environment and the state.
General Studies: SB, G

M GCU 357 Social Geography. (3)
once a year
Environmental perception of individuals and groups. Stresses the spatial aspect of social and physical environments.
General Studies: SB

M GCU 359 Cities of the World I. (3)
fall
Historical evolution of urban patterns and structures in the Middle East, India, Southeast Asia, China, Japan, and Europe.
General Studies: SB, G, H

M GCU 360 Cities of the World II. (3)
spring
Historical evolution of urban patterns and structures in Latin America, North America, Sub-Saharan Africa, and Australasia.
General Studies: SB, G

M GCU 361 Urban Geography. (3)
fall and spring
External spatial relations of cities, internal city structure, and spatial aspects of urban problems in various parts of the world, particularly in the United States. Fee.
General Studies: SB

M GCU 364 Energy in the Global Arena. (3)
spring
Production, transportation, and consumption of energy, emphasizing the electric power industry and its environmental problems.
General Studies: SB, G

M GCU 394 Special Topics. (1–4)
fall and spring

M GCU 414 Teaching Geography Standards. (3)
fall and summer
Introduces Arizona Geography Standards for K–12 educators, emphasizing exciting curricula and illustrated with best practices by master teachers. Internet.

M GCU 421 Geography of Arizona and Southwestern United States. (3)
fall
Geography of the Southwest with an emphasis on Arizona. Divided into physical geography, history, people, and economy.
General Studies: SB, C

M GCU 423 Geography of South America. (3)
selected semesters
Prerequisite: GCU 323 or instructor approval.
General Studies: SB, G

M GCU 424 Geography of Mexico and Middle America. (3)
selected semesters
Central America and Mexico. Prerequisite: GCU 323 or instructor approval.
General Studies: SB, G

M GCU 425 Geography of the Mexican American Borderland. (3)
spring
Geography of a binational and bicultural region. Examines settlement, boundary issues, ethnic subregions, population change, industrial development, and urban growth. Field trips. Fee.
General Studies: L/SB, G

M GCU 426 Geography of Russia and Surroundings. (3)
selected semesters
Examines the geography of Russia and other post-Soviet states. Prerequisite: GCU 121 or instructor approval.
General Studies: SB, G

M GCU 432 Geography of China. (3)
selected semesters
Examines the physical, economic, cultural, social, demographic, agricultural, political, historical, and environmental aspects of the geography of China. Lecture, discussion. Prerequisite: GCU 326 or instructor approval.
General Studies: SB, G

M GCU 433 Geography of Southeast Asia. (3)
selected semesters
Examines the biophysical and social features of Southeast Asian nations and peoples. Prerequisite: GCU 326 or instructor approval.

M GCU 441 Economic Geography. (3)
once a year
Spatial distribution of primary, secondary, and tertiary economic and production activities. Prerequisite: GCU 141 or instructor approval.
General Studies: SB

M GCU 442 Geographical Analysis of Transportation. (3)
selected semesters
Networks, modes, economics, and flows at the urban, national, and international scales. Fee. Prerequisite: GCU 141 or 441.
General Studies: SB

M GCU 444 Geographic Studies in Urban Transportation. (3)
selected semesters
Current urban transportation issues in metropolitan Phoenix. Lecture, team project. Fee. Prerequisite: GCU 361.
General Studies: SB

M GCU 453 Recreational Geography. (3)
selected semesters
Examines problems surrounding the organization and use of space for recreation. Introduces geographic field survey methods of data collection and analysis. Possible Saturday field trips.

M GCU 455 Historical Geography of U.S. and Canada. (3)
selected semesters
Geographical perspective on the evolution of the United States and Canada from pre-Columbian times to early 20th century.
General Studies: SB, H

M GCU 474 Public Land Policy. (3)
selected semesters
Geographic aspects of federal public lands, policy, management, and issues. Emphasizes western wilderness and resource development problems.
General Studies: SB

M GCU 484 Human Geography Internship. (3)
fall and spring

M GCU 494 Special Topics. (1–4)
once a year
Topics may include the following:
- Geography in the K–12 Classroom. (3)
- Geography Methods. (3)
- Geography of Phoenix. (3)

M GCU 495 Quantitative Methods in Geography. (3)
fall and spring
Statistical techniques applied to the analysis of spatial distributions and relationships. Introduces models and theory in geography. Fee. Prerequisite: MAT 119.
General Studies: CS

M GCU 496 Geographic Research Methods. (3)
fall and spring
Scientific techniques used in geographic research. Fee. Prerequisites: GCU 495; GPH 371, 491.
General Studies: L

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

PHYSICAL GEOGRAPHY (GPH)

M GPH 111 Introduction to Physical Geography. (4)
fall, spring, summer
Spatial and functional relationships among climates, landforms, soils, water, and plants. Credit is allowed for only GPH 111 or 411. 3 hours lecture, 3 hours lab, field trips. Fee.
General Studies: SQ

M GPH 200 Orientation to Geography. (1)
fall
Basic introduction to the Department of Geography faculty, undergraduate graduation requirements, and possible jobs and skills in geography. Cross-listed as GCU 200. Credit is allowed for only GCU 200 or GPH 200.

M GPH 210 Society and Environment. (3)
fall and spring
Examines the interaction between social processes, key environmental issues, and nature's role as a resource at global and regional scales.
General Studies: G

M GPH 211 Landform Processes. (3)
once a year
Geographic characteristics of landforms and earth-surface processes, emphasizing erosion, transportation, deposition, and implications for human management of the environment. Fee. Prerequisites: ENG 101 (or 105); GPH 111.
General Studies: L

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M GPH 212 Introduction to Meteorology. (3)
fall
Fundamentals of weather and climate, including basic atmospheric processes and elements. Students whose curricula require a laboratory course must also register for GPH 214. Prerequisite: GPH 111 or instructor approval.
General Studies: SQ (if credit also earned in GPH 214)

M GPH 213 Introduction to Climatology. (3)
spring
Fundamentals of meteorological/climatological analysis, including terminology and symbology. Recommended for meteorology/climatology program students. Prerequisite: instructor approval.
General Studies: SG (if credit also earned in GPH 215)

M GPH 214 Introduction to Meteorology Laboratory. (1)
fall
Introduces basic meteorological/climatological data and measurements. Suggested concurrent enrollment in GPH 212. 3 hours lab.
General Studies: SQ (if credit also earned in GPH 212)

M GPH 215 Introduction to Climatology Laboratory. (1)
spring
Fundamentals of meteorological/climatological map analysis and interpretation. Recommended for meteorology/climatology program students. May be taken concurrently with GPH 213. Prerequisite: instructor approval.
General Studies: SG (if credit also earned in GPH 213)

M GPH 271 Maps and Map Reading. (3)
selected semesters
Map types, uses, limitations, and evolution. Communication via paper and digital medium. Navigation, interpretation, projections, sources, symbols, classification, case, handling.

M GPH 314 Global Change. (3)
fall and spring
Response of Earth's natural systems (atmosphere, hydrosphere, lithosphere, biosphere) to past environmental change, and effects of potential future changes.
General Studies: HU, G

M GPH 370 Geographic Information Technologies. (3)
fall and spring
Introduces modern geographic information technologies, including cartography, GIS, remote sensing, global positioning systems, and statistical analyses. Lecture, lab. Fee.
General Studies: CS

M GPH 371 Introduction to Cartography and Georepresentation. (3)
fall and spring
Study and creation of maps. Fundamental mapping principles (projection, scale, generalization, symbolization) and computer-based cartographic production. Lecture, lab. Fee. Prerequisite: GPH 111.
General Studies: CS

M GPH 372 Air Photo Interpretation. (3)
once a year
Subset, remote sensing, includes photography, films, aerial geometry, image components, stereoscopy, photogrammetry, ground truthing; interpret physical, cultural, economic, intelligence information. Prerequisite: GPH 211 or a course in Cultural Geography (GCU) or instructor approval.

M GPH 373 Geographic Information Science I. (4)
fall and spring
History and basic aspects of GIS, including map and data file structure, conversions, and synthesis with a computerized environment. Fee. Prerequisite: GPH 370.
General Studies: CS

M GPH 381 Geography of Natural Resources. (3)
once a year
Nature and distribution of natural resources and the problems and principles associated with their use.
General Studies: G

M GPH 394 Special Topics. (1–4)
fall and spring

M GPH 401 Topics in Physical Geography. (1–3)
selected semesters
Open to students qualified to pursue independent studies. Possible field trips. Prerequisite: instructor approval.

M GPH 402 Service Learning. (3)
fall and spring
K–12 tutoring and mentoring internship related to academic course work in physical geography. Requires weekly reflective reading and writing. May be repeated for credit. Internship. Fee. Pre- or corequisite: GPH 111.
General Studies: C

M GPH 405 Energy and Environment. (3)
spring
Sources, regulatory and technical controls, distribution, and consequences of the supply and human use of energy. Fee. Prerequisite: a course in physical or life sciences or instructor approval.

M GPH 409 Synoptic Meteorology I. (4)
selected semesters
Diagnostic techniques and synoptic forecasting. Includes techniques of weather analysis, map interpretation, and satellite and radar analysis. Prerequisites: MAT 270; PHY 131, 132.

M GPH 410 Synoptic Meteorology II. (4)
selected semesters
Diagnostic techniques and synoptic forecasting. Includes techniques of weather analysis, map interpretation, and satellite and radar analysis. Prerequisite: GPH 409.

M GPH 411 Physical Geography. (3)
selected semesters
Introduces physiography and the physical elements of the environment. Credit is allowed for only GPH 411 or 111. Field trips.

M GPH 412 Physical Climatology. (3)
once a year
Physical processes in the earth-atmosphere system on regional and global scales; concepts and analysis of energy, momentum, and mass balances. Prerequisites: both GPH 212 and 213 or only instructor approval.

M GPH 413 Meteorological Instruments and Measurement. (3)
once a year
Design and operation of ground-base and aerological weather measurement systems. Collection, reduction, storage, retrieval, and analysis of data. Field trips. Prerequisites: both GPH 212 and 213 or only instructor approval.

M GPH 414 Climate Change. (3)
once a year
Survey of three climate research areas: paleoclimatology, theories (e.g., greenhouse warming), numerical modeling. Prerequisite: GPH 212 or instructor approval.
General Studies: G

M GPH 418 Landforms of the Western United States. (3)
selected semesters
Studies landforms and geomorphic processes in the western United States, including lecture, topographical maps, aerial photographs, satellite imagery, and field trips. Lecture, critical inquiry, laboratory, field work. Fee. Prerequisites: GPH 211 (or its equivalent); a General Studies L course.
General Studies: L

M GPH 422 Plant Geography. (3)
once a year
Plant communities of the world and their interpretation, emphasizing North American plant associations. Cross-listed as PLB 422. Credit is allowed for only GPH 422 or PLB 422. Prerequisites: preferably both PLB 200 and 201 or only BIO 187 or only GPH 111.

M GPH 433 Alpine and Arctic Environments. (3)
selected semesters
Regional study of advantages and limitations of the natural environment upon present and future problems involving resource distribution, human activities, and regional and interregional adjustments. Field trips. Prerequisite: GPH 111 or instructor approval.
General Studies: G

M GPH 471 Geographics: Interactive and Animated Cartography and Geovisualization. (3)
selected semesters
Advanced cartography, stressing influence and application of the computer on geographic representation. Emphasizes creation of maps for the Internet. Lecture, lab. Fee. Prerequisite: GPH 371 or instructor approval.
General Studies: CS

M GPH 473 Geographic Information Science II. (3)
fall
GIS as a basis for microcomputer spatial analysis and synthesis. Includes digitizing, database organization, spatial retrieval, and graphics. Lecture, lab. Fee. Prerequisites: GPH 373 (or instructor approval); CSE 100.
General Studies: CS

M GPH 474 Dynamic Meteorology I. (3)
selected semesters
Large-scale atmospheric motion, kinematics, Newton's laws, wind equation, baroclinics, vorticity, and the midlatitude depression. Prerequisites: GPH 213, 215; MAT 271; PHY 131, 132.

M GPH 475 Dynamic Meteorology II. (3)
selected semesters
Topics in climate dynamics. General circulation, numerical modeling, teleconnection phenomena, and surface-atmosphere interaction. Prerequisite: GPH 474 or instructor approval.

M GPH 481 Environmental Geography. (3)
selected semesters
Problems of environmental quality, including uses of spatial analysis, research design, and field work in urban and rural systems. Field trips. Prerequisite: instructor approval.

M GPH 483 Geographic Information Analysis. (3)
selected semesters
Basics of spatial data analysis. Topics include point pattern analysis, spatial autocorrelation, spatial regression, and kriging. Lecture, lab. Fee. Prerequisites: both one 200-level or above course in geography or biology or plant biology or geology or planning and one basic statistics course (GCU 495).

M GPH 484 Internship. (1–12)
selected semesters
Topics may include the following:
- GIS-Based. (3)
- Physical Geography Internship. (3)
  Assist in teaching sixth-grade students a simplified version of GPH 111 using hands-on activities.

M GPH 491 Geographic Field Methods. (3)
once a year
Field techniques, including use of aerial photos, large-scale maps, and fractional code system of mapping; urban and rural field analysis to be done off campus. Fee. Prerequisites: GCU 102, 121; GPH 111.

M GPH 494 Special Topics. (1–4)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Geological Sciences

geology.asu.edu
480/965-5081
PS F686

James A. Tyburczy, Chair

Regents' Professors: Buseck, Christensen, Greeley

Professors: Burt, Farmer, Fink, Hervig, Holloway, Knauth, Peacock, Reynolds, Sarewitz, Shock, Stump, Tyburczy, S. Williams

Associate Professors: Anbar, Arrowsmith, Garnero, Sharp

Assistant Professors: Clarke, Fouch, Hartnett, McNamara, Semken

Associate Research Professor: L. Williams

Lecturer: Johnson

GEOLOGICAL SCIENCES—BS

The BS degree in Geological Sciences requires 39 semester hours, including the following core courses or their equivalents:

GLG	101	Introduction to Geology I (Physical) *SQ*,[1] *G*	3
GLG	102	Introduction to Geology II (Historical) *SG*,[2] *H*	3
GLG	103	Introduction to Geology I—Laboratory *SQ*[1]	1
GLG	104	Introduction to Geology II—Laboratory *SG*[2]	1
GLG	310	Structural Geology	3
GLG	321	Mineralogy	3
GLG	400	Geology Colloquium	1
GLG	424	Petrology	3
GLG	435	Sedimentology	3
GLG	451	Field Geology I *L*	3
GLG	452	Field Geology II *L*	3
Total			27

[1] Both GLG 101 and 103 must be taken to secure SQ credit.
[2] Both GLG 102 and 104 must be taken to secure SG credit.

In addition, two of the following four branch courses must be taken:

GLG	418	Geophysics	3
GLG	430	Paleontology	3
GLG	470	Hydrogeology	3
GLG	481	Geochemistry	3

To complete the total required hours, other upper-division courses in geological sciences (excluding GLG 300 and 304) or courses in related fields listed as approved by the

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

department may be taken. See "College Graduation Requirements," page 503.

Supporting courses required in related fields include the following:

CHM	113	General Chemistry I *SQ*	4
CHM	116	General Chemistry II *SQ*	4
MAT	270	Calculus with Analytic Geometry I *MA*	4
MAT	271	Calculus with Analytic Geometry II *MA*	4
MAT	272	Calculus with Analytic Geometry III *MA*	4
		or MAT 274 Elementary Differential Equations *MA* (3)	
PHY	121	University Physics I: Mechanics *SQ*[1]	3
PHY	122	University Physics Laboratory I *SQ*[1]	1
PHY	131	University Physics II: Electricity and Magnetism *SQ*[2]	3
PHY	132	University Physics Laboratory II *SQ*[2]	1
Total			28

[1] Both PHY 121 and 122 must be taken to secure SQ credit.
[2] Both PHY 131 and 132 must be taken to secure SQ credit.

MAT 290 Calculus I and MAT 291 Calculus II may be substituted for MAT 270, 271, and 272.

MINOR IN GEOLOGICAL SCIENCES

A minor in Geological Sciences is awarded to students who complete a minimum of 21 hours of geological science courses. Required courses are as follows:

GLG	101	Introduction to Geology I (Physical) *SQ*,[1] *G*	3
GLG	102	Introduction to Geology II (Historical) *SG*,[2] *H*	3
GLG	103	Introduction to Geology I—Laboratory *SQ*[1]	1
GLG	104	Introduction to Geology II—Laboratory *SG*[2]	1
GLG	310	Structural Geology	3
GLG	321	Mineralogy	3
GLG	400	Geology Colloquium	1
Total			15

[1] Both GLG 101 and 103 must be taken to secure SQ credit.
[2] Both GLG 102 and 104 must be taken to secure SG credit.

The remaining six semester hours may be chosen among other upper-division geological sciences courses, except GLG 300 and 400, after consultation with a departmental advisor.

BIS CONCENTRATION

A concentration in geological sciences is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

GRADUATE PROGRAMS

The faculty in the Department of Geological Sciences offer programs leading to the degrees of Master of Natural Science, MS, and PhD. See the *Graduate Catalog* for requirements.

GEOLOGICAL SCIENCES (GLG)

For more GLG courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M GLG 101 Introduction to Geology I (Physical). (3)
fall, spring, summer
Basic principles of geology, geochemistry, and geophysics. Rocks, minerals, weathering, earthquakes, mountain building, volcanoes, water, and glaciers. Possible weekend field trips.
General Studies: SQ (if credit also earned in GLG 103), G

M GLG 102 Introduction to Geology II (Historical). (3)
spring
Basic principles of applied geology and the use of these principles in the interpretation of geologic history. Possible weekend field trips. Fee. Prerequisite: GLG 101.
General Studies: SG (if credit also earned in GLG 104), H

M GLG 103 Introduction to Geology I—Laboratory. (1)
fall, spring, summer
3 hours lab, some field trips. Fee. Corequisite: GLG 101.
General Studies: SQ (if credit also earned in GLG 101)

M GLG 104 Introduction to Geology II—Laboratory. (1)
spring
Laboratory techniques involving map interpretation, cross sections, and fossils. 3 hours lab, possible field trips. Prerequisite: GLG 103 (or its equivalent). Corequisite: GLG 102.
General Studies: SG (if credit also earned in GLG 102)

M GLG 105 Introduction to Planetary Science. (4)
spring
Solar system objects and their geologic evolution, surfaces, interiors, and atmospheres; weekly laboratory for data analysis and experiments. Lecture, lab, weekend field trip.
General Studies: SG

M GLG 110 Geologic Disasters and the Environment. (3)
fall
Geological studies as they apply to interactions between humans and earth. Includes geological processes and hazards, resources, and global change.
General Studies: SG (if credit also earned in GLG 111), G

M GLG 111 Geologic Disasters Laboratory. (1)
fall
Basic geological processes and concepts. Emphasizes geology-related environmental problems. Case histories, field studies, lab. Corequisite: GLG 110.
General Studies: SG (if credit also earned in GLG 110)

M GLG 294 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Geology of the Planets
  Fee.

M GLG 300 Geology of Arizona. (3)
once a year
Basic and historical geology, fossils, mining, energy resources, environmental problems, landscape development, and meteorites, cast in examples from Arizona. Majors who have taken GLG 101 for credit may not enroll.

M GLG 304 Geology of the Grand Canyon. (2)
selected semesters
Reviews the discovery, history, origin, and geology of the Grand Canyon of the Colorado River in Arizona. Requires 6-day field trip down the river (first 6 days after commencement in May) at student's expense. Requires field research and term paper on trip.

M GLG 310 Structural Geology. (3)
fall
Geologic structures and the mechanical processes involved in their formation. 2 hours lecture, 3 hours lab. Possible field trips. Fee. Prerequisites: GLG 101; MAT 270 (or 290).

M GLG 321 Mineralogy. (3)
spring
Crystal chemistry, crystallography, mineral identification, origin and occurrence of minerals, systematic mineralogy. 2 hours lecture, 3 hours lab, possible field trips. Prerequisites: CHM 113; MAT 270 (or 290). Pre- or corequisite: CHM 116.

M GLG 325 Oceanography. (3)
fall
Introduces marine geology, chemistry, and physical and biological oceanography. Methods of oceanic exploration, environmental and social aspects of oceans. Cross-listed as BIO 325. Credit is allowed for only GLG 325 or BIO 325. Prerequisite: BIO 101 or GLG 101 or instructor approval.

M GLG 362 Geomorphology. (3)
selected semesters
Land forms and processes that create and modify them. Laboratory and field study of physiographic features. 2 hours lecture, 3 hours lab, possible weekend field trips. Prerequisite: GLG 101. Pre- or corequisite: GLG 310.

M GLG 400 Geology Colloquium. (1)
fall and spring
Presentation of recent research by faculty and guests. Requires written assignments. 1 semester hour required for Geological Sciences majors; may be repeated for a total of 2 semester hours. Prerequisite: 2 courses in the department or instructor approval.

M GLG 402 Service Learning. (3)
fall and spring
K–12 tutoring and mentoring internship related to academic course work in geological sciences. Requires weekly reflective reading and writing. May be repeated for credit. Internship. Fee. Pre- or corequisites: GLG 101, 103.
General Studies: C

M GLG 404 Fundamentals of Planetary Geology. (3)
fall
Surveys planetary topics, including impacts, tectonics, and volcanism on planetary objects, and use of spacecraft data, including geological mapping. Lectures, problem sets, weekend field trip. Fee. Prerequisite: Geology major or degree or instructor approval.

M GLG 405 Geology of the Moon. (3)
selected semesters
Current theories of the origin and evolution of the moon through photogeological analyses and consideration of geochemical and geophysical constraints. Possible field trips to examine Arizona geology. Fee. Prerequisite: GLG 105 or instructor approval.

M GLG 406 Geology of Mars. (3)
selected semesters
Geological evolution of Mars through analyses of spacecraft data, theoretical modeling, and study of terrestrial analogs; emphasizes current work. Possible field trips to examine Arizona geology. Fee. Prerequisite: GLG 105 or instructor approval.

M GLG 410 Computers in Geology. (3)
fall
Geological computer skills, including data processing, visualization, presentation, numerical analysis, software and hardware applications. 2 hours lecture, 3 hours lab. Prerequisites: both GLG 101 and an upper-division course in geology or only instructor approval.
General Studies: CS

M GLG 412 Geotectonics. (3)
selected semesters
Earthquakes, earth's interior, formation of oceanic and continental crust, and plate tectonics. Emphasizes current work. Prerequisite: GLG 310.

M GLG 416 Field Geophysics. (3)
spring
Methods of applied geophysical exploration; seismic refraction, gravity, electrical resistivity, geomagnetics. Includes survey planning, data acquisition, processing, analysis, and interpretation. Lecture, field exercises. Prerequisite: a course in geology or instructor approval.

M GLG 418 Geophysics. (3)
fall
Solid earth geophysics; geomagnetism, gravity, seismology, heat flow. Emphasizes crust and upper mantle. Prerequisites: a combination of GLG 310 and MAT 272 and PHY 131 or only instructor approval.

M GLG 419 Geodynamics. (3)
selected semesters
Emphasizes application of continuum principles to geological problems, including lithospheric stresses, heat transfer, fluid mechanics, and rock rheology. Prerequisite: PHY 131.

M GLG 420 Volcanology. (3)
once a year
Distribution of past and present volcanism, types of volcanic activity, mechanism of eruption, form and structure of volcanoes, and geochemistry of volcanic activity. Possible weekend field trips. Fee. Prerequisite: GLG 424.

M GLG 424 Petrology. (3)
fall
Origin of igneous and metamorphic rocks. Optical mineralogy, hand specimen identification, and thin-section analysis. 2 hours lecture, 3 hours lab, possible weekend field trips. Fee. Prerequisite: GLG 321.

M GLG 430 Paleontology. (3)
fall
Introduces concepts and analytical techniques in biogeology, paleobiology, paleoecology, and paleoenvironmental reconstruction from the fossil record. 2 hours lecture, 3 hours lab. Fee. Prerequisites: both GLG 102 and MAT 270 (or 290) or only instructor approval.

M GLG 435 Sedimentology. (3)
spring
Origin, transport, deposition, and diagenesis of sediments and sedimentary rocks. Physical analysis, hand specimen examination, and interpretation of rocks and sediments. 2 hours lecture, 3 hours lab, possible weekend field trips. Fee. Prerequisites: GLG 102, 321.

M GLG 441 Ore Deposits. (3)
selected semesters
Origin, occurrence, structure, and mineralogy of ore deposits. Possible weekend field trips. Fee. Prerequisite: GLG 424 or instructor approval.

M GLG 451 Field Geology I. (3)
spring
Geological mapping techniques using topographic maps and aerial photos. Intensive field-based instruction. Lab. Fee. Prerequisite: GLG 310. Pre- or corequisite: GLG 321.
General Studies: L

M GLG 452 Field Geology II. (3)
summer
Continuation of GLG 451. Lab. Fee. Prerequisites: GLG 321, 451.
General Studies: L

M GLG 455 Advanced Field Geology. (3–4)
once a year
Geologic mapping in igneous, sedimentary, and metamorphic terrains of the Basin and Range province of Arizona. May be repeated for credit. Weekend field trips. Fee. Prerequisite: instructor approval.

M GLG 456 Cordilleran Regional Geology. (3)
selected semesters
Systematic coverage through space and time of the geological development of western North America, emphasizing the western United States. Fee. Prerequisite: senior major or graduate student in Geological Sciences or instructor approval.

M GLG 460 Astrobiology. (3)
fall and spring
Origin, early evolution, distribution, and future of life on Earth and elsewhere in the cosmos. May be repeated for credit. Lecture, discussion, video conferences, possible field trips. Cross-listed as AST 460/BIO 460/CHM 483/MIC 475. Credit is allowed for only AST 460 or BIO 460 or CHM 483 or GLG 460 or MIC 475. Prerequisite: instructor approval.

M GLG 461 Geomicrobiology. (3)
spring
Past and present interactions among microbial life, geological materials, and biogeochemical cycles involving carbon, sulfur, phosphate, nitrogen, and minerals. Cross-listed as MIC 461. Credit is allowed for only GLG 461 or MIC 461. Prerequisites: introductory courses in chemistry and microbiology (or geological sciences); instructor approval.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M GLG 470 Hydrogeology. (3)
spring
Geology of groundwater occurrence, aquifer and well hydraulics, water chemistry and quality, contaminant transport, remediation. Emphasizes quantitative methods. Prerequisites: GLG 101 (or 103); MAT 270; PHY 121.

M GLG 481 Geochemistry. (3)
spring
Origin and distribution of the chemical elements. Geochemical cycles operating in the earth's atmosphere, hydrosphere, and lithosphere. Cross-listed as CHM 481. Credit is allowed for only CHM 481 or GLG 481. Prerequisite: CHM 341 (or 346) or GLG 321.

M GLG 484 Internship. (1–4)
selected semesters

M GLG 485 Meteorites and Cosmochemistry. (3)
selected semesters
Chemistry of meteorites and their relationship to the origin of the earth, solar system, and universe. Cross-listed as CHM 485. Credit is allowed for only CHM 485 or GLG 485. Prerequisite: CHM 341 or 346.

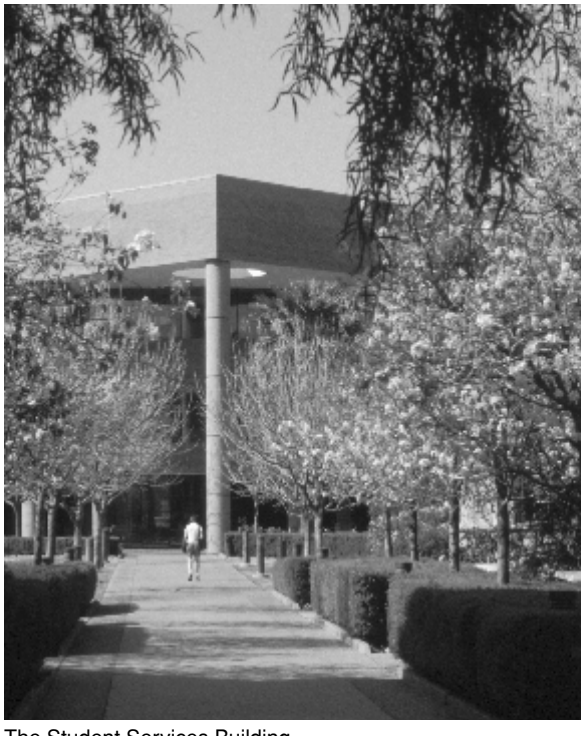
M GLG 490 Topics in Geology. (1–3)
fall, spring, summer
Special topics in a range of fields in geology. May be repeated for credit. Fee. Prerequisite: instructor approval.

M GLG 495 Undergraduate Thesis. (3)
fall, spring, summer
Guided research culminating in the completion and presentation of an undergraduate thesis based on supervised research. Independent study. Prerequisite: GLG 499 (3 hours); formal conference with instructor; instructor and department chair approval.

M GLG 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.



The Student Services Building

Tim Trumble photo

School of Global Studies

www.asu.edu/clas/globalstudies
480/727-8286
COOR 5634

David Jacobson, Director

CORE FACULTY

Professors: Abbott, Hechter, Jacobson, Thomas, Webster, West

Associate Professors: Cruz-Torres, Henn, Taylor, Warner

Assistant Professors: Duncan, McElwee, Peskin, Wang

Visiting Assistant Professor: Schneider

GLOBAL STUDIES—BA

The BA in Global Studies requires 45 semester hours in global studies and track courses. At least 18 hours must be in the upper division.

Required courses are as follows:

SGS	101	Thinking Globally: The Individual and Authority	3
SGS	102	Thinking Globally: Technology and Nature in World Settings	3
SGS	103	Contemporary Global Trends *SB*, *G*	3
SGS	394	ST: Professional Development (career courses)	6
SGS	394	ST: Research Methods	3
SGS	484	Study Abroad/Internship	6
SGS	494	ST: Capstone	6
Total			30

Students must select a track from the following options: Asian studies, governance, Latin American studies, migration, Russian and East European studies, Southeast Asian studies, and urban systems and natural resources* 15

Program total 45

* At least nine semester hours must be in the upper division, and a three-semester-hour statistics course is encouraged.

All School of Global Studies students must obtain a cumulative GPA of 2.50 or higher with a minimum grade of "C" in all global studies and track courses. Students who enter as freshmen are required to enroll in two sequential learning community courses (SGS 101, 102, and 103).

SCHOOL OF GLOBAL STUDIES (SGS)

M SGS 101 Thinking Globally: The Individual and Authority. (3)
fall
Examines the changing notions of the individual and authority over history. Lecture, discussion.

M SGS 102 Thinking Globally: Technology and Nature in World Settings. (3)
fall
Examines changing interactions between humans and nature, geographic systems, global demography, and environment. Lecture, discussion.

M SGS 103 Contemporary Global Trends. (3)
spring
Gives a grounding in patterns of international politics and global social change. Lecture, discussion.
General Studies: SB, G

M SGS 194 Special Topics. (1–4)
selected semesters

M SGS 294 Special Topics. (1–4)
selected semesters

M SGS 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Professional Development
- Research Methods

M SGS 484 Internship. (1–12)
selected semesters
Topics may include the following:
- Study Abroad/Internship

M SGS 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Capstone

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Department of History

www.asu.edu/clas/history
480/965-5778
COOR 4595

Noel J. Stowe, Chair

CORE FACULTY

Regents' Professor: Iverson

Snell Family Dean's Distinguished Professor of History: Longley

Distinguished Foundation Professor of History: Fixico

Professors: Adelson, Batalden, Burg, Davis, Fuchs, Gratton, Green, Lavrin, MacKinnon, Rosales, Samuelson, Simpson, Stowe, Tillman, Warnicke

Associate Professors: Barnes, El Hamel, Gray, Gullett, Harzig, Hirt, Powers, Rush, Smith, Stoner, Thompson, Thornton, VanderMeer, Warren-Findley, Wright

Assistant Professors: Holian, Kaplan, Koopmans, Manchester, Miller, Pitti, Plotkin, Whitaker, Wilson, Wood

Senior Instructional Professional: Luey

AFFILIATED FACULTY

Art
Associate Professor: Brown

Chicana and Chicano Studies
Associate Professor: Escobar

Global Studies
Associate Professor: Taylor

Women and Gender Studies
Professor: Rothschild
Associate Professor: Leong

HISTORY—BA

The BA degree in History consists of 30 semester hours in history and 15 hours in closely related fields, as approved by an undergraduate advisor in consultation with the student. At least 18 hours in history courses and nine hours in related fields must be in upper-division course work, with at least 12 of the upper-division HST hours taken in residence at the Tempe campus. HST 300 Historical Inquiry and HST 498 PS: History Pro-Seminar are required for all degree candidates. (Honors students may substitute HST 493 Honors Thesis for HST 498.)

Students majoring in history are required to complete HST 300 in the beginning of their junior year and before enrolling in 400-level history courses. HST 300 and HST 498 must be taken on the Tempe campus.

Students are required to complete course work in two different areas of concentration. One concentration must be defined geographically: Asia, Europe, Latin America, or the United States. The second concentration may be thematic or geographic. Students completing a thematic concentration must complete two courses outside the field of their geographic concentration. At least two history courses in either concentration must include topics outside the United States and Europe. Students must complete at least one course in the HST 302–307 "Studies in History" sequence.

The major includes the following:

1. one concentration of 18 hours (12 hours HST and six hours related field);
2. one concentration of 15 hours (12 hours HST and three hours related field);
3. HST 300, three hours (may be within a concentration);
4. HST 498, three hours (may be within a concentration);
5. elective related field courses, six hours;
6. two HST courses with content outside Europe and the United States (may be within a concentration);
7. two HST courses in thematic concentration outside the geographic concentration; and
8. at least one course in the HST 302–307 "Studies in History" sequence as part of one concentration.

A minimum grade of "C" (2.00) is required for all course work in the major and related fields. A minimum GPA of 2.25 in the 30 hours of history course work is required.

Asian Studies Certificate. Students majoring in History may elect to pursue an Asian Studies Certificate, combining courses from the major with selected outside courses of wholly Asian content. See "Asian Studies," page 509, for more information.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Jewish Studies Certificate. Students majoring in History may elect to pursue the Jewish Studies Certificate, combining courses from the major with selected outside courses of wholly Jewish content. See "Jewish Studies," page 512, for more information.

Latin American Studies Certificate. Students majoring in History may elect to pursue a Latin American Studies Certificate, combining courses from the major with selected outside courses of wholly Latin American content. See "Latin American Studies," page 512, for more information.

Medieval and Renaissance Studies Certificate. Students majoring in History may elect to pursue the Medieval and Renaissance Studies Certificate by successfully completing the requirements. See "Medieval and Renaissance Studies," page 513, for more information.

Russian and East European Studies Certificate. Students majoring in History may elect to pursue the Russian and East European Studies Certificate, combining courses from the major with selected outside courses of wholly Russian and East European content. See "Russian and East European Studies," page 513, for more information.

Southeast Asian Studies Certificate. Students majoring in History may elect to pursue the Southeast Asian Studies Certificate, combining courses from the major with selected outside courses of wholly Southeast Asian content. See "Southeast Asian Studies," page 514, for more information.

Women and Gender Studies Certificate. Students majoring in History may elect to pursue a Women and Gender Studies Certificate by successfully completing the requirements. See "Women and Gender Studies," page 514, for more information.

MINOR IN HISTORY

The History minor consists of 18 semester hours of course work, at least 12 hours of which are in upper-division course work. Students earning a minor in history must complete one 12-hour HST concentration (geographic or thematic), HST 300, and 498. The Department of History requires a grade of at least "C" (2.00) in all courses in the minor. A minimum of six upper-division hours in the minor must be taken in residence at the Tempe campus.

BIS CONCENTRATION

A concentration in history is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

SECONDARY EDUCATION—BAE

This degree is offered through the Initial Teacher Certification (ITC) program in the College of Education. Students pursuing a major in Secondary Education with an academic specialization in history have an advisor in the College of Education and an advisor within the Department of History.

See "College of Education," page 349, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

Academic Specialization ITC Admission Requirements. At least four required courses in the academic specialization must be completed with a grade of "C" (2.00) or higher before applying to the ITC professional program. A minimum GPA of 2.75 in history courses is required for admission to the ITC program and for graduation.

History. The major teaching field consists of 45 semester hours, of which at least 30 must be in history courses. At least 18 must be in upper-division courses. Six hours of teaching methods courses are also required. A minimum grade of "C" (2.00) is required in all academic specialization courses. Required major courses are as follows:

HST	101	Global History Since 1500 *HU, G, H*	3
HST	109	The United States to 1865 *HU, SB, H*	3
HST	110	The United States Since 1865 *SB, H*	3
HST	300	Historical Inquiry *L/HU/SB, H*	3
HST	498	PS: History Pro-Seminar *L*	3
U.S. history courses			9
HST electives* (non-U.S. history courses)			6
Related areas*			15
Total			45

* Choose courses in consultation with a department advisor.

Teaching Methods

HST	480	Methods of Teaching History: Classroom Resources	3
HST	481	Methods of Teaching History: Community Resources	3
Total			6

Students must complete HST 300 before enrolling in HST 480, 481, and 498. A minimum GPA of 2.75 in history courses is required for admission to the ITC program and for graduation. HST 480 and 481 may not be counted as part of the 45-hour requirement for the academic specialization.

Social Studies. An academic specialization in social studies is also available. Students pursuing a major in Secondary Education have an advisor in the College of Education and an advisor within the department of their academic specialization area.

See "College of Education," page 349, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

GRADUATE PROGRAMS

The faculty in the Department of History offer programs leading to the MA and PhD degrees. A Scholarly Publishing Certificate is also available. See the *Graduate Catalog* for requirements.

HISTORY (HST)

M HST 101 Global History Since 1500. (3)
fall and spring
Survey of Africa, the Americas, and Eurasia; changes in communication, communities, demography, economics, environment, politics, religion, technology, warfare, and women. Lecture, CD-ROM, electronic forum, discussion.
General Studies: HU, G, H

M HST 102 Western Civilization. (3)
fall and spring
Origins and development of Western societies and institutions from the ancient world through the Middle Ages.
General Studies: SB, H

M HST 103 Western Civilization. (3)
fall and spring
Origins and development of Western societies and institutions from Black Death through the Renaissance and Reformation to the Enlightenment.
General Studies: HU/SB, H

M HST 104 Western Civilization. (3)
fall and spring
Origins and development of Western societies and institutions from the French Revolution to the present.
General Studies: HU/SB, G, H

M HST 105 Slavic Civilization. (3)
fall, spring, summer
Development of Slavic cultures and societies from medieval Byzantium to the present; introduction to modern Eurasia. Lecture, discussion, electronic forum.
General Studies: HU/SB, H

M HST 106 Asian Civilizations. (3)
once a year
Civilizations of China, Japan, and India from antiquity to the 17th century.
General Studies: HU/SB, G, H

M HST 107 Asian Civilizations. (3)
once a year
Civilizations of China, Japan, India, and Southeast Asia from the 17th century to the present.
General Studies: SB, G, H

M HST 108 Introduction to Japan. (3)
fall
Historical survey of the people, culture, politics, and economy of Japan, supplemented by audiovisual presentations. Intended for nonmajors.
General Studies: SB, G, H

M HST 109 The United States to 1865. (3)
fall and spring
Growth of the Republic from the colonial period through the Civil War.
General Studies: HU/SB, H

M HST 110 The United States Since 1865. (3)
fall and spring
Growth of the Republic from the Civil War to the present.
General Studies: SB, H

M HST 200 Historical Themes. (3)
once a year
General introduction to selected themes in history. May be repeated for credit when topics vary.
General Studies: SB, H

M HST 201 Historical Themes in Asia. (3)
once a year
General introduction to selected themes in Asian history. May be repeated for credit when topics vary.
General Studies: SB, H

M HST 202 Historical Themes in Europe. (3)
once a year
General introduction to selected themes in European history. May be repeated for credit when topics vary.
General Studies: HU/SB, H

M HST 203 Historical Themes in Latin America. (3)
once a year
General introduction to selected themes in Latin American history. May be repeated for credit when topics vary.
General Studies: SB, H

M HST 204 Historical Themes in the United States. (3)
once a year
General introduction to selected themes in United States history. May be repeated for credit when topics vary.
General Studies: SB, H

M HST 205 Historical Themes in Africa. (3)
fall and spring
General introduction to selected themes in African history. May be repeated for credit when topics vary.

M HST 210 American Social History. (3)
once a year
American society from the colonial period to the present. Ethnicity, race, age, and sex as factors in historical experience. Prerequisite: ENG 101 or 105.
General Studies: L/SB, H

M HST 211 American Jewish History. (3)
selected semesters
Chronological analysis of Jews and Judaism in American history and letters.
General Studies: SB, H

M HST 240 Introduction to Southeast Asia. (3)
fall and spring
Interdisciplinary introduction to the cultures, religions, political systems, geography, and history of Southeast Asia. Cross-listed as ASB 240/GCU 240/POS 240/REL 240. Credit is allowed for only ASB 240 or GCU 240 or HST 240 or POS 240 or REL 240.
General Studies: HU/SB, G

M HST 294 ST: Selected Topics in History. (3)
selected semesters
Full description of topics for any semester is available in the Department of History office. May be repeated for credit.

M HST 300 Historical Inquiry. (3)
fall and spring
Historical methods and critical inquiry related to particular events and processes. Topics vary. Required course for majors. Prerequisite for HST 498. Lecture, discussion, seminar. Prerequisites: ENG 102; History major; junior standing.
General Studies: L/HU/SB, H

M HST 302 Studies in History. (3)
once a year
Specialized topics in history. Explores countries, cultures, and issues in history, and their interpretation in historical scholarship. May be repeated for credit when topics vary.
General Studies: HU/SB, H

M HST 303 Studies in Asian History. (3)
once a year
Specialized topics in Asian history. Explores countries, cultures, and issues in history, and their interpretation in historical scholarship. May be repeated for credit when topics vary.
General Studies: SB, H

M HST 304 Studies in European History. (3)
once a year
Specialized topics in European history. Explores countries, cultures, and issues in history, and their interpretation in historical scholarship. May be repeated for credit when topics vary.
General Studies: SB, H

M HST 305 Studies in Latin American History. (3)
once a year
Specialized topics in Latin American history. Explores countries, cultures, and issues in history, and their interpretation in historical scholarship. May be repeated for credit when topics vary.
General Studies: HU/SB, H

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M HST 306 Studies in United States History. (3)
once a year
Specialized topics in United States history. Explores regions, cultures, and issues in history, and their interpretation in historical scholarship. May be repeated for credit when topics vary.
General Studies: HU/SB, H

M HST 307 Studies in African History. (3)
fall and spring
Specialized topics in African history. Explores countries, cultures, and issues in history, and their interpretation in historical scholarship. May be repeated for credit when topics vary.

M HST 309 Exploration and Empire. (3)
once a year
Survey of European discovery, exploration, and imperialism in the early modern and modern periods.
General Studies: L/HU, H

M HST 310 Film as History. (3)
once a year
Survey of moving image media as recorder, object, and writer of history.
General Studies: HU

M HST 313 American Cultural History to 1865. (3)
fall and spring
Culture, including ideas, ideals, the arts, and social and economic standards, from the nation's colonial and early national periods.
General Studies: SB, H

M HST 314 American Cultural History Since 1865. (3)
fall and spring
Culture, including ideas, ideals, the arts, and social and economic standards, from the age of industrialism to modern U.S.
General Studies: HU/SB, H

M HST 315 Political History of the United States. (3)
once a year
American political history since independence, focusing post-1865. Evaluates major trends in issues, presidential leadership, elections, and state politics. Lecture, discussion.
General Studies: SB, H

M HST 316 20th-Century U.S. Foreign Relations. (3)
once a year
U.S. relations with foreign powers from the late 19th century to the present.
General Studies: SB, G, H

M HST 319 U.S. Urban History to 1850. (3)
once a year
History of the city in American life from the colonial period to the mid-19th century.
General Studies: SB, H

M HST 320 U.S. Urban History Since 1850. (3)
once a year
History of the city in American life from the mid-19th century to the present.
General Studies: SB, H

M HST 321 Constitutional History of the United States to 1865. (3)
fall
Origin and development of the American constitutional system from colonial period through the Civil War.
General Studies: SB, H

M HST 322 Constitutional History of the United States Since 1865. (3)
spring
Development of the U.S. constitutional system from Reconstruction to the present.
General Studies: SB, H

M HST 325 Immigration and Ethnicity in the United States. (3)
fall and spring
Origins, historical development, and future of a multiethnic society, 1492 to 2050. Prerequisite: HST 109 or 110.
General Studies: SB, C, H

M HST 327 Women in U.S. History, 1600–1880. (3)
fall and spring
Examines American women of diverse racial, religious, and ethnic groups and classes; focuses on changing definitions of women's roles.
General Studies: HU/SB, C, H

M HST 328 Women in U.S. History, 1880–1980. (3)
fall and spring
Examines American women of diverse racial, religious, and ethnic groups and classes; focuses on changing definitions of women's roles.
General Studies: SB, C, H

M HST 329 Women in 20th-Century U.S. West. (3)
once a year
Examines how women of various cultures have contended for and shaped the U.S. West, including the West of imagination. Lecture, discussion.
General Studies: C, H

M HST 330 Mexican Women in the United States: Conquests and Migrations. (3)
once a year
Overview of Chicana history from Mesoamerican origins to the present, focusing on Mexican women in the western U.S. Lecture, discussion.
General Studies: L/SB, C, H

M HST 331 Mexican American History to 1900. (3)
once a year
Mexican American history from pre-Hispanic origins to frontier journeys north through 19th-century life in the U.S. Southwest.
General Studies: SB, C, H

M HST 332 Mexican American History Since 1900. (3)
once a year
Traces the formation of Mexican American communities across the rural and urban U.S. and examines 20th-century immigration from Mexico.
General Studies: SB, C, H

M HST 333 African American History to 1865. (3)
once a year
The African American in American history, thought, and culture from slavery to 1865. Cross-listed as AFS 363. Credit is allowed for only AFS 363 or HST 333.
General Studies: SB, C, H

M HST 334 African American History Since 1865. (3)
once a year
The African American in American history, thought, and culture from 1865 to the present. Cross-listed as AFS 364. Credit is allowed for only AFS 364 or HST 334.
General Studies: SB, C, H

M HST 337 American Indian History to 1900. (3)
fall and spring
Cultural, economic, political, and social continuity and change of American Indian communities to 1900.
General Studies: SB, C, H

M HST 338 American Indian History Since 1900. (3)
fall and spring
Cultural, economic, political, and social continuity and change of American Indian communities from 1900 to the present.
General Studies: SB, C, H

M HST 341 The U.S. West in the 19th Century. (3)
once a year
Social, political, and economic development of the trans-Mississippi West, beginning with the Louisiana Purchase and ending in 1900.
General Studies: SB, H

M HST 342 The U.S. West in the 20th Century. (3)
fall and spring
Role of the western states in U.S. history since 1890 emphasizing politics, the environment, industry and labor, and ethnic minorities.
General Studies: SB, H

M HST 343 The American Southwest. (3)
once a year
Development of the region from 1848 to the present.
General Studies: L/SB, H

M HST 344 Arizona. (3)
fall and spring
Emergence of the state from early times to the present.
General Studies: SB, H

M HST 347 Ancient Greece. (3)
fall
History and civilization of the Greek world from 650 BCE to the death of Alexander the Great.
General Studies: SB, H

M HST 348 Rome. (3)
spring
History and civilization of Rome from the beginning of the Republic to the end of the Empire.
General Studies: SB, H

M HST 349 The Early Middle Ages. (3)
fall
Political, socioeconomic, and cultural developments of Western Europe from the 5th through 10th centuries.
General Studies: HU/SB, H

M HST 350 The Later Middle Ages. (3)
spring
Political, socioeconomic, and cultural developments of Western Europe from the 11th through 15th centuries.
General Studies: HU/SB, H

M HST 351 Renaissance Europe. (3)
fall
Culture of the Renaissance in Italy and Northern Europe from the 14th to the early 16th centuries.
General Studies: L/HU/SB, H

M HST 352 Europe's Reformations. (3)
spring
Causes and implications of the major Protestant, Catholic, and Radical religious reformations in 16th- and 17th-century Europe.
General Studies: L/HU/SB, H

M HST 353 The Old Regime in Europe. (3)
fall
Society and culture of Europe during the 17th and 18th centuries.
General Studies: SB, H

M HST 354 Revolutionary Europe. (3)
spring
Political, social, economic, and intellectual currents in Europe from the French through the Russian Revolutions.
General Studies: SB, H

M HST 355 Total War and the Crisis of Modernity. (3)
fall
Forces of change and instability in early 20th-century Europe.
General Studies: SB, G, H

M HST 356 Europe Since 1945. (3)
selected semesters
Europe in its world setting since World War II, emphasizing major political and social issues from 1945 to the present.
General Studies: SB, G, H

M HST 358 Jewish History from the Bible to 1492. (3)
fall
Continuity and change in political, legal, economic, and sociocultural history of the Jews from biblical through medieval times. Lecture, discussion.
General Studies: SB, H

M HST 359 Jewish History from 1492 to 1948. (3)
spring
Jewish history from early modern through modern times, highlighting emancipation, enlightenment, and Jewish responses to modernity. Lecture, discussion.
General Studies: SB, G, H

M HST 361 Witchcraft and Heresy in Europe. (3)
selected semesters
Background, origins, and development of the Inquisition; persecution of women and marginal groups. Cross-listed as REL 374. Credit is allowed for only HST 361 or REL 374. Prerequisite: upper-division standing or instructor approval.
General Studies: L/HU, H

M HST 362 Sex and Society in Classical and Medieval Europe. (3)
fall
Family life, sex roles, and marriage, and their relationship to political, economic, and religious change in classical and medieval Europe. Lecture, discussion. Prerequisite: upper-division standing or instructor approval.
General Studies: SB, H

M HST 363 Sex and Society in Early Modern Europe. (3)
spring
Family life, sex roles, and marriage and their relationship to political, economic, and religious change in early modern Europe. Lecture, discussion. Prerequisite: upper-division standing or instructor approval.
General Studies: HU/SB, H

M HST 364 Sex and Society in Modern Europe. (3)
selected semesters
Family life, sex roles, and marriage, and their relationship to political, economic, and social changes in modern Europe. Lecture, discussion. Prerequisite: upper-division standing or instructor approval.
General Studies: L/SB, H

M HST 365 Women in Europe. (3)
once a year
European women's diverse religious, ethnic, national, and economic roles in society, culture, and politics, 1750 to the present.
General Studies: L/HU/SB, H

M HST 366 England to 1689. (3)
once a year
Political, economic, and social development of the English people to the late 17th century.
General Studies: SB, H

M HST 367 Modern Britain. (3)
once a year
Political, economic, and social development in Britain from 17th century to the present.
General Studies: SB, H

M HST 368 Culture and Imagination in European History. (3)
once a year
Topics in European cultural and intellectual history. May be repeated for credit.
General Studies: HU, H

M HST 370 Eastern Europe in Transition. (3)
once a year
Democratization, privatization, and identity transformations since the fall of communism in contemporary Eastern Europe and the former Soviet Union. Lecture, discussion.
General Studies: SB, G, H

M HST 372 The Modern Middle East. (3)
selected semesters
Impact of the West and modernization upon Middle Eastern governments, religion, and society in the 19th and 20th centuries.
General Studies: SB, G, H

M HST 375 Colonial Latin America. (3)
fall and spring
Ancient civilization, exploration and conquerors, and colonial institutions.
General Studies: SB, H

M HST 376 Modern Latin America. (3)
fall and spring
Nationalistic development of the independent republics since 1821.
General Studies: SB, H

M HST 377 Women in Colonial Latin America. (3)
fall
History of women in colonial Latin America, cross-examining class, race, and gender relations in depth. Lecture, discussion.
General Studies: H

M HST 378 Latin American Women: The National Period. (3)
spring
Surveys the history of women, gender relations, and state policies in a broad continental setting, from independence to the present. Lecture, media, discussion.
General Studies: SB, G, H

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M HST 379 Rebellion and Revolution in South America. (3)
fall and spring
Political, economic, and social development of Spanish-speaking nations in South America.
General Studies: SB, H

M HST 380 Cultural History of Latin America. (3)
selected semesters
Main currents of thought, the outstanding thinkers, and their impact on 19th- and 20th-century Latin America. Cultural and institutional basis of Latin American life.
General Studies: SB, H

M HST 383 China. (3)
fall
Political, economic, social, and cultural history of the Chinese people from early times to the 17th century.
General Studies: SB, H

M HST 384 China. (3)
spring
Political, economic, social, and cultural history of the Chinese people from the 17th century to the present.
General Studies: SB, G, H

M HST 385 Chinese Science and Medicine. (3)
selected semesters
Explores developments of Chinese traditions dealing with the natural world, science, and medicine. Lecture, discussion. Cross-listed as HPS 325. Credit is allowed for only HPS 325 or HST 385.
General Studies: HU, G, H

M HST 386 Interpreting China's Classics. (3)
selected semesters
Study of selected Confucian and/or Taoist classics and ways they have been read in both Asian and Western scholarship. Cross-listed as HUM 312. Credit is allowed for only HST 386 or HUM 312.
General Studies: L/HU, H

M HST 387 Japan. (3)
once a year
Political, economic, social, and cultural history of the Japanese people from early times to the 17th century.
General Studies: L/SB, H

M HST 388 Japan. (3)
once a year
Political, economic, social, and cultural history of the Japanese people from the 17th century to the present.
General Studies: SB, G, H

M HST 389 Japanese Society and Values: Premodern. (3)
selected semesters
Effects of economic and social transitions on personal and social values as reflected in the dramatizations of contemporary events.

M HST 391 Modern Southeast Asia. (3)
spring
Vietnam, Laos, Cambodia, Thailand, Burma, Malaysia, Singapore, Brunei, Indonesia, and Philippines since 1750: imperialism, revolution, and independence. Lecture, discussion.
General Studies: SB, G, H

M HST 394 ST: Selected Topics in History. (3)
fall and spring
Full description of topics for any semester is available in the Department of History office. May be repeated for credit.

M HST 405 Colonial American History to 1763. (3)
once a year
Political, economic, social, and cultural history of the colonial era. Concentrates on English colonies, with some consideration of Spanish, French, and other colonial regions in North America.
General Studies: SB, H

M HST 406 The American Revolution, 1763–1789. (3)
once a year
Causes, course, and consequences of the American Revolution culminating in the ratification of the Constitution.
General Studies: SB, H

M HST 407 The Early U.S. Republic, 1789–1850. (3)
once a year
Political, social, economic, and cultural development of the United States from the Revolution to 1850.
General Studies: L/SB, H

M HST 408 Civil War and Reconstruction. (3)
once a year
Explores the causes, conduct, and consequences of the American Civil War, concentrating on the years 1848 to 1877.
General Studies: L/SB, H

M HST 409 The Emergence of the Modern United States, 1877 to 1918. (3)
once a year
Triumph of modern political, social, and economic structures and values, 1877–1918; role of region, religion, race, and ethnicity.
General Studies: SB, H

M HST 410 The Modern United States, 1918 to 1945. (3)
once a year
1920s boom and the crash, the Depression and the New Deal response. The Second World War at home and abroad.
General Studies: SB, H

M HST 411 The Postwar United States, 1945 to 1973. (3)
once a year
Cold War, prosperity, reform, and immense social and political change in the U.S.
General Studies: SB, H

M HST 412 The Contemporary United States, 1973 to the Present. (3)
once a year
End of the Cold War, political crises, and cultural transformations in the U.S.
General Studies: SB, H

M HST 414 The Modern U.S. Economy. (3)
selected semesters
Origins of 19th-century slavery and industrialization; 20th-century crisis and regulation: political economy of an advanced capitalist democracy. Prerequisite: ECN 211 (or 212) or HST 109 (or 110).
General Studies: SB, H

M HST 415 Unequal Sisters: Women and Political and Cultural Change. (3)
once a year
Examines race, ethnic, and class differences among women, focusing on the political and cultural experiences of women in the U.S.
General Studies: L/SB, C, H

M HST 417 Topics in Mexican American History. (3)
once a year
Focuses on specific topics in Mexican American history, including immigration, civil rights, the Chicano Movement, union activism, and regional and generational differences.
General Studies: SB, C, H

M HST 423 The Tudor Monarchy. (3)
once a year
Political, cultural, and social foundations of 16th-century England.
General Studies: SB, H

M HST 424 The Stuart Transformation of England. (3)
once a year
Political, social, economic, and cultural developments in 17th-century England.
General Studies: SB, H

M HST 426 The British Empire. (3)
once a year
British imperialism and colonialism in Africa, the Americas, Asia, and the South Pacific. Prerequisite: upper-division standing or instructor approval.
General Studies: SB, H

M HST 427 The French Revolution and the Napoleonic Era. (3)
once a year
Conditions in Pre-Revolutionary and Revolutionary France; organization of France under Napoleon and impact of French changes upon Europe.
General Studies: SB, H

M HST 428 Modern France. (3)
selected semesters
Social, political, economic, and cultural transformations of French society, 1815–present. Impact of industrialization, war, and revolution on people's lives. Prerequisite: upper-division standing or instructor approval.
General Studies: SB, G, H

M HST 429 Modern Germany. (3)
once a year
Germany since 1871.
General Studies: SB, G, H

M HST 430 Hitler: Man and Legend. (3)
once a year
Biographical approach to the German Third Reich emphasizing nature of Nazi regime, sociocultural issues, World War II, and historiography.
General Studies: SB, H

M HST 431 Eastern Europe and the Balkans Before 1914. (3)
selected semesters
Empire and nation in Eastern Europe and the Balkans before World War I, emphasizing Hapsburg and Ottoman lands.
General Studies: SB, H

M HST 432 Eastern Europe and the Balkans in the 20th Century. (3)
selected semesters
Politics and culture in Eastern Europe and the Balkans from World War I to the present.
General Studies: SB, G, H

M HST 435 The Russian Empire. (3)
fall
Development of Russian imperial institutions and civil society from the 17th to the early 20th centuries. Lecture, discussion.
General Studies: SB, H

M HST 436 The Soviet Experiment. (3)
spring
Communist revolutionaries' rule of Russia, focusing on utopian culture, Stalinist terror, heroism in war, and the breakup of the former USSR.
General Studies: SB, G, H

M HST 437 Spain Through the Golden Age. (3)
selected semesters
Cultural, economic, political, and social development of Spain from antiquity to the late 17th century.
General Studies: HU/SB, H

M HST 438 Modern Spain. (3)
selected semesters
Cultural, economic, political, and social development of modern Spain.
General Studies: HU/SB, G, H

M HST 443 The United States and Latin America. (3)
once a year
Latin American struggle for diplomatic recognition, attempts at political union, participation in international organizations since 1810, and relations between the United States and Latin America.
General Studies: SB, G, H

M HST 445 20th-Century Cuba. (3)
once a year
History of Cuba from colonial era to formation of the early republic; political, economic, social development in late 20th century. Lecture, discussion.
General Studies: SB, G, H

M HST 446 Colonial Mexico. (3)
once a year
Political, economic, social, and cultural developments from pre-Columbian times to 1810.
General Studies: SB, H

M HST 447 Modern Mexico. (3)
once a year
Political, economic, social, and cultural developments from 1810 to the present.
General Studies: SB, H

M HST 451 Chinese Cultural History. (3)
selected semesters
China's classics in translation studied both for their intrinsic ideas and for the origins of Chinese thought.
General Studies: HU/SB, H

M HST 452 Chinese Cultural History. (3)
selected semesters
Evolution of Confucian thought, its synthesis with Taoism and Buddhism, and modern reactions against, and uses of, Confucian traditions.
General Studies: SB, G, H

M HST 453 The People's Republic of China. (3)
selected semesters
Analyzes major political, social, economic, and intellectual trends in China since the founding of the People's Republic in 1949.
General Studies: SB, G, H

M HST 455 The United States and Japan. (3)
fall
Cultural, political, and economic relations in the 19th and 20th centuries. Emphasizes post-World War II period.
General Studies: SB, G, H

M HST 456 The Vietnam War. (3)
once a year
Intersection of American and Asian histories in Vietnam, viewed from as many sides as possible.
General Studies: SB, G, H

M HST 480 Methods of Teaching History: Classroom Resources. (3)
fall
Methods in instruction, organization, and presentation of the subject matter of history and closely allied fields. Prerequisites: HST 300; ITC admission. Pre- or corequisites: SED 403, 598.

M HST 481 Methods of Teaching History: Community Resources. (3)
spring
Identify community-based resources for teaching history, work with resources, and learn how to integrate them into the secondary classroom. Lecture, lab. Prerequisite: HST 480.

M HST 484 Internship. (1–6)
selected semesters

M HST 492 Honors Directed Study. (1–6)
selected semesters

M HST 493 Honors Thesis. (3)
selected semesters
General Studies: L

M HST 494 Special Topics. (1–4)
selected semesters

M HST 498 History Pro-Seminar. (3)
fall and spring
Required course for majors on topic selected by instructor; writing-intensive course related to the development of research skills and writing tools used by historians. May not be repeated without department approval. Prerequisites: HST 300; History major; senior standing.
General Studies: L

M HST 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

SCHOLARLY PUBLISHING (PUB)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Hugh Downs School of Human Communication

asu.edu/clas/communication
480/965-5095
STAUF A412

H. L. "Bud" Goodall Jr., Director

Professors: Alberts, Broome, Canary, Carlson, Corman, Goodall, Guerrero, Jain, Lederman, Martin, McPhee, Mongeau, Nakayama

Associate Professors: Corey, Davey, Davis, De la Garza, Floyd, Martinez, Trethewey

Assistant Professors: Brouwer, McDonald, Park-Fuller, Tracy

Instructional Professional: Olson

PURPOSE

The Hugh Downs School of Human Communication exists to advance the understanding of message-related human behavior for the purpose of improving communicative interactions. Teaching, research, and service are directed to the continued development of knowledge and application of principles of communication. Employers have ranked interpersonal, analytical, teamwork, computer, and verbal communication skills as the top five skills desired for new hires. The curriculum is designed so that majors are proficient in each of these areas upon graduation. Courses are not offered in broadcasting or journalism.

GENERAL INFORMATION

A minimum cumulative GPA of 2.50 is required for enrollment in all upper-division courses and COM 207. A minimum cumulative GPA of 2.25 is required for enrollment in COM 110, 241, 250, and 263. An exception to the GPA requirement exists only when newly admitted students enroll in COM 110, 241, 250, or 263.

DEGREE REQUIREMENTS

BA and BS Degrees

Students may choose to complete either a Bachelor of Arts or Bachelor of Science degree in Communication. The BA degree requires a minimum of 30 semester hours and 15 hours of related area courses. The BS degree requires a minimum of 30 semester hours, including a General Studies CS (statistics) course; COM 404 or 407; COM 408; and one pair of the following courses:

COM 110 Elements of Interpersonal Communication *SB* 3
or COM 310 Relational Communication (3)
COM 410 Interpersonal Communication Theory and Research *SB* 3
Total 6

or

COM 250 Introduction to Organizational Communication *SB* 3
COM 450 Theory and Research in Organizational Communication *SB* 3
Total 6

or

COM 241 Introduction to Oral Interpretation *L/HU* 3
COM 441 Performance Studies *HU* 3
Total 6

or

COM 321 Rhetorical Theory and Research *L/HU, H* 3
or COM 323 Communication Approaches to Popular Culture *C* (3)
COM 421 Rhetoric of Social Issues *HU* 3
Total 6

or

COM 263 Elements of Intercultural Communication *SB, C, G* 3
COM 463 Intercultural Communication Theory and Research *SB, G* 3
Total 6

Both degree options require students to take three core courses (COM 207, 225, and 308) plus 21 semester hours, 18 of which must be upper-division course work.

To assure the breadth and depth of their education, all Communication undergraduates must complete the requirements of the university General Studies, the College of Liberal Arts and Sciences, and the Hugh Downs School of Human Communication. For descriptive information on university requirements, refer to "General Studies," page 93, and "University Graduation Requirements," page 89. See "College Graduation Requirements," page 503.

Students should consult the school for current information concerning College of Liberal Arts and Sciences and Hugh Downs School of Human Communication requirements.

Communication Internships

Internships (COM 484) consist of supervised field experiences and are available to undergraduate students with a minimum ASU GPA of 2.50. Students must also complete COM 207, 225, and 308 with a grade of "C" (2.00) or higher and 56 semester hours of credit to be eligible for an internship. An application for internship must be completed in the semester before the intended term for an internship. Contact the school for specific deadline dates. Internships must receive prior approval from the internship programs coordinator *before* student registration for the course. Internships may be taken for up to six semester hours.

MINOR IN COMMUNICATION

The minor in Communication consists of 15 semester hours of courses, including COM 100 plus COM 225 or 259, and nine additional semester hours, at least six of which must be in the upper division. Nine of the total 15 semester hours must be Tempe campus resident credits, including six semester hours of upper-division credit. No pass/fail, "Y" credit, or credit/no-credit courses are allowed. Communication courses required for one's major may not also count for the minor. All prerequisite and GPA

requirements must be met. The "C" (2.00) minimum requirement must be met for each class.

BIS CONCENTRATION

A concentration in communication is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

GRADUATE PROGRAMS

In addition to offering an MA degree program, the Hugh Downs School of Human Communication also offers an interdisciplinary PhD degree program in Communication. See the *Graduate Catalog* for the requirements and areas of concentration.

HUGH DOWNS SCHOOL OF HUMAN COMMUNICATION (COM)

For more COM courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M COM 100 Introduction to Human Communication. (3)
fall, spring, summer
Topics-oriented introduction to basic theories, dimensions, and concepts of human communicative interaction and behavior.
General Studies: SB

M COM 110 Elements of Interpersonal Communication. (3)
fall, spring, summer
Demonstration and practice of communicative techniques in establishing and maintaining interpersonal relationships. Prerequisite: 2.25 GPA.
General Studies: SB

M COM 207 Introduction to Communication Inquiry. (3)
fall, spring, summer
Bases of inquiry into human communication, including introduction to notions of theory, philosophy, problems, and approaches to the study of communication. Prerequisites: COM 100; minimum cumulative 2.50 GPA.

M COM 222 Argumentation. (3)
fall and spring
Philosophical and theoretical foundations of argumentation, including a comparison of models of advocacy and evidence. Prerequisite: ENG 101 or 105.
General Studies: L

M COM 225 Public Speaking. (3)
fall, spring, summer
Verbal and nonverbal communication in platform speaking. Discussion and practice in vocal and physical delivery and in purposeful organization and development of public communication. Prerequisite: ENG 101 or 105.
General Studies: L

M COM 230 Small Group Communication. (3)
fall, spring, summer
Principles and processes of small group communication, attitudes, and skills for effective participation and leadership in small groups, small group problem solving, and decision making.
General Studies: SB

M COM 241 Introduction to Oral Interpretation. (3)
fall, spring, summer
Communication of literary materials through the mode of performance. Verbal and nonverbal behavior, interface of interpreter with literature and audience, and rhetorical and dramatic analysis of literary modes. Prerequisites: ENG 101 (or 105); 2.25 GPA.
General Studies: L/HU

M COM 250 Introduction to Organizational Communication. (3)
fall, spring, summer
Introduces the study of communication in organizations, including identification of variables, roles, and patterns influencing communication in organizations. Prerequisite: 2.25 GPA.
General Studies: SB

M COM 259 Communication in Business and the Professions. (3)
fall, spring, summer
Interpersonal, group, and public communication in business and professional organizations. Not open to freshmen and not available for credit toward the major.

M COM 263 Elements of Intercultural Communication. (3)
fall, spring, summer
Basic concepts, principles, and skills for improving communication between persons from different minority, racial, ethnic, and cultural backgrounds. Lecture, discussion. Prerequisite: 2.25 GPA.
General Studies: SB, C, G

M COM 271 Voice Improvement. (3)
selected semesters
Intensive personal and group experience to improve normal vocal usage, including articulation and pronunciation.

M COM 281 Communication Activities. (1–3)
fall, spring, summer
Nongraded participation in forensics or interpretation cocurricular activities. Maximum 3 semester hours each semester. Prerequisite: instructor approval.

M COM 294 Special Topics. (1–4)
fall, spring, summer
Topics may include the following:
- Beyond Words. (3)

M COM 300 CIS: Communication in Interdisciplinary Studies. (3)
fall, spring, summer
Examines and analyzes communication in the context of other academic disciplines. May be repeated for credit. Open to BIS majors only. Prerequisites: both COM 100 and 225 or only COM 259; minimum cumulative GPA of 2.00.

M COM 301 Introductory Theories and Principles of Communication: Communication in Relationships, Organizations, and Public Contexts. (3–9)
once a year
Integrated introduction to the theories and principles of communication in public, interpersonal, and organizational contexts. Lecture, discussion, online component.

M COM 308 Advanced Research Methods in Communication. (3)
fall, spring, summer
Advanced communication research methods, including quantitative, qualitative, and critical approaches. Prerequisite: minimum cumulative 2.50 GPA. Prerequisites with a grade of "C" (2.00) or higher: COM 207; MAT 142 (or higher-level MAT course).
General Studies: L

M COM 310 Relational Communication. (3)
fall and spring
Explores communication issues in the development of personal relationships. Current topics concerning communication in friendship, romantic, and work relationships. Prerequisites: COM 100; minimum cumulative 2.50 GPA.

M COM 312 Communication, Conflict, and Negotiation. (3)
fall and spring
Theories and strategies of communication relevant to the management of conflicts and the conduct of negotiations. Prerequisites: COM 100; minimum cumulative 2.50 GPA.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M COM 316 Gender and Communication. (3)
fall, spring, summer
Introduces gender-related communication. Examines verbal, nonverbal, and paralinguistic differences and similarities within social, psychological, and historic perspectives. Prerequisite: minimum cumulative 2.50 GPA.
General Studies: SB, C

M COM 317 Nonverbal Communication. (3)
fall, spring, summer
Study of communication using space, time, movement, facial expression, touch, appearance, smell, environment, objects, voice, and gender/cultural variables. Not open to students with credit for COM 294 ST: Beyond Words. Prerequisite: minimum cumulative 2.50 GPA.

M COM 319 Persuasion and Social Influence. (3)
fall and spring
Variables that influence and modify attitudes and behaviors of message senders and receivers, including analysis of theories, research, and current problems. Prerequisites: COM 207 (or its equivalent); minimum cumulative 2.50 GPA. Prerequisite for nonmajors: POS 401 or PSY 230 or QBA 221 or SOC 390 or STP 226.
General Studies: SB

M COM 320 Communication and Consumerism. (3)
once a year
Critical evaluation of messages designed for public consumption. Perceiving, evaluating, and responding to political, social, and commercial communication. Prerequisite: minimum cumulative 2.50 GPA.
General Studies: SB

M COM 321 Rhetorical Theory and Research. (3)
fall and spring
Historical development of rhetorical theory and research in communication, from classical antiquity to the present. Prerequisites: COM 100; minimum cumulative 2.50 GPA.
General Studies: L/HU, H

M COM 323 Communication Approaches to Popular Culture. (3)
fall, spring, summer
Critical analysis of popular culture within social and political contexts; emphasizes multicultural influences and representations in everyday life. Lecture, discussion. Prerequisites: COM 100; minimum cumulative 2.50 GPA.
General Studies: C

M COM 325 Advanced Public Speaking. (3)
fall and spring
Social and pragmatic aspects of public speaking as a communicative system; strategies of rhetorical theory and the presentation of forms of public communication. Prerequisites: COM 225; minimum cumulative 2.50 GPA.
General Studies: L

M COM 326 Court Room Oratory. (3)
fall in even years
Increases knowledge and appreciation of the role of communication in the development of legal and public policies.

M COM 341 Social Contexts for Performance. (3)
selected semesters
Adaptation and performance of literature for the community outside the university. Research into the practical uses of performed literature. Prerequisite: minimum cumulative 2.50 GPA.

M COM 344 Performance of Oral Traditions. (3)
selected semesters
Cultural beliefs and values studied through ethnographic research and performance of personal narratives, folklore, myths, legends, and other oral traditions. Lecture, fieldwork, research paper. Prerequisite: minimum cumulative 2.50 GPA.
General Studies: HU, C

M COM 371 Language, Culture, and Communication. (3)
fall and spring
Cultural influences of language on communication, including social functions of language, bilingualism, biculturalism, and bidialectism. Lecture, discussion. Prerequisites: COM 263; minimum cumulative 2.50 GPA.
General Studies: SB, C, G

M COM 382 Classroom Apprenticeship. (1–3)
fall, spring, summer
Nongraded credit for students extending their experience with a content area by assisting with classroom supervision in other COM courses (maximum 3 semester hours each semester). Prerequisites: 2.50 cumulative GPA; written instructor approval.

M COM 394 Special Topics. (1–4)
fall, spring, summer
Prerequisite: minimum cumulative 2.50 GPA.

M COM 400 CIP: Communication in Professions. (3)
fall, spring, summer
Specialized study of communication processes in professional and organizational settings. Open to BIS majors only. May be repeated for credit. Lecture, discussion. Prerequisites: both COM 100 and 225 or only COM 259; minimum cumulative GPA of 2.00.
General Studies: HU, C

M COM 404 Research Apprenticeship. (3)
fall and spring
Direct research experience on faculty projects. Student/faculty match based on interests. Lecture, apprenticeship. Prerequisites: COM 308 (or instructor approval); minimum cumulative 2.50 GPA; application required.

M COM 407 Advanced Critical Methods in Communication. (3)
fall, spring, summer
Examines critical approaches relevant to communication, including textuality, social theory, cultural studies, and ethnography. Lecture, discussion. Prerequisites: COM 308; minimum cumulative 2.50 GPA.

M COM 408 Quantitative Research Methods in Communication. (3)
fall and spring
Advanced designs, measurement techniques, and methods of data analysis of communication research. Prerequisites: COM 308 and a course in generic statistics (EDP 454 or POS 401 or PSY 230 or QBA 221 or SOC 390 or STP 226); minimum cumulative 2.50 GPA.

M COM 410 Interpersonal Communication Theory and Research. (3)
fall, spring, summer
Survey and analysis of major research topics, paradigms, and theories dealing with message exchanges between and among social peers. Prerequisites: COM 110 (or 310), 308; minimum cumulative 2.50 GPA.
General Studies: SB

M COM 411 Communication in the Family. (3)
once a year
Broad overview of communication issues found in marriage and family life, focusing on current topics concerning communication in the family. Prerequisites: COM 110 (or 310), 207; minimum cumulative 2.50 GPA.
General Studies: SB

M COM 414 Crisis Communication. (3)
selected semesters
Role of communication in crisis development and intervention. Prerequisite: minimum cumulative 2.50 GPA.

M COM 421 Rhetoric of Social Issues. (3)
fall and spring
Critical rhetorical study of significant speakers and speeches on social issues of the past and present. Prerequisites: COM 308, 321 (or 323).
General Studies: HU

M COM 426 Political Communication. (3)
fall
Theories and criticism of political communication, including campaigns, mass persuasion, propaganda, and speeches. Emphasis on rhetorical approaches. Prerequisite: minimum cumulative 2.50 GPA.
General Studies: SB

M COM 430 Leadership in Group Communication. (3)
selected semesters
Theory and process of leadership in group communication, emphasizing philosophical foundations, contemporary research, and applications to group situations. Prerequisites: COM 230; minimum cumulative 2.50 GPA.

M COM 441 Performance Studies. (3)
fall, spring, summer
Theory, practice, and criticism of texts in performance. Emphasis on the interaction between performer, text, audience, and context. Prerequisites: COM 241, 308; minimum cumulative 2.50 GPA.
General Studies: HU

M COM 442 Identity, Performance, and Human Communication. (3)
selected semesters
Explores communication dimensions of self and others as performance. Examines topics that include gender, race, sexuality, age, and ethnicity through performance. Lecture, workshops. Prerequisites: COM 225 (or 241); minimum cumulative 2.50 GPA.

M COM 445 Narrative Performance. (3)
selected semesters
Theory and practice of performing narrative texts (e.g., prose fiction, oral histories, diaries, essays, letters). Includes scripting, directing, and the rhetorical analysis of storytelling. Prerequisites: COM 241; minimum cumulative 2.50 GPA.
General Studies: HU

M COM 446 Performance of Literature Written by Women. (3)
selected semesters
Explores, through performance and critical writing, literature written by women. Prerequisite: minimum cumulative 2.50 GPA.
General Studies: HU, C

M COM 450 Theory and Research in Organizational Communication. (3)
fall, spring, summer
Critical review and analysis of the dominant theories of organizational communication and their corollary research strategies. Prerequisites: COM 250, 308; minimum cumulative 2.50 GPA.
General Studies: SB

M COM 453 Communication Training and Development. (3)
once a year
Examines the procedures and types of communication training and development in business, industry, and government. Prerequisites: COM 250; minimum cumulative 2.50 GPA.

M COM 463 Intercultural Communication Theory and Research. (3)
fall, spring, summer
Surveys and analyzes major theories and research dealing with communication between people of different cultural backgrounds, primarily in international settings. Lecture, discussion, small group work. Prerequisites: COM 263, 308; minimum cumulative 2.50 GPA.
General Studies: SB, G

M COM 465 Intercultural Communication Workshop. (3)
selected semesters
Experientially based study of communication between members of different cultures designed to help improve intercultural communication skills. Prerequisites: minimum cumulative 2.50 GPA; instructor approval.

M COM 484 Communication Internship. (1–6)
fall, spring, summer
Prerequisites: COM 225, 308; minimum cumulative 2.50 GPA; application required. Pre- or corequisite: COM 410 or 421 or 441 or 450 or 463.

M COM 494 Special Topics. (1–3)
fall, spring, summer
Topics may include the following:
- Special Events Management

Prerequisite: minimum cumulative 2.50 GPA.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

School of Human Evolution and Social Change

www.asu.edu/clas/shesc
480/965-6213
ANTH 233

Sander van der Leeuw, Director
Ben A. Nelson, Associate Director

Regents' Professor: Clark

Professors: Barton, Bolin, Brandt, Brewis, Buikstra, Carr, Chance, Eder, Falconer, Hackett, Hegmon, Hudak, Johanson, Kimbel, Kintigh, Marean, Martin, Nash, B. Nelson, M. Nelson, Perrings, Redman, Smith, Spielmann, Stark, van der Leeuw, Williams

Associate Professors: Abbott, Baker, Boone, Haenn, Harlan, Jonsson, Reed, Stone, Tsuda, Welsh, Winkelman

Assistant Professors: Anderies, Isaac, Janssen, Knudson, Schwartz, Spencer, Stojanowski

Associate Research Professors: Simon, Sugiyama

The School of Human Evolution and Social Change offers the BA degree in Anthropology.

ANTHROPOLOGY—BA

Course Requirements. The Anthropology major consists of a minimum of 39 or 40 semester hours in anthropology and a minimum of three semester hours in statistics. At least 18 of the semester hours must be in upper-division courses (300–400 level). No ASU course is automatically classified as being either related or unrelated. Course requirements for the major are distributed as follows:

Required Introductory Courses

ASB 102 Introduction to Cultural and Social Anthropology *SB, G* 3
ASB 222 Buried Cities and Lost Tribes: Our Human Heritage *HU/SB, G, H* 3
or ASB 223 Buried Civilizations of the Americas *HU/SB, G, H* (3)
ASM 104 Bones, Stones, and Human Evolution *SB/SG* 4

Distribution Requirements

Archaeology 6
Geographic area course in archaeology or physical anthropology 3
Geographic area course in ethnography 3
Upper-division linguistics 3
Physical anthropology 6
Social/cultural 6

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Elective
Anthropology 2–3

Related Fields
Statistics 3

Total 42–43

Consultation with the undergraduate advisor and a faculty mentor in the School of Human Evolution and Social Change is recommended each semester. The anthropology undergraduate advising office is located in ANTH 166.

Course work in anthropology completed at other institutions is evaluated by the undergraduate advisor. The College of Liberal Arts and Sciences requires that transfer students complete at least 12 semester hours of upper-division course work at ASU in the department/school of their major in order to be eligible for graduation.

In addition to a cumulative GPA of 2.00 or higher, all anthropology students must obtain a minimum grade of "C" (2.00) in all upper- and lower-division anthropology courses and all related fields.

Each student's Declaration of Graduation and Degree Audit Report, or Program of Study, must be reviewed and approved by the anthropology undergraduate advisor.

Introductory, Distribution, and Related Fields Requirements

Consult with a School of Human Evolution and Social Change undergraduate advisor for semester course description booklets and semester schedules, which indicate the regular and omnibus courses being offered. No courses may be used to fulfill more than one Anthropology major or minor requirement.

Required Introductory Courses
ASB 102 Introduction to Cultural and Social Anthropology *SB, G* 3
ASB 222 Buried Cities and Lost Tribes: Our Human Heritage *HU/SB, G, H* 3
or ASB 223 Buried Civilizations of the Americas *HU/SB, G, H* (3)
ASM 104 Bones, Stones, and Human Evolution *SB/SG* 4

Distribution Requirements
Upper-Division Linguistics
One course chosen from the following list* 3
ASB 480 Introduction to Linguistics *SB* (3)
ASB 481 Language and Culture *SB* (3)
ASB 483 Sociolinguistics and the Ethnography of Communication *SB* (3)

Sociocultural
Two courses chosen from the following list* 6
ASB 202 Ethnic Relations in the United States *SB, C, H* (3)
ASB 211 Women in Other Cultures *HU/SB, G* (3)
ASB 311 Principles of Social Anthropology *SB* (3)
ASB 314 Comparative Religion (3)
ASB 319 The North American Indian (3)
ASB 321 Indians of the Southwest *L/SB, C, H* (3)
ASB 322 Peoples of Mesoamerica *SB, G* (3)
ASB 323 Indians of Latin America *SB, G* (3)
ASB 324 Peoples of the Pacific *G (3)*
ASB 325 Peoples of Southeast Asia *G (3)*
ASB 350 Anthropology and Art (3)
ASB 351 Psychological Anthropology *SB* (3)
ASB 353 Death and Dying in Cross-Cultural Perspective *HU/SB, G* (4)
ASB 412 History of Anthropology *L/SB* (3)
ASB 416 Economic Anthropology *L/SB* (3)
ASB 417 Political Anthropology (3)
ASB 485 U.S.-Mexico Border in Comparative Perspective (3)

Archaeology
Two courses chosen from the following list* 6
ASB 231 Archaeological Field Methods *SG* (4)
ASB 326 Human Impacts on Ancient Environments *SB, H* (3)
ASB 330 Principles of Archaeology *SB* (3)
ASB 335 Prehistory of the Southwest *SB, C, H* (3)
ASB 337 Pre-Hispanic Civilization of Middle America *HU/SB, G, H* (3)
ASB 338 Archaeology of North America *SB, H* (3)
ASB 361 Pleistocene Archaeology *H* (3)
ASB 362 The Neolithic Revolution and Its Consequences *H* (3)
ASM 338 Anthropological Field Session (2–8)
ASM 365 Laboratory Methods in Archaeology (4)
ASM 435 Archaeological Pollen Analysis (3)
ASM 472 Archaeological Ceramics (3)

Physical Anthropology
Two courses chosen from the following list* 6
ASM 246 Human Origins (3)
ASM 301 Peopling of the World *SB* (3)
ASM 341 Human Osteology (4)
ASM 342 Human Biological Variation *SG* (4)
ASM 343 Primatology (3)
ASM 344 Fossil Hominids *H* (4)
ASM 345 Disease and Human Evolution (3)
ASM 348 Social Issues in Human Genetics *SB* (3)
ASM 452 Dental Anthropology *SG* (4)
ASM 454 Comparative Primate Anatomy (4)
ASM 455 Primate Behavior Laboratory *L* (3)

Geographic Area Courses

Archaeology or Physical Anthropology
One course chosen from the following list* 3
ASB 335 Prehistory of the Southwest *SB, C, H* (3)
ASB 337 Pre-Hispanic Civilization of Middle America *HU/SB, G, H* (3)
ASB 338 Archaeology of North America *SB, H* (3)
ASB 361 Pleistocene Archaeology *H* (3)
ASB 362 The Neolithic Revolution and Its Consequences *H* (3)
ASM 301 Peopling of the World *SB* (3)

Ethnographic
One course chosen from the following list* 3
ASB 319 The North American Indian (3)
ASB 321 Indians of the Southwest *L/SB, C, H* (3)
ASB 322 Peoples of Mesoamerica *SB, G* (3)
ASB 323 Indians of Latin America *SB, G* (3)
ASB 324 Peoples of the Pacific *G* (3)
ASB 325 Peoples of Southeast Asia *G* (3)
ASB 485 U.S.-Mexico Border in Comparative Perspective (3)

Anthropology Elective
Any anthropology course 2–3

Related Fields
One lower- or upper-division statistics course 3

Total 42–43

* Consult with a School of Human Evolution and Social Change undergraduate advisor for courses not listed that may fulfill distribution requirements.

MINOR IN ANTHROPOLOGY

The Anthropology minor requires a minimum of 18 semester hours. Two of the introductory courses—from ASB 102, ASM 104, and ASB 222 or 223—are required. However, the particular introductory courses selected may limit the anthropology courses available in the upper division. Twelve semester hours must be upper division and represent at least two of the three subfields of anthropology. The three subfields are:

1. sociocultural anthropology (with linguistics);
2. archaeology; and
3. physical anthropology.

The courses chosen to represent two of the three subfields must be drawn from the "Distribution Requirements," page 567, of those two subfields. A minimum grade of "C" (2.00) is required for all courses taken for the minor in Anthropology.

The minor in Anthropology provides students with a great deal of flexibility in selecting courses. The program has been designed to allow students to focus on areas within the discipline which articulate well with their major. All students interested in the Anthropology minor are encouraged to discuss the options available with a School of Human Evolution and Social Change undergraduate advisor.

BIS CONCENTRATION

For students pursuing the Bachelor of Interdisciplinary Studies (BIS) degree, a concentration in anthropology requires 24 or 25 semester hours. All three of the introductory courses—ASB 102, ASM 104, and ASB 222 or 223—are required. Fifteen semester hours must be upper division and represent two of the three subfields:

1. sociocultural anthropology (with linguistics);
2. archaeology; and
3. physical anthropology.

The courses chosen to represent the two subfields must be drawn from the "Distribution Requirements," page 567. A minimum grade of "C" (2.00) is required for all courses taken for the minor in Anthropology for BIS students.

CERTIFICATES

Latin American Studies Certificate or Emphasis. Students majoring in Anthropology may elect to pursue a Latin American Studies Certificate or emphasis, combining courses from the major with selected outside courses of wholly Latin American content. For more information, see "Latin American Studies," page 512.

Certificate in Museum Studies. See the *Graduate Catalog* or contact the School of Human Evolution and Social Change for more information.

GRADUATE PROGRAM

The faculty in the School of Human Evolution and Social Change offer programs leading to the MA and PhD degrees. See the *Graduate Catalog* for requirements.

SECONDARY EDUCATION—BAE

This degree is offered through the Initial Teacher Certification program in the College of Education. Students pursuing a major in Secondary Education have an advisor in the College of Education and an advisor within the department of their academic specialization area.

See "College of Education," page 349, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

For more information, call the Office of Student Services in the College of Education at 480/965-5555.

ANTHROPOLOGY (SOCIAL AND BEHAVIORAL) (ASB)

For more ASB courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M ASB 102 Introduction to Cultural and Social Anthropology. (3)
fall and spring
Principles of cultural and social anthropology, with illustrative materials from a variety of cultures. The nature of culture. Social, political, and economic systems; religion, aesthetics, and language.
General Studies: SB, G

M ASB 202 Ethnic Relations in the United States. (3)
fall and spring
Processes of intercultural relations; systems approach to history of U.S. interethnic relations; psychocultural analysis of contemporary U.S. ethnic relations. Lecture, discussion. Cross-listed as AFS 202. Credit is allowed for only AFS 202 or ASB 202.
General Studies: SB, C, H

M ASB 210 Sex, Marriage, and Evolution. (3)
selected semesters
Examines the sexual nature and behavior of humans from both a biological and an anthropological point of view.

M ASB 211 Women in Other Cultures. (3)
selected semesters
Cross-cultural analysis of the economic, social, political, and religious factors that affect women's status in traditional and modern societies.
General Studies: HU/SB, G

M ASB 222 Buried Cities and Lost Tribes: Our Human Heritage. (3)
spring
Archaeology through its most important discoveries: human origins, Pompeii, King Tut, the Holy Land, Southwest Indians, and methods of field archaeology.
General Studies: HU/SB, G, H

M ASB 223 Buried Civilizations of the Americas. (3)
fall and spring
Archaeology through examination of several ancient civilizations of Meso-, South, and North America.
General Studies: HU/SB, G, H

M ASB 231 Archaeological Field Methods. (4)
spring
Excavation of archaeological sites and recording and interpretation of data. Includes local field experience. 2 hours lecture, 8 hours lab. Prerequisite: instructor approval.
General Studies: SG

M ASB 240 Introduction to Southeast Asia. (3)
fall and spring
Interdisciplinary introduction to the cultures, religions, political systems, geography, and history of Southeast Asia. Cross-listed as GCU 240/HST 240/POS 240/REL 240. Credit is allowed for only ASB 240 or GCU 240 or HST 240 or POS 240 or REL 240.
General Studies: HU/SB, G

M ASB 252 Anthropology of Sports. (3)
fall and spring
Cross-cultural examination of symbolic and social dimensions of sports past and present.
General Studies: SB, G

M ASB 302 Ethnographic Field Study in Mexico. (3)
summer
Fieldwork study of cultural adaptation, Mexican culture, United States-Mexican cultural conflict, ethnographic research methods, and local culture. Lecture, discussion, field research. Pre- or corequisite: SPA 101 (or its equivalent).
General Studies: L/SB, G

M ASB 311 Principles of Social Anthropology. (3)
spring
Comparative analysis of domestic groups and economic and political organizations in primitive and peasant societies.
General Studies: SB

M ASB 314 Comparative Religion. (3)
fall and spring
Origins, elements, forms, and symbolism of religion; a comparative survey of religious beliefs and ceremonies; the place of religion in the total culture. Prerequisite: ASB 102 or instructor approval.

M ASB 319 The North American Indian. (3)
once a year
Archaeology, ethnology, and linguistic relationship of the Indians of North America. Does not include Middle America. Prerequisite: ASB 102 or instructor approval.

M ASB 320 Indians of Arizona. (3)
selected semesters
Traditional cultures and the development and nature of contemporary political, economic, and educational conditions among Arizona Indians.

M ASB 321 Indians of the Southwest. (3)
spring
Cultures of the contemporary Indians of the southwestern United States and their historic antecedents. Prerequisite: ASB 102 or instructor approval.
General Studies: L/SB, C, H

M ASB 322 Peoples of Mesoamerica. (3)
once a year
Indigenous, mestizo, and national cultures, rural and urban peoples. Lecture, discussion, video. Prerequisite: ASB 102 or instructor approval.
General Studies: SB, G

M ASB 323 Indians of Latin America. (3)
fall
Indigenous cultures of the Amazon, the Andean region, Central America, and southern Mexico. Lecture, discussion. Prerequisite: ASB 102 or instructor approval.
General Studies: SB, G

M ASB 324 Peoples of the Pacific. (3)
selected semesters
Peoples and cultures of Oceania focusing particularly on societies of Melanesia, Micronesia, and Polynesia. Prerequisite: ASB 102 or instructor approval.
General Studies: G

M ASB 325 Peoples of Southeast Asia. (3)
fall
Cultural-ecological perspective on the peoples of mainland and insular Southeast Asia. Subsistence modes, social organization, and the impact of modernization. Prerequisite: ASB 102 or instructor approval.
General Studies: G

M ASB 326 Human Impacts on Ancient Environments. (3)
spring
World survey of successful and unsuccessful ancient societies and their impacts on the environment.
General Studies: SB, H

M ASB 327 Action Anthropology. (3)
fall
Explores contemporary issues and problem solving in Cuna, Micronesia, Mayan, and U.S. Latino communities, through applied anthropology and community initiatives.

M ASB 330 Principles of Archaeology. (3)
fall and spring
Methods and theories for reconstructing and explaining the lifeways of prehistoric peoples. Prerequisite: 3 hours in archaeology.
General Studies: SB

M ASB 335 Prehistory of the Southwest. (3)
fall and spring
Anthropological understandings of major cultural processes and events in the prehistory of the American Southwest using evidence from archaeology.
General Studies: SB, C, H

M ASB 337 Pre-Hispanic Civilization of Middle America. (3)
spring
Preconquest cultures and civilizations of Mexico. The Aztecs, Mayas, and their predecessors.
General Studies: HU/SB, G, H

M ASB 338 Archaeology of North America. (3)
selected semesters
Origin, spread, and development of the prehistoric Indians of North America up to the historic tribes. Does not include the Southwest. Prerequisite: ASB 222 or 223.
General Studies: SB, H

M ASB 350 Anthropology and Art. (3)
once a year
Art forms of people in relationship to their social and cultural setting. Prerequisite: ASB 102 or instructor approval.

M ASB 351 Psychological Anthropology. (3)
spring
Approaches to the interrelations between the personality system and the sociocultural environment. Prerequisite: ASB 102 or instructor approval.
General Studies: SB

M ASB 353 Death and Dying in Cross-Cultural Perspective. (4)
fall
Humanistic and scientific study of aging, sickness, dying, death, funerals, and grief and their philosophy and ecology in non-Western and Western cultures. 3 hours lecture, 1 hour discussion.
General Studies: HU/SB, G

M ASB 355 Shamanism, Healing, and Consciousness. (3)
spring
World views, practices, and roles of shamans and traditional and contemporary healers; explanatory biopsychological models of consciousness.
General Studies: HU/SB

M ASB 361 Pleistocene Archaeology. (3)
fall
Biosocial evolution in the Pleistocene, emphasizing technological achievements and the relationship between technology and environment in western Europe, sub-Saharan Africa. Prerequisite: ASB 222 or 223.
General Studies: H

M ASB 362 The Neolithic Revolution and Its Consequences. (3)
spring
Surveys models for the appearance of food production in the Old World, and its consequences for emergent social complexity. Prerequisite: ASB 222 or 223.
General Studies: H

M ASB 366 African Archaeology: Precolonial Urban Culture. (3)
fall and spring
Overview of African civilization from the last 10,000 years up to 1850 via archaeological, documentary, and oral data. Lecture, discussion.

Cross-listed as AFS 366. Credit is allowed for only AFS 366 or ASB 366.
General Studies: SB, G, H

M ASB 368 Prehistoric and Historic Hunter-Gatherers. (3)
spring
Studies known hunting and gathering societies with the goal of developing approaches to understanding past hunting and gathering societies. Lecture, discussion. Prerequisite: ASB 102 or 222.

M ASB 400 Cultural Factors in International Business. (3)
spring
Anthropological perspectives on international business relations; applied principles of cross-cultural communication and management; regional approaches to culture and business.
General Studies: G

M ASB 402 Visual Anthropology. (3)
fall
Explores visual anthropology as a method for social documentation, and as a way to interpret cultural ways of seeing. Brings together anthropology, fine art, and art history students to exchange ideas about how we create, interpret, and communicate visual meanings. Lecture, discussion, critique.

M ASB 412 History of Anthropology. (3)
fall
Historical treatment of the development of the culture concept and its expression in the chief theoretical trends in anthropology between 1860 and 1950. Prerequisite: ASB 102 or instructor approval.
General Studies: L/SB

M ASB 416 Economic Anthropology. (3)
fall
Economic behavior and the economy in preindustrial societies; description and classification of exchange systems; relations between production, exchange systems, and other societal subsystems. Prerequisite: ASB 102 or instructor approval.
General Studies: L/SB

M ASB 417 Political Anthropology. (3)
selected semesters
Comparative examination of the forms and processes of political organization and activity in primitive, peasant, and complex societies. Prerequisite: ASB 102 or instructor approval.

M ASB 462 Medical Anthropology: Culture and Health. (3)
fall
Role of culture in health, illness, and curing; health status, provider relations, and indigenous healing practices in United States ethnic groups. Lecture, discussion.
General Studies: C

M ASB 466 Peoples and Cultures of Africa. (3)
fall and spring
Survey of African peoples and their cultures, external contact, and changes. Meets non-Western requirement. Lecture, discussion. Cross-listed as AFS 466. Credit is allowed for only AFS 466 or ASB 466.
General Studies: SB, G, H

M ASB 471 Introduction to Museums. (3)
fall
History, philosophy, and current status of museums. Explores collecting, preservation, exhibition, education, and research activities in different types of museums. Prerequisites: both ASB 102 and ASM 104 or only instructor approval.
General Studies: L

M ASB 480 Introduction to Linguistics. (3)
fall and spring
Descriptive and historical linguistics. Survey of theories of human language, emphasizing synchronic linguistics.
General Studies: SB

M ASB 481 Language and Culture. (3)
spring
Applies linguistic theories and findings to nonlinguistic aspects of culture; language change; psycholinguistics. Prerequisite: ASB 102 or instructor approval.
General Studies: SB

M ASB 483 Sociolinguistics and the Ethnography of Communication. (3)
selected semesters
Relationships between linguistic and social categories; functional analysis of language use, maintenance, and diversity; interaction between verbal and nonverbal communication. Prerequisites: both ASB 480 and ENG 213 (or FLA 400) or only instructor approval.
General Studies: SB

M ASB 485 U.S.-Mexico Border in Comparative Perspective. (3)
spring in odd years
Explores the multicultural and social dimensions of communities along the U.S.-Mexico border, emphasizing social organization, migration, culture, and frontier ideology. Prerequisite: 6 hours in anthropology or instructor approval.

M ASB 489 Doing Research in Anthropology. (3)
fall and spring
Research process learned through critical evaluation of literature, hands-on analysis and interpretation of data, and scientific writing Rotating topics. May be repeated for credit. Seminar, lab. Prerequisite: instructor approval.
General Studies: SB

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

ANTHROPOLOGY (SCIENCE AND MATHEMATICS) (ASM)

M ASM 104 Bones, Stones, and Human Evolution. (4)
fall and spring
Physical anthropology and archaeology. Evidence and processes of human evolution and of culture change. Primates. Fossil hominids and their tools. Race, variation, and heredity. Environment and human biology. Prehistoric culture and society. Lecture, lab. Fee.
General Studies: SB/SG

M ASM 241 Biology of Race. (3)
fall and spring
Human variation and its interpretation in an evolutionary context.

M ASM 246 Human Origins. (3)
fall
History of discoveries and changing interpretations of human evolution. Earliest ancestors to emergence of modern humans. Humanity's place in nature.

M ASM 248 Bioarchaeology of Cannibalism, Violence, and Social Pathology. (3)
spring
Worldwide review of claims of severely abnormal behavior in prehistory based on perimortem bone taphonomy, analogues, and comparative cases. Lecture, class demonstrations.

M ASM 301 Peopling of the World. (3)
fall
Reviews all evidence for human dispersal during the last 100,000 years, origins of language, cultures, races, and beginnings of modern humans. Prerequisite: ASM 104.
General Studies: SB

M ASM 338 Anthropological Field Session. (2–8)
spring
Anthropological field techniques, analysis of data, and preparation of field reports. May be repeated for credit. Prerequisite: instructor approval.

M ASM 341 Human Osteology. (4)
fall
Osteology, human paleontology, and osteometry. Description and analysis of archaeological and contemporary human populations. 3

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

hours lecture, 3 hours lab. Prerequisite: ASM 104 or instructor approval.

M ASM 342 Human Biological Variation. (4)
spring
Evolutionary interpretations of biological variation in living human populations, with emphasis on anthropological genetics and adaptation. Nutrition and disease and their relation to genetics and behavior. 3 hours lecture, 3 hours lab. Prerequisites: both ASM 104 and MAT 106 (or its equivalent) or only instructor approval.
General Studies: SG

M ASM 343 Primatology. (3)
fall
Evolution and adaptations of nonhuman primates, emphasizing social behavior. Includes material from fossil evidence and field and laboratory studies in behavior and biology. Prerequisite: ASM 104 or instructor approval.

M ASM 344 Fossil Hominids. (4)
once a year
The fossil evidence for human evolution, emphasizing the concepts and methods for reconstructing the past. 3 hours lecture, 2 hours lab. Prerequisite: ASM 104 or instructor approval.
General Studies: H

M ASM 345 Disease and Human Evolution. (3)
fall
Interaction of people and pathogens from prehistoric times to the present, with emphasis on disease as an agent of genetic selection. Prerequisite: ASM 104 or instructor approval.

M ASM 348 Social Issues in Human Genetics. (3)
spring
Moral and social implications of developments in genetic science, particularly as they affect reproduction, medicine, and evolution.
General Studies: SB

M ASM 365 Laboratory Methods in Archaeology. (4)
selected semesters
Techniques of artifact analysis. Basic archaeological research techniques; methods of report writing. May be repeated for credit for total of 8 hours. Prerequisite: instructor approval.

M ASM 435 Archaeological Pollen Analysis. (3)
selected semesters
Theory, methodology, and practice of pollen analytic techniques. Compares uses in botany, geology, and archaeology. 2 hours lecture, 3 hours lab, possible field trips. Prerequisite: instructor approval.

M ASM 448 Geoarchaeology. (3)
fall and spring
Geologic context relevant to archaeological research. Topics include sediments, deposition environments, soils, anthropogenic and biogenic deposits, and quaternary chronology. Lecture, discussion, field experiences. Prerequisites: ASB 222 (or 223) or GLG 101 (or 103) or GPH 111; instructor approval.

M ASM 450 Bioarchaeology. (3)
spring
Surveys archaeological and physical anthropological methods and theories for evaluating skeletal and burial remains to reconstruct biocultural adaptation and lifeways. Prerequisite: ASM 104 or instructor approval.

M ASM 452 Dental Anthropology. (4)
fall
Human and primate dental morphology, growth, evolution, and genetics. Within- and between-group variation. Dental pathology and behavioral-cultural-dietary factors. 3 hours lecture, 3 hours lab. Prerequisite: instructor approval.
General Studies: SG

M ASM 454 Comparative Primate Anatomy. (4)
spring
Functional anatomy of the cranial, dental, and locomotor apparatus of primates, including humans, emphasizing the relation of morphology to behavior and environment. 3 hours lecture, 3 hours lab, dissections, demonstrations. Prerequisite: instructor approval.

M ASM 455 Primate Behavior Laboratory. (3)
selected semesters
Instruction and practice in methods of observation and analysis of primate behavior. Discussion of the relationship between class work on captive animals and field techniques for studying free-ranging groups. Directed readings, 6 hours lab. Prerequisites: ASM 343; instructor approval.
General Studies: L

M ASM 456 Infectious Disease and Human Evolution. (3)
once a year
Study of infectious disease and humanity, using evidence from anthropology, history, medicine, and ancient skeletons. Prerequisite: ASM 345.

M ASM 465 Quantification and Analysis for Anthropologists. (3)
spring
Statistical, quantitative, and geometric strategies for envisioning and exploring archaeological, physical anthropological, bioarchaeological, and sociocultural data. Univariate and multivariate methods. Prerequisites: introductory statistical course; instructor approval.

M ASM 472 Archaeological Ceramics. (3)
selected semesters
Analysis and identification of pottery wares, types, and varieties. Systems for ceramic classification and cultural interpretation. 2 hours lecture, 3 hours lab. Prerequisite: instructor approval.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

School of Justice and Social Inquiry

www.asu.edu/clas/justice
480/965-7682
WILSN 331

Doris Marie Provine, Director

Regents' Professor: Altheide

Professors: Cavender, Haynes, Johnson, Jurik, Lauderdale, Provine, Romero, Schneider, Zatz

Associate Professor: Adelman

Assistant Professors: Gonzales, Haglund, Hanson, Kupchik, Lopez, Milun, Monahan, Quan

MISSION

Students pursuing the BS degree in Justice Studies find an interdisciplinary classroom experience emphasizing ideas from the social sciences, philosophy, and legal studies. The degree is designed for students interested in studying issues of justice and those desiring justice-related careers, including law. Students develop an understanding of the aspirations for justice in comparative and global terms, and analyze often controversial issues through critical inquiry and social science investigation. The faculty focus on theories of justice and injustice in three principal areas:

1. cultural transformation and justice;
2. economic justice; and
3. social justice, law, and policy.

Courses are designed to provide students with a comprehensive understanding of the substantive issues within each of these three areas and of the interrelationship and continuity among them. Students accordingly may learn about conflict and its negotiation; crime and violence; adolescents and delinquency; punishment and alternatives to punishment; globalization and inequality; and differential institutional and socioeconomic treatment of populations based on gender and sexuality, race and ethnicity, social class, and nationality.

The heart of any university program is its faculty. The School of Justice and Social Inquiry boasts a faculty with strong scholarly credentials. Faculty members include national, international, and local award recipients in research, teaching, and public service. Faculty members are committed to challenging students to develop their own understandings of justice; to analyze critically; and to propose possible solutions to a wide variety of contemporary issues concerning just distribution of resources, fair treatment for individuals and groups in local communities, the nation, and the world.

While completing the Justice Studies curriculum, students encounter opportunities to develop transferable skills, including critical thinking, oral and written discourse, computer literacy, and problem solving. Faculty encourage students to practice justice through various experiential approaches, including volunteer work, service learning, and internships. Students actively engage in their education via discussion, cooperative learning, field trips, and case-based classroom formats.

PROFESSIONAL STATUS

Upon admission to the university, Justice Studies students are classified as preprofessional. Justice Studies students must earn professional status before enrolling in 400-level JUS resident credit courses.

Justice Studies students achieve professional status by

1. earning a minimum of 56 semester hours;
2. earning a minimum cumulative GPA of 2.50 (calculated on a minimum of nine semester hours earned at ASU);
3. completing the university General Studies mathematics requirement (MA);
4. completing the school's computer science requirement (CS computer course);
5. completing the school's communication requirement; and
6. completing the following classes with a minimum 2.50 GPA and a minimum grade of "C" in each of the following courses.

Choose between the course combinations below..... 6 or 3
ENG 101 First-Year Composition (3)
ENG 102 First-Year Composition (3)
———*or*———
ENG 105 Advanced First-Year Composition (3)
JUS 105 Introduction to Justice Studies *SB*.....3
or JUS 305 Principles of Justice Studies *SB* (3)
JUS 301 Research in Justice Studies *SB*.....3
JUS 302 Basic Statistical Analysis in Justice Studies *CS*.....3
JUS 303 Justice Theory 3
School's writing competence requirement *L*.....3

The student must achieve professional status by the time the 87th semester hour is earned or else the student is disallowed from taking courses offered by the school. A student who transfers 58 or more semester hours must achieve professional status upon completion of 30 ASU semester hours.

ADVISING

Students admitted as preprofessional are advised by one of the school's academic advisors. All students are encouraged to seek advising to formulate an appropriate educational plan.

Upon admission to the university, every undergraduate in the program receives the *Undergraduate Advisement Guide* and an evaluation of any transfer work. For more information, call the school at 480/965-7682.

JUSTICE STUDIES—BS

The curriculum for the BS degree in Justice Studies provides interdisciplinary social science courses relevant to law and justice for students working in the justice field, students anticipating justice-related careers (including the legal profession), and interested non-Justice Studies students.

MINOR IN JUSTICE STUDIES

The minor in Justice Studies is designed for students interested in developing an understanding of meanings of justice and injustice and analyzing often controversial issues through critical inquiry and social science investigation.

Eighteen hours of graded classroom JUS course work are required, including JUS 105 or 305 and JUS 303. No pass/fail or credit/noncredit course work may be applied to the minor. A minimum of nine semester hours must be resident credit at Tempe campus, and at least 12 hours must be upper-division credit. Students must receive a minimum grade of "C" (2.00) for all courses in the minor and meet all course eligibility requirements, including prerequisites.

BIS CONCENTRATION

A concentration in Justice Studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

DEGREE REQUIREMENTS

The faculty in the School of Justice and Social Inquiry award a BS degree upon the successful completion of a curriculum consisting of a minimum of 120 semester hours, including the university General Studies requirement,

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

college graduation requirements, justice requirements, and electives. Additionally, the student must

1. earn professional status;
2. earn a minimum of 45 semester hours of upper-division credits;
3. complete the school's minimum residency requirement of 24 semester hours (see the *Undergraduate Advisement Guide*);
4. earn a grade of "C" (2.00) or higher in all justice studies courses taken at ASU that apply to the justice studies component of the curriculum (i.e., nonelectives); and
5. meet the university's residency and scholarship requirements.

GENERAL STUDIES REQUIREMENTS

To assure the breadth and depth of their education, all Justice Studies undergraduates must complete the university General Studies requirement and additional fundamental requirements prescribed by the College of Liberal Arts and Sciences and the School of Justice and Social Inquiry. For descriptive information on these requirements, see "General Studies," page 93, and "College Graduation Requirements," page 503. Note that all three General Studies awareness areas are required. Consult "General Studies Requirements" in the *Schedule of Classes* for an approved list of courses. The school implements the ASU continuous enrollment policy for First-Year Composition and the university mathematics (MA) requirement.

MAJOR REQUIREMENTS

The required justice studies component consists of 60 semester hours, of which 15 must be taken in a supplemental focus approved by the school. The following courses are required for all degree candidates. Equivalent courses may be substituted when appropriate.

JUS	105	Introduction to Justice Studies *SB*	3
		or JUS 305 Principles of Justice Studies *SB* (3)	
JUS	301	Research in Justice Studies *SB*	3
JUS	302	Basic Statistical Analysis in Justice Studies *CS*	3
JUS	303	Justice Theory	3
Total			12

Through advising, a group of Justice and Social Inquiry courses may be recommended to ensure a comprehensive exposure appropriate to the student's interests.

Electives. The faculty encourage students to utilize the unique opportunities afforded by the university to pursue personal and educational interests, whether in the form of a broad sampling of other disciplines or the deeper probing of a single field. Specifically, the faculty suggest that students take a minimum of one course in American government, behavioral psychology, and sociology.

Transfer of Community College Credits. Credits transferred from accredited community colleges are accepted as lower-division credits up to a maximum of 64 semester hours. The acceptance of credits is determined by the director of Undergraduate Admissions, and the utilization of credits toward degree requirements is determined by the faculty of the School of Justice and Social Inquiry.

GRADUATE PROGRAMS

The faculty in the School of Justice and Social Inquiry offer the following: an MS degree in Justice Studies, a concurrent MS in JSI/MA in Anthropology, and an Interdisciplinary PhD program in Justice Studies. For more information, see the *Graduate Catalog*, or access the Web site at www.asu.edu/clas/justice.

JUSTICE STUDIES (JUS)

M JUS Note 1. For Justice Studies students to take a nonrequired 300-level JUS course, they must have at least a "C" (2.00) in each of the required JUS courses—JUS 105 (or 305), 301, 302, and 303—and a minimum 2.50 GPA for these four classes. For non-Justice Studies students to take a 300-level JUS course, they must have a minimum of 56 earned semester hours (junior standing) and a minimum cumulative 2.00 GPA. Non-Justice Studies students may take JUS 301, 302, and 303 with school approval.

M JUS Note 2. For non-Justice Studies students to take a 400-level JUS course, they must have a minimum of 56 earned semester hours (junior standing) and a minimum cumulative 2.50 GPA. Justice Studies students must earn professional status before taking 400-level JUS resident credit courses. Justice Studies courses at the 300 and 400 level are unavailable to non-Justice Studies students during preregistration.

M JUS 105 Introduction to Justice Studies. (3)
fall, spring, summer
Introductory overview to the study of justice from a social science perspective. Primary topics include justice theories and justice research. Credit is allowed for only JUS 105 or 305. Appropriate for freshmen and sophomores. Lecture, discussion.
General Studies: SB

M JUS 200 Topics in Concepts and Issues of Justice. (3)
once a year
Uses critical thinking skills to analyze and comprehend controversial social issues (e.g., abortion, affirmative action, capital punishment, the flat tax, and immigration). May be repeated for credit when topics vary. Lecture, discussion.
General Studies: SB

M JUS 294 Special Topics. (1–4)
fall, spring, summer
Topics chosen from various fields of justice studies.

M JUS 301 Research in Justice Studies. (3)
fall, spring, summer
Focuses on developing and evaluating research designs, data collection, and the relationship between validity and reliability. Stresses methods for conducting research. Prerequisite: Justice Studies student.
General Studies: SB

M JUS 302 Basic Statistical Analysis in Justice Studies. (3)
fall, spring, summer
Introduces the fundamentals and application of descriptive and inferential statistics, with emphasis on the justice area. Prerequisite: intermediate algebra or higher.
General Studies: CS

M JUS 303 Justice Theory. (3)
fall, spring, summer
Examines classic and contemporary philosophies and theories of justice, including legal, social, and criminal justice. See JUS Note 1.

M JUS 305 Principles of Justice Studies. (3)
fall, spring, summer
Introductory overview to the study of justice from a social science perspective. Primary topics include justice theories and justice research. Credit is allowed for only JUS 305 or 105. Appropriate for juniors and seniors. Lecture, discussion. See JUS Note 1.
General Studies: SB

M JUS 306 Police and Society. (3)
once a year
Focuses on community policing; critical inquiry of administrative decision making; perspectives on police-citizen violence; street practices; urban policing. Lecture, discussion. See JUS Note 1.

M JUS 308 Courts and Society. (3)
once a year
History and development of courts. Relationship between dispute resolution mechanisms and cultural/social structure/processes in which they are embedded. Lecture, discussion, cooperative learning, case analysis. See JUS Note 1.

M JUS 310 Corrections and Justice. (3)
once a year
Examines the United States prison condition; types of offenders; issues, including drugs, gangs, drunk driving, racial discrimination, and "intermediate" punishments. Lecture, discussion. See JUS Note 1.

M JUS 311 Crime, Prevention, and Control. (3)
once a year
Examines prevention and control of crime by a review of contemporary theories, justice agency procedures, and social policies. Lecture, discussion. See JUS Note 1.

M JUS 320 Community and Social Justice. (3)
once a year
Discusses and analyzes definitions of community; impact of environment on behavior; promises of community organization for local empowerment. Lecture, discussion. See JUS Note 1.
General Studies: SB, C

M JUS 321 Wealth Distribution and Poverty. (3)
once a year
Examines wealth and income distribution in the United States and analyzes ideological and political forces producing an increasingly unequal society. Lecture, discussion. See JUS Note 1.
General Studies: SB, C

M JUS 329 Domestic Violence. (3)
once a year
Legal, historical, theoretical, and treatment aspects of domestic violence, including child abuse, woman battering, incest, and marital rape. Lecture, discussion. See JUS Note 1.
General Studies: SB

M JUS 335 Organized Crime. (3)
once a year
Nature of organized crime and its illegal activities, theories of containment, and efforts by justice agencies to counter its dominance in society. Lecture, discussion. See JUS Note 1.

M JUS 345 White Collar Crime. (3)
once a year
Basic white collar concepts and categories; causes and effects; mechanisms and contexts of operation; social and criminological responses. Lecture, discussion. See JUS Note 1.

M JUS 350 Immigration and Justice. (3)
fall, spring, summer
Examines immigration policy, history of immigration, refugee issues, labor force participation, gender, family, children, social networks, and transnationalism. Lecture, discussion. See JUS Note 1.
General Studies: SB, C

M JUS 360 Law and Social Control. (3)
once a year
Resolution of social issues through the application of law as an agent of social control. Nature, sanctions, and limits of law. Categories of law and schools of jurisprudence. Lecture, discussion. See JUS Note 1.
General Studies: SB

M JUS 375 Justice and the Mass Media. (3)
once a year
Surveys the impact of mass media and popular culture on social justice, including criminal justice. Lecture, discussion. See JUS Note 1.
General Studies: SB

M JUS 385 Justice and Everyday Life. (3)
once a year
Justice and injustice in everyday life and how small things can become legal issues. Role of language and interaction in social order. Lecture, group work. See JUS Note 1.
General Studies: SB

M JUS 394 Special Topics. (1–3)
once a year
Topics chosen from various fields of justice studies. Lecture, discussion. See JUS Note 1.

M JUS 404 Imperatives of Proof. (3)
once a year
Issues of evidence, rules of proof, establishing fact and identity in the justice system. Lecture, case analysis, cooperative learning, discussion. See JUS Note 2.
General Studies: L

M JUS 405 Economic Justice. (3)
fall and spring
Addresses economic issues and justice implications, including the interplay among economic conditions, race-ethnicity, class, and gender worldwide. Lecture, discussion. See JUS Note 2.
General Studies: L/SB, G

M JUS 410 Punishment: Logic and Approach. (3)
once a year
Analyzes forms of punishment, how and why they have changed. Areas include philosophy, history, and social structure of punishment. Lecture, discussion. See JUS Note 2.

M JUS 415 Gender and International Development. (3)
once a year
Examines the ways in which international development is gendered as well as women's rights as human rights in both national and international arenas. Lecture, seminar. See JUS Note 2.
General Studies: L, G

M JUS 420 Women, Work, and Justice. (3)
once a year
Examines gender inequality in the workplace, including the nature of women's work, theoretical issues, and models for promoting gender justice at work. Lecture, discussion. See JUS Note 2.
General Studies: SB, C

M JUS 422 Women, Law, and Social Control. (3)
once a year
Examines social, economic, and legal factors that are relevant to mechanisms of social control of women, including formal legal control and informal control through violence. See JUS Note 2.

M JUS 425 Race, Gender, and Crime. (3)
once a year
Critically examines major theories, research findings, policies, and controversies concerning race, ethnicity, gender, and crime. Lecture, discussion, cooperative learning. See JUS Note 2.
General Studies: L/SB, C

M JUS 430 Social Protest, Conflict, and Change. (3)
fall, spring, summer
Analyzes historical and contemporary protest movements advocating equality based on race, gender, and sexual orientation. Lecture, discussion. See JUS Note 2.
General Studies: L/SB, C

M JUS 440 Administration and Justice. (3)
once a year
Diversity issues; procedural justice and service delivery; relationships between state and economic forces, including processes of regulation; state administrative apparatuses. Lecture, case analysis, cooperative learning, discussion. See JUS Note 2.
General Studies: L

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M JUS 444 Environment and Justice. (3)
fall
Explores issues of environment and justice. Topics include justice and environmental racism, future generations, nonhuman life, global/non-Western societies. Lecture, discussion. See JUS Note 2.
General Studies: L, C

M JUS 450 Alternatives to Incarceration. (3)
once a year
Investigates various alternatives to incarceration; advantages/disadvantages; major issues, including net widening, cost effectiveness, risk assessment, community crime prevention. Lecture, research. See JUS Note 2.
General Studies: L

M JUS 460 Feminism and Justice. (3)
once a year
Explores feminist thought and critiques traditional political theories. Examines issues of racism, sexuality, and the law. Lecture, discussion. See JUS Note 2.
General Studies: C

M JUS 463 Discretionary Justice. (3)
once a year
Use/abuse, key issues/manifestations of discretion in legal system and other societal institutions. Theoretical/empirical linkages between discretion and discrimination, based on race, ethnicity, and gender. Lecture, discussion. See JUS Note 2.
General Studies: SB

M JUS 465 Death Penalty in the United States. (3)
fall, spring, summer
Focuses on capital punishment in the United States; explores negotiation of law, politics, morality, public policy, and culture. Lecture, discussion, case study. See JUS Note 2.
General Studies: L

M JUS 469 Political Deviance and the Law. (3)
once a year
Examines the controversies created by political and deviant behavior, including a critical view of law as an agent of social control. Lecture, discussion. See JUS Note 2.
General Studies: L/SB, C

M JUS 470 Alternative Dispute Resolution. (3)
once a year
Critical examination of the tenets of alternative dispute resolution movement; exposure to the programs of ADR, including community and court based. Lecture, cooperative learning, field research. See JUS Note 2.
General Studies: L/SB, C

M JUS 474 Legislation of Morality. (3)
once a year
Addresses historical and contemporary issues related to social justice movements, law, and morality in a pluralistic society. Issues include AIDS, burial rights, homosexuality, poverty, prostitution, and racial discrimination. See JUS Note 2.
General Studies: L/SB, C

M JUS 477 Youth and Justice. (3)
once a year
Critical examination of youth-related justice issues, including economic justice, violence against youth, delinquency, and the juvenile justice system. Lecture, group work, film. See JUS Note 2.
General Studies: L/SB

M JUS 479 Law and Disputing. (3)
fall and spring
Critical analysis of the controversies created by disputes, law, and other forms of social control. Lecture, discussion. See JUS Note 2.
General Studies: L/SB

M JUS 484 Internship. (3–6)
fall, spring, summer
Assignments in a justice-related placement designed to further the integration of theory and practice. Internships are arranged through consultation of students with placements. Students must consult with the school for appropriate application and registration procedures. May be repeated for credit for a total of 12 semester hours, of which a maximum of 6 are applied to the major. Fee. See JUS Note 2. Prerequisites: major status; Justice Studies student.

M JUS 494 Special Topics. (1–3)
once a year
Topics chosen from various fields of justice studies. Lecture, discussion. See JUS Note 2.

M JUS 498 Pro-Seminar. (1–3)
fall, spring, summer
Small group study and research for advanced students. May be repeated for credit for a total of 9 hours, of which a maximum of 3 are applied to the major. See JUS Note 2. Prerequisites: major status; minimum cumulative 2.75 GPA; minimum GPA in JUS courses of 3.00; instructor approval.

M JUS 499 Individualized Instruction. (1–3)
fall, spring, summer
Original study or investigation in the advanced student's field of interest under the supervision of a faculty member. May be repeated for credit for a total of 6 hours, all applicable to the major. Readings, conferences, tutorials. Prerequisites: major status; minimum cumulative 2.75 GPA; minimum GPA in JUS courses of 3.00; instructor approval.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Kinesiology

www.asu.edu/clas/kines
480/965-3875
PEBW 218

Lawrence Mandarino, Chair

Regents' Professor: Daniel Landers

Professors: Mandarino, Matt, Stelmach

Associate Professors: Hinrichs, Ringenbach, Santello, Willis

Assistant Professors: Dounskaia, Kulinna

Senior Lecturer: Donna Landers

Lecturers: Broman, Cataldo, Fay, Heinrichs

KINESIOLOGY—BS

The BS degree in Kinesiology consists of 38 semester hours, including 14 semester hours of required KIN core courses (KIN 110 may be repeated for credit). The remaining 24 semester hours of KIN and other courses are prescribed by the specific emphasis the student selects.

Each KIN core course has specific prerequisite courses that must be taken before taking the respective core course. These prerequisite courses include the following:

BIO	201	Human Anatomy and Physiology I *SG*	4
BIO	202	Human Anatomy and Physiology II	4
CHM	101	Introductory Chemistry *SQ*	4
MAT	210	Brief Calculus *MA*	3
		or MAT 251 Calculus for Life Sciences *MA* (3)	

or a higher level mathematics course
PGS 101 Introduction to Psychology *SB* 3
PHY 111 General Physics *SQ** 3
Total 21

* Both PHY 111 and 113 must be taken to secure SQ credit.

The required KIN core courses are as follows:

KIN 200 Introduction to Kinesiology 2
KIN 335 Biomechanics 3
KIN 340 Physiology of Exercise 3
KIN 345 Motor and Developmental Learning 3
KIN 352 Psychosocial Aspects of Physical Activity *SB, C* 3
Total 14

All prerequisite and KIN courses must be completed with a minimum grade of "C" (2.00). The requirements for the specific emphases are described below.

Majors must elect either the kinesiology or human physiology emphasis.

Emphases

Each emphasis requires 24 semester hours.

Kinesiology Emphasis. For the student interested in more applied aspects of exercise and sport performance, e.g., strength and conditioning, sports medicine, sport skill acquisition, exercise physiology, biomechanical techniques in exercise and sport, and sport psychology. This emphasis consists of 24 semester hours, 15 semester hours of which must be upper-division courses. Part A and B as listed below must be completed.

Part A
Choose from among the courses below* 9
- KIN 100 Introduction to Health and Wellness *SB* (3)
- KIN 110 Research Analysis Laboratory (1–2)
- KIN 191 First-Year Seminar (1–3)
- KIN 283 Prevention and Care of Athletic Injuries (3)
- KIN 294 ST: Research Methods I (3)
- KIN 334 Functional Anatomy and Kinesiology (3)
- KIN 348 Psychological Skills for Optimal Performance *SB* (3)
- KIN 370 Advanced First Aid (3)

* Students may also take KIN upper-division courses from the human physiology emphasis that are exclusive to that emphasis.

Part B
Choose from among the courses below* 15
- KIN 412 Biomechanics of the Skeletal System (3)
- KIN 413 Qualitative Analysis in Sport Biomechanics (3)
- KIN 441 Physiology of Women in Sport *L* (3)
- KIN 442 Fuel Metabolism (3)
- KIN 444 Metabolic Adaptations to Exercise Training (3)
- KIN 445 Exercise Physiology for Children and Adolescents (3)
- KIN 448 Applied Sport Psychology *L* (3)
- KIN 450 Biopsychosocial Perspectives on Physical Activity and Health (3)
- KIN 460 Theory of Strength Training *L* (3)
- KIN 484 Internship (1)
- KIN 485 Advanced Techniques of Athletic Training (3)
- KIN 492 Honors Directed Study: Research (1–6)
- KIN 493 Honors Thesis (1–6)
- KIN 494 ST: Environmental Exercise Physiology (3)
- KIN 494 ST: Interpretation of Exercise Electrocardiogram (3)
- KIN 494 ST: Interpretation of Exercise Performance (3)
- KIN 498 Pro-Seminar: Kinesiology and the Future (1)
- KIN 499 Individualized Instruction (1–3)

* Other KIN courses may be substituted with advisor approval.

Human Physiology Emphasis. For the student interested in prehealth professions and those interested in biomechanical, physiological, motor control, and/or psychological mechanisms underlying human movement performance. Students interested in pursuing postbaccalaureate training in one of several possible professions in the health care industry (e.g., physical therapy, recreational therapy, occupational therapy, physician's assistant, medicine, dentistry, podiatry, or chiropractic) will have additional course work in the sciences to complete (see department for list). This emphasis consists of 24 semester hours, 15 semester hours of which must be upper-division courses. Part A and B as listed below must be completed.

Part A
Choose from among the courses below* 9
- BCH 361 Principles of Biochemistry (3)
- BIO 340 General Genetics (4)
- BIO 353 Cell Biology (3)
- BIO 360 Animal Physiology (3)
- CHM 231 Elementary Organic Chemistry *SQ* (3) or CHM 233 General Organic Chemistry I (3)
- KIN 110 Research Analysis Laboratory (3)
- KIN 191 First-Year Seminar (1–3)
- KIN 334 Functional Anatomy and Kinesiology (3)
- KIN 370 Advanced First Aid (3)
- MBB 245 Cellular and Molecular Biology *SQ* (4)

* Students may also take other upper-division courses from: BCH, BIO, BME, CHM, HPS, MBB, PGS, PHY, or PSY.

Part B
Choose from among the courses below* 15
- KIN 412 Biomechanics of the Skeletal System (3)
- KIN 414 Electromyographic Kinesiology *L* (3)
- KIN 421 Human Motor Control *L* (3)
- KIN 422 Motor Control in Special Populations *L* (3)
- KIN 423 Motor Control and Aging *L* (3)
- KIN 440 Exercise Biochemistry (3)
- KIN 442 Fuel Metabolism (3)
- KIN 443 Exercise Endocrinology *L* (3)
- KIN 445 Exercise Physiology for Children and Adolescents (3)
- KIN 450 Biopsychosocial Perspectives on Physical Activity and Health (3)
- KIN 452 Exercise Psychology *SB* (3)
- KIN 484 Internship (1–9)
- KIN 492 Honors Directed Study: Research (1–9)
- KIN 493 Honors Thesis (1–9)
- KIN 494 ST: Interpretation of Exercise Electrocardiogram (3)
- KIN 494 ST: Muscle Physiology (3)
- KIN 494 ST: Neurophysiological Bases of Movement (3)
- KIN 494 ST: Research Methods (3)
- KIN 494 ST: Voluntary and Reflex Control of Movement (3)
- KIN 498 Pro-Seminar: Kinesiology and the Future (1)

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

KIN 499 Individualized Instruction (1–9)

* Other KIN courses my be substituted with advisor approval.

MINOR IN KINESIOLOGY

The minor in Kinesiology consists of the core sequence as follows, plus all prerequisite courses:

KIN 110 Research Analysis Laboratory 1
KIN 200 Introduction to Kinesiology 2
Choose from among the courses below 9
KIN 335 Biomechanics (3)
KIN 340 Physiology of Exercise (3)
KIN 345 Motor and Developmental Learning (3)
KIN 352 Psychosocial Aspects of Physical Activity *SB, C* (3)
KIN upper-division electives* 9

Total 21

* Excluding KIN 305, 310, 484, 492, 493, 498, and 499.

BIS CONCENTRATION

A concentration in kinesiology is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

GRADUATE PROGRAMS

The faculty in the Department of Kinesiology offer a program leading to the MS degree in Kinesiology. The department also participates with the Division of Graduate Studies in the program leading to the PhD degree in Exercise Science. See the *Graduate Catalog* for requirements.

HEALTH SCIENCE (HES)

For more HES courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M HES 100 Introduction to Health and Wellness. (3)
fall and spring
Current concepts in health, exercise, and wellness. Emphasis placed on personal health, theories, attitudes, beliefs, and behaviors. Cross-listed as EXW 100/KIN 100. Credit is allowed for only EXW 100 or HES 100 or KIN 100.
General Studies: SB

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

KINESIOLOGY (KIN)

M KIN Note 1. A $5.00 towel and locker fee is required each semester by students using towel and locker facilities for physical education classes and intramural activities.

M KIN Note 2. Physical education activity classes (KIN 105, 205, 305, 310) may not be taken for audit. Excessive absences and/or tardiness are considered disruptive behavior.

M KIN 100 Introduction to Health and Wellness. (3)
fall and spring
Current concepts in health, exercise, and wellness. Emphasis placed on personal health, theories, attitudes, beliefs, and behaviors. Cross-listed as EXW 100/HES 100. Credit is allowed only for EXW 100 or HES 100 or KIN 100.
General Studies: SB

M KIN 105 Physical Education Activity. (1)
fall, spring, summer
Beginning instruction in a wide variety of sports such as aerobics, aquatics, racquet sports, physical conditioning, and golf. 3 hours per week. "Y" grade only. May be repeated for credit. See KIN Notes 1, 2.
- Aerobics
  Fee.
- Archery
  Fee.
- Fencing
  Fee.
- Golf
  Fee.
- Rock Climbing
  Fee.

M KIN 110 Research Analysis Laboratory. (1–2)
fall, spring, summer
Introduces basic research areas in the discipline of kinesiology. Topics may include the following: developmental learning, exercise physiology, exercise psychology, exercise testing, metabolic physiology, motor control, motor learning, research journals and societies, research methods, research writing. May be repeated for credit. Fee. See KIN Note 1. Prerequisite: Kinesiology major.

M KIN 191 First-Year Seminar. (1–3)
fall and spring

M KIN 200 Introduction to Kinesiology. (2)
fall, spring, summer
Introduces the disciplines and professions associated with kinesiology, including an overview of historical and philosophical foundations.

M KIN 205 Physical Education Activity. (1)
fall, spring, summer
Intermediate levels. Continuation of KIN 105. 3 hours per week. May be repeated for credit. See KIN Notes 1, 2.
- Aerobics
  Fee.
- Archery
  Fee.
- Golf
  Fee.
- Rock Climbing
  Fee.

M KIN 283 Prevention and Care of Athletic Injuries. (3)
selected semesters
Taping, injury recognition, emergency care, and observation procedures in athletic training. Prerequisites: BIO 201, 202.

M KIN 290 Sports Officiating. (3)
selected semesters
Rules and mechanics of officiating used in football, basketball, and volleyball.

M KIN 292 Sports Officiating. (3)
selected semesters
Rules and mechanics of officiating used in softball (slow and fast pitch), baseball, and track and field.

M KIN 305 Physical Education Activity. (1)
fall, spring, summer
Advanced levels. Continuation of KIN 205. 3 hours per week. May be repeated for credit. See KIN Notes 1, 2.
- Golf
  Fee.

Prerequisite: instructor approval.

M KIN 310 Collegiate Sports. (1)
fall and spring
Participation in men's or women's intercollegiate competition. May be repeated for 4 hours, 1 per year. "Y/E" grade.

M KIN 334 Functional Anatomy and Kinesiology. (3)
spring
Muscles, bones, joints, and nerves and how they produce movement. Emphasizes muscle origins, insertions, actions, and innervations. Lecture, lab. Prerequisite: BIO 201.

M KIN 335 Biomechanics. (3)
fall, spring, summer
Basic anatomical and mechanical principles applied to human movement. Emphasizes kinematic and kinetic concepts. Lecture, recitation, lab. Fee. Prerequisites with a grade of "C" or higher: BIO 201, 202; MAT 210 (or higher); PHY 111.

M KIN 340 Physiology of Exercise. (3)
fall, spring, summer
Physiological mechanisms of acute responses and chronic adaptations to exercise. Lecture, recitation, lab. Fee. Prerequisites: BIO 201, 202; CHM 101.

M KIN 345 Motor and Developmental Learning. (3)
fall, spring, summer
Principles of motor skill acquisition across the life span, focusing on the learner and the learning environment. Lecture, recitation, lab. Fee. Prerequisites: BIO 201; PGS 101.

M KIN 348 Psychological Skills for Optimal Performance. (3)
fall and spring
Applies psychological techniques and their use to improve effectiveness and performance in sport and related areas.
General Studies: SB

M KIN 352 Psychosocial Aspects of Physical Activity. (3)
fall, spring, summer
Interrelationships between physical activity and psychosocial variables, including socialization, cultural values, aggression, and motivation. Includes the psychological benefits of physical activity and exercise adherence. Lecture, recitation. Prerequisite: PGS 101.
General Studies: SB, C

M KIN 370 Advanced First Aid. (3)
selected semesters
Assessment, management, treatment of wounds, injuries, shock, poisoning, burns, sudden illness, emergency rescue, and cardiopulmonary resuscitation. Lecture, lab. Fee.

M KIN 412 Biomechanics of the Skeletal System. (3)
selected semesters
Biomechanics of tissues, structures, and major joints of the musculoskeletal system. Discussion of injury mechanisms. Lecture, discussion, some labs. Prerequisite: KIN 335 or instructor approval.

M KIN 413 Qualitative Analysis in Sport Biomechanics. (3)
selected semesters
Develops systematic approach for detecting and correcting errors in human performance using anatomical and mechanical principles. Lecture, lab. Prerequisite: KIN 335.

M KIN 414 Electromyographic Kinesiology. (3)
selected semesters
Muscular contributions to human movement, muscle mechanics, electrophysiological basis, and practical application of electromyography. Lecture, discussion. Fee. Prerequisites: KIN 335, 340; instructor approval.
General Studies: L

M KIN 421 Human Motor Control. (3)
selected semesters
Focuses on understanding how the human central nervous system controls, regulates, and learns movements. Prerequisite: KIN 345 or instructor approval.
General Studies: L

M KIN 422 Motor Control in Special Populations. (3)
selected semesters
Discusses principles of motor control theories and related practical applications for certain special developmental populations. Lecture, discussion. Cross-listed as PSY 422. Credit is allowed for only KIN 422 or PSY 422. Prerequisite: KIN 345.
General Studies: L

M KIN 423 Motor Control and Aging. (3)
selected semesters
Functional and behavioral changes to the motor control system as humans age, how specifically it impacts motor control and learning. Prerequisite: KIN 345 or instructor approval.
General Studies: L

M KIN 440 Exercise Biochemistry. (3)
selected semesters
Study of bioenergetics and metabolism of cellular (skeletal muscle, heart, and liver) organelles and proteins during exercise. Prerequisite: KIN 340.

M KIN 441 Physiology of Women in Sport. (3)
selected semesters
Physiological aspects of women engaging in physical activity. Emphasizes factors affecting performance and health throughout life. Prerequisite: KIN 340.
General Studies: L

M KIN 442 Fuel Metabolism. (3)
selected semesters
Discusses current research concerning the metabolism of carbohydrate, fat, and protein during exercise. Credit is allowed for only KIN 442 or 536. Prerequisite: KIN 340 or instructor approval.

M KIN 443 Exercise Endocrinology. (3)
selected semesters
Discusses current research and theory concerning hormonal changes during exercise. Lecture, discussion. Prerequisite: KIN 340 or instructor approval.
General Studies: L

M KIN 444 Metabolic Adaptations to Exercise Training. (3)
selected semesters
Examines physiologic adaptations to exercise training as they relate to metabolism and tissue functions. Prerequisite: KIN 340.

M KIN 445 Exercise Physiology for Children and Adolescents. (3)
selected semesters
Understanding the influence of physical growth and maturation on the development of the functional capacities of the exercising child. Credit is allowed for only KIN 445 or 535. Lecture, discussion. Prerequisite: KIN 340 or 530 or instructor approval.

M KIN 448 Applied Sport Psychology. (3)
selected semesters
Psychological theories and techniques applied to a sport to enhance the performance and personal growth of athletes and coaches. Lecture, discussion. Prerequisite: KIN 352 (or its equivalent).
General Studies: L

M KIN 450 Biopsychosocial Perspectives on Physical Activity and Health. (3)
selected semesters
Uses a biopsychosocial perspective to examine the interrelationships on physical activity and health (physical and mental). Prerequisite: KIN 352.

M KIN 452 Exercise Psychology. (3)
selected semesters
Contemporary research and theory as related to human behavior and health in an exercise setting. Prerequisite: KIN 352.
General Studies: SB

M KIN 460 Theory of Strength Training. (3)
selected semesters
Research and theories on developing muscular strength; programs for developing muscular strength. Lecture, discussion. Prerequisites: KIN 335, 340.
General Studies: L

M KIN 484 Internship. (1–12)
selected semesters

M KIN 485 Advanced Techniques of Athletic Training. (3)
selected semesters
Advanced course in athletic training designed for students seeking NATA certification. Emphasizes therapeutic modalities and

rehabilitation procedures. Prerequisites: KIN 283, 370; CPR certification.

M KIN 492 Honors Directed Study: Research. (1–6)
selected semesters

M KIN 493 Honors Thesis. (1–6)
selected semesters

M KIN 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Administration of Athletics. (3)
- Environmental Exercise Physiology. (3)
- Interpretation of Exercise Performance. (3)
- Motivation in Exercise and Sport. (3)
- Muscle Physiology. (3)
- Physiological Bases for Exercise and Sport. (3)
- Research and Teaching in Physical Education. (3)
- Research Methods. (3)
- Sport and Social Issues. (3)
- Voluntary and Reflex Control of Movement. (3)

M KIN 498 Pro-Seminar. (1–7)
selected semesters
Topics may include the following:
- Kinesiology and the Future. (1)

M KIN 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Languages and Literatures

www.asu.edu/clas/dll
480/965-6281
LL 440

Robert Joe Cutter, Chair

Regents' Professors: Foster, Keller

Professors: Alexander, Baldini, Chambers, Croft, Cutter, Carlos Garcia-Fernández, Horwath, B. Lafford, Losse, M. Sanchez, Sipka, Sorensen, Volek, West, Wetsel, T. Wong

Associate Professors: Acereda, Candela, Canovas, Choi, Colina, Carmen Garcia-Fernández, Hernández-G., Orlich, Ossipov, Reiman, A. Sanchez, Suwarno, Tompkins, Urioste-Azcorra, Vitullo

Assistant Professors: Ali, Cashman, Cruse, Duncan, George, Gilfillan, Ginsburg, Gruzinska, Haberman, McElroy, Newhard, Owen, Siegel-Valdes

Senior Lecturers: Foard, Hendrickson

Lecturers: Deal, Devitt, Lage, Le, Mango, Martinez, Melucci, Oh, Pang, Petersen, Poudrier, Shimomura, Siriprakob, Stiftel, Walton-Ramirez, E. Wong, Zhang

Associate Research Professional: P. Lafford

Assistant Director Academic Services: Glessner-Calkins

Distinguished Scholars: Martinez Assad, Sefchovich

BACHELOR OF ARTS DEGREE

The faculty in the Department of Languages and Literatures offer majors in Asian Languages (Chinese/Japanese), French, German, Italian, Russian, and Spanish. Each major consists of 45 semester hours, of which 30 must be in one language and 15 in a second language or in closely related fields to be approved by the advisor in consultation with the student. Of the 30 hours required for the major, a minimum of 24 hours must be taken at the 300 or 400 level and must include at least nine hours at the 400 level. For French and Spanish, all courses counting for the major must be taken at the upper-division (300 and 400) level. Specific required courses for each major area are shown in this section and in a brochure available in the department. See "College Graduation Requirements," page 503. Consult the Languages and Literatures Web site at asu.edu/languages for assessment requirements.

MAJORS

Asian Languages (Chinese/Japanese)—BA

Students majoring in Asian Languages (Chinese/Japanese) may select a course of study that focuses on either language. The major requires 45 semester hours.

Chinese. At least nine semester hours must be at the 400 level. In addition to the courses shown below, the student must meet with an advisor and choose at least 15 semester hours of courses. Choices include six semester hours of JPN prefix courses such as Japanese language and calligraphy, Japanese Literature in Translation (FLA 421), KOR prefix courses such as Korean language and/or Korean culture, three semester hours of approved course work that provides an overview of Chinese history, or six semester hours from appropriate courses in art, humanities, social and behavioral sciences, and business.

Recommended

Two 200-level CHI courses			6

Required

CHI	313	Third-Year Chinese I *G*	3
CHI	314	Third-Year Chinese II *G*	3
CHI	321	Chinese Literature *HU*	3
CHI	322	Chinese Literature *HU, G*	3
		or FLA 420 Foreign Literature in Translation *HU, G* (3)	
CHI	413	Introduction to Classical Chinese *HU*	3
CHI	414	Introduction to Classical Chinese *HU*	3
Total			18

Electives

Choose six semester hours from the courses below			6
CHI	309	Chinese Conversation (2)	
CHI	310	Chinese Conversation (2)	
CHI	311	Chinese Conversation (2)	
CHI	312	Chinese Conversation (2)	
CHI	494	Special Topics (1–4)	

CHI 499 Individualized Instruction (1–3)

Total 6

Japanese. At least nine semester hours must be taken from FLA 421, and JPN 321 and 414. No more than eight semester hours may be selected from JPN 309, 310, 311, and 312.

Recommended
Two 200-level JPN courses 6

Required
FLA 421 Japanese Literature in Translation *L/HU, G* 3
JPN 313 Third-Year Japanese I *G* 3
JPN 314 Third-Year Japanese II *G* 3
JPN 321 Japanese Literature *L/HU, G* 3
JPN 414 Introduction to Classical Japanese 3

Total 15

Electives
Choose nine semester hours from the courses below 9
JPN 309 Intermediate Japanese Conversation (2)
JPN 310 Intermediate Japanese Conversation (2)
JPN 311 Japanese Conversation and Composition *G* (3)
JPN 312 Japanese Conversation and Composition *G* (3)
JPN 321 Japanese Literature *L/HU, G* (3)
JPN 394 Special Topics (1–4)
JPN 435 Advanced Readings (3)
JPN 485 Problems of Translation (3)
JPN 494 Special Topics (1–4)
JPN 499 Individualized Instruction (1–3)

Total 9

In addition to these courses, the student must meet with an advisor and choose at least 15 semester hours of courses, including six semester hours of CHI prefix courses such as Chinese language and calligraphy, Chinese literature in translation (CHI 321 and 322 and FLA 420) or KOR prefix courses such as Korean language and/or Korean culture. At least three semester hours must be in an approved course that provides an overview of Japanese history. The remaining six hours may consist of appropriate courses in art, humanities, literature, public programs, social and behavioral sciences, business, etc.

French—BA

Required
FRE 311 French Conversation *G* 3
FRE 312 French Composition *G* 3
FRE 321 French Literature *L/HU, H* 3
FRE 322 French Literature *L/HU* 3

Total 12

Select 18 semester hours from the following list, including at least 12 semester hours from the 400 level:

FRE 315 French Phonetics 3
FRE 319 Business French *G* 3
FRE 325 Introduction to French Film 3
FRE 394 Special Topics 1–3
FRE 411 Advanced Spoken French *G* 3
FRE 412 Advanced Written French *G* 3
FRE 415 French Civilization I *HU* 3
FRE 416 French Civilization II *HU, G* 3
FRE 421 Structure of French 3
FRE 422 Applied French Linguistics 3
FRE 423 French Syntax 3
FRE 432 Gay Identities in Modern French Literature 3
FRE 441 French Literature of the 17th Century *HU* 3
FRE 442 French Literature of the 17th Century *HU, H* 3
FRE 445 French Literature of the 18th Century *L/HU* 3
FRE 451 French Poetry of the 19th Century 3
FRE 452 French Novel of the 19th Century *HU* 3
FRE 453 Theater of the 19th Century *L/HU* 3
FRE 461 Modern Narrative *HU* 3
FRE 462 Modern Poetry *HU* 3
FRE 471 The Literature of Francophone Africa and the Caribbean *L/HU* 3
FRE 472 Franco-Canadian Civilization 3
FRE 480 Translation Theory and Practice 3
FRE 485 Literary Translation 3
FRE 494 Special Topics 1–4
FRE 499 Individualized Instruction 1–3

In addition to the courses, the student must meet with an advisor and choose at least 15 semester hours of related courses from appropriate social and behavioral sciences, humanities, business courses, and other language courses.

German—BA

Required
Two 200-level GER courses 6
GER 311 German Conversation *G* 3
or GER 312 German Conversation *G* (3)
GER 313 German Composition *G* 3
GER 411 Advanced Grammar and Conversation *G* 3
GER 412 Advanced Grammar and Composition *G* 3
GER 421 German Literature *HU* 3
GER 422 German Literature *L/HU* 3
Choose six semester hours from the courses below 6
GER 319 Business Correspondence and Communication *G* (3)
GER 394 Special Topics (1–4)
GER 415 German Civilization *HU, G, H* (3)
GER 416 German Civilization *HU, G, H* (3)
GER 494 Special Topics (1–4)

Total 30

In addition to these courses, the student must meet with an advisor and choose at least 15 semester hours of related courses from appropriate social and behavioral sciences, humanities, business courses, and other language courses.

Italian—BA

Required
Two 200-level ITA courses 6
ITA 311 Italian Composition and Conversation *G* 3
ITA 312 Italian Composition and Conversation *G* 3
ITA 325 Introduction to Italian Literature *HU* 3

Total 15

Note: ITA 315 Italian for Business may be substituted for either ITA 311 or 312.

Fifteen semester hours are required from the following list, including at least nine semester hours from the 400 level:

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

ITA 314 Advanced Italian *G* 3
ITA 315 Italian for Business 3
ITA 394 Special Topics 1–4
ITA 415 Italian Civilization *HU, G* 3
ITA 420 Italian Cinema 3
ITA 425 Italian American Culture *L* 3
ITA 430 Italian Literature of the Middle Ages *HU* 3
ITA 441 Dante: *Divina Commedia L/HU* 3
ITA 443 Italian Literature of the Renaissance *HU, H* 3
ITA 446 Italian Literature of the 18th and 19th Centuries *HU* 3
ITA 449 20th-Century Italian Literature *HU, G* 3
ITA 494 Special Topics 1–4
ITA 499 Individualized Instruction 1–3

In addition to the courses shown above, the student must meet with an advisor and choose at least 15 semester hours of related courses from appropriate social and behavioral sciences, humanities, business courses, and other language courses.

Russian—BA

Required

RUS 211 Basic Russian Conversation *G* 3
RUS 212 Basic Russian Conversation *G* 3
RUS 311 Russian Composition and Conversation *G* 3
RUS 312 Russian Composition and Conversation *G* 3
RUS 411 Advanced Composition and Conversation I *G* 3
or RUS 412 Advanced Composition and Conversation II *G* (3)
RUS 498 PS: Senior Seminar* 3
or SLV 498 PS: Senior Seminar (3)
SLV 304 Computational Linguistics of Slavic Languages *CS* 3
Total 21

* RUS 493 may be taken instead.

Note: Heritage speakers and other advanced speakers of Russian are, with permission from the Slavic language section head, admitted into a separate track for completion of the major. That track entails completion of 12 of the above semester hours (six semester hours of RUS 495, RUS 498 [or SLV 498], and SLV 304), to be accompanied by 18 additional semester hours from the list below (excluding RUS 411, 412, and 417). At least 12 of the additional 18 semester hours must be at the 400 level.

Nine semester hours are required from the following list, including at least six semester hours from the 400 level:

RUS 321 Foundations of Russian Literature *HU, H* 3
RUS 322 Great Russian Writers of the 19th Century *L/HU* 3
RUS 323 Modern Russian Literature and the Soviet Legacy *L/HU, G* 3
RUS 411 Advanced Composition and Conversation I *G* 3
RUS 412 Advanced Composition and Conversation II *G* 3
RUS 417 Applied Russian Phonetics 2
RUS 420 Russian Poetry *L/HU* 3
RUS 421 Pushkin *L/HU* 3
RUS 423 Dostoyevsky *L/HU* 3
RUS 424 Tolstoy *L/HU* 3
RUS 425 Chekhov *L/HU* 3
RUS 430 Russian Short Story *L/HU* 3
RUS 441 Survey of Russian Culture *L/HU, G, H* 3
RUS 495 Russian for Heritage Speakers 3
SLV 426 Contemporary East European and Eurasian Literatures *L/HU, G* 3
SLV 440 History of Slavic Languages *SB* 3

In addition to the 30 semester hours of course work required for the major, students majoring in Russian must take 15 additional semester hours from a list of approved courses in related fields, at least six semester hours of which must be taken at the upper-division level. Related fields courses should be chosen in consultation with an advisor. Russian majors are encouraged to take related Slavic/East European language courses in the annual summer Critical Languages Institute (CLI). CLI courses may be applied toward the related field requirements.

Spanish—BA

Required

SPA 313 Spanish Conversation and Composition *G* 3
or SPA 315 Spanish Conversation and Composition for Bilinguals (3)
SPA 314 Spanish Conversation and Composition *G* 3
or SPA 316 Spanish Conversation and Composition for Bilinguals (3)
SPA 325 Introduction to Hispanic Literature *HU* 3
SPA 412 Advanced Conversation and Composition *G* 3
SPA 425 Spanish Literature *HU* 3
Choose two courses below 6
SPA 426 Spanish Literature *HU* (3)
SPA 427 Spanish American Literature *L* (3)
SPA 428 Spanish American Literature *L, G* (3)
Choose one course below 3
SPA 471 Civilization of the Spanish Southwest *HU* (3)
SPA 472 Spanish American Civilization *HU, G, H* (3)
SPA 473 Spanish Civilization *HU/SB, G* (3)
Total 24

Electives

Two upper-division (300–400-level) SPA courses 6

Related Fields

POR 101 Elementary Portuguese 5
POR 201 Intermediate Portuguese *G* 5

In addition to these courses, the student must meet with an advisor and choose at least six semester hours of courses from appropriate social and behavioral sciences, humanities, business, and other romance language courses.

SPA 311 and 312 are not counted toward the major or minor in Spanish.

MINORS

Each minor in Asian Languages (Chinese/Japanese), German, Italian, and Russian consists of 18 semester hours, of which 12 semester hours must be in the upper division. The Spanish and French minors require 18 upper-division semester hours. In addition, specific required courses for each area follow and are in a brochure in the department. Course substitutions are allowed for heritage and advanced speakers of the language.

Chinese

Required

Two CHI 200-level courses 6
CHI 313 Third-Year Chinese I *G* 3
CHI 314 Third-Year Chinese II *G* 3

Consult with the departmental advisor for an additional six hours of Chinese course credit.

French

Required

FRE 311 French Conversation *G* 3
FRE 312 French Composition *G* 3
FRE 321 French Literature *L*/*HU*, *H* 3
or FRE 322 French Literature *L*/*HU* (3)

Nine hours of upper-division French courses with at least three hours from the 400 level are also required.

German

Required

Two GER 200-level courses 6
GER 311 German Conversation *G* 3
or GER 312 German Conversation *G* (3)
GER 313 German Composition *G* 3
One 400-level GER course 3
Upper-division GER course 3

Italian

Required

ITA 201 Intermediate Italian *G* 3
ITA 202 Intermediate Italian *G* 3
ITA 311 Italian Composition and Conversation *G* 3
or ITA 312 Italian Composition and Conversation *G* (3)
or ITA 315 Italian for Business (3)
ITA 325 Introduction to Italian Literature *HU* 3
One 300 or 400-level ITA course 3
One 400-level ITA course 3

Japanese

Required

Two 200-level JPN courses 6
JPN 313 Third-Year Japanese I *G* 3
JPN 314 Third-Year Japanese II *G* 3

Consult with the departmental advisor for an additional six semester hours of JPN courses.

Russian

Required

RUS 211 Basic Russian Conversation *G* 3
RUS 212 Basic Russian Conversation *G* 3
RUS 311 Russian Composition and Conversation *G* 3
RUS 312 Russian Composition and Conversation *G* 3

Six semester hours of upper-division RUS courses are also required.

Spanish

The minor in Spanish requires a minimum of 18 upper-division semester hours.

Required

SPA 313 Spanish Conversation and Composition *G* 3
or SPA 315 Spanish Conversation and Composition for Bilinguals (3)
SPA 314 Spanish Conversation and Composition *G* 3
or SPA 316 Spanish Conversation and Composition for Bilinguals (3)
SPA 325 Introduction to Hispanic Literature *HU* 3
SPA 412 Advanced Conversation and Composition *G* 3
SPA 471 Civilization of the Spanish Southwest *HU* 3
or SPA 472 Spanish American Civilization *HU*, *G*, *H* (3)
or SPA 473 Spanish Civilization *HU*/*SB*, *G* (3)
One elective course (SPA 319 or above) 3

SPA 311 and 312 are not counted toward the major or minor in Spanish.

CERTIFICATES AND EMPHASES

The following are certificate programs or emphases offered in the Department of Languages and Literatures. For more information, see "Certificate Programs and Areas of Emphasis," page 509.

Asian Studies Certificate. Foreign language students majoring in Asian Languages (Chinese/Japanese) may elect to pursue an Asian Studies Certificate combining courses from the major with selected outside courses of predominantly Asian content.

Classical Studies. Any undergraduate major can earn a certificate in classical studies.

Latin American Studies Certificate. Foreign language students majoring in Spanish may elect to pursue a Latin American Studies Certificate combining courses from the major with selected outside courses of wholly Latin American content.

Russian and East European Studies Certificate. Any undergraduate major can earn a Russian and East European Studies Certificate by successfully completing one of the options mentioned in the section on "Russian and East European Studies," page 513.

Scandinavian Studies Certificate. Any undergraduate major can earn a Scandinavian Studies Certificate.

Southeast Asian Studies Certificate. To earn a Southeast Asian Studies Certificate, a student must complete a minimum of 40 semester hours of course work related to Southeast Asia, including two years (20 semester hours) of a Southeast Asian language.

Translation Certificate (Spanish/English). The Translation Certificate program is designed to provide the advanced training required for professional translation in both public and private sectors, preparation for the rigorous examinations required by national and international agencies, and training as an ancillary skill for professional fields, such as international business, public health and medicine, and law, in accordance with guidelines recommended by the American Translators' Association. The certificate is a nondegree program consisting of 15 semester hours of course work and two hours of in-service practicum primarily into the receptor language of English from the source language of Spanish. It may be taken simultaneously with course work leading to an undergraduate degree, as a related area sequence, or as the sole program of study for members of the community who meet the admission requirements of the certificate program and are enrolled in the university. A complete brochure is available at the Department of Languages and Literatures in LL 440.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Admission Requirements. Since entrance to professional translation is through work, cultural experience, and examination, the entrance requirements to this certificate program are (1) a written proficiency examination in the source and the receptor languages at the level of completion of an advanced composition course in Spanish (SPA 412) and English (ENG 301), and (2) an academic year at a university in both a Spanish-speaking country and an English-speaking country, extensive work experience using Spanish and English, or demonstrated bilingual writing competence in English and Spanish.

Certificate Requirements. The certificate program consists of the following requirements:

Prerequisites

FLA 400 Linguistics *SB* 3
or SPA 400 Introduction to Spanish Linguistics (3) or equivalent

Required

FLA 401 Translation Theory and Practice 3
SPA 412 Advanced Conversation and Composition *G* 3

In-Service Practicum

FLA 484 Internship 2

Also required are nine hours of applied translation electives in specialized areas chosen from the following courses:

FLA 481 Technical and Scientific Translation 3
FLA 482 Business and Financial Translation.....3
FLA 483 Medical and Legal Translation.....3
FLA 485 Problems of Literary Translation 3

BIS CONCENTRATIONS

Students seeking to focus on a language as one of their concentration areas for the Bachelor of Interdisciplinary Studies degree may choose from Chinese, French, German, Italian, Japanese, Russian, Spanish, and translation (Spanish/English). They may also choose from any of the approved certificate programs. The requirements for the Bachelor of Interdisciplinary Studies (BIS) concentrations are the same as for the minor in that language. See "Minors," page 582, for specific course requirements. For more information, see "School of Interdisciplinary Studies," page 139.

SECONDARY EDUCATION—BAE

This degree is offered through the Initial Teacher Certification (ITC) program in the College of Education. Students pursuing a major in Secondary Education (French, German, Japanese or Spanish) have an advisor in the College of Education and an advisor within the Department of Languages and Literatures.

See "College of Education," page 349, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching.

In addition to the College of Education requirements, students must also meet the following before applying to the ITC program:

1. attain a GPA of 3.00 or higher in required specialization courses;
2. submit two one-page writing samples (one in English, one in the target language);
3. interview with the language liaison in the target language; and
4. complete courses in French, German, Japanese, or Spanish target area as listed below.

French. FRE 311, FRE 312, and an additional upper-division FRE course; or for native speakers a minimum of six hours appropriate upper-division French course work.

German. GER 201, GER 202, and one additional upper-division GER course; or for native speakers a minimum of six hours appropriate upper-division German course work.

Japanese. JPN 201, 202, and JPN 313; or for native speakers a minimum of six hours appropriate upper-division Japanese course work (JPN 321, JPN 400-level courses).

Spanish. SPA 313 and 314 or SPA 315 and 316; or for native speakers a minimum of six hours appropriate upper-division Spanish course work (SPA 325, SPA 412, or other SPA 400-level courses).

For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

French, German, Japanese, and Spanish. Each of the major teaching fields in French, German, Japanese, and Spanish consists of 45 semester hours, of which 30 must be in one language and 15 in a second language or in closely related fields to be approved by the department advisor in consultation with the student. Of the 30 hours required for the academic specialization, a minimum of 24 hours must be taken at the 300 or 400 level and must include at least nine hours at the 400 level. Specific required courses for each major area are listed in curriculum check sheets of the individual language areas available in the department or in the College of Education. FLA 479 Introduction to Teaching Foreign Languages and FLA 480 Methods of Teaching Foreign Languages are required courses.

GRADUATE PROGRAMS

The faculty in the Department of Languages and Literatures offer programs leading to the MA degree in French, German, and Spanish and the PhD degree in Spanish. See the *Graduate Catalog* for requirements.

FOREIGN LANGUAGE REQUIREMENT

All BA degrees in the College of Liberal Arts and Sciences require knowledge of one foreign language equivalent to the completion of two years of study at the college level. This normally includes a sequence of courses numbered 101 and 102 and 201 and 202 *or* 107 and 207. However, important exceptions exist in Greek, Latin, Portuguese, and Romanian.

Greek. To satisfy the foreign language requirement, students must take GRK 301 and 302.

Latin. Students must take LAT 201 before entering LAT 202 or must have completed at least three years of high school Latin before entering LAT 202 to satisfy the College of Liberal Arts and Sciences foreign language requirement.

Portuguese. To satisfy the foreign language requirement, students must take POR 314 or a higher numbered POR course.

Romanian. To satisfy the foreign language requirement, students must complete ROM 314.

FOREIGN LANGUAGE PLACEMENT

Students who transfer from other postsecondary institutions with foreign language credits below the 202 level are placed in a course at the level directly above the work completed.

Students who have completed their secondary education at a school in which the language of instruction was not English are considered to have satisfied the foreign language requirement. Certification of this status is made at the time of admission to ASU. Questions should be addressed to the International Admissions program within Undergraduate Admissions. For more information, call 480/965-2688, or visit the Web site at www.asu.edu/admissions.

The foreign language requirement can be met in languages not taught at ASU either by transferring credit from another institution or by passing a proficiency examination. When possible, the Department of Languages and Literatures recommends to the college an appropriate source for such examinations and proctors them. Grading is done by the institution that provides the examination, and the student pays any costs incurred. The examination can be used only to demonstrate proficiency; it does not produce semester hours of credit.

Students desiring placement above the 101-level course in French, German, or Spanish should take the placement exam for that language in the Computer Language Laboratory in LL 65, or online at www.asu.edu/languages.

Students who wish to continue studying languages for which high school credits have been earned are also encouraged to take the placement exam. Students should be guided by the following principles of equivalency: (1) one unit (one academic year) of high school-level study is considered, for placement purposes only, to equal one semester of study of the same language at the university level. Thus, students with one year of high school study would enroll in the second semester course (102); students with two years of high school study, in the third semester course (201), and so on. (2) Students who feel that their high school language preparation was inadequate may choose to place themselves in a lower level, but not lower than 111 with two or three years of high school study and 201 with four years of high school study.

Students with prior knowledge of a language may meet the college foreign language requirement in any one of the following ways:

1. by satisfactory results in a nonrepeatable college-approved proficiency examination;
2. by achieving a grade of at least "C" (2.00) in the last course of the required sequence; or
3. by achieving a grade of at least "C" (2.00) in a course taught in the language for which the last course of the required sequence is a prerequisite.

Students are expected to follow the progressive sequence of 100, 200, 300, or 400 level. Once a grade of "C" (2.00) or higher is earned in a 300-level class in a language, students may not earn lower-division credit in that language. Moreover, once a grade of "C" (2.00) or higher is earned in a 200-level language course, students may not earn credit in any 100-level course in that language.

First-year foreign language courses taught by the Department of Languages and Literatures are not open to students who have spent one or more years in a country where that language is the predominant language. Individual language areas may have different policies. Students with questions about this policy should check with the appropriate language coordinator in the department.

If transfer students are uncertain about course equivalencies, they should contact the Department of Languages and Literatures.

LANGUAGE LABORATORY REQUIREMENT

All students enrolled in 101, 102, 201, and 202 language courses are expected to spend a minimum of one hour per week in the language laboratory or in other assigned audio-lingual tape exercises in addition to the regular class periods.

FOREIGN LANGUAGES (FLA)

M FLA Note 1. Completion of the First-Year Composition requirement (ENG 101 and 102 [or 105] or ENG 107 and 108 with a grade of "C" [2.00] or higher) is a prerequisite for all English courses above the 100 level.

M FLA Note 2. A term paper or equivalent out-of-class written work is required in all upper-division (300- and 400-level) ENG courses.

M FLA Note 3. English majors and minors are expected to have completed ENG 200 before taking 400-level literature courses.

M FLA 150 Introduction to East Asian Culture. (3)
spring
Introduces the cultures of China, Japan, and Korea.
General Studies: HU, G

M FLA 323 Survey of Literature of the Soviet Era in Translation. (3)
fall and spring
Surveys main literary movements, prominent authors, most significant works of prose, poetry, and drama of the Soviet period, 1917–1991.
General Studies: L/HU, G

M FLA 385 Career Development for Language Majors. (3)
selected semesters
Theoretical and practical aspects of career planning and development; research focus on language-related careers. Lecture, discussion, Internet-based workshop. Prerequisites: either ENG 101 and 102 or ENG 107 and 108.

M FLA 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Introduction to Teaching Foreign Languages

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M FLA 400 Linguistics. (3)
spring
Introduces the analysis of language and its use in social contexts. Topics: morphology, phonology, pragmatics, semantics, syntax, and variation. Prerequisites: junior standing; instructor approval.
General Studies: SB

M FLA 401 Translation Theory and Practice. (3)
selected semesters
Translation theories and professional practices and ethics; bibliography, computer technology, and sample texts for natural and social sciences and humanities. Prerequisite: 4th-year composition or instructor approval in respective language area.

M FLA 415 Bilingualism and Languages in Contact. (3)
fall
Analyzes linguistic aspects of bilingualism, e.g., pidgins and creoles, code-switching, and other contact phenomena; simultaneous/sequential bilingual language acquisition. Prerequisite: FLA 400 (or its equivalent) or instructor approval.

M FLA 420 Foreign Literature in Translation. (3)
fall and spring
Not for language majors (except in Asian languages and Russian); open to language majors as a related-area course. Graduate students by permission. Topics may include the following:
- Brazilian
- Chinese
- French
- German
- Greek
- Italian
- Latin
- Portuguese
- Russian
- Soviet
- Spanish
- Spanish American

General Studies: HU, G

M FLA 421 Japanese Literature in Translation. (3)
fall and spring
Readings selected by theme or genre or period from various works of Japanese literature in English translation. May be repeated when topics vary. Graduate students by permission. Prerequisite: a General Studies L course.
General Studies: L/HU, G

M FLA 461 Feminist Political Writing in Contemporary Europe. (3)
selected semesters
Examines the discourse of gender-politics in Central Eastern Europe before and after Soviet hegemony. Cross-listed as ENG 429. Credit is allowed for only ENG 429 or FLA 461. See FLA Notes 1, 2, 3.

M FLA 464 Politics of Drama in 20th-Century Europe. (3)
selected semesters
Interdisciplinary examination of European drama before and after WWII. Cross-listed as ENG 429. Credit is allowed for only ENG 429 or FLA 464. See FLA Notes 1, 2, 3.

M FLA 472 Literature and Politics in Pre- and Post-Communist Europe. (3)
selected semesters
Interdisciplinary examination of the cultures of Eastern Europe from WWI to the present. Cross-listed as ENG 429. Credit is allowed for only ENG 429 or FLA 472. See FLA Notes 1, 2, 3.

M FLA 476 Literature and Film in 20th-Century Eastern Europe. (3)
selected semesters
Evaluates literary texts and films as a massive propaganda machine of the totalitarian state. Cross-listed as ENG 429. Credit is allowed for only ENG 429 or FLA 476. See FLA Notes 1, 2, 3.

M FLA 479 Introduction to Teaching Foreign Languages. (3)
fall
Introduces teaching methodologies, language learning, and current best practice in teaching foreign languages in U.S. middle and high schools. Lecture, discussion, reading, micro-teaching practice. Prerequisite: admission to ITC program in College of Education or instructor approval.

M FLA 480 Methods of Teaching Foreign Languages. (3)
fall
Teaching foreign languages and literatures at secondary and college levels. Does not meet the Liberal Arts and Sciences General Studies requirement for humanities and fine arts. Required for admission to SED 478. Prerequisite: 12 hours of upper-division courses in 1 foreign language.

M FLA 481 Technical and Scientific Translation. (3)
selected semesters
Resources, practices, strategies, and lexicon for translation of professional texts in subjects such as engineering, architecture, agriculture, computer technology, electronics, and physical and biological sciences. Prerequisite: FLA 401.

M FLA 482 Business and Financial Translation. (3)
selected semesters
Resources, practices, strategies, and lexicon for translation of professional texts in subjects such as economics, finance, insurance, management, marketing, accounting, advertising, and real estate. Prerequisite: FLA 401.

M FLA 483 Medical and Legal Translation. (3)
selected semesters
Resources and strategies for translation of professional texts in subjects such as medicine, nursing, public health, criminal justice, and international law. May be repeated for a total of 6 semester hours. Prerequisite: FLA 401.

M FLA 484 Internship. (1–12)
selected semesters

M FLA 485 Problems of Literary Translation. (3)
selected semesters
Theory and practice with emphasis on application through individual translation projects. May be repeated for a total of 6 semester hours. Prerequisite: FLA 401 or instructor approval in the respective language area.

M FLA 494 Special Topics. (1–4)
selected semesters
Various topics.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

ARABIC (ARB)

M ARB 101 Elementary Arabic. (4)
fall and summer
Reading, writing, speaking, and understanding basic Arabic. 4 hours lecture, 1 hour lab. Fee.

M ARB 102 Elementary Arabic. (4)
spring and summer
Reading, writing, speaking, and understanding basic Arabic. 4 hours lecture, 1 hour lab. Fee. Prerequisite: ARB 101 (or its equivalent).

M ARB 201 Intermediate Arabic. (4)
fall
Review of Arabic grammar with emphasis on the development of the skills of listening comprehension, reading, speaking, and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: ARB 102 (or its equivalent).
General Studies: G

M ARB 202 Intermediate Arabic. (4)
spring
Review of Arabic grammar with emphasis on the development of the skills of listening comprehension, reading, speaking, and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: ARB 201 (or its equivalent).
General Studies: G

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

SERBO-CROATIAN (BCS)

M BCS 101 Elementary Serbo-Croatian. (4)
fall and summer
Structural grammar, basic vocabulary; introduction and reinforcement of aural/oral, reading, and writing skills. 4 hours lecture, 1 hour lab. Lecture, lab, group activities.

M BCS 102 Elementary Serbo-Croatian. (4)
spring and summer
See BCS 101. Lecture, lab, group activities. Prerequisite: BCS 101 (or its equivalent).

M BCS 201 Intermediate Serbo-Croatian. (4)
fall and summer
Systematic review of grammar. Development of vocabulary through reading and writing. Drill in aural/oral skills. 4 hours lecture, 1 hour lab. Lecture, lab, group activities. Prerequisite: BCS 102 (or its equivalent).

M BCS 202 Intermediate Serbo-Croatian. (4)
spring and summer
See BCS 201. Lecture, lab, group activities. Prerequisite: BCS 201 (or its equivalent).

M BCS 298 Serbo-Croatian Practicum. (2)
summer
On-site summer practicum in Yugoslavia following intensive summer Serbo-Croatian language study in the ASU Critical Languages Institute. Lecture, lab, group activities. Prerequisite: BCS 102 (or its equivalent).

M BCS 495 Serbo-Croatian for Heritage Speakers. (1–6)
selected semesters
Generates professional proficiency by developing communicative and written competency in standard literary Serbo-Croatian. Lecture, lab, tutorial. Prerequisite: instructor approval.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

CHINESE (CHI)

M CHI 101 First-Year Chinese I. (5)
fall and spring
Pronunciation, grammar, elementary conversation, and development of basic reading and writing skills. Standard dialect. 5 class hours. Fee.

M CHI 102 First-Year Chinese II. (5)
fall and spring
See CHI 101. Fee. Prerequisite: CHI 101 (or its equivalent).

M CHI 201 Second-Year Chinese I. (5)
fall and spring
Systematic review of grammar. Development of vocabulary through reading and writing. Drill in aural/oral skills. 5 class hours. Fee. Prerequisite: CHI 102 (or its equivalent).
General Studies: G

M CHI 202 Second-Year Chinese II. (5)
spring
See CHI 201. Fee. Prerequisite: CHI 201 (or its equivalent).
General Studies: G

M CHI 205 Chinese Calligraphy. (1)
fall and spring
Introduces styles and techniques of Chinese writing. Requires no knowledge of Chinese or Japanese.

M CHI 309 Chinese Conversation. (2)
fall
Aural/oral drills using contemporary stories, articles, and essays. For students with lower-level proficiency. Prerequisite: CHI 202.

M CHI 310 Chinese Conversation. (2)
spring
See CHI 309. Prerequisite: CHI 202.

M CHI 311 Chinese Conversation. (2)
fall
Intensive aural/oral practice in modern Chinese. For students who have lived in China or a Chinese-speaking environment. Discussion, drill. Prerequisite: CHI 202.

M CHI 312 Chinese Conversation. (2)
spring
See CHI 311. Discussion, drill. Prerequisite: CHI 202.

M CHI 313 Third-Year Chinese I. (3)
fall
Expansion of proficiency in listening comprehension, speaking, reading, and writing. Lecture, 3 hours discussion, drill. Prerequisite: CHI 202 (or its equivalent).
General Studies: G

M CHI 314 Third-Year Chinese II. (3)
spring
Continuation of CHI 313. Prerequisite: CHI 313 (or its equivalent).
General Studies: G

M CHI 321 Chinese Literature. (3)
fall
Masterworks of the tradition from the 6th century BCE through the 13th century. Readings, lectures, and examinations are in English.
General Studies: HU

M CHI 322 Chinese Literature. (3)
spring
Masterpieces from the later tradition and its transition to modern times. Readings, lectures, and examinations are in English.
General Studies: HU, G

M CHI 345 Chinese Film and Civilization. (3)
once a year
Screening and discussion of recent films from China, Taiwan, and Hong Kong in the context of modern Chinese civilization. Lecture, discussion, screening.

M CHI 413 Introduction to Classical Chinese. (3)
fall
Reading in various genres of pre-20th century literature (wen-yen), with analysis of the structure of the classical writings. Prerequisite: CHI 314 or instructor approval.
General Studies: HU

M CHI 414 Introduction to Classical Chinese. (3)
spring
Continuation of CHI 413. Prerequisite: CHI 413.
General Studies: HU

M CHI 494 Special Topics. (1–4)
selected semesters

M CHI 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

FRENCH (FRE)

M FRE 101 Elementary French. (4)
fall, spring, summer
Intensive aural/oral drill in class and laboratory; basic grammar supplemented by simple prose readings. Credit is allowed for only FRE 101 or 111. 4 hours lecture, 1 hour lab. Fee.

M FRE 102 Elementary French. (4)
fall, spring, summer
See FRE 101. Credit is allowed for only FRE 102 or 111. Fee. Prerequisite: FRE 101 (or its equivalent).

M FRE 107 French for International Professions. (8)
fall
Accelerated alternative to FRE 101 and 102 or FRE 111. Functional approach. Emphasizes communicative competence for international professions. Credit is allowed for only FRE 107 or 111. Fee.

M FRE 111 Fundamentals of French. (4)
fall and spring
Primarily for students with two years of high school French who need review to enter second year study. Credit is allowed for only FRE 111 or 101 or 102 or 107. 4 hours lecture, 1 hour lab. Fee.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M FRE 201 Intermediate French I. (4)
fall, spring, summer
Grammar review, with emphasis on development of skills of speaking, reading, writing, and listening comprehension. 4 hours lecture; 1 hour lab. Fee. Prerequisite: FRE 102 or 111 (or its equivalent).
General Studies: G

M FRE 202 Intermediate French II. (4)
fall, spring, summer
Continuation of grammar review with emphasis on development of skills in speaking, reading, writing, and listening comprehension. 4 hours lecture, 1 hour lab. Fee. Prerequisite: FRE 201 (or its equivalent).
General Studies: G

M FRE 205 Readings in French Literature. (3)
fall, spring, summer
Designed to teach reading with facility and comprehension. Vocabulary building and textual analysis of literary genres are major elements. Prerequisite: FRE 202 (or its equivalent).
General Studies: G

M FRE 207 French for Business. (4)
spring
Alternative to FRE 202. Functional approach. Emphasizes communicative competence for international professions. Not open to students with credit in FRE 202. Fee. Prerequisite: FRE 107 or instructor approval.
General Studies: G

M FRE 311 French Conversation. (3)
fall and spring
Further practice in speaking French, emphasizing current usage and promoting facility in the expression of ideas. Prerequisite: 8 hours of 200-level French (or its equivalent).
General Studies: G

M FRE 312 French Composition. (3)
fall and spring
Further practice in writing French, emphasizing current usage and promoting facility in the expression of ideas. Prerequisite: 8 hours of 200-level French (or its equivalent).
General Studies: G

M FRE 315 French Phonetics. (3)
fall
Practice and theory of French pronunciation. Emphasizes standard French, although an overview of regional varieties is offered. Lecture, lab. Prerequisite: FRE 311 (or its equivalent).

M FRE 319 Business French. (3)
spring
Introduces the structure, vocabulary, and practices of the French business world. Prerequisite: FRE 312 or instructor approval.
General Studies: G

M FRE 321 French Literature. (3)
fall and spring
Representative masterpieces and significant movements of French literature of the Middle Ages through the 18th century. Prerequisites: FRE 205, 312 (or their equivalents).
General Studies: L/HU, H

M FRE 322 French Literature. (3)
fall and spring
Literature of the 19th and 20th centuries. Prerequisites: FRE 205, 312 (or their equivalents).
General Studies: L/HU

M FRE 325 Introduction to French Film. (3)
spring
Studies French artistic contribution from 1895 to present, with emphasis on recent films starting with the New Wave. Short lecture before film, discussion after. Prerequisite for French majors: FRE 202.

M FRE 394 Special Topics. (1–4)
selected semesters

M FRE 411 Advanced Spoken French. (3)
fall and spring
Improvement of spoken French. Prerequisites: FRE 311 and 6 hours of 300-level French (or their equivalents).
General Studies: G

M FRE 412 Advanced Written French. (3)
fall and spring
Improvement of composition skills. Prerequisites: FRE 312 and 6 hours of 300-level French (or their equivalents).
General Studies: G

M FRE 415 French Civilization I. (3)
spring
Political, intellectual, social, economic, and artistic development of France from its origins to the end of the 17th century. Prerequisite: 6 hours of upper-division French.
General Studies: HU

M FRE 416 French Civilization II. (3)
spring
Political, intellectual, social, economic, and artistic development of France from the 18th century to present. Prerequisite: 6 hours of upper-division French.
General Studies: HU, G

M FRE 421 Structure of French. (3)
fall
Phonology, morphology, syntax, semantics, and varieties of French. Prerequisites: both FRE 311 and 312 or only instructor approval.

M FRE 422 Applied French Linguistics. (3)
spring
Applies linguistic theory and second language acquisition theory to teaching of French. Prerequisite: ASB 480 or ENG 213 or FLA 400.

M FRE 423 French Syntax. (3)
spring
Analyzes French syntactic structure by contemporary theoretical models. Prerequisite: ASB 480 or ENG 213 or FLA 400.

M FRE 432 Gay Identities in Modern French Literature. (3)
spring
Examines the representation of homosexuals as well as the emergence of homosexuality as a theme in modern French literature. Lecture, discussion. Prerequisites: both FRE 322 and 6 hours of 300-level French or only instructor approval.

M FRE 441 French Literature of the 17th Century. (3)
fall
From 1600 to 1660. Prerequisites: both FRE 321 and 6 hours of 300-level French or only instructor approval.
General Studies: HU

M FRE 442 French Literature of the 17th Century. (3)
spring
From 1660 to 1700. Prerequisites: both FRE 321 and 6 hours of 300-level French or only instructor approval.
General Studies: HU, H

M FRE 445 French Literature of the 18th Century. (3)
selected semesters
Contributions of the philosophers and the development of the novel and drama. Prerequisites: both FRE 321 and 6 hours of 300-level French or only instructor approval.
General Studies: L/HU

M FRE 451 French Poetry of the 19th Century. (3)
spring
From Romanticism to Parnassian poetry to Symbolism. Prerequisites: both FRE 322 and 6 hours of 300-level French or only instructor approval.

M FRE 452 French Novel of the 19th Century. (3)
fall
From Constant, Hugo, Balzac, Stendhal, and Sand to Flaubert and Zola, with emphasis on major literary movements. Prerequisites: both FRE 322 and 6 hours of 300-level French or only instructor approval.
General Studies: HU

M FRE 453 Theater of the 19th Century. (3)
spring
From Romantic drama to the Symbolist Theater. Representative plays of Hugo, Musset, Vigny, Dumas, Becque, Rostand, Feydeau, and Mirbeau. Prerequisites: both FRE 322 and 6 hours of 300-level French or only instructor approval.
General Studies: L/HU

M FRE 461 Modern Narrative. (3)
fall
Representative authors from Gide to the new Nouveau Roman. Prerequisites: both FRE 322 and 6 hours of 300-level French or only instructor approval.
General Studies: HU

M FRE 462 Modern Poetry. (3)
spring
Representative authors from Mallarme to Bonnefoy. Lecture, discussion. Prerequisites: both FRE 322 and 6 hours of 300-level French or only instructor approval.
General Studies: HU

M FRE 471 The Literature of Francophone Africa and the Caribbean. (3)
fall
Selected prose, poetry, and drama of black authors from Africa and the Caribbean. Prerequisites: both FRE 322 and 6 hours of 300-level French or only instructor approval.
General Studies: L/HU

M FRE 472 Franco-Canadian Civilization. (3)
spring
Study of the civilization of Quebec in particular through its history, language, literature, music, and customs. Prerequisite: 9 hours of 300-level French or instructor approval.

M FRE 480 Translation Theory and Practice. (3)
spring
Theoretical and practical approaches to the fundamentals of meaning-based translation. Lecture, seminar. Prerequisite: FRE 412 or instructor approval.

M FRE 485 Literary Translation. (3)
spring
Theory and practice of literary translation with emphasis on application through individual translation project. Prerequisite: FRE 480.

M FRE 494 Special Topics. (1–4)
selected semesters

M FRE 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

GERMAN (GER)

M GER 101 Elementary German. (4)
fall, spring, summer
Reading, writing, speaking, and understanding of basic German, with emphasis on pronunciation and grammar. Credit is allowed for only GER 101 or 111. 4 hours lecture, 1 hour lab. Fee.

M GER 102 Elementary German. (4)
fall, spring, summer
See GER 101. Credit is allowed for only GER 102 or 111. Fee. Prerequisite: GER 101 (or its equivalent).

M GER 111 Fundamentals of German. (4)
fall and spring
Primarily for students with two years of high school German who need review to enter second-year study. Credit is allowed for only GER 111 or both GER 101 and 102. 4 hours lecture, 1 hour lab. Fee.

M GER 201 Intermediate German. (4)
fall, spring, summer
Intensive review of grammar, with emphasis on the development of the skills of speaking, listening comprehension, reading, and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: GER 102 or 111 (or its equivalent).
General Studies: G

M GER 202 Intermediate German. (4)
fall, spring, summer
See GER 201. Fee. Prerequisite: GER 201 (or its equivalent).
General Studies: G

M GER 311 German Conversation. (3)
fall
Expansion of idiom through oral practice dealing with contemporary articles, essays, and stories. 3 semester hours limit for majors. Prerequisite: GER 202 (or its equivalent).
General Studies: G

M GER 312 German Conversation. (3)
spring
See GER 311. Prerequisite: GER 202 (or its equivalent).
General Studies: G

M GER 313 German Composition. (3)
spring
Intensive practice in writing, emphasizing style and grammar. Prerequisite: GER 202 (or its equivalent).
General Studies: G

M GER 319 Business Correspondence and Communication. (3)
selected semesters
Organization and presentation of clear, effective business communications; vocabulary applicable to modern business usage. Prerequisite: GER 313 or instructor approval.
General Studies: G

M GER 394 Special Topics. (1–4)
selected semesters

M GER 411 Advanced Grammar and Conversation. (3)
fall
Improvement of diction and idiom through intensive oral review. Prerequisite: GER 311 or 312 (or its equivalent).
General Studies: G

M GER 412 Advanced Grammar and Composition. (3)
spring
Improvement of writing ability. Prerequisite: GER 313 (or its equivalent).
General Studies: G

M GER 415 German Civilization. (3)
spring
Aspects of political, social, and cultural life of the German-speaking world from the beginning through 1600. Prerequisite: a 300-level course in German or instructor approval.
General Studies: HU, G, H

M GER 416 German Civilization. (3)
fall
From 1600 through 1945. Prerequisite: a 300-level course in German or instructor approval.
General Studies: HU, G, H

M GER 421 German Literature. (3)
fall
From the beginning to Classicism. Prerequisite: 6 hours of 300-level German.
General Studies: HU

M GER 422 German Literature. (3)
spring
From Romanticism to the present. Prerequisite: 6 hours of 300-level German.
General Studies: L/HU

M GER 453 German Literary Masterpieces on Film. (3)
fall, spring, summer
Film and literature in their correlation to each other and to cultural, political, and social trends in German-speaking countries. Special arrangements for graduate students and those without a knowledge of German. Lecture, discussion.
General Studies: HU, G

M GER 494 Special Topics. (1–4)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

ANCIENT GREEK (GRK)

M GRK 101 Elementary Ancient Greek. (4)
fall
Ancient Greek grammar and vocabulary with an emphasis on developing reading skills. For beginning students only.

M GRK 201 Intermediate Ancient Greek. (4)
spring
Continuation of GRK 101. Ancient Greek syntax and grammar. Prerequisite: GRK 101.

M GRK 301 Ancient Greek Literature I. (3)
fall
Readings in ancient Greek prose; advanced grammar. May be repeated for credit. Prerequisite: GRK 201.
General Studies: HU

M GRK 302 Ancient Greek Literature II. (3)
spring
Continuation of GRK 301. Readings in ancient Greek poetry. Prerequisite: GRK 301.
General Studies: HU

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

HEBREW (HEB)

M HEB 101 Elementary Modern Hebrew. (4)
fall
Reading, writing, speaking, and understanding of basic modern Hebrew, with emphasis on pronunciation and grammar. 4 hours lecture, 1 hour lab. Fee.

M HEB 102 Elementary Modern Hebrew. (4)
spring
Reading, writing, speaking, and understanding of basic modern Hebrew, with emphasis on pronunciation and grammar. 4 hours lecture, 1 hour lab. Fee. Prerequisite: HEB 101 (or its equivalent).

M HEB 201 Intermediate Modern Hebrew. (4)
fall
Intensive review of grammar, with emphasis on the development of the skills of speaking, listening comprehension, reading, and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: HEB 102 (or its equivalent).
General Studies: G

M HEB 202 Intermediate Modern Hebrew. (4)
spring
Intensive review of grammar, with emphasis on the development of the skills of speaking, listening comprehension, reading, and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: HEB 201 (or its equivalent).
General Studies: G

M HEB 313 Advanced Modern Hebrew. (4)
fall
Continued development of ability to communicate orally and in writing. Reading of selected literary works. Prerequisite: HEB 202 (or its equivalent).

M HEB 314 Advanced Modern Hebrew. (4)
spring
Continued development of ability to communicate orally and in writing. Reading of selected literary works. Prerequisite: HEB 313 (or its equivalent).

M HEB 375 Contemporary Culture of Israel. (3)
fall and spring
Intense study of aspects of historical, social, political, and cultural modern life in Israel. Beginning of Zionism to present day. Lecture, discussion.
General Studies: HU, G

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

INDONESIAN (IDN)

M IDN 101 Elementary Indonesian I. (5)
fall
Basic communication, reading, and writing skills. Intensive oral/aural classroom drill supplemented by prose reading. 4 hours lecture, 1 hour lab. Fee.

M IDN 102 Elementary Indonesian II. (5)
spring
Basic communication, reading, and writing skills. Intensive oral/aural classroom drill supplemented by prose reading. 4 hours lecture, 1 hour lab. Fee. Prerequisite: IDN 101 (or its equivalent).

M IDN 201 Intermediate Indonesian I. (5)
fall
Systematic review of grammar. Continued development of communication skills with increased emphasis on reading and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: IDN 102 (or its equivalent).
General Studies: G

M IDN 202 Intermediate Indonesian II. (5)
spring
Systematic review of grammar. Continued development of communication skills with increased emphasis on reading and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: IDN 201 (or its equivalent).
General Studies: G

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

ITALIAN (ITA)

M ITA 101 Elementary Italian. (5)
fall, spring, summer
Aural/oral drill in class and laboratory. Basic grammar supplemented by simple prose readings. 5 hours lecture, 1 hour lab. Fee.

M ITA 102 Elementary Italian. (5)
fall, spring, summer
Aural/oral drill in class and laboratory. Basic grammar supplemented by simple prose readings. 5 hours lecture, 1 hour lab. Fee. Prerequisite: ITA 101 (or its equivalent).

M ITA 201 Intermediate Italian. (3)
fall, spring, summer
Systematic review of grammar. Development of vocabulary through reading, listening, speaking, and writing. 3 hours lecture, 1 hour lab. Fee. Prerequisite: ITA 102 (or its equivalent).
General Studies: G

M ITA 202 Intermediate Italian. (3)
fall, spring, summer
Systematic review of grammar. Development of vocabulary through reading, listening, speaking, and writing. 3 hours lecture, 1 hour lab. Fee. Prerequisite: ITA 201 (or its equivalent).
General Studies: G

M ITA 311 Italian Composition and Conversation. (3)
fall and spring
Development of writing ability and oral expression. Prerequisite: ITA 202 (or its equivalent).
General Studies: G

M ITA 312 Italian Composition and Conversation. (3)
fall and spring
See ITA 311. Prerequisite: ITA 202 (or its equivalent).
General Studies: G

M ITA 314 Advanced Italian. (3)
selected semesters
Advanced grammar and composition with readings of selected literary works. Prerequisite: ITA 202 or instructor approval.
General Studies: G

M ITA 315 Italian for Business. (3)
fall
Conversation and composition course in Italian; focuses on business, culture, and communication in Italy. Readings, discussion, research, lab (computer and audio-video), Blackboard support. Prerequisite: ITA 202 or instructor approval.

M ITA 325 Introduction to Italian Literature. (3)
fall
Italian literature through the interpretation of representative works in drama, poetry, and novel. Prerequisite: ITA 202 or instructor approval.
General Studies: HU

M ITA 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Commercial Italian. (3)

M ITA 415 Italian Civilization. (3)
selected semesters
General survey of history, literature, art, and music, emphasizing Italy's cultural contribution to Western civilization. Prerequisites: ITA 311, 312 (or 314).
General Studies: HU, G

M ITA 420 Italian Cinema. (3)
fall
Major trends of Italian cinema from the post-war period to the present.

M ITA 425 Italian American Culture. (3)
selected semesters
Analyzes representations of Italian American history and culture in several media, including literature, film, and television. Lecture, discussion.
General Studies: L

M ITA 430 Italian Literature of the Middle Ages. (3)
selected semesters
Emphasizes "Stil Novo," Dante's minor works, Petrarch, and Boccaccio. Prerequisite: ITA 325 or instructor approval.
General Studies: HU

M ITA 441 Dante: *Divina Commedia.* (3)
selected semesters
Critical reading of the three *Cantiche (Inferno, Purgatorio, and Paradiso)*. Prerequisite: ITA 325.
General Studies: L/HU

M ITA 443 Italian Literature of the Renaissance. (3)
selected semesters
Emphasizes Lorenzo de'Medici, Poliziano Castiglione, Machiavelli, Ariosto, and Tasso. Prerequisite: ITA 325 or instructor approval.
General Studies: HU, H

M ITA 446 Italian Literature of the 18th and 19th Centuries. (3)
selected semesters
Goldoni, Parini, Alfieri, the poetry of Foscolo and Leopardi, and the sociohistorical novels of Foscolo, Manzoni, and Verga. Prerequisite: ITA 325 or instructor approval.
General Studies: HU

M ITA 449 20th-Century Italian Literature. (3)
selected semesters
Major works, figures, and movements of contemporary Italian literature. Prerequisite: ITA 325.
General Studies: HU, G

M ITA 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Italian/American Culture. (3)

M ITA 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

JAPANESE (JPN)

M JPN 101 First-Year Japanese I. (5)
fall and spring
Communication skills and basic skills in grammar, reading, and writing, including hiragana, katakana, and about 75 kanji. 5 hours per week. Fee.

M JPN 102 First-Year Japanese II. (5)
fall and spring
Continuation of JPN 101. Additional 99 kanji. Continued development of communication skills in speaking, listening, reading, writing, and culture. Fee. Prerequisite: JPN 101 (or its equivalent).

M JPN 201 Second-Year Japanese I. (5)
fall and spring
Continued development of communication skills. Increased emphasis on reading and writing. Review of fundamentals of structure to increase abilities in composition and translation. 5 hours per week. Fee. Prerequisite: JPN 102 (or its equivalent).
General Studies: G

M JPN 202 Second-Year Japanese II. (5)
fall and spring
Continuation of JPN 201. Fee. Prerequisite: JPN 201 (or its equivalent).
General Studies: G

M JPN 206 Calligraphy. (1)
selected semesters
Introduces the practice of calligraphy in Japan, with emphasis on the derivation of Japanese kana syllabaries from Chinese characters. Prerequisite: CHI 205 or JPN 101.

M JPN 309 Intermediate Japanese Conversation. (2)
fall
Practice in current usage in expression of ideas. Recommended especially for those who have not had the opportunity to practice Japanese in Japan. Prerequisite: JPN 202.

M JPN 310 Intermediate Japanese Conversation. (2)
spring
Continuation of JPN 309. Prerequisite: JPN 309.

M JPN 311 Japanese Conversation and Composition. (3)
fall
Intensive aural/oral practice leading toward conversational fluency. Practice in writing Japanese, emphasizing current usage. Prerequisite: JPN 202.
General Studies: G

M JPN 312 Japanese Conversation and Composition. (3)
spring
See JPN 311. Prerequisite: JPN 202.
General Studies: G

M JPN 313 Third-Year Japanese I. (3)
fall
Continued development of basic skills with greater emphasis on reading. JPN 313 and 314 must be taken in sequence. Prerequisite: JPN 202 (or its equivalent).
General Studies: G

M JPN 314 Third-Year Japanese II. (3)
spring
Continued development of basic skills with continued emphasis on reading. JPN 313 and 314 must be taken in sequence. Prerequisite: JPN 313 or instructor approval.
General Studies: G

M JPN 321 Japanese Literature. (3)
selected semesters
Readings in modern literature, changing yearly. May be repeated for credit. Prerequisite: preferably JPN 314 (or 313) or instructor approval.
General Studies: L/HU, G

M JPN 394 Special Topics. (1–4)
selected semesters

M JPN 414 Introduction to Classical Japanese. (3)
spring
Readings from various genres of pre-20th-century literature, with analysis of the structure of the classical language. Prerequisite: JPN 313 or instructor approval.

M JPN 435 Advanced Readings. (3)
selected semesters
Readings in history, art, religious studies, economics, or other fields. Lecture, discussion. Prerequisite: JPN 314 (or its equivalent).

M JPN 485 Problems of Translation. (3)
selected semesters
Theories and practice of translation: strategies for handling a variety of Japanese texts. Lecture, discussion. Prerequisite: JPN 314 (or its equivalent).

M JPN 494 Special Topics. (1–4)
selected semesters

M JPN 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

KOREAN (KOR)

M KOR 101 First-Year Korean I. (5)
fall
Pronunciation, grammar, elementary conversation, and development of basic reading and writing skills, including Han'gul. Lecture, recitation.

M KOR 102 First-Year Korean II. (5)
spring
Continuation of KOR 101. Lecture, recitation. Prerequisite: KOR 101 (or its equivalent).

M KOR 201 Second-Year Korean I. (5)
fall
Continual development of communication skills. Increased emphasis on reading and writing, vocabulary building, and review of fundamentals. Lecture, recitation. Prerequisite: KOR 102 (or its equivalent).
General Studies: G

M KOR 202 Second-Year Korean II. (5)
spring
Continuation of KOR 201. Lecture, recitation. Prerequisite: KOR 201 (or its equivalent).
General Studies: G

M KOR 250 Korean Culture and Society. (3)
fall
Survey of Korean culture and society, covering history, religious traditions, gender, and popular culture. Lecture, discussion.
General Studies: HU, G

M KOR 313 Third-Year Korean I. (3)
fall
Continued development of ability to communicate orally and in writing. Exposure to a variety or Korean written styles. Reading, writing, discussion. Prerequisite: KOR 202 (or its equivalent).

M KOR 314 Third-Year Korean II. (3)
spring
Continuation of KOR 313. Reading, writing, discussion. Prerequisite: KOR 313 (or its equivalent).

M KOR 347 Korean Film and Literature. (3)
spring
Introduces aspects of Korean history, culture, and society through Korean film and literature. Lecture, discussion.
General Studies: HU

M KOR 350 Women of Korea. (3)
spring
Examines the changing role and status of women in modern Korea in relation to political and cultural changes. Lecture, discussion.
General Studies: H

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

LATIN (LAT)

M LAT 101 Elementary Latin. (4)
fall and spring
Basic Latin grammar with an emphasis on developing reading skills. For beginning students only.

M LAT 102 Elementary Latin. (4)
fall and spring
Continuation of LAT 101. Prerequisite: LAT 101 (or its equivalent).

M LAT 201 Intermediate Latin I. (4)
fall and spring
Final semester of grammar. Prerequisite: LAT 102 or instructor approval.
General Studies: HU

M LAT 202 Intermediate Latin II. (4)
fall and spring
Beginning reading of Latin authors. Prerequisite: LAT 201 (or its equivalent) or instructor approval.
General Studies: HU

M LAT 421 Roman Literature. (3)
fall
Readings in the Latin masterpieces. Authors read change each year in accordance with needs of the class. May be repeated for credit. Prerequisite: LAT 202 or instructor approval.
General Studies: HU

M LAT 422 Roman Literature. (3)
spring
See LAT 421. Prerequisite: LAT 202 or instructor approval.
General Studies: HU

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

MACEDONIAN (MAK)

M MAK 101 Elementary Macedonian. (4)
summer
Structural grammar, basic vocabulary; introduction and reinforcement of aural/oral, reading, and writing skills. 4 hours lecture, 1 hour lab. Lecture, lab, group activities.

M MAK 102 Elementary Macedonian. (4)
summer
See MAK 101. Lecture, lab, group activities. Prerequisite: MAK 101 (or its equivalent).

M MAK 201 Intermediate Macedonian. (4)
summer
Systematic review of grammar. Development of vocabulary through reading and writing. Drill in aural/oral skills. 4 hours lecture, 1 hour lab. Lecture, lab, group activities. Prerequisite: MAK 102 (or its equivalent).

M MAK 202 Intermediate Macedonian. (4)
summer
See MAK 201. Lecture, lab, group activities. Prerequisite: MAK 201 (or its equivalent).

M MAK 298 Macedonian Practicum. (2)
summer
On-site summer practicum in Macedonia following intensive summer Macedonian language study in the ASU Critical Languages Institute. Lecture, lab, group activities. Prerequisite: MAK 102 (or its equivalent).

M MAK 311 Macedonian Composition and Conversation. (1–8)
once a year
Advanced communicative proficiency and writing development. Intended for students enrolled in "ASU Study Abroad University of Ss. Kiril and Metodij." Tutorial. Prerequisite: MAK 202 (or its equivalent).

M MAK 312 Macedonian Composition and Conversation. (1–8)
once a year
Advanced communicative proficiency and writing development. Intended for students enrolled in "ASU Study Abroad University of Ss. Kiril and Metodij." Tutorial. Prerequisite: MAK 202 (or its equivalent).

M MAK 411 Advanced Macedonian Composition and Conversation. (1–8)
once a year
Improves self-expression in oral and written skills, emphasizing vocabulary building and use of newspapers and other materials published in Macedonia. Tutorial. Prerequisite: MAK 312 (or its equivalent).

M MAK 412 Advanced Macedonian Composition and Conversation. (1–8)
once a year
Improves self-expression in oral and written skills, emphasizing vocabulary building and use of newspapers and other materials published in Macedonia. Tutorial. Prerequisite: MAK 411 (or its equivalent).

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

NORWEGIAN (NOR)

M NOR 101 Elementary Norwegian. (4)
fall
Reading, writing, speaking, and understanding of basic Norwegian. 4 hours lecture, 1 hour lab. Fee.

M NOR 102 Elementary Norwegian. (4)
spring
Reading, writing, speaking, and understanding of basic Norwegian. 4 hours lecture, 1 hour lab. Fee. Prerequisite: NOR 101 (or its equivalent).

M NOR 201 Intermediate Norwegian. (4)
fall
Reviews Norwegian grammar with emphasis on the development of the skills of speaking, listening comprehension, reading, and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: NOR 102 (or its equivalent).

M NOR 202 Intermediate Norwegian. (4)
spring
Reviews Norwegian grammar with emphasis on the development of the skills of speaking, listening comprehension, reading, and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: NOR 201 (or its equivalent).

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

PORTUGUESE (POR)

M POR 101 Elementary Portuguese. (5)
fall and spring
Basic grammar with intensive drills in class and laboratory directed toward conversational fluency. 5 hours lecture, 1 hour lab. Fee. Prerequisite: 1 year of Spanish or French or Italian or instructor approval.

M POR 201 Intermediate Portuguese. (5)
fall and spring
Continuation of POR 101. Intensive drill of fundamentals in class and laboratory directed toward conversational fluency. 5 hours lecture, 1 hour lab. Fee. Prerequisite: POR 101 or instructor approval.
General Studies: G

M POR 313 Portuguese Composition and Conversation. (3)
fall
Develops skill in written Portuguese and corrected oral expression. Must be taken in sequence. Prerequisite: POR 201 or instructor approval.
General Studies: G

M POR 314 Portuguese Composition and Conversation. (3)
spring
Continuation of POR 313. Prerequisite: POR 313 or instructor approval.
General Studies: G

M POR 321 Luso-Brazilian Literature. (3)
selected semesters
Representative masterpieces of Portuguese and Brazilian literature from the beginning to the present. Prerequisite: POR 313 or instructor approval.
General Studies: HU

M POR 472 Luso-Brazilian Civilization. (3)
selected semesters
Lectures, readings, and discussion of important aspects of Luso-Brazilian civilization. Topics from music, art, folklore, literature, history, and politics. Prerequisite: POR 313 or instructor approval.
General Studies: HU, G

M POR 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Advanced Portuguese Composition and Conversation. (3)
- Brazilian Film. (3)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

ROMANIAN (ROM)

M ROM 101 Elementary Romanian. (5)
fall and spring
Basic grammar with intensive drills in class and laboratory directed toward conversational fluency. 5 hours lecture, 1 hour lab.

M ROM 201 Intermediate Romanian. (5)
fall and spring
Continuation of ROM 101. Intensive drill of fundamentals in class and laboratory directed toward conversational fluency. 5 hours lecture, 1 hour lab. Prerequisite: ROM 101 or instructor approval.

M ROM 313 Romanian Composition and Conversation. (3)
fall and spring
Develops skills in written Romanian and correct oral expression. Must be taken in sequence with ROM 314. Prerequisite: ROM 201 or instructor approval.

M ROM 314 Romanian Composition and Conversation. (3)
spring
Continuation of ROM 313. Develops skills in written Romanian and correct oral expression. Must be taken in sequence. Prerequisite: ROM 313 or instructor approval.

M ROM 494 Special Topics. (1–4)
once a year

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

RUSSIAN (RUS)

M RUS 101 Elementary Russian. (4)
fall, spring, summer
Structural grammar and basic vocabulary. Introduces and reinforces aural/oral reading and writing skills. 4 hours lecture, 1 hour lab. Fee.

M RUS 102 Elementary Russian. (4)
spring and summer
See RUS 101. Fee. Prerequisite: RUS 101 (or its equivalent).

M RUS 201 Intermediate Russian. (4)
fall and summer
Systematic review of grammar. Develops vocabulary through reading and writing. Drill in aural/oral skills. 4 hours lecture, 1 hour lab. Fee. Prerequisite: RUS 102 (or its equivalent).
General Studies: G

M RUS 202 Intermediate Russian. (4)
spring and summer
See RUS 201. Fee. Prerequisite: RUS 201 (or its equivalent).
General Studies: G

M RUS 211 Basic Russian Conversation. (3)
fall
Intensive aural/oral drill to supplement reading and grammatical skills acquired in RUS 101, 102, 201, and 202. Required of Russian majors. Fee. Prerequisite: RUS 102.
General Studies: G

M RUS 212 Basic Russian Conversation. (3)
spring
See RUS 211. Fee. Prerequisite: RUS 102.
General Studies: G

M RUS 311 Russian Composition and Conversation. (3)
fall
Develops writing ability and oral expression. Prerequisite: RUS 202.
General Studies: G

M RUS 312 Russian Composition and Conversation. (3)
spring
See RUS 311. Prerequisite: RUS 202.
General Studies: G

M RUS 321 Foundations of Russian Literature. (3)
selected semesters
Literary movements, prose, poetry, and drama from early Kievan writings to 19th-century works of Pushkin, Lermontov, Gogol. Does not satisfy the CLAS language requirement for the BA degree. Open to nonmajors. Prerequisite: readings in translation.
General Studies: HU, H

M RUS 322 Great Russian Writers of the 19th Century. (3)
selected semesters
Surveys the great age of prerevolutionary Russian prose, including works of Gogol, Turgenev, Dostoevski, Tolstoy, and Chekhov. Does not

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

satisfy the CLAS language requirement for the BA degree. Open to nonmajors. Prerequisite: readings in translation.
General Studies: L/HU

M RUS 323 Modern Russian Literature and the Soviet Legacy. (3)
selected semesters
See also FLA 323. 20th-century Russian writers: their prose, poetry, drama; problems of the writer in Soviet and post-Soviet society. Does not satisfy the CLAS language requirement for the BA degree. Open to nonmajors. Prerequisite: readings in translation.
General Studies: L/HU, G

M RUS 411 Advanced Composition and Conversation I. (3)
fall
Improves aural discrimination and self-expression in oral and written skills, emphasizing vocabulary building. Subject materials drawn from current post-Soviet-Russian publications. Prerequisite: RUS 312.
General Studies: G

M RUS 412 Advanced Composition and Conversation II. (3)
spring
See RUS 411. Prerequisite: RUS 312.
General Studies: G

M RUS 417 Applied Russian Phonetics. (2)
selected semesters
General improvement in language skills through aural/oral training in Russian phonology and an analysis of Russian orthography. Prerequisite: RUS 102.

M RUS 420 Russian Poetry. (3)
selected semesters
Development of Russian poetry from its beginnings to the present, including both native and émigré poets. Topics in criticism and the study of poetics. Prerequisite: RUS 312 or instructor approval.
General Studies: L/HU

M RUS 421 Pushkin. (3)
selected semesters
Pushkin's poetry, plays, and prose fiction, including *Eugene Onegin, The Little Tragedies, Tales of Belkin, Queen of Spades,* and *The Captain's Daughter.* Taught in English. Does not satisfy the Liberal Arts and Sciences language requirement for BA degree.
General Studies: L/HU

M RUS 423 Dostoyevsky. (3)
selected semesters
Dostoyevsky's major works of fiction, including *Crime and Punishment* and *Brothers Karamazov.* Taught in English. Does not satisfy the Liberal Arts and Sciences language requirement for BA degree.
General Studies: L/HU

M RUS 424 Tolstoy. (3)
selected semesters
Tolstoy's major works, including *War and Peace* and *Anna Karenina.* Taught in English. Does not satisfy the Liberal Arts and Sciences language requirement for BA degree.
General Studies: L/HU

M RUS 425 Chekhov. (3)
selected semesters
Chekhov's major works, representative short stories and major plays, including *The Cherry Orchard* and *Three Sisters.* Taught in English. Does not satisfy the Liberal Arts and Sciences language requirement for BA degree.
General Studies: L/HU

M RUS 430 Russian Short Story. (3)
selected semesters
Detailed study of representative works of the Russian short story genre. Includes authors from both Imperial and Soviet Russia. Prerequisite: RUS 312 or instructor approval.
General Studies: L/HU

M RUS 441 Survey of Russian Culture. (3)
selected semesters
Interplay of artistic, social, and political forces in the development of Russian culture from the Kievan period to the present. Exclusive use of Russian language source materials. Prerequisite: RUS 312 or instructor approval.
General Studies: L/HU, G, H

M RUS 493 Honors Thesis. (1–6)
selected semesters

M RUS 494 Special Topics. (1–4)
selected semesters

M RUS 495 Russian for Heritage Speakers. (1–6)
selected semesters
Generates professional proficiency by developing advanced communicative and written competency in standard literary Russian. Lecture, lab, tutorial. Prerequisite: instructor approval.

M RUS 498 Pro-Seminar. (1–7)
selected semesters
Topics may include the following:
- Senior Seminar. (3)

M RUS 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

SCANDINAVIAN (SCA)

M SCA 250 Introduction to Scandinavian Culture. (3)
spring
Scandinavian identity from an interdisciplinary perspective with historic overview. Lecture, discussion.
General Studies: HU, G, H

M SCA 315 Old Norse. (3)
fall and spring
Readings and study of grammatical structures of Medieval Scandinavian with emphasis on the Sagas and Edda poetry and historical writings.

M SCA 316 Scandinavian Cinema. (3)
fall and spring
Presents Scandinavian films, with English subtitles, as representatives of contemporary and historical culture.
General Studies: HU, G

M SCA 450 Masterpieces of Scandinavian Literature. (3)
spring
Scandinavian literature in translation in its cultural and historical contexts.
General Studies: L/HU

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

SLAVIC (SLV)

M SLV 304 Computational Linguistics of Slavic Languages. (3)
spring
Information technology and Slavic languages, including Web design, digitalized resources, information retrieval, math/statistical analysis, and PERL. Lecture, lab.
General Studies: CS

M SLV 426 Contemporary East European and Eurasian Literatures. (3)
selected semesters
Readings in non-Russian literatures and literary criticism from Eastern Europe and Eurasia: Milosz, Mrozek, Kis, Andric, Kadare, Ajtmatov. Lecture, discussion.
General Studies: L/HU, G

M SLV 440 History of Slavic Languages. (3)
selected semesters
Comparative evolution of East Slavic, West Slavic, and South Slavic languages from the earliest record to the standardizing of national languages in the 19th and 20th centuries. Lecture, discussion.
General Studies: SB

M SLV 498 Pro-Seminar. (1–7)
selected semesters
Topics may include the following:
- Senior Seminar. (3)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

SPANISH (SPA)

For more SPA courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M SPA Note 1. Students who have completed their secondary education in a school where Spanish was the official language of instruction should begin their studies at the 325 level or above. No student who has completed more than two years of high school in a Spanish-speaking country, where Spanish is the medium of instruction in the school, is allowed to register in a Spanish language class below the 400 level.

M SPA 101 Elementary Spanish. (4)
fall, spring, summer
Fundamentals of the language. Emphasizes listening, speaking, reading, and writing. Credit is allowed for only SPA 101 or 111. 4 hours lecture, 1 hour lab. Fee. See SPA Note 1.

M SPA 102 Elementary Spanish. (4)
fall, spring, summer
See SPA 101. Credit is allowed for only SPA 102 or 111. Fee. See SPA Note 1. Prerequisite: SPA 101 (or its equivalent).

M SPA 107 Spanish for International Professions I. (8)
fall
Accelerated program alternative to SPA 101, 102 sequence. Functional approach to needs of international professions. Fee. See SPA Note 1.

M SPA 111 Fundamentals of Spanish. (4)
fall and spring
Primarily for students with two years of high school Spanish who need review to enter second-year study. Credit is allowed for only SPA 111 or both SPA 101 and 102. 4 hours lecture, 1 hour lab. Fee. See SPA Note 1.

M SPA 201 Intermediate Spanish. (4)
fall, spring, summer
Continuation of fundamentals. Emphasizes the development of the skills of reading, listening comprehension, speaking, writing, and culture. 4 hours lecture, 1 hour lab. Fee. See SPA Note 1. Prerequisite: SPA 102 or 111.
General Studies: G

M SPA 202 Intermediate Spanish. (4)
fall, spring, summer
See SPA 201. Fee. See SPA Note 1. Prerequisite: SPA 201 (or its equivalent).
General Studies: G

M SPA 203 Intermediate Spanish for Bilinguals. (4)
fall
For Spanish-speaking students, in lieu of SPA 201. Composition, literature, conversation, grammar fundamentals. 4 hours lecture, 1 hour lab. Fee. See SPA Note 1. Prerequisite: SPA 102 or 111 or placement examination.
General Studies: G

M SPA 204 Intermediate Spanish for Bilinguals. (4)
spring
For Spanish-speaking students, in lieu of SPA 202. Composition, literature, conversation, grammar fundamentals. 4 hours lecture, 1 hour lab. See SPA Note 1. Prerequisite: SPA 203 (or its equivalent).
General Studies: G

M SPA 207 Spanish for International Professions II. (8)
spring
Continuation of SPA 107, alternative to SPA 201, 202 sequence. Expansion of communicative proficiency in specific areas of international professions. Fee. See SPA Note 1. Prerequisite: SPA 107 or instructor approval.
General Studies: G

M SPA 311 Spanish Conversation. (3)
fall and spring
Designed primarily for nonmajors to promote vocabulary building and communicative expression in Spanish through discussions based on cultural readings. See SPA Note 1. Prerequisite: SPA 202 (or its equivalent).

M SPA 312 Spanish Conversation. (3)
fall and spring
See SPA 311. See SPA Note 1. Prerequisite: SPA 311 (or its equivalent).

M SPA 313 Spanish Conversation and Composition. (3)
fall, spring, summer
Designed to develop skill and accuracy in spoken and written Spanish. Required of majors; SPA 313 and 314 must be taken in sequence. See SPA Note 1. Prerequisite: SPA 202 (or its equivalent).
General Studies: G

M SPA 314 Spanish Conversation and Composition. (3)
fall, spring, summer
See SPA 313. See SPA Note 1. Prerequisite: SPA 313 (or its equivalent).
General Studies: G

M SPA 315 Spanish Conversation and Composition for Bilinguals. (3)
fall
Emphasizes comparing standard Spanish with regional Southwest Spanish. May be taken in lieu of SPA 313 and 314. See SPA Note 1. Prerequisite: SPA 202 or 204 or instructor approval.

M SPA 316 Spanish Conversation and Composition for Bilinguals. (3)
spring
See SPA 315. See SPA Note 1. Prerequisite: SPA 315 (or its equivalent).

M SPA 319 Business Correspondence and Communication. (3)
selected semesters
Organization and presentation of clear, effective business communications; vocabulary applicable to modern business usage. See SPA Note 1. Prerequisite: SPA 314 or 316 or instructor approval.
General Studies: G

M SPA 325 Introduction to Hispanic Literature. (3)
fall and spring
Critical approach to and analysis of literary types, including poetry, drama, short story, and novel. Required of all majors. See SPA Note 1. Prerequisite: SPA 313.
General Studies: HU

M SPA 400 Introduction to Spanish Linguistics. (3)
fall
Introduces the discipline and methods of linguistics through the study of Spanish data. Prerequisite: SPA 412 (or its equivalent).

M SPA 412 Advanced Conversation and Composition. (3)
fall and spring
Oral and written Spanish communication skills, with particular attention given to developing fluency and facility. Required of majors. Prerequisite: SPA 314 or 316 or instructor approval.
General Studies: G

M SPA 413 Advanced Spanish Grammar. (3)
fall
Intensive analysis of the Spanish language. Required of teaching majors. Prerequisite: SPA 314 or 316 or instructor approval.
General Studies: G

M SPA 417 Spanish Phonetics and Phonology. (3)
fall
Introduces the theory and practice of Spanish phonetics and phonology. Prerequisite: SPA 412.

M SPA 420 Applied Spanish Linguistics. (3)
spring
Applies linguistic principles to the teaching of Spanish. Prerequisites: FLA 400 (or its equivalent); SPA 412.
General Studies: L

M SPA 421 Spanish in the Southwest. (3)
fall
Discussion and linguistic analysis of Southwest Spanish. Prerequisite: SPA 412.
General Studies: L/SB, C

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M SPA 422 Spanish Lexicology and Lexicography. (3)
fall
Explores the linguistic theory and methodology related to the defining of meanings of words in Spanish dictionaries. Prerequisite: SPA 412 or instructor approval.

M SPA 425 Spanish Literature. (3)
fall and spring
Surveys Spanish literature from its beginning to 1700. Prerequisite: SPA 325.
General Studies: HU

M SPA 426 Spanish Literature. (3)
fall and spring
Surveys Spanish literature from 1700 to the present. Prerequisite: SPA 325.
General Studies: HU

M SPA 427 Spanish American Literature. (3)
fall and spring
Surveys major works, figures, and movements from Colonial period to 1880. Prerequisite: SPA 325.
General Studies: L

M SPA 428 Spanish American Literature. (3)
fall and spring
Surveys major works, figures, and movements from 1880 to the present. Prerequisite: SPA 325.
General Studies: L, G

M SPA 429 Mexican Literature. (3)
selected semesters
Selected readings from pre-Columbian writers/poets (e.g., Macuilxóchitl) through the novel of the Revolution to the present. Prerequisite: SPA 325.

M SPA 434 Drama of the Golden Age. (3)
spring
Dramatic works of Lope de Vega, Calderón de la Barca, and their contemporaries. Prerequisite: SPA 325.

M SPA 435 Cervantes—*Don Quijote.* (3)
fall
Don Quijote and the development of the novel. Prerequisite: SPA 325.

M SPA 454 19th-Century Spanish American Narrative. (3)
fall
Principal works in the novel, short story, narrative fiction, and narrative (Gauchesque) poetry. Prerequisite: SPA 325.

M SPA 456 20th-Century Spanish American Fiction. (3)
spring
Major works and movements. Prerequisite: SPA 325.

M SPA 464 Mexican American Literature. (3)
fall
Representative literature in Spanish and English by Mexican Americans, emphasizing sociocultural as well as literary values. Prerequisite: SPA 325.
General Studies: HU, C

M SPA 471 Civilization of the Spanish Southwest. (3)
spring
Political, intellectual, social, economic, and artistic development of the Spanish-speaking people of the Southwest. Prerequisite: SPA 314 or 316 or instructor approval.
General Studies: HU, C

M SPA 472 Spanish American Civilization. (3)
fall
Growth of the institutions and cultures of Spanish American people. Prerequisite: SPA 314 or 316 or instructor approval.
General Studies: HU, G, H

M SPA 473 Spanish Civilization. (3)
spring
Political, intellectual, social, economic, and artistic development of the Spanish nation from its origin to the present. Prerequisite: SPA 314 or 316 or instructor approval.
General Studies: HU/SB, G

M SPA 474 Mexican Culture. (3)
fall and spring
Examines diverse aspects of Mexican culture since the 1910 Revolution. Lecture, discussion. Prerequisite: SPA 325.

M SPA 485 Mexican American Short Story. (3)
selected semesters
Critical study of contemporary short stories by Mexican American authors, with emphasis on their Spanish-language writings. Prerequisite: SPA 325 or instructor approval.
General Studies: L

M SPA 486 Mexican American Novel. (3)
selected semesters
Social and literary contexts of representative novelists, emphasizing their Spanish-language writings. Prerequisite: SPA 325 or instructor approval.

M SPA 487 Mexican American Drama. (3)
selected semesters
Representative dramatic works, with emphasis on the history and development of this genre from its regional origins to the present. Prerequisite: SPA 325 or instructor approval.

M SPA 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Lexicography. (3)
- Introduction to Hispanic Linguistics. (3)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

SWEDISH (SWE)

M SWE 101 Elementary Swedish. (4)
fall
Reading, writing, speaking, and understanding of basic Swedish. 4 hours lecture, 1 hour lab. Fee.

M SWE 102 Elementary Swedish. (4)
spring
Reading, writing, speaking, and understanding of basic Swedish. 4 hours lecture, 1 hour lab. Fee. Prerequisite: SWE 101 (or its equivalent).

M SWE 201 Intermediate Swedish. (4)
fall
Reviews Swedish grammar with emphasis on the development of the skills of speaking, listening comprehension, reading, and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: SWE 102 (or its equivalent).

M SWE 202 Intermediate Swedish. (4)
spring
Reviews Swedish grammar with emphasis on the development of the skills of speaking, listening comprehension, reading, and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: SWE 201 (or its equivalent).

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

THAI (THA)

M THA 101 Elementary Thai I. (5)
fall
Basic communication, reading, and writing skills. Intensive oral/aural classroom drill supplemented by prose readings in Thai script. 4 hours lecture, 1 hour lab. Fee.

M THA 102 Elementary Thai II. (5)
spring
Basic communication, reading, and writing skills. Intensive oral/aural classroom drill supplemented by prose reading. 4 hours lecture, 1 hour lab. Fee. Prerequisite: THA 101 (or its equivalent).

M THA 201 Intermediate Thai I. (5)
fall
Systematic review of grammar. Continued development of communication skills with increased emphasis on reading and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: THA 102 (or its equivalent).
General Studies: G

M THA 202 Intermediate Thai II. (5)
spring
Systematic review of grammar. Continued development of communication skills with increased emphasis on reading and writing.

4 hours lecture, 1 hour lab. Fee. Prerequisite: THA 201 (or its equivalent).
General Studies: G

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

VIETNAMESE (VTN)

M VTN 101 Elementary Vietnamese I. (5)
fall
Basic skills in modern conversational Vietnamese and development of basic reading and writing skills, with special emphasis on tones. 4 hours lecture, 1 hour lab.

M VTN 102 Elementary Vietnamese II. (5)
spring
Basic skills in modern conversational Vietnamese and development of basic reading and writing skills, with special emphasis on tones. 4 hours lecture, 1 hour lab. Prerequisite: VTN 101 (or its equivalent).

M VTN 201 Intermediate Vietnamese I. (5)
fall
Improves speaking, listening, reading, and writing competence through dialogues, reading passages, pattern drill, and grammar and communicative exercises. 4 hours lecture, 1 hour lab. Prerequisite: VTN 102 (or its equivalent).
General Studies: G

M VTN 202 Intermediate Vietnamese II. (5)
spring
Improves speaking, listening, reading, and writing competence through dialogues, reading passages, pattern drill, and grammar and communicative exercises. 4 hours lecture, 1 hour lab. Prerequisite: VTN 201 (or its equivalent).
General Studies: G

M VTN 321 Advanced Vietnamese and Literature I. (3)
fall
Readings from modern, contemporary, and folk literatures as well as current periodicals. Lecture, discussion, Internet, student presentations, debate. Prerequisite: VTN 202 (or its equivalent) or instructor approval.

M VTN 322 Advanced Vietnamese and Literature II. (3)
spring
Continuation of VTN 321. Readings from modern, contemporary, and folk literatures as well as current periodicals. Lecture, discussion, Internet, student presentations, debate. Prerequisite: VTN 321 (or its equivalent) or instructor approval.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

School of Life Sciences

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LSC 226

Robert E. Page Jr., Director

Ronald L. Rutowski,
Associate Director for Undergraduate Programs

Jim Elser,
Associate Director for Research and Training Initiation

Jon Harrison,
Associate Director for Facilities

Regents' Professors: Alcock, Arntzen, Maienschein, Pyne

Foundation Professor: Page

Ullman Professors: Collins, Hedrick

Professors: Briggs, Burke, Capco, Chandler, Church, Clark-Curtiss, Creath, Curtiss, Day, Deviche, Dowling, Elser, Faeth, Fisher, Frasch, Grimm, Harrison, Hölldobler, B. Jacobs, M. Jacobs, Klopatek, Lawson, Mandarino, Misra, Moore, Mossman, Nash, Rutowski, Sarewitz, A. Smith, B. Smith, Sommerfeld, Trelease, Vermaas, Walsberg, Webber, Wu, Young

Associate Professors: Armendt, Chang, Clark, Escalante, Fewell, Garcia-Pichel, Goldstein, Hoffman, Hogue, Kinzig, Kumar, Mason, McGregor, Neuer, Newfeld, Orchinik, Pigg, Ramakrishna, Rawls, Roberson, Slater, Stout, Stromberg, Szarek, Towill

Assistant Professors: Amdam, Anderies, Chen, Crook, DeNardo, Gadau, Gerber, Haydel, Kim, Laubichler, Liebig, McGraw, Minteer, Mor, Rhoads, Robert, Rosenberg, Sabo, Touchman, Verrelli, Wilson-Rawls, Wojciechowski

Clinical Professors: Downs, Mass

Clinical Associate Professor: Roberts

Clinical Assistant Professor: Lefevre

Research Professors: Cardineau, Davidson, Hoober, Mahoney, Pearson

Associate Research Professors: Lopez, Pettit

Assistant Research Professors: Bertram, Eggink, Hope, Hu, Luo, Walmsley

Senior Research Scientists: Bingham, Landrum, LoBrutto

Curator: Gill

Senior Research Professional: Kazilek

BIOLOGY—BS

The major in Biology consists of a minimum of 37 semester hours in biology, and a minimum of 16 semester hours in related fields, plus a three-semester-hour calculus course, and a three-semester-hour statistics course. One upper-division PLB or MIC course is also required. A minimum grade of "C" (2.00) is required for all course work in the major and related fields. Required major courses are

BIO 187 General Biology I *SG* 4
BIO 188 General Biology II *SQ* 4
BIO 340 General Genetics 4
or BIO 341 Genetic Analysis (5)
BIO 345 Organic Evolution 3
Choose one of the courses below 3–4
BIO 320 Fundamentals of Ecology (3)
BIO 331 Animal Behavior (3)
BIO 370 Vertebrate Zoology (4)
BIO 385 Comparative Invertebrate Zoology (4)

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

MIC 220 Biology of Microorganisms (3)
and MIC 206 Microbiology Laboratory *SG** (1)
PLB 300 Comparative Plant Diversity *L*/*SG* (4)
Choose one of the courses below 3–4
BIO 351 Developmental Anatomy (3)
BIO 353 Cell Biology (3)
BIO 360 Animal Physiology (3)
MIC 360 Bacterial Physiology (3)
PLB 308 Plant Physiology (4)
Total 21–24

* MIC 206 must be taken with 205 to secure SG credit.

The remaining hours to bring the total to 37 are selected from among upper-division courses, approved for major credit, in BIO, MIC, PLB, and approved BCH courses, in consultation with an advisor. The major must include at least three upper-division laboratory courses. Required courses in related fields plus math proficiency are

CHM 113 General Chemistry I *SQ* 4
CHM 115 General Chemistry with Qualitative Analysis *SQ* 5
or CHM 116 General Chemistry II *SQ* (4)
Choose between the combinations of organic chemistry courses below ..... 4 or 8
CHM 231 Elementary Organic Chemistry *SQ*[1] (3)
CHM 235 Elementary Organic Chemistry Laboratory *SQ*[1] (1)
——— *or* ———
CHM 233 General Organic Chemistry I (3)
CHM 234 General Organic Chemistry II (3)
CHM 237 General Organic Chemistry Laboratory I (1)
CHM 238 General Organic Chemistry Laboratory II (1)
MAT 251 Calculus for Life Sciences *MA* 3
or MAT 210 Brief Calculus *MA* (3)
or any other calculus course approved by an advisor
Choose between the combinations of introduction to physics courses below ..... 4 or 8
PHY 101 Introduction to Physics *SQ* (4)
——— *or* ———
PHY 111 General Physics *SQ*[2] (3)
PHY 112 General Physics *SQ*[2] (3)
PHY 113 General Physics Laboratory *SQ*[2] (1)
PHY 114 General Physics Laboratory *SQ*[2] (1)
STP 226 Elements of Statistics *CS* 3
or STP 231: Statistics for Biosciences (3)
Total 23–31

[1] Both CHM 231 and 235 must be taken to secure SQ credit.
[2] Both PHY 111 and 113 or PHY 112 and 114 must be taken to secure SQ credit.

Concentration in Biology and Society

The major in Biology with a concentration in biology and society is intended for students with a strong interest in life sciences and in the interaction between life sciences and the society within which science is done. This option consists of a minimum of 44 semester hours in life sciences and societal interface courses, and 11 hours in related fields. A three-semester-hour mathematics proficiency course and a three-semester-hour statistics course are also required. A minimum grade of "C" (2.00) is required in all course work in the major or related fields. Required courses are as follows:

BIO 187 General Biology I *SG* 4
BIO 188 General Biology II *SQ* 4
BIO 311 Biology and Society 3
BIO 314 Research Colloquium in Biology and Society I *L** 2
BIO 320 Fundamentals of Ecology 3
or BIO 345 Organic Evolution (3)
BIO 340 General Genetics 4
or BIO 341 Genetic Analysis (5)
BIO 414 Research Colloquium in Biology and Society II* *L* 1
BIO 493 Honors Thesis *L* 3
or BIO 495 Undergraduate Thesis (3)
or BIO 499 Individualized Instruction (3)
or approved hours in research (3)
MAT 251 Calculus for Life Sciences *MA* 3
or MAT 210 Brief Calculus *MA* (3)
or any other calculus
Total 27

* Both BIO 314 and 414 must be taken to secure L credit.

The remaining courses to complete the major are determined by the student in consultation with an advisor and must be distributed in the following areas:

1. 12 hours of upper-division electives from BIO, MIC, PLB;
2. 12 hours of upper-division interface courses from an approved list. At least three semester hours in each of these areas: ethics, history and philosophy of science, and contemporary societal issues;
3. 11 hours of physical sciences (CHM recommended); and
4. three to four hours of an approved course in statistics.

CLINICAL LABORATORY SCIENCES—BS

The Clinical Laboratory Sciences degree program prepares individuals to practice in the field of clinical laboratory sciences, which includes the major disciplines of clinical chemistry, hematology, immunohematology, immunology, and microbiology. Employment opportunities exist in hospital, private, physician, and research laboratories and in government, sales, management, and education. After obtaining a BS degree in Clinical Laboratory Sciences, the graduate is eligible for national certification by examination.

A major in Clinical Laboratory Sciences consists of 40 semester hours in clinical laboratory sciences courses. A minimum grade of "C" (2.00) is required in all course work in the major or related fields. Also required are the following courses:

BCH 361 Principles of Biochemistry 3
BIO 360 Animal Physiology 3
CHM 113 General Chemistry I *SQ* 4
CHM 231 Elementary Organic Chemistry *SQ*[1] 3
MIC 205 Microbiology *SG*[2] 3
or MIC 220 Biology of Microorganisms (3)
MIC 206 Microbiology Laboratory *SG*[2] 1
Total 17

[1] Both CHM 231 and 235 must be taken to secure SQ credit.
[2] Both MIC 205 and 206 must be taken to secure SG credit.

Equivalent courses may be substituted upon approval of an advisor. Students must consult with the clinical laboratory sciences advisor to select general electives courses.

Completion of the degree is dependent upon acceptance of the student into the accredited professional study program, which consists of 40 hours of clinical laboratory sciences courses. The university does not guarantee all students to be accepted into the professional study program due to space limitations at the clinical affiliates and restrictions of program accreditation. For more information on acceptance procedures and program standards, contact the school for a program brochure. For proper course planning, students must meet with a clinical laboratory sciences advisor.

CONSERVATION BIOLOGY—BS

The major in Conservation Biology consists of a minimum of 41 semester hours in the required major courses and a minimum of 16 hours in related fields, plus a three-semester-hour calculus course and a three-semester-hour statistics course. A minimum grade of "C" (2.00) is required for all course work in the major and related fields. Required courses are as follows:

BIO 187 General Biology I *SG* 4
BIO 188 General Biology II *SQ* 4
BIO 317 Conservation Biology 3
BIO 320 Fundamentals of Ecology 3
BIO 340 General Genetics 4
or BIO 341 Genetic Analysis (5)
BIO 360 Animal Physiology 3
BIO 410 Techniques in Wildlife Conservation Biology *L* 3
BIO 411 Advanced Conservation Biology I 3
BIO 412 Advanced Conservation Biology II 3

Total ..... 30 or 31

The remaining hours to bring the total to 41 are selected from among relevant upper-division courses in BIO and PLB courses or in related departments, in consultation with an advisor. Required courses in related fields plus math proficiency are as follows:

CHM 113 General Chemistry I *SQ* 4
CHM 115 General Chemistry with Qualitative Analysis *SQ* 5
or CHM 116 General Chemistry II *SQ* (4)
Choose between the combinations of organic chemistry courses below ..... 4 or 8
CHM 231 Elementary Organic Chemistry *SQ** (3)
CHM 235 Elementary Organic Chemistry Laboratory *SQ** (1)
——— *or* ———
CHM 233 General Organic Chemistry I (3)
CHM 234 General Organic Chemistry II (3)
CHM 237 General Organic Chemistry Laboratory I (1)
CHM 238 General Organic Chemistry Laboratory II (1)
MAT 251 Calculus for Life Sciences *MA* 3
or MAT 210 Brief Calculus *MA* (3)
or any other calculus
STP 226 Elements of Statistics *CS* 3
or STP 231: Statistics for Biosciences (3)

Total ..... 18 or 23

* Both CHM 231 and 235 must be taken to secure SQ credit.

MICROBIOLOGY—BS

The BS degree in Microbiology consists of a minimum of 41 semester hours in microbiology and 17 hours in approved related fields. A minimum grade of "C" (2.00) is required for all course work in the major and related fields. Required courses are as follows:

BIO 187 General Biology I *SG* 4
BIO 188 General Biology II *SQ* 4
BIO 340 General Genetics 4
Choose between the course combinations below 8
BCH 361 Principles of Biochemistry (3)
BCH 367 Elementary Biochemistry Laboratory (1)
CHM 231 Elementary Organic Chemistry *SQ*[1] (3)
CHM 235 Elementary Organic Chemistry Laboratory *SQ*[1] (1)
——— *or* ———
CHM 233 General Organic Chemistry I (3)
CHM 234 General Organic Chemistry II (3)
CHM 237 General Organic Chemistry Laboratory I (1)
CHM 238 General Organic Chemistry Laboratory II (1)
MIC 206 Microbiology Laboratory *SG*[2] 1
MIC 220 Biology of Microorganisms 3
MIC 302 Advanced Bacteriology Laboratory *L*[3] 2
MIC 360 Bacterial Physiology 3
MIC 401 Research Paper *L*[3] 1

Total 30

[1] Both CHM 231 and 235 must be taken to secure SQ credit.
[2] Both MIC 205 and 206 must be taken to secure SG credit.
[3] Both MIC 302 and 401 must be taken to secure L credit.

A minimum of 11 semester hours of upper-division electives in microbiology or approved life science fields must be taken. These elective hours must include two courses chosen from the following:

MIC 421 Experimental Immunology 2
MIC 442 Bacterial Genetics Laboratory 1
MIC 446 Techniques in Molecular Biology/Genetics Lab 2
MIC 470 Bacterial Diversity and Systematics 4
MIC 484 Internship 3
MIC 494 ST: Clinical Bacteriology Laboratory 3
MIC 495 Undergraduate Research 2

In addition, students are required to fulfill the university mathematical studies requirements with MAT 210 (or 251, 270) as their MA course and BIO 406, STP 226, STP 294 (or any CSE course that meets the CS requirement). The required supplemental courses are as follows:

CHM 113 General Chemistry I *SQ* 4
CHM 115 General Chemistry with Qualitative Analysis *SQ* 5
or CHM 116 General Chemistry II *SQ* (4)
PHY 111 General Physics *SQ** 3
PHY 112 General Physics *SQ** 3
PHY 113 General Physics Laboratory *SQ** 1
PHY 114 General Physics Laboratory *SQ** 1

Total ..... 16 or 17

* Both PHY 111 and 113 or PHY 112 and 114 must be taken to secure SQ credit.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

MOLECULAR BIOSCIENCES AND BIOTECHNOLOGY—BS

The BS degree in Molecular Biosciences and Biotechnology is designed to prepare students for productive careers in rapidly expanding areas within the life sciences, such as biotechnology, medicine, and biomedical research or any area of biology at the molecular and cellular level. Courses and faculty are drawn primarily from the School of Life Sciences and the Department of Chemistry and Biochemistry.

The major in Molecular Biosciences and Biotechnology consists of a minimum of 59 semester hours of course work plus two courses in mathematics specifically designed for this program. A minimum grade of "C" (2.00) is required for all course work in the major. The required major courses (30 total semester hours) are as follows:

BIO	340	General Genetics	4
MBB	245	Cellular and Molecular Biology *SQ*	4
MBB	247	Applied Biosciences: Biotechnology	4
MBB	343	Genetic Engineering and Society *L*	4
MBB	484	Internship	6
		or MBB 499 Individualized Instruction (6)	
MBB	490	Capstone: Issues in Biotechnology *L*	4
MIC	206	Microbiology Laboratory *SG**	1
MIC	220	Biology of Microorganisms	3
Total			30

* Both MIC 205 and 206 must be taken to secure SG credit.

Choose at least one of the following courses (or combinations) for a minimum of three to four semester hours. Although only one advanced lab course is required, students are encouraged to take two:

BIO	451	Cell Biotechnology Laboratory	3
MBB	350	Applied Genetics	4
MBB	445	Techniques in Molecular Biology/Genetics	2
MBB	446	Techniques in Molecular Biology/Genetics Lab[1]	2
MIC	420	Immunology: Molecular and Cellular Foundations	3
MIC	421	Experimental Immunology[2]	2
MIC	441	Bacterial Genetics	3
MIC	442	Bacterial Genetics Laboratory[3]	1

[1] MBB 446 is taken with MBB 445.
[2] MIC 421 is taken with MIC 420.
[3] MIC 442 is taken with MIC 441.

Required supplemental courses in biology, chemistry, mathematics and physics (28 total semester hours) are as follows (a minimum grade of "C" (2.00) is required for all course work):

BCH	361	Principles of Biochemistry	3
BCH	367	Elementary Biochemistry Laboratory	1
CHM	113	General Chemistry I *SQ*	4
CHM	115	General Chemistry with Qualitative Analysis *SQ*	5
Choose between the organic chemistry course combinations below			4 or 8
	CHM 231	Elementary Organic Chemistry *SQ*[1] (3)	
	CHM 235	Elementary Organic Chemistry Laboratory *SQ*[1] (1)	
		— *or* —	
	CHM 233	General Organic Chemistry I (3)	
	CHM 234	General Organic Chemistry II (3)	
	CHM 237	General Organic Chemistry Laboratory I (1)	
	CHM 238	General Organic Chemistry Laboratory II (1)	
MAT	251	Calculus for Life Sciences *MA*	3
PHY	111	General Physics *SQ*[2]	3
PHY	112	General Physics *SQ*[3]	3
PHY	113	General Physics Laboratory *SQ*[2]	1
PHY	114	General Physics Laboratory *SQ*[3]	1
Total			28 or 32

[1] Both CHM 231 and 235 must be taken to secure SQ credit.
[2] Both PHY 111 and 113 must be taken to secure SQ credit.
[3] Both PHY 112 and 114 must be taken to secure SQ credit.

Satisfaction of the university computer/statistics/quantitative applications requirement is met with MAT 351 Mathematical Methods for Genetic Analysis, or MAT/BIO 394 ST: Introduction to Computational Molecular Biology, in which a minimum grade of "C" (2.00) is required.

Additional courses are available in the life or physical sciences for elective credit.

PLANT BIOLOGY—BS

The School of Life Sciences offers three options to meet the needs of students whose interests are in the rapidly expanding areas within plant biology. Students may choose the general program option, which allows the opportunity to develop strength in one area or discipline. Others may choose to design a more specific, but interdisciplinary, program in one of the following two optional concentrations: environmental science and ecology; plant biochemistry and molecular biology.

Each concentration promotes interaction between diverse groups and captures the growing interdisciplinary nature of scientific investigations. When one of these options is chosen, the title will appear on transcripts and other university documents.

The three curricular options prepare students for careers in technical, industrial, and educational fields as well as professional degree programs in medicine or research and postgraduate education in the life sciences.

General Program

The BS degree in Plant Biology consists of a minimum of 38 semester hours in plant biology and approved life science and physical science courses. A minimum grade of "C" (2.00) is required for all course work in the major and related fields. Required courses are as follows:

BIO	320	Fundamentals of Ecology	3
		or BIO 340 General Genetics (4)	
BIO	353	Cell Biology	3
PLB	200	Biology of Plants *SQ**	3
PLB	201	Biology of Plants Laboratory *SQ**	1
PLB	306	Plant Anatomy	4
PLB	308	Plant Physiology	4
PLB	484	Internship	3
		or PLB 499 Individualized Instruction (3)	
Total			21–22

* Both PLB 200 and 201 must be taken to secure SQ credit.

The remaining hours to bring the total to 38 are selected from among relevant courses in plant biology, other life sciences, and physical sciences in consultation with an advisor.

Required supplemental courses in chemistry and mathematics are as follows (a minimum grade of "C" [2.00] is required for all course work):

CHM 113 General Chemistry I *SQ* 4
CHM 115 General Chemistry with Qualitative Analysis *SQ* 5
Choose between the organic chemistry course combinations below ..... 4 or 8
  CHM 231 Elementary Organic Chemistry *SQ** (3)
  CHM 235 Elementary Organic Chemistry Laboratory *SQ** (1)
  — *or* —
  CHM 233 General Organic Chemistry I (3)
  CHM 234 General Organic Chemistry II (3)
  CHM 237 General Organic Chemistry Laboratory I (1)
  CHM 238 General Organic Chemistry Laboratory II (1)
MAT 251 Calculus for Life Sciences *MA* 3
Total ..... 16 or 20

* Both CHM 231 and 235 must be taken to secure SQ credit.

One of the following courses is also required:

PLB 430 Statistical Analyses in Environmental Science *CS* 3
  or PLB 432 Computer Applications in Biology *CS* (3)
  or BIO 415 Biometry *CS* (4)

Special Concentration Programs

Two special concentration programs are optional. Students who wish to pursue the general program in Plant Biology are not obligated to choose one of these specific programs. Each special concentration program is expected to be interdisciplinary and contain course work outside both Plant Biology and the College of Liberal Arts and Sciences. Each concentration includes hands-on technical training.

Environmental Science and Ecology. The BS degree in Plant Biology with a concentration in environmental science and ecology consists of a minimum of 44 semester hours in plant biology and approved life science and physical science courses. A minimum grade of "C" (2.00) is required for all course work in the major and related fields. Required courses are as follows:

BIO 320 Fundamentals of Ecology 3
Choose between the geology course combinations below.....4
  GLG 101 Introduction to Geology I (Physical) *SQ, G*[1] (3)
  GLG 103 Introduction to Geology I—Laboratory *SQ*[1] (1)
  — *or* —
  GLG 110 Geologic Disasters and the Environment *SG, G*[2] (3)
  GLG 111 Geologic Disasters Laboratory *SG*[2] (1)
  — *or* —
  GPH 111 Introduction to Physical Geography *SQ* (4)
PLB 200 Biology of Plants *SQ*[3] 3
PLB 201 Biology of Plants Laboratory *SQ*[3] 1
PLB 310 The Flora of Arizona.....4
PLB 322 Environmental Science (Major).....3
PLB 420 Plant Ecology: Organisms and Populations.....3
  or PLB 421 Plant Ecology: Communities and Ecosystems (3)
PLB 484 Internship 3
  or PLB 499 Individualized Instruction (3)
Total 24

[1] Both GLG 101 and 103 must be taken to secure SQ credit.
[2] Both GLG 110 and 111 must be taken to secure SG credit.
[3] Both PLB 200 and 201 must be taken to secure SQ credit.

The remaining hours to bring the total to 44 are selected from among relevant courses in plant biology, other life sciences, and physical sciences.

CHM 113 General Chemistry I *SQ* 4
CHM 115 General Chemistry with Qualitative Analysis *SQ* 5
CHM 231 Elementary Organic Chemistry *SQ** 3
CHM 235 Elementary Organic Chemistry Laboratory *SQ** 1
MAT 251 Calculus for Life Sciences *MA* 3
Total 16

* Both CHM 231 and 235 must be taken to secure SQ credit.

One of the following courses is also required:

PLB 430 Statistical Analyses in Environmental Science *CS* 3
  or PLB 432 Computer Applications in Biology *CS* (3)
  or BIO 415 Biometry *CS* (4)
  or STP 420 Introductory Applied Statistics *CS* (3)

Plant Biochemistry and Molecular Biology. The BS degree in Plant Biology with a concentration in biochemistry and molecular biology consists of 56 semester hours. A minimum grade of "C" (2.00) is required for all course work in the major and related fields.

The required major courses are as follows:

BIO 353 Cell Biology 3
MBB 245 Cellular and Molecular Biology *SQ*.....4
PLB 308 Plant Physiology 4
PLB 350 Applied Genetics.....4
PLB 444 Plant Growth and Development.....3
PLB 484 Internship 3
  or PLB 499 Individualized Instruction (3)
Total 21

Required supplemental courses in biochemistry, chemistry, mathematics, and physics are as follows (a minimum grade of "C" (2.00) is required for all course work):

Choose between the course combinations below..... 4 or 9
  BCH 361 Principles of Biochemistry (3)
  BCH 367 Elementary Biochemistry Laboratory (1)
  — *or* —
  BCH 461 General Biochemistry (3)
  BCH 462 General Biochemistry (3)
  BCH 467 Analytical Biochemistry Laboratory *L* (3)
CHM 113 General Chemistry I *SQ* 4
CHM 115 General Chemistry with Qualitative Analysis *SQ* 5
CHM 231 Elementary Organic Chemistry *SQ*[1] 3
CHM 235 Elementary Organic Chemistry Laboratory *SQ*[1] 1
MAT 251 Calculus for Life Sciences *MA* 3
PHY 111 General Physics *SQ*[2] 3
PHY 112 General Physics *SQ*[3] 3
PHY 113 General Physics Laboratory *SQ*[2] 1
PHY 114 General Physics Laboratory *SQ*[3] 1
Total ..... 28 or 33

[1] Both CHM 231 and 235 must be taken to secure SQ credit.
[2] Both PHY 111 and 113 must be taken to secure SQ credit.
[3] Both PHY 112 and 114 must be taken to secure SQ credit.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

The remaining hours to bring the total to 56 are selected from among relevant courses in plant biology, other life sciences, and physical sciences.

One of the following courses is also required:

BIO 406 Computer Applications in Biology *CS*.....3
or MAT 351 Mathematical Methods for Genetic Analysis *CS* (3)

HEALTHCARE ORGANIZATIONS AND SOCIETY CERTIFICATE

The certificate program is designed to allow undergraduate students interested in healthcare and the healthcare industry to access a broad range of disciplinary approaches and issues relevant to the subject.

To complete the certificate, students must take 18 semester hours of course work. Before starting the program students should seek advice and information in the School of Life Sciences Student Services Office in the College of Liberal Arts and Sciences or Business Honors advising in the W. P. Carey School of Business.

The course work must conform to the following structure and must be drawn from the three areas listed below. Additional courses are permissible with the approval of an advisor. In addition, students must meet the following requirements:

1. complete 18 semester hours, 12 of which must be in the upper division;
2. earn a "C" or higher in all upper-division courses taken for the certificate; and
3. complete at least 12 of the semester hours for the certificate in residence at ASU.

Overview of the U.S. Healthcare Industry. HSM 220 Healthcare Organizations is required. HSM 498 PS: Healthcare Economics is required for business students. HSM 561 Biostatistics may be taken by petition. No more than three courses in this area may be taken.

Ethical and Legal Issues in Healthcare. PHI 320 Bioethics is required. A second course is also required, PAF 460 Public Service Ethics or HSM 498 PS: Legal and Ethical Issues in Healthcare. No more than three courses in this area may be taken.

Anthropological, Historical, and Social Perspectives on Healthcare. One course is required. No more than two courses in this area may be taken, from among ASB 462 Medical Anthropology: Culture and Health, HPS 331 History of Medicine, and SOC 427 Sociology of Health and Illness.

For more information, visit the School of Life Sciences in LSC 206, or call 480/727-6277. Or visit Business Honors in the W. P. Carey School of Business in BA 150, or call 480/965-8710.

HISTORY AND PHILOSOPHY OF SCIENCE CERTIFICATE

The School of Life Science offers an undergraduate History and Philosophy of Science Certificate. The certificate program is designed to give students an understanding of both traditional philosophic issues surrounding science and the historical development of concrete scientific theories and ideas. The philosophic questions, of the belief-worthiness and interpretation of scientific claims as well as norms within or about science, both enrich and are enriched by their combination with historical study. Such philosophic and historical study will also often include the examination of contemporary sciences and their place within the larger society.

The certificate requires 18 semester hours bearing an HPS or PHI prefix, of which 12 semester hours must be in the upper division. Included with the 18 semester hours, at least nine must bear the HPS prefix. HPS 314 or PHI 314 Philosophy of Science is also required. All courses counting toward the certificate must be approved for this purpose by a School of Life Sciences academic advisor and passed with a grade of "C" (2.00) or higher.

MINOR

Biological Sciences

The Biological Sciences minor is designed to provide students interested in biology with a flexible curriculum that can be tailored to their interests. The minor consists of 24 semester hours, including BIO 187 General Biology I and BIO 188 General Biology II. PLB 200 Biology of Plants and PLB 201 Biology of Plants Laboratory or MIC 206 Microbiology Laboratory and MIC 220 Biology of Microorganisms may together be substituted for BIO 187 or 188. Alternatively, MBB 245 Cellular and Molecular Biology may be substituted for BIO 188. The remaining 16 hours are selected by the student with the approval of an advisor. At least 12 of these 16 hours must be in upper-division courses in the life sciences. Courses not available for credit in the Life Science majors cannot be used for the minor (e.g., BIO 100 The Living World and BIO 201 Human Anatomy and Physiology I). This minor is not available to students majoring in the life sciences.

Any one of these combinations may be used:

1. BIO 187 and BIO 188,
2. BIO 187 and PLB 200 and 201,
3. BIO 188 and PLB 200 and 201,
4. BIO 187 and MIC 206 and 220,
5. BIO 188 and MIC 206 and 220, or
6. BIO 187 and MBB 245.

BIS CONCENTRATIONS

Concentrations in biological sciences, history and philosophy of science, and health care organizations and society are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. The requirements for the BIS concentrations are the same as for the minor or certificate in that area. For more information, see "School of Interdisciplinary Studies," page 139.

SECONDARY EDUCATION—BAE

This degree is offered through the Initial Teacher Certification (ITC) program in the College of Education. Students pursuing a major in Secondary Education have an advisor in the College of Education and an advisor within the School of Life Sciences.

See "College of Education," page 349, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

Academic Specialization ITC Admission Requirements. The following courses must be completed with a grade of "C" (2.00) or higher before applying to the ITC professional program:

BIO 187 General Biology I *SG* 4
BIO 188 General Biology II *SQ* 4

In addition, at least 12 hours of biology course work from the major teaching field may be in progress when applying to the ITC but must be completed before starting the program.

Biological Sciences. The academic specialization requires 61 hours, and six hours in teaching methods. A minimum grade of "C" (2.00) is required for all course work in the major and related fields. Required major courses are as follows:

BIO 187 General Biology I *SG* 4
BIO 188 General Biology II *SQ* 4
BIO 320 Fundamentals of Ecology 3
BIO 340 General Genetics 4
BIO 345 Organic Evolution 3
BIO 360 Animal Physiology 3
BIO 370 Vertebrate Zoology 4
or BIO 385 Comparative Invertebrate Zoology (4)
or PLB 300 Comparative Plant Diversity *L*/*SG* (4)
or PLB 310 The Flora of Arizona (4)
MIC 205 Microbiology *SG*[1] 3
or MIC 220 Biology of Microorganisms (3)
MIC 206 Microbiology Laboratory *SG*[1] 1
PLB 308 Plant Physiology 4
Electives[2] 6
Total 39

[1] Both MIC 205 and 206 must be taken to secure SG credit.
[2] Electives should be selected from BIO, MIC, and PLB courses. BIO 100, 201, 202, 241, 300, and 319, or PLB 108 and 320 cannot be used to fulfill the elective requirement.

Required supporting courses are as follows:

BIO 316 History of Biology: Conflicts and Controversies *H* 3
or HPS 330 History of Biology: Conflicts and Controversies *H* (3)
CHM 113 General Chemistry I *SQ* 4
CHM 116 General Chemistry with Qualitative Analysis *SQ* 4
GLG 102 Introduction to Geology II (Historical) *SG*,[1] *H* 3
or GLG 300 Geology of Arizona (3)
MAT 170 Precalculus *MA* 3
PHY 101 Introduction to Physics *SQ* 4
or PHY 111, 112 General Physics *SQ*[2] (6)
and PHY 113, 114 General Physics Laboratory *SQ*[2] (2)
Minimum total 21

[1] Both GLG 102 and 104 must be taken to secure SG credit.
[2] Both PHY 111 and 113 or PHY 112 and 114 must be taken to secure SQ credit.

Teaching Methods
BIO 480 Methods of Teaching Biology 3
BIO 482 Advanced Methods of Teaching Biology 3
Total 6

Graduate Programs

The School of Life Sciences offers programs leading to the degrees of Master of Natural Sciences, MS, and PhD See the *Graduate Catalog* for requirements. A combined BS-MS degree in Biology is also available.

MOLECULAR AND CELLULAR BIOLOGY

The school participates in the interdisciplinary program for the MS and PhD degrees in Molecular and Cellular Biology as well.

The interdisciplinary MS and PhD degrees with a major in Molecular and Cellular Biology are administered by the Interdisciplinary Committee on Molecular and Cellular Biology. The participating faculty are drawn primarily from the School of Life Sciences and the Department of Chemistry and Biochemistry, with additional faculty from the Department of Physics and Astronomy and the School of Human Evolution and Social Change.

For more information, contact the director or see the *Graduate Catalog*.

BIOLOGY (BIO)

For more BIO courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M BIO 100 The Living World. (4)
fall, spring, summer
Principles of biology. Cannot be used for major credit in the biological sciences. 3 hours lecture, 3 hours lab.
General Studies: SQ

M BIO 187 General Biology I. (4)
fall, spring, summer
Biological concepts emphasizing principles and interplay of structure and function at the organismal, population, and community levels; includes ecology, evolution. Lecture, lab. Fee. Prerequisite: life science or health-related sciences major.
General Studies: SG

M BIO 188 General Biology II. (4)
fall, spring, summer
Biological concepts emphasizing principles and interplay of structure and function at the molecular, cellular, and organismal levels; includes genetics, cell biology, physiology. Lecture, lab. Fee. Prerequisite: BIO 187 recommended.
General Studies: SQ

M BIO 193 The Nature of Biological Science. (4)
selected semesters
Creative and critical thinking skills in biological research; nature of biological knowledge; role of experimentation, predictions, hypotheses, theories, values. Lecture, lab, discussion. Fee. Prerequisite: high school biology.
General Studies: SQ

M BIO 201 Human Anatomy and Physiology I. (4)
fall, spring, summer
Structure and dynamics of the human mechanism. Cannot be used for major credit in the biological sciences. 3 hours lecture, 3 hours lab. Fee.
General Studies: SG

M BIO 202 Human Anatomy and Physiology II. (4)
fall, spring, summer
Continuation of BIO 201. Cannot be used for major credit in the biological sciences. 3 hours lecture, 3 hours lab. Fee. Prerequisite: BIO 201 or instructor approval.

ΩM BIO 300 Natural History of Arizona. (3)
selected semesters
Plant and animal communities of Arizona. Cannot be used for major credit in the biological sciences. Prerequisite: junior standing.

M BIO 301 Field Natural History. (1)
selected semesters
Organisms and their natural environment. Cannot be used for major credit in the biological sciences. 2 weekend field trips, field project. Fee. Pre- or corequisite: BIO 300.

M BIO 302 Cancer and Heart Disease. (3)
fall
Incidence and mortality statistics for cancer and heart disease; host and environmental risk factors; diagnosis, treatment and prevention strategies. Cannot be counted toward a Biology major. Prerequisites: a combination of CHM 231 (or its equivalent) and 12 hours in life sciences and a General Studies L course or only instructor approval.
General Studies: L

M BIO 303 Radiation and Life. (3)
spring
Benefits and risks of radiation exposure in society; medical applications, food irradiation, nuclear power, solar UV, population health effects. Cannot be counted toward a Biology major. Prerequisites: a combination of CHM 231 (or its equivalent) and 12 hours in life sciences and a General Studies L course or only instructor approval.
General Studies: L

M BIO 304 Radiation Medicine and Biology. (3)
fall
Uses of radiation in medicine, including CT, diagnostic x rays, MRI, nuclear medicine, ultrasound; biological effects of radiation with emphasis on cancer. Prerequisites: a combination of PHY 112 and 12 hours in life sciences and a General Studies L course or only instructor approval.
General Studies: L

M BIO 310 Special Problems and Techniques. (1–3)
fall and spring
Qualified undergraduates may investigate a specific biological problem under the direction of a faculty member. May be repeated for a total of 6 semester hours. Prerequisites: formal conference with the instructor; approval of the problem by the instructor and department chair.

M BIO 311 Biology and Society. (3)
fall
Explores interactions between biological sciences and society, e.g., biomedical, environmental, ethical, historical, legal, philosophical, political, and social issues. Lecture, discussion. Cross-listed as HPS 340. Credit is allowed for only BIO 311 or HPS 340. Prerequisites: both BIO 187 and 188 or only BIO 193 (or 100).

M BIO 314 Research Colloquium in Biology and Society I. (2)
spring
Develops critical thinking abilities, research methods, and writing skills for research in the interactions between biological sciences and society. Lecture, discussion. Prerequisite: BIO 311 or instructor approval.
General Studies: L (if credit also earned in BIO 414)

M BIO 315 HIV/AIDS: Science, Behavior, and Society. (3)
fall and spring
Overview of the basic biological, behavioral, and psychosocial aspects of HIV disease and AIDS. Prerequisite: any 100-level MIC, BIO, or PLB course.

M BIO 316 History of Biology: Conflicts and Controversies. (3)
selected semesters
Focuses on 19th and 20th centuries, considering biology as a discipline. Evolution, problems of heredity, development, and cell theory. Cross-listed as HPS 330. Credit is allowed for only BIO 316 or HPS 330.
General Studies: H

M BIO 317 Conservation Biology. (3)
fall
Scientific and technical means for management, maintenance, protection, and restoration of biological resources on this planet. Prerequisite: 8 hours in biology.

M BIO 318 History of Medicine. (3)
once a year
Scientific study of the human body, changing theories of disease, evolution of practical opinions on treatment, and the emerging institutionalization of medical practice. Cross-listed as HPS 331. Credit is allowed for only BIO 318 or HPS 331.
General Studies: H

M BIO 319 Environmental Science (Nonmajor). (3)
fall
Environmental and biological concepts used to understand ecological systems with specific references to problems caused by humans. Cannot be used for major credit in the biological sciences. Cross-listed as PLB 320. Credit is allowed for only BIO 319 or PLB 320.
General Studies: G

M BIO 320 Fundamentals of Ecology. (3)
fall and spring
Organization, functioning, and development of ecological systems; energy flow; biogeochemical cycling; environmental relations; population dynamics. Prerequisite: BIO 187 or instructor approval.

M BIO 321 Introductory Ecology Laboratory. (3)
once a year
Laboratory and field observations and experiments to test current concepts and theories in ecology. Lab. Fee. Pre- or corequisite: BIO 320.
General Studies: L

M BIO 325 Oceanography. (3)
fall
Introduces marine geology, chemistry, and physical and biological oceanography. Methods of oceanic exploration, environmental and social aspects of oceans. Cross-listed as GLG 325. Credit is allowed for only BIO 325 or GLG 325. Prerequisite: BIO 101 or GLG 101 or instructor approval.

M BIO 331 Animal Behavior. (3)
fall
Evolutionary, genetic, physiological, and ecological bases of animal behavior. Prerequisite: BIO 187 (or its equivalent).

M BIO 336 Sociobiology. (3)
selected semesters
Survey of animal and human social behavior examined from an evolutionary perspective. Suitable for nonmajors. Prerequisite: BIO 331 recommended.

M BIO 340 General Genetics. (4)
fall, spring, summer
Science of heredity and variation. 3 hours lecture, 1 hour recitation. Prerequisite: BIO 187.

M BIO 341 Genetic Analysis. (5)
selected semesters
General genetics: science of heredity and variation using critical inquiry. Not open to students with credit for BIO 340. 3 hours lecture, 6 hours lab. Prerequisites: BIO 187 and 193 (or their equivalents).

M BIO 342 General Genetics Laboratory. (2)
fall
Explores general principles of inheritance with special reference to Mendelian, molecular, and computational genetics via laboratory experiments. Lab. Pre- or corequisite: BIO 340.

M BIO 343 Genetic Engineering and Society. (4)
fall
Introduces genetic engineering, with emphasis on applications (gene therapy, DNA fingerprinting, bioremediation, transgenic animals and plants). 3 hours lecture, 3 hours lab. Cross-listed as MBB 343. Credit is allowed for only BIO 343 or MBB 343. Fee. Prerequisites: preferably MBB 245 or BIO 188 (or its equivalent).
General Studies: L

M BIO 344 Origins, Evolution, and Creation. (3)
selected semesters
Examines scientific, mythic, and religious ideas relating to origins (particularly human). Place of antievolutionism and "scientific creationism" in American culture. Lecture, discussion. Cross-listed as HPS 311/HUM 371/REL 383. Credit is allowed for only BIO 344 or HPS 311 or HUM 371 or REL 383.

M BIO 345 Organic Evolution. (3)
spring
Processes of adaptive change and speciation in sexual populations. Prerequisite: BIO 187.

M BIO 346 The Darwinian Revolution. (3)
selected semesters
Intellectual and cultural history of Darwinism and modern evolutionary theory and their impact on 19th- and 20th-century thought. Lecture, discussion. Cross-listed as HPS 332/HUM 372. Credit is allowed for only BIO 346 or HPS 332 or HUM 372.

M BIO 351 Developmental Anatomy. (3)
fall
General developmental biology (embryology) and comparative structure of organ systems, illustrated mainly by vertebrate examples. Prerequisite: BIO 187.

M BIO 352 Laboratory in Vertebrate Developmental Anatomy. (2)
fall
Morphology of representative embryonic and adult vertebrates. 2 3-hour labs. Fee. Prerequisites: BIO 187; BIO 351 recommended.

M BIO 353 Cell Biology. (3)
fall, spring, summer
Survey of major topics in cell biology, including structural, biochemical, and molecular aspects of cell function. Prerequisite: BIO 187.

M BIO 360 Animal Physiology. (3)
fall and spring
Physiological mechanisms of the higher vertebrates. Prerequisites: BIO 187; CHM 115; MAT 117.

M BIO 361 Animal Physiology Laboratory. (2)
fall and spring
Experimental laboratory studies of physiological mechanisms in animals and model systems. Lab, recitation. Fee. Prerequisites: CHM 115; MAT 117. Pre- or corequisite: BIO 360.

M BIO 370 Vertebrate Zoology. (4)
fall and spring
Characteristics, classification, evolution, and natural history of the major groups of vertebrate animals. 3 hours lecture, 3 hours lab. Fee. Prerequisite: BIO 187.

M BIO 385 Comparative Invertebrate Zoology. (4)
fall
Characteristics, life cycles, adaptations, and evolution of invertebrate animals. 3 hours lecture, 3 hours lab. Fee. Prerequisite: BIO 187 or instructor approval.

M BIO 386 General Entomology. (4)
selected semesters
Form, activities, and classification of insects. 3 hours lecture, 3 hours lab. Fee. Prerequisite: BIO 187.

M BIO 390 Medical/Dental Field Placement. (3)
fall, spring, summer
Field placement for students exploring a career in a health profession. Requires classroom sessions and field work. Lecture, lab.
Prerequisites: application; instructor approval.

M BIO 394 Special Topics. (1–4)
selected semesters
Topics of current or special interest in one or more aspects of biology. Topics may include the following.
- Introduction to Computational Molecular Biology. (2–3) Fee.

Prerequisite: junior standing.

M BIO 406 Computer Applications in Biology. (3)
fall
Computer analysis techniques in biology emphasizing data entry, management and analysis, and graphic portrayal. Employs mainframe and microcomputers. 2 hours lecture, 3 hours lab. Cross-listed as PLB 432. Credit is allowed for only BIO 406 or PLB 432. Fee.
Prerequisites: both BIO 187 and MAT 117 (or 210) or only instructor approval.
General Studies: CS

M BIO 410 Techniques in Wildlife Conservation Biology. (3)
fall
Field and analytical techniques used in evaluating population structure, viability and environmental impacts. Lecture, lab. Fee.
Prerequisites: both BIO 317 and 320 or only instructor approval.
General Studies: L

M BIO 411 Advanced Conservation Biology I. (3)
selected semesters
Principles of conservation science, biology of threatened species, management principles that meet conservation goals, emphasizing North American ecosystems. Prerequisites: BIO 317, 320.

M BIO 412 Advanced Conservation Biology II. (3)
spring
Global biodiversity patterns, processes, and conservation; global environmental change; sustainable use of natural resources; emphasizing international approaches to conservation biology. Prerequisites: BIO 317, 320.

M BIO 414 Research Colloquium in Biology and Society II. (1)
spring
Further develops critical thinking abilities, research methods, and writing skills for research in the interactions between biological sciences and society. Lecture, discussion. Prerequisites: both BIO 311 and 314 or only instructor approval.
General Studies: L (if credit also earned in BIO 314)

M BIO 415 Biometry. (4)
fall
Statistical methods applied to biological problems, design of experiments, estimation, significance, analysis of variance, regression, correlation, chi square, and bioassay; the use of computers. Does not satisfy laboratory requirements for the College of Liberal Arts and Sciences' General Studies program. 3 hours lecture, 3 hours lab. Fee. Prerequisite: MAT 210 (or its equivalent).
General Studies: CS

M BIO 416 Professional Values in Science. (3)
once a year
Considers issues related to values in science such as collaboration, finances, legal issues, media, mentoring, ownership of ideas, scientific integrity. Discussion, student projects. Cross-listed as HPS 410. Credit is allowed for only BIO 416 or HPS 410.
General Studies: L

M BIO 417 Experimental Design. (3)
spring
Fixed, random, mixed models; crossed and nested factorial designs; balanced and unbalanced data; completely randomized, blocked, repeated measure designs; ANCOVA. Prerequisite: BIO 415 (or its equivalent).

M BIO 420 Field Zoology. (3)
selected semesters
Experience in zoological field techniques. Weekend or longer field trips. Prerequisite: instructor approval.

M BIO 421 Landscape Ecology. (3)
fall
Discusses how landscape heterogeneity interacts with ecological processes, and implications for biodiversity conservation, resource management, and landscape and urban planning. Prerequisite: BIO 320.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M BIO 423 Population and Community Ecology. (3)
selected semesters
Organization and dynamics of population and communities, emphasizing animals. Theoretical and empirical approaches. Prerequisite: BIO 320 or instructor approval.

M BIO 424 Mathematical Models in Ecology. (4)
selected semesters
Mathematical modeling of populations, communities, and ecosystems, including case studies and student-designed projects. 3 hours lecture, 3 hours lab. Prerequisites: BIO 320; a course in calculus.

M BIO 425 Animal Ecology. (3)
selected semesters
Physiological and behavioral adaptations of individual animals to both abiotic and biotic environments. Prerequisite: BIO 320.

M BIO 426 Limnology. (4)
selected semesters
Structure and function of aquatic ecosystems, with emphasis on freshwater lakes and streams. 3 hours lecture, 3 hours lab or field trip. Fee. Prerequisite: BIO 320 or instructor approval.
General Studies: L

M BIO 427 Fire. (3)
selected semesters
Interdisciplinary survey of fire on Earth—its history, ecology, and management. Prerequisite: BIO 187.

M BIO 428 Biogeography. (3)
fall
Environmental and historical processes determining distributional patterns of animals and plants, emphasizing terrestrial life. Prerequisites: BIO 187 (or its equivalent); junior standing.
General Studies: L

M BIO 431 Genes, Development, and Evolution. (3)
fall
Contribution of genes, developmental processes, and evolution to pattern of phenotypic variation, including disease. Discussion, presentation. Prerequisites: BIO 187, 188 (or their equivalents).

M BIO 435 Research Techniques in Animal Behavior. (3)
selected semesters
Experimental and field studies of animal behavior; description and quantification of animal behavior and interpretation of behavior within an evolutionary framework. 1 hour lecture, 6 hours lab. Prerequisite: BIO 331.

M BIO 446 Principles of Human Genetics. (3)
once a year
Molecular and cellular analysis of the human genome. Prerequisite: BIO 340.
General Studies: L

M BIO 450 Advanced Developmental Biology. (3)
spring
Current concepts and experimental methods involving differentiation and biosynthetic activities of cells and organisms, with examples from microorganisms, plants, and animals. Prerequisite: BIO 351.

M BIO 451 Cell Biotechnology Laboratory. (3)
fall
Mammalian cell culture techniques, including mouse embryonic stem cells, the use of bioreactors, cell fractionation, and digital video imaging. Lecture, lab. Cross-listed as BME 451. Credit is allowed for only BIO 451 or BME 451. Prerequisites: BIO 353; instructor approval.

M BIO 453 Animal Histology. (4)
selected semesters
Microscopic study of animal tissues. 3 hours lecture, 3 hours lab. Fee. Prerequisite: BIO 187 or instructor approval.

M BIO 460 Astrobiology. (3)
fall and spring
Origin, early evolution, distribution, and future of life on Earth and elsewhere in the cosmos. May be repeated for credit. Lecture, discussion, video conferences, possible field trips. Cross-listed as AST 460/CHM 483/GLG 460/MIC 475. Credit is allowed for only AST 460 or BIO 460 or CHM 483 or GLG 460 or MIC 475. Prerequisite: instructor approval.

M BIO 464 Photobiology. (3)
selected semesters
Principles underlying the effects of light on growth, development, and behavior of plants, animals, and microorganisms. Cross-listed as PLB 440. Credit is allowed for only BIO 464 or PLB 440. Prerequisites: CHM 231 (or 233); 12 hours in life sciences.

M BIO 465 Neurophysiology. (3)
spring in even years
Detailed treatment of cellular and organismal neurophysiology and nervous system function. Prerequisite: BIO 360.

M BIO 466 Neurophysiology Laboratory. (2)
selected semesters
Intracellular and extracellular electrophysiological recording techniques, histological preparations, and dye-filling techniques. 6 hours lab. Pre- or corequisite: BIO 465.

M BIO 470 Systematic Zoology. (4)
spring in odd years
Philosophy, theory, practice of interpreting animal diversity, including species concepts speciation, nomenclature, and evolutionary and phylogenetic classification emphasizing phylogenetics. 3 hours lecture, 3 hours lab. Prerequisites: junior standing; 18 hours in life sciences.
General Studies: L

M BIO 471 Ornithology. (3)
spring in odd years
Biology of birds. 2 hours lecture, 3 hours lab, weekend field trips. Fee. Prerequisite: BIO 370 or instructor approval.

M BIO 472 Mammalogy. (4)
fall in odd years
Classification, structure, habits, ecology, and distribution of mammals, emphasizing North American forms. 3 hours lecture, 3 hours lab or field trip, weekend field trips. Fee. Prerequisite: BIO 370 or instructor approval.

M BIO 473 Ichthyology. (3)
spring in odd years
Systematics and biology of recent and extinct fishes. 2 hours lecture, 3 hours lab or field trip, weekend field trips. Fee. Prerequisites: both BIO 370 and 425 or only instructor approval.

M BIO 474 Herpetology. (3)
spring in even years
Systematics and biology of recent and extinct reptiles and amphibians. 2 hours lecture, 3 hours lab or field trip. Fee. Prerequisite: BIO 370.

M BIO 480 Methods of Teaching Biology. (3)
spring
Methods of instruction, experimentation, organization, and presentation of appropriate content in biology. Prerequisite: 20 hours in the biological sciences.

M BIO 482 Advanced Methods of Teaching Biology. (3)
fall in odd years
Design, delivery, and evaluation of student-centered, inquiry-based lessons for high school biology students. Learning cycle. Prerequisite: BIO 480.

M BIO 484 Internship. (3)
selected semesters

M BIO 490 Surgical Field Placement. (3)
fall, spring, summer
Advanced field placement for students exploring a career in a health profession. Requires classroom sessions and field work. May be repeated for credit. Lecture, lab. Prerequisites: application; instructor approval. Pre- or corequisite: BIO 390.

M BIO 492 Honors Directed Study. (1–6)
selected semesters

M BIO 493 Honors Thesis. (1–6)
fall, spring, summer
General Studies: L

M BIO 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Advanced Study Practicum. (1–3)

M BIO 495 Undergraduate Thesis. (3)
fall, spring, summer
Guided research culminating in the preparation of an undergraduate thesis based on supervised research done in this and previous semesters. Prerequisites: at least 3 hours of BIO 310 (or 499); formal conference with instructor; instructor and department chair approval.

M BIO 498 Pro-Seminar. (1–7)
selected semesters

M BIO 499 Individualized Instruction. (1–3)
fall and spring

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

CLINICAL LABORATORY SCIENCES/ MEDICAL TECHNOLOGY (CLS)

M CLS 100 Introduction to Clinical Laboratory Sciences. (1)
fall
Introduces the field of clinical laboratory sciences. Required for Clinical Laboratory Sciences majors.

M CLS 310 Principles of Clinical Chemistry I. (6)
spring
Theory and application of principles of clinical chemistry, with emphasis on laboratory techniques, pathophysiology, methods of analysis, and assessment of procedure. 3 hours lecture, 9 hours lab. Fee. Prerequisite: admission to the Clinical Laboratory Sciences professional study program.

M CLS 320 Principles of Clinical Microbiology I. (6)
spring
Theory and application of principles of clinical microbiology with emphasis on isolation and identification of medically significant fungi and bacteria. 3 hours lecture, 9 hours lab. Fee. Prerequisite: admission to the Clinical Laboratory Sciences professional study program.

M CLS 330 Principles of Clinical Hematology I/Body Fluids. (3)
fall
Theory and application of principles in hematology, with emphasis on techniques to evaluate blood dyscrasias and analyze body fluids. 2 hours lecture, 3 hours lab. Prerequisite: admission to the Clinical Laboratory Sciences professional study program.

M CLS 410 Principles of Clinical Chemistry II. (2)
summer
Continuation of CLS 310 with emphasis on principles of advanced clinical chemistry. 1 hour lecture, 3 hours lab. Prerequisite: admission to the Clinical Laboratory Sciences professional study program.

M CLS 411 Advanced Applications of Clinical Chemistry. (4)
fall
Clinical application of theory/techniques from CLS 310 and 410. Emphasizes operation of common laboratory instrumentation and clinical correlation. Minimum 180 hours practicum. Prerequisite: admission to the Clinical Laboratory Sciences professional study program.

M CLS 420 Principles of Clinical Microbiology II. (2)
summer
Disease mechanisms and identification of medically significant parasites, Mycobacteria, Actinomycetes, Chlamydia, Rickettsia, Mycoplasma, and viruses. 1 hour lecture, 3 hours lab. Prerequisite: admission to the Clinical Laboratory Sciences professional study program.

M CLS 421 Advanced Applications of Clinical Microbiology. (4)
spring
Practical laboratory application of the principles of specimen collection, processing, detection, identification, and antimicrobial testing of medically significant bacteria, fungi, and parasites. Minimum 180 hours practicum. Prerequisite: admission to the Clinical Laboratory Sciences professional study program.

M CLS 430 Principles of Clinical Hematology II/Hemostasis. (3)
fall
Theory and applications of principles in hematology with emphasis on etiology, pathophysiology, clinical manifestations, and treatment of blood dyscrasias/hemostatic defects. 2 hours lecture, 3 hours lab. Prerequisite: admission to the Clinical Laboratory Sciences professional study program.

M CLS 431 Advanced Applications of Clinical Hematology. (4)
spring
Practical laboratory application of methods/techniques used to evaluate and diagnose blood dyscrasias/hemostatic defects. Applied techniques in body fluid analysis. Minimum 180 hours practicum. Prerequisite: admission to the Clinical Laboratory Sciences professional study program.

M CLS 440 Principles of Clinical Immunology/Immunohematology. (4)
fall
Theoretical and practical application of clinical immunology and immunohematology. Emphasizes serological techniques that aid disease diagnosis and blood donor selection. 3 hours lecture, 3 hours lab. Prerequisite: admission to the Clinical Laboratory Sciences professional study program.

M CLS 441 Advanced Applications of Clinical Immunology/Immunohematology. (3)
spring
Practical laboratory application of the principles of serological methods used in diagnosing disease and selecting blood components for transfusion therapy. Minimum 135 hours practicum. Prerequisite: admission to the Clinical Laboratory Sciences professional study program.

M CLS 450 Principles of Clinical Laboratory Administration. (2)
fall and spring
Principles of management, with emphasis on the clinical laboratory. Basic management process, personnel supervision, identification, and allocation of resources. Prerequisite: admission to the Clinical Laboratory Sciences professional study program.
General Studies: L (if credit also earned in CLS 460)

M CLS 460 Principles of Clinical Laboratory Education. (1)
spring
Principles of learning, with application to the development of instructional objectives, strategies, and evaluation for teaching-learning situations in the laboratory. Prerequisite: admission to the Clinical Laboratory Sciences professional study program.
General Studies: L (if credit also earned in CLS 450)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

HISTORY AND PHILOSOPHY OF SCIENCE (HPS)

M HPS 311 Origins, Evolution, and Creation. (3)
selected semesters
Examines scientific, mythic, and religious ideas relating to origins (particularly human). Place of antievolutionism and "scientific creationism" in American culture. Lecture, discussion. Cross-listed as BIO 344/HUM 371/REL 383. Credit is allowed for only BIO 344 or HPS 311 or HUM 371 or REL 383.

M HPS 314 Philosophy of Science. (3)
once a year
Structure and justification of scientific theories, explanation, and theory change. Roles of observation and laws, theoretical concepts and entities, reduction, probability, confirmation, space and time, and causation. Cross-listed as PHI 314. Credit is allowed for only HPS 314 or PHI 314.
General Studies: HU

M HPS 322 History of Science. (3)
once a year
Development and application of scientific thinking from ancient times through the 17th century.
General Studies: HU, H

M HPS 323 History of Science. (3)
selected semesters
Development and application of scientific thinking from the 18th century to the present.
General Studies: HU, H

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M HPS 325 Chinese Science and Medicine. (3)
selected semesters
Explores development of Chinese traditions dealing with the natural world, science, and medicine. Lecture, discussion. Cross-listed as HST 385. Credit is allowed for only HPS 325 or HST 385.
General Studies: HU, G, H

M HPS 330 History of Biology: Conflicts and Controversies. (3)
selected semesters
Focuses on 19th and 20th centuries, considering biology as a discipline. Evolution, problems of heredity, development, and cell theory. Cross-listed as BIO 316. Credit is allowed for only BIO 316 or HPS 330.
General Studies: H

M HPS 331 History of Medicine. (3)
once a year
Scientific study of the human body, changing theories of disease, evolution of practical opinions on treatment, and the emerging institutionalization of medical practice. Cross-listed as BIO 318. Credit is allowed for only BIO 318 or HPS 331.
General Studies: H

M HPS 332 The Darwinian Revolution. (3)
selected semesters
Intellectual and cultural history of Darwinism and modern evolutionary theory and their impact on 19th- and 20th-century thought. Lecture, discussion. Cross-listed as BIO 346/HUM 372. Credit is allowed for only BIO 346 or HPS 332 or HUM 372.

M HPS 336 Exploration and Science. (3)
fall
500-year survey of exploration as a historical process and cultural activity of Western civilization, with emphasis on its links with modern science.
General Studies: SB, H

M HPS 340 Biology and Society. (3)
fall
Explores interactions between biological sciences and society, e.g., biomedical, environmental, ethical, historical, legal, philosophical, political, and social issues. Lecture, discussion. Cross-listed as BIO 311. Credit is allowed for only BIO 311 or HPS 340. Prerequisites: both BIO 187 and 188 or only BIO 193 (or 100).

M HPS 377 Nature in Context. (3)
fall
Explores perspectives on the nature of nature, the history of ecology, and the rise of environmentalism. Seminar. Cross-listed as HON 377. Credit is allowed for only HON 377 or HPS 377.
General Studies: L/HU

M HPS 402 Technology, Society, and Human Values. (3)
once a year
Values that motivate humankind to create technology. Areas of conflict and resolution of conflict between values and technology. Readings and discussions with visiting lecturers. Prerequisite: junior standing.

M HPS 410 Professional Values in Science. (3)
once a year
Considers issues related to values in science such as collaboration, finances, legal issues, media, mentoring, ownership of ideas, scientific integrity. Discussion, student projects. Cross-listed as BIO 416. Credit is allowed for only BIO 416 or HPS 410.
General Studies: L

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

MOLECULAR BIOSCIENCES/BIOTECHNOLOGY (MBB)

M MBB 245 Cellular and Molecular Biology. (4)
fall and spring
Concepts that underlie relationships between cellular and subcellular structure and function, and integration of major metabolic and genetic processes. Lecture, lab. Fee. Prerequisite: life science major or preprofessional student in health-related sciences.
General Studies: SQ

M MBB 247 Applied Biosciences: Biotechnology. (4)
fall and spring
Applies concepts of molecular and cellular biology of bacteria, animals, and plants to real-world problems. Lecture, lab. Fee. Prerequisite: MBB 245.

M MBB 343 Genetic Engineering and Society. (4)
fall
Introduces genetic engineering, with emphasis on applications (gene therapy, DNA fingerprinting, bioremediation, transgenic animals and plants). 3 hours lecture, 3 hours lab. Cross-listed as BIO 343. Credit is allowed for only BIO 343 or MBB 343. Fee. Prerequisites: preferably MBB 245 or BIO 188 (or its equivalent).
General Studies: L

M MBB 350 Applied Genetics. (4)
spring
Introduces molecular genetics with emphasis on application of genetics in solving biological questions and engineering organisms in biotechnology. 2 hours lecture, 6 hours lab. Cross-listed as PLB 350. Credit is allowed for only MBB 350 or PLB 350. Fee. Prerequisite: preferably MBB 247 or BIO 340 (or 341).

M MBB 445 Techniques in Molecular Biology/Genetics. (2)
fall and spring
Molecular genetic principles: plasmid construction, purification, and characterization; PCR; mutageneses; hybridization and sequence analysis; protein quantitation, immunologic detection, and electrophoresis. Cross-listed as MIC 445. Credit is allowed for only MBB 445 or MIC 445. Prerequisites: both BIO 340 and MIC 302 or only instructor approval.

M MBB 446 Techniques in Molecular Biology/Genetics Lab. (2)
fall and spring
Molecular genetic techniques; plasmid construction, purification, and characterization; PCR; mutageneses; hybridization and sequence analysis; protein quantitation; immunologic detection and electrophoresis. Cross-listed as MIC 446. Credit is allowed for only MBB 446 or MIC 446. Pre- or corequisite: MBB 445 or MIC 445.

M MBB 484 Internship. (3)
selected semesters

M MBB 490 Capstone: Issues in Biotechnology. (2)
fall and spring
Integrates science and humanities within problem-solving exercises dealing with intellectual property, ethics, regulatory issues, business practices, and commercialization. May be repeated for credit. Prerequisite: Molecular Biosciences/Biotechnology major or instructor approval.
General Studies: L (must be taken twice to secure L credit)

M MBB 492 Honors Directed Study. (1–6)
selected semesters

M MBB 493 Honors Thesis. (1–6)
selected semesters
General Studies: L

M MBB 494 Special Topics. (1–4)
selected semesters

M MBB 498 Pro-Seminar. (1–7)
selected semesters

M MBB 499 Individualized Instruction. (3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

MOLECULAR AND CELLULAR BIOLOGY (MCB)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

MICROBIOLOGY (MIC)

M MIC 205 Microbiology. (3)
fall, spring, summer
Basic course for students without credit in BIO 188, emphasizing general principles; role of microorganisms in health, ecology, and applied fields. May not be used for Microbiology major credit unless a

diagnostic test is passed. Prerequisites: both BIO 100 (or PLB 108) and CHM 101 or only instructor approval.
General Studies: SG (if credit also earned in MIC 206)

M MIC 206 Microbiology Laboratory. (1)
fall, spring, summer
Principles and laboratory techniques used in identifying and handling microorganisms. 3 hours lab. Fee. Pre- or corequisite: MIC 205 or 220.
General Studies: SG (if credit also earned in MIC 205)

M MIC 220 Biology of Microorganisms. (3)
fall and spring
Basic course for students with credit in BIO 188. Detailed study of microbial cells, their structure, genetics, physiology, and taxonomy. Corequisites: BIO 187; CHM 115.

M MIC 302 Advanced Bacteriology Laboratory. (2)
fall and spring
Advanced laboratory techniques in bacterial growth, physiology, genetics, and microscopy. Required of Microbiology majors. 4 hours lab. Fee. Prerequisites: completion of General Studies L requirement and either (a) MIC 206 and 220 or (b) MIC 205 and 206 and instructor approval.
General Studies: L (if credit also earned in MIC 401)

M MIC 360 Bacterial Physiology. (3)
fall and spring
Mechanisms and control of cell metabolism, structures, and functions. Prerequisite: MIC 220. Pre- or corequisite: BCH 361 or instructor approval.

M MIC 380 Medical Parasitology. (3)
fall
Parasitic diseases of humans, including life cycle events and clinical manifestations. Prerequisite: MIC 205 or 220.

M MIC 381 Pathogenic Microbes. (3)
spring
Host-microbial interactions in infectious disease, with emphasis on pathogenesis, host defenses, and molecular mechanisms of microbial virulence. Prerequisite: MIC 360 or 6 hours in microbiology with instructor approval.

M MIC 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- HIV Disease and AIDS in America
- Medical Immunology

M MIC 401 Research Paper. (1)
fall, spring, summer
Paper of 15 or more pages based on library or laboratory research in collaboration with a faculty member. Required of all Microbiology majors. Prerequisites: MIC 302; completion of General Studies L requirement.
General Studies: L (if credit also earned in MIC 302)

M MIC 402 Service Learning. (3)
fall and spring
K–12 tutoring internship; learning activities employed were originally developed as part of the Bio Reach Program. Requires weekly reflective writing. May be repeated for credit. Internship. Fee. Pre- or corequisite: BIO 181 or 188.
General Studies: C

M MIC 420 Immunology: Molecular and Cellular Foundations. (3)
fall
Molecular and cellular foundations of immunology. Antibody/antigen interactions, cellular response, cytokines, immunogenetics, immunoregulation, autoimmunity, psychoneuroimmunology research/medical perspectives. Prerequisites: both CHM 231 (or 233) and MIC 205 (or 220) or only instructor approval.

M MIC 421 Experimental Immunology. (2)
fall and spring
Introduces the basic techniques, methods, and assays used in immunology. 6 hours lab. Fee. Prerequisites: a combination of CHM 231 and 233 and MIC 302 or only instructor approval.

M MIC 425 Advanced Immunology. (3)
selected semesters
Survey of recent advances in immunology, including lymphocyte membranes, lymphokines/biochemistry, molecular genetics, theoretical immunology, immunoregulation, neuroimmunology, and immunologic diseases. Prerequisite: MIC 420 or instructor approval.

M MIC 428 Immunophilosophy. (3)
selected semesters
Integrates immunology and philosophy, including psychoneuroimmunology and the mind-body problem, and immunologic/psychologic perspectives on self and self-identity. Discussion, original literature readings and written assignments. Cross-listed as PHI 428. Credit is allowed for only MIC 428 or PHI 428. Pre- or corequisite: MIC 420 or PHI 317 or instructor approval.

M MIC 441 Bacterial Genetics. (3)
spring
Survey of genetic exchange and regulatory processes in bacteria and their viruses. Bacteria and viruses as tools in genetic engineering. Prerequisites: both BIO 340 and MIC 205 (or 220) or only instructor approval.

M MIC 442 Bacterial Genetics Laboratory. (1)
fall
Techniques of mutagenesis, mapping, and strain and genetic library construction. 4 hours lab. Prerequisites: MIC 206, 302. Pre- or corequisite: MIC 441.

M MIC 445 Techniques in Molecular Biology/Genetics. (2)
fall and spring
Molecular genetic principles: plasmid construction, purification, and characterization; PCR; mutageneses; hybridization and sequence analysis; protein quantitation; immunologic detection and electrophoresis. Cross-listed as MBB 445. Credit is allowed for only MBB 445 or MIC 445. Prerequisites: both BIO 340 and MIC 302 or only instructor approval.

M MIC 446 Techniques in Molecular Biology/Genetics Lab. (2)
fall and spring
Molecular genetic techniques; plasmid construction, purification, and characterization; PCR; mutageneses; hybridization and sequence analysis; protein quantitation; immunologic detection and electrophoresis. Cross-listed as MBB 446. Credit is allowed for only MBB 446 or MIC 446. Pre- or corequisite: MBB 445 or MIC 445.

M MIC 461 Geomicrobiology. (3)
spring
Past and present interactions among microbial life, geological materials, and biogeochemical cycles involving carbon, sulfur, phosphate, nitrogen, and metals. Cross-listed as GLG 461. Credit is allowed for only GLG 461 or MIC 461. Prerequisites: introductory courses in chemistry and microbiology (or geological sciences); instructor approval.

M MIC 470 Bacterial Diversity and Systematics. (4)
selected semesters
Biology, classification, and enrichment culture of the nonpathogenic bacteria. 2 hours lecture, 6 hours lab. Fee. Prerequisite: MIC 302.

M MIC 475 Astrobiology. (3)
fall and spring
Origin, early evolution, distribution, and future of life on Earth and elsewhere in the cosmos. May be repeated for credit. Lecture, discussion, video conferences, possible field trips. Cross-listed as AST 460/BIO 460/CHM 483/GLG 460. Credit is allowed for only AST 460 or BIO 460 or CHM 483 or GLG 460 or MIC 475. Prerequisite: instructor approval.

M MIC 484 Internship. (1–12)
fall, spring, summer

M MIC 485 General Virology. (3)
fall
Fundamental principles of viruses, their molecular biology, replication, genetics, and pathogenesis. Prerequisites: a combination of BCH 361 and MIC 206 and 220 or only instructor approval.

M MIC 492 Honors Directed Study. (1–6)
selected semesters

M MIC 493 Honors Thesis. (1–6)
selected semesters
General Studies: L

M MIC 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Clinical Bacteriology Laboratory. (3)
- Service Learning (Bioreach). (3)

M MIC 495 Undergraduate Research. (1–6)
fall, spring, summer
Supervised research in microbiology. May be repeated for credit. Lab. Prerequisites: MIC 206, 220, 302; instructor approval.

M MIC 498 Pro-Seminar. (1–7)
selected semesters

M MIC 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

PLANT BIOLOGY (PLB)

M PLB 108 Concepts in Plant Biology. (4)
fall, spring, summer
Introduces concepts of plant biology that are of human relevance using commercially important, edible, and medicinal plants as examples. Not for majors in the biological sciences. 3 hours lecture, 3 hours lab. Fee.
General Studies: SQ

M PLB 200 Biology of Plants. (3)
fall, spring, summer
Analyzes the structure/function interaction for plant cells and tissues and properties that emerge in whole plants. Prerequisites: high school biology and chemistry.
General Studies: SQ (if credit also earned in PLB 201)

M PLB 201 Biology of Plants Laboratory. (1)
fall, spring, summer
Lab/field experiments to teach techniques and protocols of the scientific process; reinforces concepts from lecture by asking questions and solving problems. Lab. Prerequisites: high school biology and chemistry.
General Studies: SQ (if credit also earned in PLB 200)

M PLB 300 Comparative Plant Diversity. (4)
fall
Surveys major plant groups and other photosynthetic organisms. Emphasizes comparative data analysis, evolutionary inference, and phylogenetic methods. 3 hours lecture, 3 hours lab. Fee. Prerequisites: preferably both PLB 200 and 201 or only BIO 187 (or its equivalent).
General Studies: L/SG

M PLB 302 Plants and Civilization. (3)
fall
Plants and plant products used by people throughout the world. Cultivation, processing, and uses in modern life (beverages, fibers, foods, medicinals, and perfumes). Prerequisites: preferably both PLB 200 and 201 (or 108) or only BIO 187 (or its equivalent).

M PLB 304 Biology of Algae and Fungi. (3)
selected semesters
Ecology, economics, and evolutionary diversity of the algae and fungi. Traditional and modern biotechnological uses. 2 hours lecture, 3 hours lab. Prerequisites: preferably both PLB 200 and 201 or only BIO 187 (or its equivalent).

M PLB 305 Desert Annuals and Cacti. (3)
fall
Adaptive biology of select plants. Analyzes diverse traits permitting survival in deserts: reproduction, structure, and physiology. Prerequisites: preferably both PLB 200 and 201 or only BIO 187 (or equivalent).

M PLB 306 Plant Anatomy. (4)
fall
Development and mature structure of tissues of vascular plants; patterns and modifications of the leaf, stem, root, and flower. 3 hours lecture, 3 hours lab. Prerequisites: preferably both PLB 200 and 201 or only BIO 187 (or its equivalent).

M PLB 308 Plant Physiology. (4)
spring
Concepts of plant function: carbon metabolism, energy acquisition, regulation of growth and development, stress responses, and water and nutrient uptake. Fee. Prerequisites: preferably both PLB 200 and 201 or only BIO 187 (or its equivalent); CHM 101 (or 115 or 231).

M PLB 310 The Flora of Arizona. (4)
spring
Principles of taxonomy; identification of Arizona plants. 2 hours lecture, 6 hours lab. Fee. Prerequisites: preferably both PLB 200 and 201 or only BIO 187 (or its equivalent).

M PLB 400 Lichenology. (3)
spring in odd years
Chemistry, ecology, physiology, and taxonomy of lichens. 2 hours lecture, 3 hours lab. Prerequisites: preferably both PLB 200 and 201 or only BIO 187 (or its equivalent).

M PLB 401 Mycology. (3)
spring
Fungal morphology and systematics with an introduction to fungal cell biology, ecology, economic significance, and growth and development. 2 hours lecture, 3 hours lab. Prerequisites: preferably both PLB 200 and 201 or only BIO 187 (or its equivalent) or only MIC 206.

M PLB 402 Service Learning. (3)
fall and spring
K–12 tutoring and mentoring internship related to academic course work in plant biology; requires weekly reflective reading and writing. May be repeated for credit. Internship. Fee. Pre- or corequisite: BIO 187 or PLB 108 (or 200 and 201).
General Studies: C

M PLB 404 Phycology. (4)
spring
Algae (both fresh water and marine forms), emphasizing field collection and identification of local representatives. Morphological, ecological, and economic aspects of the algae. 3 hours lecture, 3 hours lab. Fee. Prerequisites: preferably both PLB 200 and 201 or only BIO 187 (or its equivalent).

M PLB 407 Plant Fossils and Evolution. (4)
spring in odd years
Broad survey of plant life of the past, including the structure of plant fossils, their geologic ranges, geographic distribution, and paleoenvironment. 3 hours lecture, 3 hours lab or field trip. Prerequisites: preferably both PLB 200 and 201 or only BIO 187 (or equivalent).

M PLB 410 Angiosperm Taxonomy. (3)
spring
Principles underlying angiosperm phylogeny. 2 hours lecture, 3 hours lab. Prerequisite: PLB 310 or instructor approval.

M PLB 411 Trees and Shrubs of Arizona. (3)
fall
Identification of woody plants from desert, chaparral, and forest habitats in Arizona. 1 hour lecture, 3 hours lab, field trips. Fee. Prerequisites: preferably both PLB 200 and 201 or only BIO 187 (or its equivalent) or only instructor approval.

M PLB 414 Plant Pathology. (3)
spring
Identification and control of biotic and abiotic factors that cause common disease problems to plants. Prerequisites: preferably both PLB 200 and 201 or only BIO 187 (or its equivalent) or only instructor approval.
General Studies: L

M PLB 416 Medical Botany. (4)
summer
Explores plants affecting human health: modern- and folk-usage medicinal plants. Quality control, clinical evidence, plant chemistry, and ethnopharmacology. 3 hours lecture, 3 hours lab. Prerequisites: preferably both PLB 200 and 201 or only BIO 187 (or its equivalent) or only instructor approval.

M PLB 484 Internship. (1–12)
selected semesters
Topics may include the following:
- Plant Biology Internship. (3)
  fall and spring
  Applies a simplified version of PLB 108 to teach fifth-grade children by planting gardens and conducting indoor plant experiments.

- Service Learning
  fall, spring, summer
  Fee.

M PLB 492 Honors Directed Study. (1–6)
selected semesters

M PLB 493 Honors Thesis. (1–6)
selected semesters
General Studies: L

M PLB 494 Special Topics. (1–4)
selected semesters

M PLB 498 Pro-Seminar. (1–7)
fall and spring

M PLB 499 Individualized Instruction. (3)
selected semesters

Environmental Science and Ecology

M PLB 320 Environmental Science (Nonmajor). (3)
fall
Environmental and biological concepts used to understand ecological systems with specific references to problems caused by humans. Cannot be used for major credit in the biological sciences. Cross-listed as BIO 319. Credit is allowed for only BIO 319 or PLB 320.
General Studies: G

M PLB 322 Environmental Science (Major). (3)
fall
Nature of environmental and biological interaction: historical and modern examples, regional and global issues. Participation in environmental problem-solving activities. Lecture, lab. Prerequisites: preferably both PLB 200 and 201 or both GLG 110 and 111 or only GPH 111.

M PLB 420 Plant Ecology: Organisms and Populations. (3)
spring in odd years
Factors and controls on the physiological ecology and organization of plants and plant populations using empirical and theoretical approaches. 2 hours lecture, 3 hours lab. Fee. Prerequisite: BIO 320 or PLB 322 (or its equivalent).

M PLB 421 Plant Ecology: Communities and Ecosystems. (3)
spring in even years
Plant community organization, field sampling techniques, and the structure and function of terrestrial ecosystems emphasizing the role of vegetation. 2 hours lecture, 3 hours lab. Fee. Prerequisite: BIO 320 or PLB 322 (or its equivalent).

M PLB 422 Plant Geography. (3)
once a year
Plant communities of the world and their interpretation, emphasizing North American plant associations. Cross-listed as GPH 422. Credit is allowed for only GPH 422 or PLB 422. Prerequisites: preferably both PLB 200 and 201 or only BIO 187 or only GPH 111.

M PLB 430 Statistical Analyses in Environmental Science. (3)
spring
ANOVAS, 1-way classification of factorial and partially hierarchic designs; introductory multivariate statistics. Fee. Prerequisite: MAT 210 (or its equivalent).
General Studies: CS

M PLB 432 Computer Applications in Biology. (3)
fall
Computer analysis techniques in biology emphasizing data entry, management and analysis, and graphic portrayal. Employs mainframe and microcomputers. 2 hours lecture, 3 hours lab. Cross-listed as BIO 406. Credit is allowed for only BIO 406 or PLB 432. Fee. Prerequisites: both BIO 187 and MAT 117 (or 210) or only instructor approval.
General Studies: CS

M PLB 434 Landscape Ecological Analysis and Modeling. (3)
spring in odd years
Technical methods of landscape ecological analyses. Includes mathematical and statistical examination and modeling of landscape ecological patterns and processes. Prerequisites: both BIO 320 and 406 or only PLB 432 (or its equivalent).

Students conduct a bioengineering experiment that evaluates balance changes in the aging process. Tim Trumble photo

Plant Biochemistry and Molecular Biology

M PLB 350 Applied Genetics. (4)
spring
Introduces molecular genetics with emphasis on application of genetics in solving biological questions and engineering organisms in biotechnology. 2 hours lecture, 6 hours lab. Cross-listed as MBB 350. Credit is allowed for only MBB 350 or PLB 350. Fee. Prerequisite: preferably MBB 247 or BIO 340 (or 341).

M PLB 440 Photobiology. (3)
selected semesters
Principles underlying the effects of light on growth, development, and behavior of plants, animals, and microorganisms. Cross-listed as BIO 464. Credit is allowed for only BIO 464 or PLB 440. Prerequisites: CHM 231 (or 233); 12 hours in life sciences.

M PLB 444 Plant Growth and Development. (3)
spring
Molecular basis of development, role of signal transduction pathways/gene regulation in control of organ formation, pollination, germination, and growth. Prerequisite: BIO 353.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Department of Mathematics and Statistics

math.la.asu.edu
480/965-3951
PS A216

Dieter Armbruster, Interim Chair

Regents' Professor: Castillo-Chavez

Professors: Armbruster, Barcelo, Bremner, Carlson, Eubank, Gardner, Ihrig, Z. Jackiewicz, Kadell, Kawski, Kierstead, Kostelich, Kuang, Kuiper, Lohr, Lopez, Mahalov, Mittelmann, Nicolaenko, Quigg, Renaut, Ringhofer, Smith, Suslov, Thieme, Thompson, Young

Associate Professors: Baer, Blount, Childress, Farmer, Gelb, Hurlbert, D. Jones, J. Jones, Kaliszewski, Moore, Nikitin, Prewitt, Spielberg, Taylor, Welfert

Assistant Professors: Chen, Crook, Czygrinow, Majumdar, Oehrtman, Roh, Roudenko, Zandieh

Research Professor: Greenwood

Senior Lecturers: Abramson, Isom, Kolossa, Miller, Odish, Rody, Ruedemann, Surgent, Trapuzzano, Vaz, Zhu

Lecturers: Arce, Ashbrook, Brewer, Coombs, D' Alesandro, Downs, Firozzaman, Fulman, Heckman, E. Jackiewicz, E. Jones, Kellgren, Kim, Maris, Martin, Masilamani, McClure, Melendez, Newhouse, Pecuch-Herrero, Reynolds, Richardson, Seal, Tracogna, Turner, Ward, Williams

The Department of Mathematics and Statistics offers the BA and BS degrees in Mathematics. Students who plan to attend graduate school in mathematics or statistics should choose the BS degree.

The department also offers the BS degree in Computational Mathematical Sciences.

The department also offers a minor in Mathematics and an academic specialization in mathematics for students pursuing the BAE degree in Secondary Education.

MATHEMATICS—BA

The BA degree in Mathematics requires a minimum of 36 semester hours of course work in mathematics and statistics, and additional course work in closely related fields, for a total of 51 semester hours. A grade of "C" (2.00) or higher is required in all courses taken for the major. MAT 370 and 371 may not both be used to satisfy these degree requirements. The required course work has the following components:

Core Courses

MAT	270	Calculus with Analytic Geometry I *MA* 4
MAT	271	Calculus with Analytic Geometry II *MA* 4
MAT	272	Calculus with Analytic Geometry III *MA* 4
MAT	300	Mathematical Structures *L* 3
		or MAT 243 Discrete Mathematical Structures (3)
MAT	342	Linear Algebra 3
		or MAT 343 Applied Linear Algebra (3)
		or both MAT 242 Elementary Linear Algebra (3) and MAT 294 ST: Sophomore Problem Seminar (3)
MAT	370	Intermediate Calculus 3
		or MAT 371 Advanced Calculus I (3)
Total		21

Computer Science Requirement

CSE	100	Principles of Programming with C++ *CS* 3
		or CSE 110 Principles of Programming Java *CS* (3)
		or CSE 205 Concepts of Computer Science *CS* (3)
Total		3

Additional Course Work in Mathematics and Statistics[1]

Five additional courses in mathematics and statistics are also required 15

Related Field Course Work[2]

Course work in mathematics, statistics, or related fields 12

[1] Acceptable mathematics courses are MAT 243, 274, and upper-division MAT courses, with the exception of MAT 362, 485, and MAT 411. Acceptable statistics courses are upper-division STP courses.

[2] For a list of related field course work, see an advisor in PSA 211, or access math.la.asu.edu/undergrd/degree/related-fields.html.

MATHEMATICS—BS

The Department of Mathematics and Statistics has three avenues for earning a BS degree. The BS requirements are similar to the BA requirements, but they require more extensive courses in advanced mathematics. The program is flexible enough to allow students to focus their studies on mathematics, applied mathematics, or statistics. The statistics concentration offers extensive preparation in applied and theoretical statistics. The requirements for the BS degree with the statistics concentration are a subset of those for the BS degree. The requirements for the BS degree and for the BS degree with the computational mathematical sciences concentration are distinct; neither is a subset of the other.

BS Requirements. The BS degree in Mathematics requires a minimum of 42 semester hours of course work in mathematics and statistics, and additional course work in closely related fields, for a total of 55 semester hours. A grade of "C" (2.00) or higher is required in all courses taken for the major. MAT 370 and 371 may not both be used to satisfy these degree requirements. Credit may not be earned for both MAT 274 and 275 or for both MAT 342 and 343. The required course work has the following components:

Core Courses

MAT	270	Calculus with Analytic Geometry I *MA* 4
MAT	271	Calculus with Analytic Geometry II *MA* 4
MAT	272	Calculus with Analytic Geometry III *MA* 4
MAT	300	Mathematical Structures *L* 3
MAT	342	Linear Algebra 3
		or MAT 343 Applied Linear Algebra (3)
MAT	371	Advanced Calculus I 3
Total		21

Computer Science Requirement
CSE 205 Concepts of Computer Science *CS* 3

Total 3

Depth Requirement
Two courses chosen from the following list of advanced courses 6
- MAT 415 Introduction to Combinatorics (3)
- MAT 416 Introduction to Graph Theory (3)
- MAT 423 Numerical Analysis I *CS* (3)
- MAT 425 Numerical Analysis II *CS* (3)
- MAT 442 Advanced Linear Algebra (3)
- MAT 444 Intermediate Abstract Algebra (3)
- MAT 472 Intermediate Real Analysis I (3)
- MAT 473 Intermediate Real Analysis II (3)
- MAT 475 Differential Equations (3)
- MAT 476 Partial Differential Equations (3)
- STP 421 Probability (3)
- STP 427 Mathematical Statistics (3)

Advanced Courses in Mathematics and Statistics[1]
Two courses from the following list, both preferably taken from the same grouping 6

Algebra, Topology, and Number Theory
- MAT 410 Introduction to General Topology (3)
- MAT 442 Advanced Linear Algebra (3)
- MAT 443 Introduction to Abstract Algebra (3)
- MAT 444 Intermediate Abstract Algebra (3)
- MAT 445 Theory of Numbers (3)

Analysis and Applications
- MAT 372 Advanced Calculus II (3)
- MAT 461 Applied Complex Analysis (3)
- MAT 472 Intermediate Real Analysis I (3)

Applied Mathematics and Dynamics
- MAT 451 Mathematical Modeling *CS* (3)
- MAT 452 Introduction to Chaos and Nonlinear Dynamics (3)
- MAT 455 Introduction to Fractals and Applications (3)

Computational Mathematics
- MAT 420 Scientific Computing (3)
- MAT 421 Applied Computational Methods *CS* (3)
- MAT 423 Numerical Analysis I *CS* (3)
- MAT 425 Numerical Analysis II *CS* (3)
- MAT 427 Computer Arithmetic *CS* (3)

Differential Equations
- MAT 462 Applied Partial Differential Equations (3)
- MAT 475 Differential Equations (3)
- MAT 476 Partial Differential Equations (3)

Discrete Mathematics
- MAT 415 Introduction to Combinatorics (3)
- MAT 416 Introduction to Graph Theory (3)
- MAT 419 Introduction to Linear Programming *CS* (3)

Statistics and Probability
- STP 420 Introductory Applied Statistics *CS* (3)
- STP 421 Probability (3)
- STP 425 Stochastic Processes (3)
- STP 427 Mathematical Statistics (3)
- STP 429 Experimental Statistics *CS* (3)

Additional Course Work in Mathematics and Statistics[2]
Three courses in mathematics and statistics 9

Related Fields Course Work[3]
Course work in mathematics, statistics, or related fields 10

[1] Students who contemplate graduate work in mathematics should choose additional courses listed under the depth requirement to satisfy the advanced courses requirement.

[2] Acceptable mathematics courses are MAT 243, 274, and upper division MAT courses, with the exception of MAT 310, 362, 485, and MAT 411. Acceptable statistics courses are 400-level STP courses.

[3] For a list of related field course work, see an advisor in PSA 211, or access math.la.asu.edu/undergrd/degree/related-fields.html.

COMPUTATIONAL MATHEMATICAL SCIENCES—BS

The BS degree in Computational Mathematical Sciences curriculum strives to provide students with a background in computer science and the natural or physical sciences in addition to a core of course work in mathematics. The requirements for the BS degree in Computational Mathematical Sciences and for the BS degree in Mathematics are distinct; neither is a subset of the other. A minimum grade of "C" (2.00) is required in all courses taken for the major.

The BS degree in Computational Mathematical Sciences requires a minimum of 32 semester hours of course work in mathematics and statistics, a minimum of 12 to 14 semester hours in science, nine hours in computer science, and a three hour advanced science course or internship/research credit. This adds up to a minimum of 56 to 58 semester hours of study related to the major.

Core Courses
MAT 243 Discrete Mathematical Structures 3
or MAT 300 Mathematical Structures *L* (3)
MAT 271 Calculus with Analytic Geometry II *MA* 4
MAT 272 Calculus with Analytic Geometry III *MA* 4

Total 11

Core Courses in Computational Mathematics
MAT 275 Modern Differential Equations *MA** 3
or MAT 274 Elementary Differential Equations *MA* (3)
MAT 343 Applied Linear Algebra* 3
or MAT 342 Linear Algebra (3)
MAT 420 Scientific Computing 3
MAT 421 Applied Computational Methods *CS* 3

Total 12

* MAT 275 and 343 are recommended.

Advanced Courses in Mathematics and Statistics
Choose one course from group one and two from group two 9
Group One
- MAT 370 Intermediate Calculus (3)
- MAT 371 Advanced Calculus I (3)
- MAT 460 Vector Calculus (3)

Group Two
- MAT 351 Mathematical Methods for Genetic Analysis *CS* (3)
- MAT 415 Introduction to Combinatorics (3)
- MAT 416 Introduction to Graph Theory (3)

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

MAT 419 Introduction to Linear Programming *CS* (3)
MAT 423 Numerical Analysis I *CS* (3)
MAT 425 Numerical Analysis II *CS* (3)
MAT 447 Cryptography (3)
MAT 451 Mathematical Modeling *CS* (3)
MAT 452 Introduction to Chaos and Nonlinear Dynamics (3)
MAT 455 Introduction to Fractals and Applications (3)
MAT 461 Applied Complex Analysis (3)
MAT 462 Applied Partial Differential Equations (3)
MAT 475 Differential Equations (3)
MAT 476 Partial Differential Equations (3)
STP 420 Introductory Applied Statistics *CS* (3)
STP 421 Probability (3)
STP 425 Stochastic Processes (3)
STP 427 Mathematical Statistics (3)
STP 429 Experimental Statistics *CS* (3)

Computer Science Requirement

CSE 205 Concepts of Computer Science *CS* 3
CSE 210 Object-Oriented Design and Data Structures *CS* 3
CSE 240 Introduction to Programming Languages 3
or CSE 310 Data Structures and Algorithms (3)
Total 9

Science Requirement. Two one-year science course and lab sequences (for a total of 14 to 17 hours) are required. Upon advisor approval, two advanced courses for which the first one-year science and lab sequence is a prerequisite may be substituted for the second one-year science and lab sequence. Allowable one-year sequences include the following:

Astrophysics

Astrophysics sequence 8
AST 113 Astronomy Laboratory I *SQ*[1] (1)
AST 114 Astronomy Laboratory II *SQ*[1] (1)
AST 321 Introduction to Planetary and Stellar Astrophysics *SQ*[1] (3)
AST 322 Introduction to Galactic and Extragalactic Astrophysics *SQ*[1] (3)

Biology

Choose one of the following sequences 8
BIO 187 General Biology I *SG* (4)
BIO 188 General Biology II *SQ* (4)
— *or* —
BIO 188 General Biology II *SQ* (4)
BIO 193 The Nature of Biological Science *SQ* (4)

Chemistry

Choose between the course combinations below .... 8 or 9
CHM 113 General Chemistry I *SQ* (4)
CHM 115 General Chemistry with Qualitative Analysis *SQ* (5)
——— *or* ———
CHM 113 General Chemistry I *SQ* (4)
CHM 116 General Chemistry II *SQ* (4)
— *or* —
CHM 116 General Chemistry II *SQ* (4)
CHM 117 General Chemistry for Majors I *SQ*[2] (4)
— *or* —
CHM 114 General Chemistry for Engineers *SQ* (4)
CHM 231 Elementary Organic Chemistry *SQ*[3] (3)
CHM 235 Elementary Organic Chemistry Laboratory *SQ*[3] (1)

Geology

Geology sequence 8
GLG 101 Introduction to Geology I (Physical) *SQ, G*[4] (3)
GLG 103 Introduction to Geology I—Laboratory *SQ*[4] (1)
GLG 102 Introduction to Geology II (Historical) *SG, H*[4] (3)
GLG 104 Introduction to Geology II—Laboratory *SG*[4] (1)

Microbiology and Molecular Biosciences/Biotechnology

Choose one of the following sequences 4
MBB 245 Cellular and Molecular Biology *SQ* (4)
— *or* —
MIC 205 Microbiology *SG*[5] (3)
MIC 206 Microbiology Laboratory *SG*[5] (1)
— *or* —
MIC 206 Microbiology Laboratory *SG*[5] (1)
MIC 220 Biology of Microorganisms (3)

Physics

Choose one of the following sequences 8
PHY 121 University Physics I: Mechanics *SQ*[6] (3)
PHY 122 University Physics Laboratory I *SQ*[6] (1)
PHY 131 University Physics II: Electricity and Magnetism *SQ*[6] (3)
PHY 132 University Physics Laboratory II *SQ*[6] (1)
— *or* —
PHY 150 Physics I *SQ* (4)
PHY 151 Physics II *SQ* (4)

Plant Biology

Choose one of the following sequences 4
PLB 200 Biology of Plants *SQ*[7] (3)
PLB 201 Biology of Plants Laboratory *SQ*[7] (1)
— *or* —
MBB 245 Cellular and Molecular Biology *SQ* (4)

Internship, Research, or Advanced Science Requirement

Choose one of the following courses 3
MAT 484 Internship[8] (3)
MAT 493 Honors Thesis/Research[9] (3)
MAT 494 ST: Independent Study/Research[8] (3)
One advanced course in science for which a one-year sequence in the same science is required

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1 Both AST 113 and 321 or both AST 114 and 322 must be taken to secure SQ credit.
2 CHM 115 and 117 are strongly recommended for qualified students.
3 Both CHM 231 and 235 must be taken to secure SQ credit.
4 Both GLG 101 and 103 must be taken to secure SQ credit, and both GLG 102 and 104 must be taken to secure SG credit.
5 Both MIC 205 and MIC 206 must be taken to secure SG credit.
6 Both PHY 121 and 122 and both PHY 131 and 132 must be taken to secure SQ credit.
7 Both PLB 200 and 201 must be taken to secure SQ credit.
8 This course requires prior department approval.
9 Enrollment is restricted to students in the Barrett Honors College.

Restrictions: MAT 370 and 371 may not both be counted toward major requirements in Computational Mathematical Sciences. Credit may not be earned for both MAT 274 and 275, or for both MAT 342 and 343.

Statistics Concentration Requirements. The BS degree in Mathematics with the concentration in statistics requires a minimum of 42 semester hours of course work in mathematics and statistics, plus a minimum of 13 semester hours in computer science and related fields, for a minimum of 55 semester hours of course work related to the major. A grade of "C" (2.00) or higher is required in all courses taken for the major. MAT 370 and 371 may not both be used to satisfy

these requirements. The course work has the following components:

Core Courses

MAT	270	Calculus with Analytic Geometry I *MA*	4
MAT	271	Calculus with Analytic Geometry II *MA*	4
MAT	272	Calculus with Analytic Geometry III *MA*	4
MAT	300	Mathematical Structures *L*	3
MAT	342	Linear Algebra	3
		or MAT 343 Applied Linear Algebra (3)	
MAT	371	Advanced Calculus I	3
STP	420	Introductory Applied Statistics *CS*	3
STP	421	Probability	3
STP	427	Mathematical Statistics	3
STP	429	Experimental Statistics *CS*	3
Total			33

Computer Science Requirement

CSE	205	Concepts of Computer Science *CS*	3
Total			3

Additional Advanced Courses in Mathematics and Statistics

Three courses from the following list 9

- MAT 274 Elementary Differential Equations *MA* (3)
  or MAT 275 Modern Differential Equations *MA* (3)
- MAT 372 Advanced Calculus II (3)
- MAT 423 Numerical Analysis I *CS* (3)
- MAT 442 Advanced Linear Algebra (3)
- STP 425 Stochastic Processes (3)

Required Related Field Course Work

Statistics/probability, mathematics, or related fields*..... 10

* For a list of related field course work, see an advisor in PSA 211, or access math.la.asu.edu/undergrd/degree/related-fields.html.

Actuarial Science. The faculty in the Department of Mathematics and Statistics offer courses that cover the content of the mathematical examinations of the Society of Actuaries. See the department's actuarial advisor for more information.

Cryptographic Science. The faculty in the Department of Mathematics and Statistics offer courses that prepare students for graduate studies and careers in cryptography. See the department's advisors for more information.

MINORS IN MATHEMATICS AND STATISTICS

The minor in Mathematics consists of a minimum of 20 semester hours. Required courses are as follows:

MAT	271	Calculus with Analytic Geometry II *MA*	4
MAT	272	Calculus with Analytic Geometry III *MA*	4
MAT	342	Linear Algebra	3
		or MAT 343 Applied Linear Algebra (3)	
Total			11

Electives must be upper-division courses in mathematics (MAT) or Statistics and Probability (STP). Students may not apply MAT 485 or a course not offered at the Tempe campus to the minor, unless otherwise approved by a department advisor.

The minor in Statistics consists of a minimum of 20 semester hours. Required courses are the following:

MAT	271	Calculus with Analytic Geometry II *MA*	4
MAT	272	Calculus with Analytic Geometry III *MA*	4
MAT	300	Mathematical Structures *L*	3
STP	420	Introductory Applied Statistics *CS*	3
STP	421	Probability	3
STP	427	Mathematical Statistics	3
		or STP 429 Experimental Statistics *CS* (3)	
Total			20

The minor in Computational Mathematical Sciences consists of a minimum of 20 semester hours. Required courses are the following:

MAT	271	Calculus with Analytic Geometry II *MA*	4
MAT	272	Calculus with Analytic Geometry III *MA*	4
MAT	342	Linear Algebra	3
		or MAT 343 Applied Linear Algebra (3)	
MAT	420	Scientific Computing	3
MAT	421	Applied Computational Methods *CS*	3
MAT	423	Numerical Analysis I *CS*	3
		or MAT 425 Numerical Analysis II *CS* (3)	
Total			20

It is recommended that students take MAT 243 Discrete Mathematical Structures.

BIS CONCENTRATIONS

Concentrations in computational mathematical sciences, mathematics, and statistics are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

SECONDARY EDUCATION—BAE

Mathematics. This degree is offered through the Initial Teacher Certification program in the College of Education. Students pursuing a major in Secondary Education have an advisor in the College of Education and an advisor within the department of their academic specialization area.

See "College of Education," page 349, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

The academic specialization consists of the following required courses:

CSE	100	Principles of Programming with C++ *CS*	3
		or CSE 110 Principles of Programming Java *CS* (3)	
		or CSE 205 Concepts of Computer Science *CS* (3)	
MAT	270	Calculus with Analytic Geometry I *MA*	4
MAT	271	Calculus with Analytic Geometry II *MA*	4
MAT	272	Calculus with Analytic Geometry III *MA*	4
MAT	300	Mathematical Structures *L*	3
		or MAT 243 Discrete Mathematical Structures (3)	

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

MAT	310	Introduction to Geometry....3
MAT	342	Linear Algebra....3
		or MAT 343 Applied Linear Algebra (3)
MAT	370	Intermediate Calculus....3
		or MAT 371 Advanced Calculus I (3)
MAT	443	Introduction to Abstract Algebra....3
		or MAT 445 Theory of Numbers (3)
		or MAT 447 Cryptography (3)
MTE	483	Mathematics in the Secondary School....3
STP	420	Introductory Applied Statistics *CS*....3
Total		36

The methods in academic specialization courses for mathematics are MTE 482 Methods of Teaching Mathematics in Secondary School and MTE 494 ST: Advanced Methods of Teaching Secondary Mathematics. They are required as part of the Initial Teacher Certification program but cannot be counted as part of the 36-hour major requirement.

GRADUATE PROGRAMS

The faculty in the Department of Mathematics and Statistics offer programs leading to the degrees of Master of Natural Science, MA, and PhD. See the *Graduate Catalog* for requirements.

MATHEMATICS (MAT)

For more MAT courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M MAT 106 Intermediate Algebra. (3)
fall, spring, summer
Topics from basic algebra such as linear equations, polynomials, factoring, exponents, roots, and radicals. Credit is allowed for only MAT 106 or 113. Prerequisite: 1 year of high school algebra.

M MAT 113 College Algebra Plus. (5)
fall and spring
A union of topics from intermediate algebra and college algebra, including exponents, factoring, graphing, polynomials, logarithmic, and exponential functions. Credit is allowed for only MAT 113 or 106 or 117. Prerequisite: 2 years of high school mathematics.

M MAT 117 College Algebra. (3)
fall, spring, summer
Linear and quadratic functions, systems of linear equations, logarithmic and exponential functions, sequences, series, and combinatorics. Credit is allowed for only MAT 117 or 113. Fee (online only). Prerequisite: MAT 106 or 2 years of high school algebra.

M MAT 119 Finite Mathematics. (3)
fall, spring, summer
Topics from linear algebra, linear programming, combinatorics, probability, and mathematics of finance. Prerequisite: MAT 113 or 117 (or its equivalent).
General Studies: MA

M MAT 142 College Mathematics. (3)
fall, spring, summer
Applies basic college-level mathematics to real-life problems. Appropriate for students whose major does not require MAT 117 or 170. Prerequisite: MAT 106 or 2 years of high school algebra.
General Studies: MA

M MAT 170 Precalculus. (3)
fall, spring, summer
Intensive preparation for calculus (MAT 260, 270, and 290). Topics include functions (including trigonometric), matrices, polar coordinates, vectors, complex numbers, and mathematical induction. Prerequisite with a grade of "B" or higher: MAT 106. Prerequisite with a grade of "C" (2.00) or higher: MAT 113 or 117 (or its equivalent) or 2 years of high school algebra.
General Studies: MA

M MAT 210 Brief Calculus. (3)
fall, spring, summer
Differential and integral calculus of elementary functions with applications. Not open to students with credit for MAT 260, 270, or 290. Fee (online only). Prerequisite: MAT 113 or 117 (or its equivalent).
General Studies: MA

M MAT 211 Mathematics for Business Analysis. (3)
fall, spring, summer
Topics in business analysis, including: Lagrange multipliers, linear programming, linear algebra, intermediate probability, random variables, discrete distributions, and continuous distributions. Prerequisite with a grade of "C" or higher: MAT 210 or instructor approval.

M MAT 242 Elementary Linear Algebra. (2)
fall, spring, summer
Introduces matrices, systems of linear equations, determinants, vector spaces, linear transformations, and eigenvalues. Emphasizes development of computational skills. Prerequisite: 1 semester of calculus or instructor approval.

M MAT 243 Discrete Mathematical Structures. (3)
fall, spring, summer
Logic, sets, functions, elementary number theory and combinatorics, recursive algorithms, and mathematical reasoning, including induction. Emphasizes connections to computer science. Prerequisite: 1 semester of calculus or computer programming.

M MAT 251 Calculus for Life Sciences. (3)
fall and spring
Differential and integral calculus of elementary functions. Introduces differential and difference equations. Emphasizes applications to the life sciences. Not open to students with credit for MAT 210, 260, or 270. Prerequisite: MAT 170 (or its equivalent).
General Studies: MA

M MAT 260 Technical Calculus I. (3)
selected semesters
Analytic geometry, differential, and integral calculus of elementary functions, emphasizing physical interpretation and problem solving. Not open to students with credit for MAT 210, 270, or 290. Prerequisite: MAT 170 (or its equivalent).
General Studies: MA

M MAT 261 Technical Calculus II. (3)
selected semesters
Continuation of MAT 260. Prerequisite: MAT 260 or instructor approval.
General Studies: MA

M MAT 262 Technical Calculus III. (3)
selected semesters
Infinite series, an introduction to differential equations and elementary linear algebra. Prerequisite: MAT 261 (or its equivalent).
General Studies: MA

M MAT 270 Calculus with Analytic Geometry I. (4)
fall, spring, summer
Real numbers, limits and continuity, and differential and integral calculus of functions of 1 variable. Not open to students with credit for MAT 290. The sequence MAT 270 and 271 may be substituted for MAT 290 to satisfy requirements of any curriculum. Fee. Prerequisite with a grade of "C" (2.00) or higher: MAT 170 or satisfactory score on placement examination.
General Studies: MA

M MAT 271 Calculus with Analytic Geometry II. (4)
fall, spring, summer
Methods of integration, applications of calculus, elements of analytic geometry, improper integrals, sequences, and series. Not open to students with credit for MAT 291. The sequence MAT 270, 271, 272 may be substituted to satisfy requirements for MAT 290 and 291. Fee. Prerequisite with a grade of "C" (2.00) or higher: MAT 270 (or its equivalent).
General Studies: MA

M MAT 272 Calculus with Analytic Geometry III. (4)
fall, spring, summer
Vector-valued functions of several variables, multiple integration, and introduction to vector analysis. The sequence MAT 270, 271, 272 may be substituted to satisfy requirements for MAT 290 and 291. Fee.

Prerequisite with a grade of "C" (2.00) or higher: MAT 271 (or its equivalent).
General Studies: MA

M MAT 274 Elementary Differential Equations. (3)
fall and spring or summer
Introduces ordinary differential equations, adapted to the needs of students in engineering and the sciences. Credit is allowed for only MAT 274 or 275 toward a mathematics degree. Prerequisites: MAT 271 (or its equivalent); MAT 272 (or its equivalent) recommended.
General Studies: MA

M MAT 275 Modern Differential Equations. (3)
fall and spring
Introduces differential equations, theoretical and practical solution techniques. Applications. Problem solving using MATLAB. Credit is allowed for only MAT 275 or 274 toward a mathematics degree. Lecture, computing lab. Fee. Pre- or corequisite: MAT 271 (or its equivalent).
General Studies: MA

M MAT 290 Calculus I. (5)
selected semesters
Differential and integral calculus of elementary functions; topics from analytic geometry essential to the study of calculus. Prerequisite: MAT 170 (or its equivalent).
General Studies: MA

M MAT 291 Calculus II. (5)
selected semesters
Further applications of calculus, partial differentiation, multiple integrals, and infinite series. Prerequisite: MAT 290 (or its equivalent).

M MAT 294 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Calculus for Engineers I. (3)
  fall, spring, summer
  Limits and continuity, differential calculus of functions of one variable, introduction to integration. Not open to students with credit in MAT 270. Prerequisite: satisfactory score on the calculus readiness exam. Prerequisite with a grade of "C" or higher: MAT 170 (or its equivalent).
- Calculus for Engineers II. (3)
  fall, spring, summer
  Methods of integration, applications of calculus, elements of analytic geometry, improper integrals, Taylor series. Not open to students with credit in MAT 271. Prerequisite: satisfactory score on the calculus readiness exam. Prerequisite with a grade of "C" or higher: MAT 294 Calculus for Engineers I.
- Calculus for Engineers III. (3)
  fall, spring, summer
  Vector-valued functions of several variables, partial derivatives, multiple integration. Not open to students with credit in MAT 272. Prerequisite with a grade of "C" or higher: MAT 294 Calculus for Engineers II.
- Mathematics of Change I
- Mathematics of Change II
- Mathematics of Change III
- Sophomore Problem Seminar. (3)

M MAT 300 Mathematical Structures. (3)
fall and spring
Logic and set theory, induction, functions, order and equivalence relations, cardinality. Emphasizes writing proofs. Prerequisite: 1 semester of calculus or instructor approval.
General Studies: L

M MAT 310 Introduction to Geometry. (3)
spring
Congruence, area, parallelism, similarity and volume, and Euclidean and non-Euclidean geometry. Prerequisite: MAT 272 (or its equivalent).

M MAT 340 Theory of Interest. (3)
fall and spring
Compound interest, discount rates, annuities, present values, depreciation, and bond valuations. Prerequisites: MAT 243 (or 300 or instructor approval); 1 semester of calculus.

M MAT 342 Linear Algebra. (3)
fall and spring or summer
Linear equations, matrices, determinants, vector spaces, bases, linear transformations and similarity, inner product spaces, eigenvectors, orthonormal bases, diagonalization, and principal axes. Credit is allowed for only MAT 342 or 343 toward a mathematics degree. Pre- or corequisite: MAT 272 (or its equivalent).

M MAT 343 Applied Linear Algebra. (3)
fall and spring
Solving linear systems, matrices, determinants, vector spaces, bases, linear transformations, eigenvectors, norms, inner products, decompositions, applications. Problem solving using MATLAB. Credit is allowed for only MAT 343 or 342 toward a mathematics degree. Lecture, computing lab. Fee. Prerequisite: MAT 271 (or its equivalent).

M MAT 351 Mathematical Methods for Genetic Analysis. (3)
fall and spring
Discrete mathematics, probability, statistics, and associated computer packages. Applications to genomics, bioinformatics, forensics, and DNA/protein sequence patterns. Fee. Prerequisite: MAT 251 or 270 or instructor approval.
General Studies: CS

M MAT 362 Advanced Mathematics for Engineers and Scientists. (3)
fall, spring, summer
Vector analysis, Fourier analysis, and partial differential equations. Prerequisites: MAT 272 and 274 (or 275) (or their equivalents).

M MAT 370 Intermediate Calculus. (3)
fall and spring
Theory behind basic 1-variable calculus: continuity, derivative, Riemann integral, sequences, and series. Not open to students who have received a "C" (2.00) or higher in MAT 371. Credit is allowed for only MAT 370 or 371 toward a mathematics degree. Prerequisites: MAT 272, 300 (or 243).

M MAT 371 Advanced Calculus I. (3)
fall and spring
Real numbers, completeness, sequences/series, continuity, uniform theorems, derivative, Riemann integral, pointwise/uniform convergence, Taylor's theorem. Credit is allowed for only MAT 371 or 370 toward a mathematics degree. Prerequisites: MAT 272, 300.

M MAT 372 Advanced Calculus II. (3)
spring
Open, closed, compact sets in R^n continuity, differentiation, partial differentiation, integration in R^n. Inverse/implicit function theorems. Not open to students with credit for MAT 460. Prerequisite: MAT 371. Pre- or corequisite: MAT 342 or 343.

M MAT 394 Special Topics. (1–4)
selected semesters
Topics may include the following.
- Introduction to Computational Molecular Biology. (2–3)
  Fee. Prerequisite: junior standing.

M MAT 410 Introduction to General Topology. (3)
once a year
Topological spaces, metric spaces, compactness, connectedness, and product spaces. Prerequisite: MAT 300 or 371 or instructor approval.

M MAT 415 Introduction to Combinatorics. (3)
fall
Enumerating permutations and combinations of sets and multisets, inclusion-exclusion, recurrence relations, generating functions, Pólya theory and combinatorial structures. Prerequisites: preferably both MAT 300 (or 243) and 342 (or 242) or only instructor approval.

M MAT 416 Introduction to Graph Theory. (3)
spring
Trees, cycles, matchings, planarity, connectivity, hamiltonicity, chromatic number, Ramsey theory with emphasis on proof techniques. Prerequisites: preferably both MAT 300 (or 243) and 342 (or 242) or only instructor approval.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M MAT 419 Introduction to Linear Programming. (3)
spring
Simplex method, duality, and network flows. Applications to game theory, geometry, combinatorics, graph theory, and posets. Prerequisites: a combination of CSE 100 (or 205 or 210) and MAT 300 (or 243) and 342 (or 242 or 343) or only instructor approval.
General Studies: CS

M MAT 420 Scientific Computing. (3)
fall
Surveys and applies programming languages, libraries, and scientific visualization tools. Programming assignments emphasize software development skills. Lecture, lab. Fee. Prerequisites: a combination of CSE 205 and MAT 274 (or 275) and 342 (or 343) (or their equivalents) or only instructor approval.

M MAT 421 Applied Computational Methods. (3)
fall and spring
Numerical methods for quadrature, differential equations, roots of nonlinear equations, interpolation, approximation, linear equations, floating-point arithmetic, and roundoff error. Prerequisites: both MAT 271 (or its equivalent) and fluency in computer programming (preferably FORTRAN) or only instructor approval.
General Studies: CS

M MAT 423 Numerical Analysis I. (3)
fall
Analysis and algorithms for numerical solutions linear/nonlinear equations, direct solvers, iterative procedures, optimization. Determination of eigenvalues. Elementary computer arithmetic. Prerequisites: both MAT 342 (or 343) and fluency in computer programming or only instructor approval.
General Studies: CS

M MAT 425 Numerical Analysis II. (3)
spring
Analysis of and algorithms for numerical interpolation, integration, and differentiation. Numerical solution of ordinary differential equations, and method of lines. Those seeking a methods survey course should take MAT 421. Prerequisites: both MAT 274 (or 275) and fluency in computer programming or only instructor approval. MAT 371 recommended.
General Studies: CS

M MAT 442 Advanced Linear Algebra. (3)
fall
Fundamentals of linear algebra, dual spaces, invariant subspaces, canonical forms, bilinear and quadratic forms, and multilinear algebra. Prerequisites: both MAT 300 and 342 (or 343) or only instructor approval.

M MAT 443 Introduction to Abstract Algebra. (3)
fall
Introduces concepts of abstract algebra. Not open to students with credit for MAT 444. Prerequisites: both MAT 300 and 342 (or 343) or only instructor approval.

M MAT 444 Intermediate Abstract Algebra. (3)
spring
Basic theory of groups, rings, and fields, including an introduction to Galois theory. Appropriate as preparation for MAT 543. Prerequisite: MAT 443 or graduate standing or instructor approval.

M MAT 445 Theory of Numbers. (3)
spring
Prime numbers, unique factorization theorem, congruences, Diophantine equations, primitive roots, and quadratic reciprocity theorem. Prerequisites: both MAT 300 and 342 (or 343) or only instructor approval.

M MAT 447 Cryptography. (3)
fall and spring
Block ciphers, stream ciphers, congruence arithmetic, information theory, public key cryptosystems, key exchange, electronic signatures. Prerequisites: CSE 100 (or 110); MAT 242 (or 342 or 343), 300.

M MAT 451 Mathematical Modeling. (3)
spring
Detailed study of 1 or more mathematical models that occur in the physical or biological sciences. May be repeated for credit with instructor approval. Prerequisites: both MAT 242 (or 342 or 343) and 274 (or 275) or only instructor approval.
General Studies: CS

M MAT 452 Introduction to Chaos and Nonlinear Dynamics. (3)
fall
Properties of nonlinear dynamical systems; dependence on initial conditions; strange attractors; period doubling; bifurcations; symbolic dynamics; Smale-Birkhoff theorem; and applications. Prerequisites: MAT 274 (or 275), 342 (or 242 or 343); MAT 371 is recommended.

M MAT 455 Introduction to Fractals and Applications. (3)
spring
Fractals; self-similar structures, fractals with iterated function systems of maps, computing fractals, fractal dimensions, chaotic dynamics on fractals, applications. Prerequisites: MAT 274 (or 275), 342 (or 242 or 343); MAT 371 recommended.

M MAT M 460 Vector Calculus. (3)
spring
Vectors, curvilinear coordinates, Jacobians, implicit function theorem, line and surface integrals, Green's, Stokes', and divergence theorems. Not open to students with credit for MAT 372. Prerequisites: MAT 242 (or 342 or 343), 272, 274 (or 275).

M MAT 461 Applied Complex Analysis. (3)
fall and summer
Analytic functions, complex integration, Taylor and Laurent series, residue theorem, conformal mapping, and harmonic functions. Prerequisite: MAT 272 (or its equivalent).

M MAT 462 Applied Partial Differential Equations. (3)
spring
Second-order partial differential equations, emphasizing Laplace, wave, and diffusion equations. Solutions by the methods of characteristics, separation of variables, and integral transforms. Prerequisites: MAT 242 (or 342 or 343), 274 (or 275).

M MAT 472 Intermediate Real Analysis I. (3)
fall
Introduces analysis in metric spaces with emphasis on the real line. Appropriate as preparation for MAT 570. Prerequisites: MAT 300, 342 (or 343).

M MAT 473 Intermediate Real Analysis II. (3)
spring
Analysis in R^n: implicit function theorem, introduction to manifolds, Lebesque integration, change of variables formula, convergence theorems for integrals. Prerequisite: MAT 472 or instructor approval.

M MAT 475 Differential Equations. (3)
fall
Linear and nonlinear ordinary differential equations, asymptotic behavior of solutions, stability, existence and uniqueness, limit sets, Poincar-Bendixson theorem. Prerequisites: MAT 242 (or 342 or 343), 274 (or 275), 370 (or 371) (or their equivalents) or instructor approval.

M MAT 476 Partial Differential Equations. (3)
spring
First-order quasilinear, second-order linear (wave, Laplace, heat). Characteristics, harmonic functions, maximum principles, Fourier series, separation of variables. Prerequisites: MAT 242 (or 342 or 343), 274 (or 275 or 475), 370 (or 371) (or their equivalents) or instructor approval.

M MAT 484 Internship. (1–12)
selected semesters

M MAT 485 History of Mathematics. (3)
selected semesters
Topics from the history of the origin and development of mathematical ideas. Prerequisite: MAT 272 (or its equivalent).

M MAT 493 Honors Thesis/Research. (3)
selected semesters

M MAT 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Independent Study/Research. (3)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

MATHEMATICS EDUCATION (MTE)

For more MTE courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M MTE 180 Theory of Elementary Mathematics. (3)
fall, spring, summer
Number systems, intuitive geometry, elementary algebra, and measurement. Intended for prospective elementary school teachers. Prerequisites: MAT 113, 142 (or 117 or its equivalent).

M MTE 181 Theory of Elementary Mathematics. (3)
once a year
Continuation of MTE 180. Fee. Prerequisite: MTE 180 or instructor approval.

M MTE 380 Arithmetic in the Elementary School. (3)
once a year
Historical numeration systems, overview of elementary number theory, including primes, factorization, divisibility, bases, modular systems, linear congruence, and continued fractions. Prerequisite: MTE 181 or instructor approval.

M MTE 381 Geometry in the Elementary School. (3)
selected semesters
Informal geometry, including concepts of length, area, volume, similarity, and congruence. Classification of figures, straightedge and compass constructions, and motion geometry. Prerequisite: MTE 380 or instructor approval.

M MTE 402 Service Learning. (3)
fall and spring
K–12 tutoring and mentoring internship related to academic course work in mathematics education. Requires weekly reflective reading and writing. May be repeated for credit. Internship. Fee. Pre- or corequisite: MTE 180 or instructor approval.
General Studies: C

M MTE 482 Methods of Teaching Mathematics in Secondary School. (3)
fall
Examines secondary school curricular material and analyzes instructional devices. Teaching strategies, evaluative techniques, diagnosis, and remediation and problem solving. Fee. Prerequisite: instructor approval.

M MTE 483 Mathematics in the Secondary School. (3)
spring
Topics in geometry, number theory, algebra, and analysis. Emphasizes unifying principles. Prerequisite: MAT 310 or instructor approval.

M MTE 484 Internship. (1–12)
selected semesters

M MTE 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Advanced Methods of Teaching Secondary Mathematics. (3) Continuation of MTE 482. Prerequisite: MTE 482.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

STATISTICS AND PROBABILITY (STP)

M STP 220 Conceptual Statistics. (3)
fall and spring
Treats the concepts and vocabulary needed to evaluate statistical reports on health, technology, and society. Aggressively emphasizes understanding over computation. Lecture, teamwork. Prerequisites: MAT 113, 142 (or 117 or its equivalent).
General Studies: CS

M STP 226 Elements of Statistics. (3)
fall, spring, summer
Basic concepts and methods of statistics, including descriptive statistics, significance tests, estimation, sampling, and correlation. Not open to majors in mathematics or the physical sciences. Prerequisites: MAT 113, 142 (or 117 or its equivalent).
General Studies: CS

M STP 231 Statistics for Biosciences. (3)
fall, spring, summer
Concepts and methods of statistics; display and summary of data, interval estimation, hypothesis testing, correlation, regression. Applications to biological sciences. Prerequisite with a grade of "C" or higher: MAT 113 or 117 or 142 (or their equivalents).

M STP 294 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Statistics for Biosciences. (3)

M STP 326 Intermediate Probability. (3)
fall and spring
Probability models and computations, joint and conditional distributions, moments, and families of distributions. Topics in stochastic processes, simulation, and statistics. Prerequisite: MAT 210 (or its equivalent).
General Studies: CS

M STP 420 Introductory Applied Statistics. (3)
fall, spring, summer
Introductory probability, descriptive statistics, sampling distributions, parameter estimation, tests of hypotheses, chi-square tests, regression analysis, analysis of variance, and nonparametric tests. Prerequisite: MAT 113 or 117 (or its equivalent).
General Studies: CS

M STP 421 Probability. (3)
fall
Laws of probability, combinatorial analysis, random variables, probability distributions, expectations, moment-generating functions, transformations of random variables, and central limit theorem. Prerequisite: MAT 272 (or its equivalent).

M STP 425 Stochastic Processes. (3)
spring
Markov chains, stationary distributions, pure jump processes, 2-D order processes, and other topics in stochastic processes. Prerequisites: MAT 342; STP 421.

M STP 427 Mathematical Statistics. (3)
spring
Limiting distributions, interval estimation, point estimation, sufficient statistics, and tests of hypotheses. Prerequisites: a combination of MAT 371 and STP 420 and 421 or only instructor approval.

M STP 429 Experimental Statistics. (3)
spring
Statistical inference for controlled experimentation. Multiple regression, correlation, analysis of variance, multiple comparisons, and nonparametric procedures. Prerequisite: STP 420 (or its equivalent).
General Studies: CS

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Department of Military Science

Army ROTC

www.asu.edu/clas/military

480/965-3318

SS 330

Lieutenant Colonel Kirk E. McIntosh, Chair

Professor: McIntosh

Assistant Professors: Barclay, Caryl, Hansen-Kaucheck, Murdock, Ranalli

Instructors: Kuhlmann, Ringenoldus, Stover, Utley

PURPOSE

The Department of Military Science, or Army ROTC (Reserve Officers' Training Corps), is a four-year or two-year program that consists of the basic and the advanced courses. It is one of the best leadership courses in the country and is part of a student's college curriculum. The curriculum prepares students with the tools, training, and experiences that will help them succeed in any competitive environment. During classes and field training, students learn firsthand what it takes to lead others and motivate groups and how to conduct missions as an officer in the U.S. Army. Upon successful completion of the advanced course and college graduation, students will earn a commission in the U.S. Army as a second lieutenant and become a leader for life.

In addition to the military science curriculum, courses in national defense studies are both an integral and parallel source of the department's program.

GENERAL INFORMATION

Basic Course. Any student who is enrolled in ASU (or approved by the professor of military science) can enroll in military science basic courses. The basic course (MIS 101, 102, 201, and 202) takes place during the first two years in college as elective courses. Each course includes a lab each semester. Students learn basic military skills and the fundamentals of leadership and begin the groundwork toward becoming an Army leader. Students may enroll in basic course classes without a military commitment.

Leader's Training Course (Two-Year Program). Scholars who want to achieve something even greater than a college degree and aspire to be leaders may join the Army ROTC program by attending a four-week summer Leader's Training Course (LTC) that consists of intense classroom and field training. This course is an accelerated version of the two-year basic course listed above and qualifies students for enrollment in the advanced course provided they have two years of college remaining (undergraduate or graduate). Students who attend this course receive a stipend; transportation to and from Fort Knox, Kentucky; housing; and meals. Those who want to receive four semester hours credit for this course may enroll in the ASU summer program, MIS 205 Leader's Training Course. Students who attend this course may also qualify for a two-year scholarship upon successful completion.

Advanced Course. The advanced course takes place during a student's last two years in college as elective courses (MIS 301, 302, 401, and 402). Each course includes a lab each semester plus a summer leadership camp. Students learn advanced military tactics and gain experience in team organization, planning, and decision making. To benefit from the leadership training in the advanced course, all students must have completed either the basic course (four-year program) or have attended the LTC (two-year program). Students must meet the following qualifications to be enrolled in the advanced course:

1. be a citizen of the United States;
2. be of sound physical condition and pass the U.S. Army physical fitness test;
3. meet the required professional military educational requirements;
4. be at least 17 years of age for entrance into the advanced course and be able to complete all commissioning requirements before age 30 (which can be waivered to age 32); and
5. commit to accept a commission and serve as an officer in the U.S. Army on Active Duty or in a Reserve Component (U.S. Army Reserve or Army National Guard) upon college graduation.

Leadership Development and Assessment Course (Advanced Course Program). Every ROTC cadet who enters into the Advanced Course attends the Leader Development and Assessment Course. It is a four-week summer course designed to evaluate and train all Army ROTC cadets. This course normally takes place between the junior and senior years of college and is conducted at Fort Lewis, Washington. Students who attend this course receive a stipend, transportation to and from camp, housing, and meals. Those who want to receive four semester hours credit for this course may enroll in the ASU summer program, MIS 303 National Advanced Leadership Camp.

The Commitment. Army ROTC cadets who receive an Army ROTC scholarship or enter the Army ROTC Advanced Course must commit to being commissioned a second lieutenant in the U.S. Army and to completing a period of service with the Army. Students may serve full-time on active duty, part-time in either the U.S. Army Reserve or the Army National Guard, or a combination of full-time and part-time.

Scholarship Programs. Students who accept an Army ROTC scholarship must also commit to accepting a commission and serving as an Officer in the U.S. Army on Active Duty or in a Reserve Component (U.S. Army Reserve or Army National Guard) upon college graduation. Scholarships provide either 100 percent costs for tuition, labs, and fees; or, costs for room and board up to the amount

of tuition costs. In addition, scholarship students receive a book stipend of $450 per semester. Army ROTC offers two-, three-, and four-year scholarship programs to outstanding young men and women based on the time remaining to complete a degree. Scholarships are awarded based on a student's merit and grades, not financial need.

1. High School four-year: The national high school four-year, active duty scholarship is for high school students planning on attending a four-year college program. Applications should be submitted by November 15. Applications submitted past that date are considered; however, late applications may not be as competitive due to selection time frames. Applications may be obtained at www.rotc.usaac.army.mil.
2. College four-year: These active duty scholarships are for college freshmen in their first year of a five-year undergraduate plan. Contact the department for more information.
3. College three- and two-year: These active duty scholarships are for students already enrolled in a college or university with three or two academic years remaining.
4. Guaranteed Reserve Forces Duty: These reserve component, two- and three-year scholarships are strictly dedicated for those students desiring to serve in the U.S. Army Reserve or Army National Guard.

Living Expenses. Scholarship and all Advanced Course students also receive a monthly, nontaxable living allowance for each school year. The amount depends on a student's level in the ROTC curriculum: freshman: $300; sophomore: $350; junior: $450; senior: $500 per month.

Simultaneous Membership Program. Under this program, ROTC students may simultaneously be members of the Army Reserve or the National Guard. The combination of advanced course living allowance and pay for Army Reserve or National Guard participation can provide between $550 and $1,000 per month.

Graduate and Professional Studies Programs. Graduate students may also enroll in the ROTC program. Outstanding students who desire to earn graduate or professional degrees may request and receive an educational, active duty delay of up to four years.

Nurse Program. By joining Army ROTC, nursing students can enhance their leadership skills and critical-thinking abilities while obtaining financial support. Besides great scholarship opportunities, Army ROTC nurse cadets may also qualify for cash bonuses. In addition, nurse cadets have an opportunity for a unique summer nursing experience. The paid, three-week Nurse Summer Training Program assigns cadets to Army hospitals throughout the U.S. and Germany. This program is designed to introduce nurse cadets to the Army Medical Department and to the roles and responsibilities of an Army nurse. Cadets work under the supervision of an Army nurse and obtain hands-on experience. This one-on-one clinical experience allows students to hone their clinical skills, develop their problem-solving techniques, and become comfortable with developing their professional skills as a member of the U.S. Army Healthcare Team. Being an Army nurse provides opportunities not found in the civilian world. Army nurses also have the opportunity to train and serve in a variety of specialties.

MILITARY SCIENCE (MIS)

M MIS 101 Introduction to the Military I. (3)
fall
Overview of mission, organization, and structure of the Army and its role in national defense; discussion of current military issues. 3 hours lecture/conference, 2 hours lab.

M MIS 102 Introduction to the Military II. (3)
spring
Introduces problem-solving methods, critical thinking, decision making, and group cohesion as applied in a military environment. 3 hours lecture/conference, 2 hours lab. Prerequisite: MIS 101.

M MIS 201 Introduction to Leadership Dynamics I. (3)
fall
Introduces interpersonal dynamics involved in military team operations; theory and application of military leadership principles. 3 hours lecture/conference, 2 hours lab.

M MIS 202 Introduction to Leadership Dynamics II. (3)
spring
Continuation of MIS 201. 3 hours lecture/conference, 2 hours lab. Prerequisite: MIS 201.

M MIS 205 Leader's Training Course. (4)
summer
6-week training program emphasizing practical hands-on skills and leadership development. Taken in lieu of MIS 101, 102, 201, 202. Conducted at Fort Knox, Kentucky.

M MIS 301 Advanced Military Science I. (3)
fall
Theory and dynamics of the individual soldier and military units in offensive combat operations. 3 hours lecture/conference, 2 hours Leadership Practical Application, 1 2-day field exercise. Fee. Prerequisites: MIS 101 and 102 and 201 and 202 (or their equivalents).

M MIS 302 Advanced Military Science II. (3)
spring
Theory and dynamics of military units in defensive combat operations. 3 hours lecture/conference, 2 hours Leadership Practical Application, 1 2-day field exercise. Fee. Prerequisites: MIS 101 and 102 and 201 and 202 (or their equivalents).

M MIS 303 National Advanced Leadership Camp. (4)
summer
6-week training program emphasizing leadership development and advanced military skills, including tactics, land navigation, and physical training. Conducted at Fort Lewis, Washington. Prerequisites: MIS 301, 302.

M MIS 401 Advanced Military Science III. (3)
fall
Military legal system; preparation and conduct of military training; leadership development; ethics and professionalism of the military officer. 3 hours lecture/conference, 2 hours Leadership Practical Application, 1 2-day field exercise. Fee. Prerequisites: MIS 301, 302.

M MIS 402 Advanced Military Science IV. (3)
spring
Military correspondence; career planning and personal affairs in service; conduct of training; leadership development; ethics and professionalism of the military officer. 3 hours lecture/conference, 2 hours Leadership Practical Application, 1 2-day field exercise. Fee. Prerequisites: MIS 301, 302.

M MIS 410 American Defense Policy I. (3)
fall
Evolution, organization, and execution of U.S. national security policy.
General Studies: SB

M MIS 412 American Defense Policy II. (3)
spring
Contemporary problems and analytical issues in the formation and implementation of U.S. national security. Prerequisite: MIS 410.
General Studies: SB

M MIS 499 Individualized Instruction: Military Science Leadership. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Department of Philosophy

www.asu.edu/clas/philosophy
480/965-3394
COOR 3309

Stewart M. Cohen, Chair

Regents' Professor: Murphy

Professors: Cohen, Creath, Fitch, French, Humphrey, Walker, White

Associate Professors: Armendt, Blackson, de Marneffe, Guleserian, Kobes, McGregor, Reynolds

Assistant Professor: Portmore

Senior Lecturer: Bolton

PHILOSOPHY—BA

The major in Philosophy consists of 45 semester hours, 33 of which must be upper-division hours. In exceptional cases, up to nine semester hours may be in related fields as approved by the undergraduate advisor. Required courses are as follows:

PHI	300 Philosophical Argument and Exposition *L*	3
PHI	301 History of Ancient Philosophy *HU, H*	3
PHI	302 History of Modern Philosophy *HU, H*	3
PHI	305 Ethical Theory *HU*	3
	or PHI 335 History of Ethics *HU* (3)	
PHI	312 Theory of Knowledge *HU*	3
	or PHI 314 Philosophy of Science *HU* (3)	
PHI	316 Metaphysics *HU*	3
	or PHI 317 Philosophy of Mind *HU* (3)	
PHI	333 Introduction to Symbolic Logic	3
Choose two courses below		6
PHI	401 Rationalism (3)	
PHI	402 Empiricism *HU* (3)	
PHI	403 Contemporary Analytic Philosophy *HU* (3)	
PHI	413 Advanced Symbolic Logic (3)	
PHI	420 Topics in Philosophy (3)	
PHI	494 Special Topics (3)	
Total		27

Exceptions are granted by special permission of the chair only. PHI 420 may be repeated for credit.

Students planning to do graduate work in philosophy should consult with an advisor to develop an appropriate selection of courses at the 300 and 400 levels. A minimum grade of "C" (2.00) is necessary for each course used to fulfill the major requirements. See "College Graduation Requirements," page 503.

History and Philosophy of Science. The faculty in the Department of Philosophy offer courses bearing the HPS prefix. With the consent of the director of undergraduate studies, these courses may be taken to satisfy the requirements of the Philosophy major.

MINOR IN PHILOSOPHY

A minor in Philosophy consists of 18 semester hours, of which at least 12 must be in the upper division and approved by an advisor in the department. All courses must be passed with a minimum grade of "C" (2.00).

CERTIFICATE IN ETHICS

The Ethics Certificate consists of 18 semester hours approved by an advisor in the department. The student must take PHI 305 or 335. At least 15 hours must be chosen from PHI 105, 120, 304, 305, 306, 307, 309, 310, 320, 335, and (when its topic is within ethics) PHI 420. One course outside this list, and perhaps outside the department, may be used with written approval from the director of undergraduate studies. All courses must be passed with a minimum grade of "C" (2.00).

CERTIFICATE IN SYMBOLIC SYSTEMS

The Certificate in Symbolic Systems consists of 28 semester hours approved by an advisor in the Department of Philosophy and divided evenly among computer science and engineering, psychology, and philosophy as follows:

1. CSE 205, 210, and 240;
2. PSY 230 and 290 and either PSY 323, 324, or 437; and
3. either PHI 312 or 314, either PHI 315 or 317, and either PHI 319 or 333.

Students must satisfy the prerequisites for the listed courses. With written approval from the director of undergraduate studies in the Department of Philosophy, one substitution of a course from outside this list may be made. All courses must be passed with a minimum grade of "C" (2.00).

BIS CONCENTRATIONS

Concentrations in ethics and philosophy (with options in history and philosophy of science, and symbolic systems) are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Students may also choose a concentration from any approved certificate program. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

GRADUATE PROGRAM

The faculty in the Department of Philosophy offer a graduate program leading to the MA and PhD degrees. See the *Graduate Catalog* for requirements.

PHILOSOPHY (PHI)

For more PHI courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M PHI 101 Introduction to Philosophy. (3)
fall, spring, summer
Explores issues that philosophers have traditionally considered, including morality, reality, and knowledge.
General Studies: HU

M PHI 103 Principles of Sound Reasoning. (3)
fall, spring, summer
Fallacies, validity, and soundness of arguments. May include syllogistic, elementary symbolic, inductive logic, and scientific method. Prerequisite: ENG 101 or 105.
General Studies: L/HU

M PHI 105 Introduction to Ethics. (3)
once a year
Philosophical examination of such questions as, How should we live? Is morality a social invention? Does anything matter?
General Studies: HU

M PHI 120 Introduction to Medical and Bioethics. (3)
once a year
Philosophical examination of moral problems that arise in medicine and biology, e.g., end-of-life, reproduction, and patient's rights. Lecture, discussion.

M PHI 300 Philosophical Argument and Exposition. (3)
spring
Develops techniques of philosophical argument and exposition. Frequent written exercises. Course content may vary with instructor. Prerequisites: major; instructor approval.
General Studies: L

M PHI 301 History of Ancient Philosophy. (3)
fall
History of Western philosophy from its beginnings through the Hellenistic period.
General Studies: HU, H

M PHI 302 History of Modern Philosophy. (3)
spring
History of Western philosophy from the Renaissance through Kant.
General Studies: HU, H

M PHI 304 Existentialism. (3)
selected semesters
Covers such topics as absurdity, authenticity, the meaning of life and death, responsibility, and subjectivity. May include readings in phenomenology. Prerequisite: PHI 101 or 103 or 105 or instructor approval.
General Studies: HU

M PHI 305 Ethical Theory. (3)
once a year
Current theories about the nature of morality (metaethics) and about what is right and wrong (normative ethics). Prerequisite: PHI 105 or 306 or 307 or 309 or 335 or instructor approval.
General Studies: HU

M PHI 306 Applied Ethics. (3)
fall, spring, summer
Philosophical discussion of contemporary moral and political issues, such as abortion, euthanasia, animal rights, affirmative action, and sexual rights.
General Studies: HU

M PHI 307 Philosophy of Law. (3)
once a year
Nature and source of law and its relation to morality. Legal rights, legal enforcement of morals, civil disobedience, liability and responsibility, punishment, judicial reasoning, justice, property, and differences between theories of natural and positive law.
General Studies: HU

M PHI 308 Philosophy of Art. (3)
once a year
Central problems in philosophy of art, e.g., the nature of a work of art, modern and traditional theories of art, aesthetic perception and experience, and objectivity and relativity in art criticism.
General Studies: HU

M PHI 309 Social and Political Philosophy. (3)
once a year
Alternative principles and methods relevant to problems of human association and conflict; discusses justice and power, freedom and equality, and autonomy and order. Prerequisite: PHI 105 or 305 or 335 or instructor approval.
General Studies: HU

M PHI 310 Environmental Ethics. (3)
once a year
Examines a full range of philosophical positions pertaining to our moral relationship to the natural world; anthropocentrism, individualism, biocentrism.
General Studies: HU

M PHI 311 Philosophy in Literature. (3)
once a year
Selected works of literature introducing philosophical problems such as the nature of moral goodness and people's relation to the world and other people.
General Studies: HU

M PHI 312 Theory of Knowledge. (3)
once a year
Nature, sources, and limits of human knowledge. Topics may include truth, a priori knowledge, empirical knowledge, perception, induction, and skepticism. Prerequisite: PHI 101 or 103 or 300 or 301 or 302 or 333.
General Studies: HU

M PHI 314 Philosophy of Science. (3)
once a year
Structure and justification of scientific theories, explanation, and theory change. Roles of observation and laws, theoretical concepts and entities, reduction, probability, confirmation, space and time, and causation. Cross-listed as HPS 314. Credit is allowed for only HPS 314 or PHI 314.
General Studies: HU

M PHI 315 Philosophy of Language. (3)
once a year
Problems pertaining to the nature of language, including meaning, reference, truth, definition, analyticity, translatability, synonymy, and contributions of contemporary linguistics. Prerequisite: PHI 103 or 300 or 333.
General Studies: HU

M PHI 316 Metaphysics. (3)
once a year
Problems pertaining to the nature of reality. Topics may include nature of person, minds, substance, universals, space, time, causation, and modality. Prerequisite: PHI 101 or 103 or 300 or 301 or 333.
General Studies: HU

M PHI 317 Philosophy of Mind. (3)
once a year
Nature of consciousness. Common sense view of mind, behaviorism, materialism, dualism, functionalism, self-knowledge, and knowledge of other minds. Prerequisite: PHI 101 or 103 or 300 or 301 or 302 or 333.
General Studies: HU

M PHI 318 Philosophy of Religion. (3)
once a year
Classical arguments for the existence of God. Argument from evil against the existence of God. Justification of religious belief. Prerequisite: any PHI or REL course.
General Studies: HU

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M PHI 319 Philosophy of Computing. (3)
selected semesters
Philosophical problems surrounding the theory of computation. Turing machines, mind and AI, neural network computing, ethics, and epistemology of computing. Lecture, lab, discussion.
General Studies: CS/HU

M PHI 320 Bioethics. (3)
once a year
Critical examination of moral questions arising in biomedical contexts, particularly due to new technologies and scientific discoveries.

M PHI 325 Philosophy of Social Science. (3)
selected semesters
Philosophical problems surrounding the aims, structure, and methods of the social sciences.
General Studies: HU/SB

M PHI 333 Introduction to Symbolic Logic. (3)
once a year
Symbolic techniques, emphasizing deductions and proofs in the propositional and 1st-order predicate calculi.

M PHI 335 History of Ethics. (3)
once a year
Major works of moral philosophy, both ancient and modern, such as those by Plato, Aristotle, Hobbes, Hume, Kant, and Mill. Prerequisite: PHI 101 or 105 or 305 or 306 or 307 or 309 or instructor approval.
General Studies: HU

M PHI 401 Rationalism. (3)
selected semesters
Examines classical philosophical rationalism, as in Descartes, Spinoza, Malebranche, or Leibniz. Contemporary rationalist thought may also be examined. Prerequisites: PHI 302 and 305 (or 309 or 312 or 316 or 317).

M PHI 402 Empiricism. (3)
selected semesters
Examines representatives of either classical or contemporary philosophical empiricism, e.g., Bacon, Hobbes, Locke, Butler, Berkeley, Reid, Hume, Mill, Carnap, and Ayer. Prerequisites: PHI 302 and 305 (or 309 or 312 or 316 or 317).
General Studies: HU

M PHI 403 Contemporary Analytic Philosophy. (3)
once a year
Aims and methods of such 20th-century philosophers as Frege, Moore, Russell, Wittgenstein, Carnap, Ayer, Wisdom, Ryle, Austin, Strawson, Quine, and Sellars, with application to metaphysics and epistemology. Prerequisites: PHI 302 and 312 (or 314 or 315 or 316 or 317 or 401 or 402).
General Studies: HU

M PHI 413 Advanced Symbolic Logic. (3)
selected semesters
Properties of formal systems axiomatizing propositional and 1st-order predicate logic. May also include modal logic, number theory, and limits of logicism. Prerequisite: PHI 333.

M PHI 420 Topics in Philosophy. (3)
once a year
Course descriptions on file in department. May be repeated for credit. Topics may include the following:
- History of Philosophy
- Metaphysics/Epistemology
- Philosophy of Language/Logic
- Philosophy of Science
- Value Theory

Prerequisite: a relevant upper-division PHI course or instructor approval.

M PHI 428 Immunophilosophy. (3)
selected semesters
Integrates immunology and philosophy, including psychoneuroimmunology and the mind-body problem, and immunologic/psychologic perspectives on self and self-identity. Discussion, original literature readings and written assignments. Cross-listed as MIC 428. Credit is allowed for only MIC 428 or PHI 428. Pre- or corequisite: MIC 420 or PHI 317 or instructor approval.

M PHI 494 Special Topics. (3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Physics and Astronomy

phy.asu.edu
480/965-3561
PS F470

Barry G. Ritchie, Chair

Regents' Professors: Smith, Spence, Starrfield, Windhorst

Professors: Alarcon, Bennett, Burstein, Chamberlin, Comfort, Cowley, Doak, Dow, Hester, Lindsay, Menéndez, Ponce, Rez, Ritchie, Sankey, Schmidt, Thorpe, Tillery, Treacy, Tsen, Tsong, Venables

Associate Professors: Culbertson, Drucker, Herbots, Marzke, McCartney, Newman

Assistant Professors: Belitsky, Desch, Lebed, Ortiz, Shumway

Distinguished Research Professor: Bauer

PHYSICS—BS

Students majoring in Physics may pursue one of two options.

Option I. Designed for students who wish to pursue physics at the bachelor or graduate degree levels, option I consists of the following required courses:

Choose between the course combinations below			4
PHY	150	Physics I *SQ* (4)	
		— *or* —	
PHY	121	University Physics I: Mechanics SQ^1 (3)	
PHY	122	University Physics Laboratory I SQ^1 (1)	
Choose between the course combinations below			4
PHY	151	Physics II *SQ* (4)	
		— *or* —	
PHY	131	University Physics II: Electricity and Magnetism SQ^2 (3)	
PHY	132	University Physics Laboratory II SQ^2 (1)	
PHY	201	Mathematical Methods in Physics I *CS*	3
PHY	252	Physics III *SQ*	4
PHY	302	Mathematical Methods in Physics II	2
PHY	310	Classical Particles, Fields, and Matter I	3
PHY	311	Classical Particles, Fields, and Matter II	3
PHY	314	Quantum Physics I	3
PHY	315	Quantum Physics II	3
PHY	333	Electronic Circuits and Measurements	3
PHY	334	Advanced Laboratory I L^3	2
PHY	412	Classical Particles, Fields, and Matter III	3
PHY	416	Quantum Physics III	3
PHY	441	Statistical and Thermal Physics I	3

PHY 465 Advanced Laboratory II 2
Total 45

[1] Both PHY 121 and 122 must be taken to secure SQ credit.
[2] Both PHY 131 and 132 must be taken to secure SQ credit.
[3] Both PHY 334 and 420 must be taken to secure L credit.

Supporting mathematics courses are as follows:

Choose between the course combinations below ..... 12 or 10
MAT 270 Calculus with Analytic Geometry I *MA* (4)
MAT 271 Calculus with Analytic Geometry II *MA* (4)
MAT 272 Calculus with Analytic Geometry III *MA* (4)
— *or* —
MAT 290 Calculus I *MA* (5)
MAT 291 Calculus II (5)

Additional courses in physics and related fields are selected with the approval of the advisor. French, German, or Russian is strongly recommended to fulfill the foreign language requirement.

Option II. The interdisciplinary option II is designed for students who wish to obtain an undergraduate physics preparation for entry into other professions or graduate programs. A total of 53 hours are required, including the following courses:

Choose between the course combinations below 4
PHY 150 Physics I *SQ* (4)
— *or* —
PHY 121 University Physics I: Mechanics *SQ*[1] (3)
PHY 122 University Physics Laboratory I *SQ*[1] (1)
Choose between the course combinations below 4
PHY 151 Physics II *SQ* (4)
— *or* —
PHY 131 University Physics II: Electricity and Magnetism *SQ*[2] (3)
PHY 132 University Physics Laboratory II *SQ*[2] (1)
PHY 201 Mathematical Methods in Physics I *CS* 3
PHY 252 Physics III *SQ* 4
PHY 302 Mathematical Methods in Physics II 2
PHY 310 Classical Particles, Fields, and Matter I 3
PHY 311 Classical Particles, Fields, and Matter II 3
PHY 314 Quantum Physics I 3
PHY 315 Quantum Physics II 3
PHY 333 Electronic Circuits and Measurements 3
PHY 334 Advanced Laboratory I *L*[3] 2
PHY 412 Classical Particles, Fields, and Matter III 3
PHY 441 Statistical and Thermal Physics I 3
Total 40

[1] Both PHY 121 and 122 must be taken to secure SQ credit.
[2] Both PHY 131 and 132 must be taken to secure SQ credit.
[3] Both PHY 334 and 420 must be taken to secure L credit.

The remaining courses are selected from physics and an area of concentration as approved by the student's advisor. Possible areas of concentration are astronomy, astrophysics, materials science, physical chemistry, applied mathematics, geophysics, biological physics, philosophy of science, scientific journalism, and premedical and prelaw programs. French, German, or Russian is strongly recommended to fulfill the foreign language requirement.

Supporting mathematics courses are as follows:

Choose between the course combinations below ..... 12 or 10
MAT 270 Calculus with Analytic Geometry I *MA* (4)
MAT 271 Calculus with Analytic Geometry II *MA* (4)
MAT 272 Calculus with Analytic Geometry III *MA* (4)
— *or* —
MAT 290 Calculus I *MA* (5)
MAT 291 Calculus II (5)

Emphasis in Astronomy

The astronomy faculty offer courses in astronomy both for nonscience majors and for science and physics majors. For an emphasis in astronomy, the following courses (or their equivalents) should be taken:

AST 321 Introduction to Planetary and Stellar Astrophysics *SQ*[1] 3
AST 322 Introduction to Galactic and Extragalactic Astrophysics *SQ*[2] 3
AST 421 Astrophysics I 3
AST 422 Astrophysics II 3
AST 499 Individualized Instruction 3
Total 15

[1] Both AST 113 and 321 must be taken to secure SQ credit.
[2] Both AST 114 and 322 must be taken to secure SQ credit.

MINOR IN ASTRONOMY

The minor in Astronomy consists of a minimum of 24 semester hours. Required courses are as follows:

AST 113 Astronomy Laboratory I *SQ*[1] 1
AST 114 Astronomy Laboratory II *SQ*[2] 1
AST 321 Introduction to Planetary and Stellar Astrophysics *SQ*[1] 3
AST 322 Introduction to Galactic and Extragalactic Astrophysics *SQ*[2] 3
Choose between the course combinations below 4
PHY 150 Physics I *SQ* (4)
— *or* —
PHY 121 University Physics I: Mechanics *SQ*[3] (3)
PHY 122 University Physics Laboratory I *SQ*[3] (1)
Choose between the course combinations below 4
PHY 151 Physics II *SQ* (4)
— *or* —
PHY 131 University Physics II: Electricity and Magnetism *SQ*[4] (3)
PHY 132 University Physics Laboratory II *SQ*[4] (1)
PHY 252 Physics III *SQ* 4
Approved upper-division electives 4
Total 24

[1] Both AST 113 and 321 must be taken to secure SQ credit.
[2] Both AST 114 and 322 must be taken to secure SQ credit.
[3] Both PHY 121 and 122 must be taken to secure SQ credit.
[4] Both PHY 131 and 132 must be taken to secure SQ credit.

Electives are chosen with approval of an astronomy advisor from upper-division courses in physics and astronomy.

MINOR IN PHYSICS

The minor in Physics consists of a minimum of 29 semester hours. Required courses are as follows:

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Choose between the course combinations below.....4
PHY 150 Physics I *SQ* (4)
— *or* —
PHY 121 University Physics I: Mechanics *SQ*[1] (3)
PHY 122 University Physics Laboratory I *SQ*[1] (1)
Choose between the course combinations below.....4
PHY 151 Physics II *SQ* (4)
— *or* —
PHY 131 University Physics II: Electricity and Magnetism *SQ*[2] (3)
PHY 132 University Physics Laboratory II *SQ*[2] (1)
PHY 201 Mathematical Methods in Physics I *CS* 3
PHY 252 Physics III *SQ* 4
PHY 302 Mathematical Methods in Physics II.....2
PHY 310 Classical Particles, Fields, and Matter I.....3
PHY 311 Classical Particles, Fields, and Matter II 3
PHY 314 Quantum Physics I.....3
Approved electives.....3
Total 29

[1] Both PHY 121 and 122 must be taken to secure SQ credit.
[2] Both PHY 131 and 132 must be taken to secure SQ credit.

Electives are chosen with approval of the physics advisor from upper-division courses in physics and astronomy.

BIS CONCENTRATIONS

Concentrations in astronomy and physics are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

SECONDARY EDUCATION—BAE

Physics. This degree is offered through the Initial Teacher Certification (ITC) program in the College of Education. Students pursuing a major in Secondary Education have an advisor in the College of Education and an advisor within the department of their academic specialization area.

See "College of Education," page 349, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

The following courses must be completed with a grade of "C" (2.00) or higher *before* applying to the ITC program: PHY 150 and 151 or PHY 121, 122, 131, and 132.

This academic specialization consists of 48 semester hours. Required courses are as follows:

MAT 270 Calculus with Analytic Geometry I *MA*.....4
MAT 271 Calculus with Analytic Geometry II *MA* 4
MAT 272 Calculus with Analytic Geometry III *MA* 4
Choose between the course combinations below.....8
PHY 150 Physics I *SQ* (4)
PHY 151 Physics II *SQ* (4)
— *or* —
PHY 121 University Physics I: Mechanics *SQ*[1] (3)
PHY 122 University Physics Laboratory I *SQ*[1] (1)
PHY 131 University Physics II: Electricity and Magnetism *SQ*[2] (3)
PHY 132 University Physics Laboratory II *SQ*[2] (1)
PHY 201 Mathematical Methods in Physics I *CS* 3
PHY 252 Physics III *SQ* 4
PHY 302 Mathematical Methods in Physics II.....2
PHY 310 Classical Particles, Fields, and Matter I.....3
PHY 333 Electronic Circuits and Measurements 3
PHY 361 Introductory Modern Physics.....3
or PHY 314 Quantum Physics I (3)
PHY 480 Methods of Teaching Physics 3
or PHY 484 Internship: Physics Teaching (1–4)
Approved electives[3] 10
Minimum total 48

[1] Both PHY 121 and 122 must be taken to secure SQ credit.
[2] Both PHY 131 and 132 must be taken to secure SQ credit.
[3] Electives are chosen in physics or other closely related fields, subject to the approval of the advisor.

Teaching Methods
PHY 480 Methods of Teaching Physics 3
PHY 484 Internship: Physics Teaching 3
Total 6

GRADUATE PROGRAMS

The faculty in the department offer programs leading to degrees of Master of Natural Science, MS, and PhD. See the *Graduate Catalog* for requirements.

ASTRONOMY (AST)

For more AST courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M AST 111 Introduction to Solar Systems Astronomy. (3)
fall
History, properties of light, instruments, study of solar system and nearby stars. For nonscience majors. Optional lab (AST 113).
General Studies: SQ (if credit also earned in AST 113)

M AST 112 Introduction to Stars, Galaxies, and Cosmology. (3)
spring
Structure and evolution of stars, star clusters, galaxies, cosmology. For nonscience majors. Optional lab (AST 114).
General Studies: SQ (if credit also earned in AST 114)

M AST 113 Astronomy Laboratory I. (1)
fall
Astronomical observations and experiments designed to increase familiarity with the sky, telescopes, and astronomical measurements. 2.5 hours lab. Fee. Pre- or corequisites: AST 111 (or 321); a working knowledge of high school algebra and geometry.
General Studies: SQ (if credit also earned in AST 111 or 321)

M AST 114 Astronomy Laboratory II. (1)
spring
Similar to AST 113, but material chosen to supplement AST 112 and 322. 2.5 hours lab. Fee. Pre- or corequisites: AST 112 (or 322); a working knowledge of high school algebra and geometry.
General Studies: SQ (if credit also earned in AST 112 or 322)

M AST 321 Introduction to Planetary and Stellar Astrophysics. (3)
fall
Physical laws; celestial mechanics; properties of planets, the sun, and other stars; formation and evolution of stars and planetary systems. Prerequisites: MAT 270 (or 290); PHY 150.
General Studies: SQ (if credit also earned in AST 113)

M AST 322 Introduction to Galactic and Extragalactic Astrophysics. (3)
spring
Evolved stars, introduction to relativity, galaxies and interstellar matter, structure and dynamics of galaxies, cosmology. Prerequisite: AST 321 or instructor approval.
General Studies: SQ (if credit also earned in AST 114)

M AST 421 Astrophysics I. (3)
fall
Selected astrophysical topics, including stellar evolution, star formation, interstellar medium, galactic structure, extragalactic astronomy, high-energy astrophysics, and cosmology. Prerequisites: AST 321, 322; PHY 311, 314.

M AST 422 Astrophysics II. (3)
spring
Same range of astrophysical topics as for AST 421 but different specific topics are emphasized in a given year. Prerequisites: AST 321, 322; PHY 311, 314.

M AST 460 Astrobiology. (3)
fall and spring
Origin, early evolution, distribution, and future of life on Earth and elsewhere in the cosmos. May be repeated for credit. Lecture, discussion, video conferences, possible field trips. Cross-listed as BIO 460/CHM 483/GLG 460/MIC 475. Credit is allowed for only AST 460 or BIO 460 or CHM 483 or GLG 460 or MIC 475. Prerequisite: instructor approval.

M AST 499 Individualized Instruction. (3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

PHYSICAL SCIENCES (PHS)

M PHS 110 Fundamentals of Physical Science. (4)
fall and spring
One-semester survey of the principles of physics and chemistry. Presumes understanding of elementary algebra. 3 hours lecture, 2 hours lab. Fee.
General Studies: SQ

M PHS 208 Patterns in Nature. (4)
fall and spring
Project-oriented science course with computer training to develop critical thinking and technical skills for student-oriented K–12 science lessons. Lecture, lab. Cross-listed as MSE 208. Credit is allowed for only MSE 208 or PHS 208. Fee. Prerequisite: a college-level science course or instructor approval.
General Studies: SQ

M PHS 402 Service Learning. (3)
fall and spring
K–12 tutoring and mentoring internship related to academic course work in physical science and physics. Requires weekly reflective reading and writing. May be repeated for credit. Internship. Fee. Pre- or corequisite: only PHS 110 (or 208) or PHY 101 (or 105) or both PHY 111 and 113 or both PHY 121 and 122 or only PHY 150.
General Studies: C

M PHS 484 Internship. (1–12)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

PHYSICS (PHY)

For more PHY courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M PHY 101 Introduction to Physics. (4)
fall and spring
Emphasizes applications of physics to life in the modern world. Presumes understanding of elementary algebra. 3 hours lecture, 1 recitation, 2 hours lab.
General Studies: SQ

M PHY 105 Basic Physics. (3)
fall
One-semester survey of the principles of physics. Primarily for students who intend to take PHY 121, 131 but have not taken high school physics. 3 hours lecture, 1 recitation. Prerequisites: algebra and trigonometry.

M PHY 111 General Physics. (3)
fall, spring, summer
Noncalculus treatment of the principles of physics for nonphysics majors. Students whose curricula require a laboratory course must also register for PHY 113. 3 hours lecture, 1 recitation. Prerequisite: trigonometry.
General Studies: SQ (if credit also earned in PHY 113)

M PHY 112 General Physics. (3)
fall, spring, summer
Continuation of PHY 111. Students whose curricula require a laboratory course must also register for PHY 114. Prerequisite: PHY 111.
General Studies: SQ (if credit also earned in PHY 114)

M PHY 113 General Physics Laboratory. (1)
fall, spring, summer
Elementary experiments in physics. Requires outside preparation for experiments and report writing. May be taken concurrently with, or subsequent to, PHY 111. 2 hours lab. Fee.
General Studies: SQ (if credit also earned in PHY 111)

M PHY 114 General Physics Laboratory. (1)
fall, spring, summer
See PHY 113. May be taken concurrently with, or subsequent to, PHY 112. Fee.
General Studies: SQ (if credit also earned in PHY 112)

M PHY 121 University Physics I: Mechanics. (3)
fall, spring, summer
Kinematics; Newton's laws; work, energy, momentum, conservation laws; dynamics of particles, solids, and fluids. 3 hours lecture, 1 hour recitation. Prerequisite: MAT 270 or 290 or instructor approval.
General Studies: SQ (if credit also earned in PHY 122)

M PHY 122 University Physics Laboratory I. (1)
fall, spring, summer
Lab accompanying PHY 121. Fee. Pre- or corequisite: PHY 121.
General Studies: SQ (if credit also earned in PHY 121)

M PHY 131 University Physics II: Electricity and Magnetism. (3)
fall, spring, summer
Electric charge and current, electric and magnetic fields in vacuum and in materials, and induction. AC circuits, displacement current, and electromagnetic waves. 3 hours lecture, 1 hour recitation. Prerequisites: MAT 271 (or 291 or instructor approval); PHY 121. Corequisite: MAT 272 or instructor approval.
General Studies: SQ (if credit also earned in PHY 132)

M PHY 132 University Physics Laboratory II. (1)
spring and summer
Lab accompanying PHY 131. Fee. Pre- or corequisite: PHY 131.
General Studies: SQ (if credit also earned in PHY 131)

M PHY 150 Physics I. (4)
spring
Introductory physics for majors. Kinematics, Newton's Laws, basic forces, energy, momentum, special relativity. 3 hours lecture, 3 hours lab. Fee. Prerequisite: MAT 270 or 290 (or its equivalent).
General Studies: SQ

M PHY 151 Physics II. (4)
fall
Continuation of PHY 150. Electromagnetic fields; Ampere's and Faraday's Laws; Maxwell's equations; basic circuit elements. 3 hours lecture, 3 hours lab. Fee. Prerequisites: MAT 271 (or 291 or its equivalent); PHY 121, 122 (or 150).
General Studies: SQ

M PHY 190 Seminar: Physics as a Curriculum and a Profession. (1)
fall and spring
Seminar for new Physics majors. Instruction and information on curriculum, departmental functions, and professional preparation. Weekly meetings and excursions. Pass/fail grading.

M PHY 201 Mathematical Methods in Physics I. (3)
spring
Differential equations, linear equations, vectors, matrices, Fourier series, and numerical methods. 2 hours lecture, 2 hours lab. Fee. Prerequisites: MAT 272; Physics major. Corequisite: PHY 252.
General Studies: CS

M PHY 241 University Physics III. (3)
fall and spring
Thermodynamics, kinetic theory, physical and wave optics, relativity, photons, matter waves, atomic physics. 3 hours lecture, 1 hour recitation. Prerequisites: PHY 131; nonmajor.

M PHY 252 Physics III. (4)
spring
Continuation of PHY 151. Wave physics, oscillations, harmonic systems, physical optics, thermodynamics, kinetic theory. 3 hours lecture, 3 hours lab. Fee. Prerequisites: MAT 272 (or its equivalent); PHY 131 and 132 (or 151 or its equivalent). Corequisite: PHY 201.
General Studies: SQ

M PHY 302 Mathematical Methods in Physics II. (2)
fall
Continuation of PHY 201. Vector calculus, complex variables, partial differential equations, special functions, numerical methods. 1 hour lecture, 3 hours lab. Fee. Prerequisite: PHY 201 (or its equivalent).

M PHY 310 Classical Particles, Fields, and Matter I. (3)
fall
Particle kinematics, mechanics, conservation laws, particle motion in force fields, dynamics of two-body systems, reference frames, rigid body motion, relativity. Fee. Corequisites: both PHY 302 and 314 or only instructor approval.

M PHY 311 Classical Particles, Fields, and Matter II. (3)
spring
Electrostatic and gravitational fields, Poisson and Laplace equations, dielectric materials, magnetic fields and materials, magnetic induction, Faraday's Law. Fee. Prerequisites: PHY 302, 310. Corequisite: PHY 315 or instructor approval.

M PHY 314 Quantum Physics I. (3)
fall
Photons, models of the atom, wave properties of matter, introduction to wave mechanics, 1-D systems in quantum mechanics. Fee. Prerequisites: PHY 201 and 252 (or their equivalents). Corequisites: both PHY 302 and 310 or only instructor approval.

M PHY 315 Quantum Physics II. (3)
spring
General principles of quantum mechanics, 3-D problems, approximation methods, spin, introduction to many-particle systems. Fee. Prerequisites: PHY 302, 310, 314. Corequisite: PHY 311 or instructor approval.

M PHY 333 Electronic Circuits and Measurements. (3)
fall and spring
Basic principles of electronic circuit analysis and measurement techniques using modern instrumentation and computer-aided analysis of data. 1 hour lecture, 3 hours lab; required equivalent effort outside of lab. Fee. Corequisite: PHY 201 or instructor approval.

M PHY 334 Advanced Laboratory I. (2)
spring
Selected experiments from contemporary physics. Emphasizes modern instrumentation, computer-assisted acquisition and analysis of data, and report form writing. Lecture, lab. Fee. Prerequisites: PHY 310, 314, 333.
General Studies: L (if credit also earned in PHY 420)

M PHY 361 Introductory Modern Physics. (3)
fall and spring
Special relativity and introductory quantum theory with applications drawn from atomic, nuclear, and solid-state physics. 3 hours lecture, 1 recitation. Prerequisite: PHY 131.

M PHY 412 Classical Particles, Fields, and Matter III. (3)
fall
Electromagnetic fields of moving charges, Maxwell's equations, harmonic phenomena, oscillations, waves, electromagnetic radiation, covariant electromagnetism, introduction to general relativity. Fee. Prerequisites: PHY 311, 333. Corequisite: PHY 416 or instructor approval.

M PHY 416 Quantum Physics III. (3)
fall
Introduces the quantum theory of atoms, molecules, solids and nuclei, Dirac's equation. Fee. Prerequisites: PHY 311, 315. Corequisite: PHY 412 or instructor approval.

M PHY 420 Research Paper. (1)
fall and spring
Scientific report writing. Culminates in a paper based on library or laboratory research or both. Taken in conjunction with other courses as approved. Conference. Prerequisite: instructor approval.
General Studies: L (if credit also earned in PHY 334)

M PHY 441 Statistical and Thermal Physics. (3)
fall
Statistical and experimental basis of heat, temperature, and entropy. Mechanical and statistical basis of the laws of thermodynamics. Applications of macroscopic thermodynamics. Phase equilibrium. Prerequisites: PHY 311, 315.

M PHY 452 Physical Optics. (3)
fall
Principles of reflection, refraction, diffraction. Additional topics from contemporary optics may include Fourier transform spectroscopy, linear systems theory, holography. 2 hours lecture, 2 hours lab. Prerequisites: PHY 302, 311, 315. Corequisite: PHY 412.

M PHY 462 Subatomic Physics. (3)
spring
Nuclear properties, models, decays and reactions; fundamental forces, field theories, symmetry principles; hadrons, quarks, and leptons; the Standard Model. Prerequisites: PHY 311, 315.

M PHY 465 Advanced Laboratory II. (2)
fall and spring
Continuation of PHY 334. Students are encouraged to substitute laboratory research project in consultation with faculty sponsor. Fee. Prerequisite: PHY 334.

M PHY 466 Advanced Laboratory III. (1–3)
fall and spring
Continuation of PHY 465. Fee. Prerequisite: PHY 465.

M PHY 480 Methods of Teaching Physics. (3)
spring
Evaluation of various approaches to the teaching of high school physics. Preparation of demonstrations and experiments. Organization of a laboratory. Designed for secondary school physics teachers. Prerequisite: instructor approval.

M PHY 481 Materials Physics I. (3)
fall
Fundamentals of materials physics: crystal structure, diffraction, elasticity, point defects, dislocations, lattice vibrations, thermal properties, periodic potential, band structure. Credit is allowed for only PHY 481 or 511. Prerequisites: PHY 311, 315.

M PHY 482 Materials Physics II. (3)
spring
Electronic behavior of materials: energy bands, electronic properties, metals, semiconductors, insulators, optical properties, magnetic properties, superconductivity, biophysics. Credit is allowed for only PHY 482 or 512. Prerequisite: PHY 481 (or its equivalent).

M PHY 484 Internship: Physics Teaching. (1–4)
fall, spring, summer
Preparation for high school physics teaching. Student works closely with a faculty member in the elementary physics program. May be repeated for a total of 6 semester hours. Prerequisite: instructor approval.

M PHY 495 Project Research. (1–3)
fall and spring
Supervised project in physics or astrophysics. May be repeated for credit. Prerequisite: instructor approval.

M PHY 498 Pro-Seminar. (1–7)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Political Science

www.asu.edu/clas/polisci
480/965-6551
COOR 6801

Patrick J. Kenney, Chair

Professors: Artibise, Ball, Dagger, Fridkin, Guston, Iheduru, Jones, Kenney, Simon, Youngblood

Associate Professors: Ashley, Crittenden, Dantico, Doty, M. Elman, Herrera, Keating, Mitchell, Simhony, Warner

Assistant Professors: Chin, C. Elman, Espino, Goren, Hindman, Hoekstra, Kittilson, Lewis, Pantoja, Schatzman

POLITICAL SCIENCE—BA

The BA degree in Political Science consists of 42 semester hours, of which 30 must be in political science and 12 in related fields consisting of courses selected from the Departments of Aerospace Studies, Chicana and Chicano Studies, Economics, Family and Human Development, Geography, History, Military Science, Philosophy, Psychology, Religious Studies, and Sociology; the Schools of Global Studies, Human Communication, Human Evolution and Social Change, and Justice and Social Inquiry; or from the African and African American Studies, American Indian Studies, Asian Pacific American Studies, or Women and Gender Studies programs. At least 15 hours in political science must be in upper-division courses.

The following courses are required:

POS	101	Political Ideologies *SB*	3
POS	110	Government and Politics *SB*	3
		or POS 310 American National Government *SB* (3)	
POS	150	Comparative Government *SB, G*	3
		or POS 160 Global Politics *SB, G* (3)	
POS	301	Empirical Political Inquiry *SB*	3
Total			12

Students who major in Political Science must have a minimum GPA of 2.00 for all courses that count toward the major. Courses that count toward the major must have a grade of "C" (2.00) or higher. See "College Graduation Requirements," page 503. No more than six hours of POS 484 Internship may be applied to the major.

POLITICAL SCIENCE—BS

The BS degree in Political Science consists of 48 semester hours, of which 36 must be in political science and 12 in related fields consisting of courses selected from the Departments of Aerospace Studies, Chicana and Chicano Studies, Economics, Family and Human Development, Geography, History, Military Science, Philosophy, Psychology, Religious Studies, and Sociology; the Schools of Global Studies, Human Communication, Human Evolution and Social Change, and Justice and Social Inquiry; or from the African and African American Studies, American Indian Studies, Asian Pacific American Studies, or Women and Gender Studies programs. At least 21 hours in political science must be in upper-division courses.

The following courses are required:

POS	101	Political Ideologies *SB*	3
POS	110	Government and Politics *SB*	3
		or POS 310 American National Government *SB* (3)	
POS	150	Comparative Government *SB, G*	3
		or POS 160 Global Politics *SB, G* (3)	
POS	301	Empirical Political Inquiry *SB*	3
POS	401	Political Statistics *CS*	3
Total			15

Students who major in Political Science must have a minimum GPA of 2.00 for all courses that count toward the major. Courses that count toward the major must have a grade of "C" (2.00) or higher. See "College Graduation Requirements," page 503. No more than six hours of POS 484 Internship may be applied to the major.

CERTIFICATES

Asian Studies Certificate or Emphasis. Students majoring in Political Science may elect to pursue an Asian Studies Certificate combining courses from the major with selected outside courses of wholly Asian content. See "Asian Studies," page 509, for more information.

Certificate in Civic Education. The Civic Education Certificate is designed to contribute to the preparation of undergraduate students for

1. careers in primary and secondary education (where the teaching of government and civics may be involved);
2. careers or voluntary participation in politics, public service, and civic and social movements; and
3. further education in law, journalism, business, history, sociology, political science, and other fields where an understanding of questions of citizenship, leadership, community, democracy, public responsibility, and ethics is crucial.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

The certificate does not substitute for degree requirements in any subject, including Political Science; rather, as a complement to the student's chosen major, the certificate program is intended to guide students to a variety of courses whose successful completion indicates their special accomplishment in the area of civic education.

Students majoring in any subject at the university may be awarded the Civic Education Certificate upon completion of the following 15 semester hours of political science courses:

POS 101 Political Ideologies *SB* 3
POS 346 Problems of Democracy *HU* 3
POS 442 American Political Thought *HU* 3
Choose one from the courses below 3
- POS 340 History of Political Philosophy I *HU, H* (3)
- POS 341 History of Political Philosophy II *HU, H* (3)
- POS 443 Topics in Contemporary Political Theory *HU* (3)

Choose one from the courses below 3
- POS 110 Government and Politics *SB* (3)
- POS 150 Comparative Government *SB, G* (3)
- POS 160 Global Politics *SB, G* (3)
- POS 270 American Legal System *SB* (3)
- POS 300 Contemporary Controversies in Global Politics *SB, G* (3)
- POS 313 The Congress *SB* (3)
- POS 314 The American Presidency *SB* (3)
- POS 315 The Supreme Court *SB* (3)
- POS 330 Contemporary Controversies in Domestic Politics *SB* (3)
- POS 332 American Political Parties *SB* (3)
- POS 333 Interest Groups *SB* (3)
- POS 370 Law and Society *SB* (3)
- POS 417 The Arizona Political System *SB* (3)
- POS 435 Women and Politics *SB, C* (3)
- POS 439 Minority Group Politics in America *SB, C* (3)

Total 15

Certificate students must have a minimum GPA of 2.00; only courses in which students have a grade of "C" (2.00) or higher count toward the certificate.

Certificate in International Studies. The International Studies Certificate is designed to prepare students for careers in government agencies, international governmental and nongovernmental organizations, multinational firms and banks, and for graduate studies in International Relations or Political Science. The certificate is not a substitute for degree requirements in any subject, including political science; rather, the required courses add an international and comparative dimension to the student's chosen major.

Requirements for the certificate are intended to provide an understanding of international relations and comparative government, an awareness of global social and political-economic processes, and sensitivity to foreign political systems and cultures. These objectives are met by a sequence of political science courses in the areas of international relations, comparative politics, and area studies.

Students majoring in any subject at the university may be awarded the International Studies Certificate upon completion of the following 15 semester hours of political science courses:

Choose one from the courses below 3
- POS 150 Comparative Government *SB, G* (3)
- POS 160 Global Politics *SB, G* (3)

Choose one from the courses below 3
- POS 361 American Foreign Policy *SB, G* (3)
- POS 364 National Security, Intelligence, and Terrorism *SB* (3)

Choose two from the courses below 6
- POS 300 Contemporary Controversies in Global Politics *SB, G* (3)
- POS 465 International Organization and Law *SB, G* (3)
- POS 467 International Security *SB, G* (3)
- POS 486 International Political Economy *SB, G* (3)

Choose one from the courses below 3
- POS 350 Comparative Politics *SB, G* (3)
- POS 355 Russia and Successor States *SB, G* (3)
- POS 356 European Union *SB, G* (3)
- POS 357 South Asia Politics *SB, G* (3)
- POS 358 Southeast Asia *SB, G* (3)
- POS 359 African Politics and Society *SB, G* (3)
- POS 360 World Politics *SB, G* (3)
- POS 451 China, Japan, and the Koreas *SB, G* (3)
- POS 452 China *SB, G* (3)
- POS 453 South America *SB, G* (3)
- POS 454 Mexico *SB, G* (3)
- POS 455 Central America and the Caribbean *SB, G* (3)
- POS 459 South and Southern Africa *SB, G* (3)
- POS 463 Inter-American Relations *SB, G* (3)
- POS 468 Comparative Asian Foreign Policies *SB, G* (3)

Total 15

Honors students who select an international topic for their theses may apply thesis credit toward the 15 hours of international course work for the certificate.

Depending upon their interests, certificate students are strongly advised to take 12 semester hours or more from appropriate courses in anthropology (ASB), economics (ECN), geography (GCU), history (HST), international business studies (IBS), and sociology (SOC). Knowledge of a modern foreign language equivalent to at least two years of college study is strongly recommended.

Certificate students must have a minimum GPA of 2.00; only courses in which students have a grade of "C" (2.00) or higher count toward the certificate.

Latin American Studies Certificate or Emphasis. Students majoring in Political Science may elect to pursue a Latin American Studies Certificate combining courses from the major with selected outside courses of wholly Latin American content. See "Latin American Studies," page 512, for more information.

MINOR IN POLITICAL SCIENCE

The minor in Political Science consists of 18 semester hours in political science courses, 12 hours of which must be upper-division courses. Students who minor in Political Science must have two courses from among the following:

POS 101 Political Ideologies *SB* 3
POS 110 Government and Politics *SB* 3
or POS 310 American National Government *SB* (3)
POS 150 Comparative Government *SB, G* 3
POS 160 Global Politics *SB, G* 3

Students who minor in Political Science must have a minimum GPA of 2.00 for all courses that count toward the minor. Courses that count toward the minor must have a grade of "C" (2.00) or higher; no more than one "D" (1.00)

grade in a lower-division course may be counted toward the minor. No more than three hours of POS 484 Internship and three hours of POS 499 Individualized Instruction may be applied to the minor.

BIS CONCENTRATIONS

Concentrations in political science (with civic education, and international studies options) are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

SECONDARY EDUCATION—BAE

This degree is offered through the Initial Teacher Certification (ITC) program in the College of Education. Students pursuing a major in Secondary Education with an academic specialization in political science have an advisor in the College of Education and an advisor within the Department of Political Science.

See "College of Education," page 349, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

Academic Specialization ITC Admission Requirements

At least four required courses in the academic specialization must be completed with a grade of "C" (2.00) or higher before applying to the ITC professional program.

Political Science. The major teaching field consists of 41 to 42 semester hours and six hours in teaching methods. A minimum grade of "C" (2.00) is required in all academic specialization courses. Required major courses are as follows:

POS	101	Political Ideologies *SB*	3
POS	110	Government and Politics *SB*	3
		or POS 310 American National Government *SB* (3)	
POS	150	Comparative Government *SB*, *G*	3
		or POS 160 Global Politics *SB*, *G* (3)	
POS	301	Empirical Political Inquiry *SB*	3
POS	311	Arizona Constitution and Government	2
		or POS 417 The Arizona Political System *SB* (3)	
Electives[1]			15
Related area[2]			12
Total			41–42

[1] Six hours must be in the upper division.

[2] Choose courses in consultation with a department advisor.

Students are required to complete two methods courses, one of which is SED 480 Methods of Teaching Social Studies. For the second methods course, students select from the following:

GCU	414	Teaching Geography Standards	3
GCU	494	ST: Geography in the K–12 Classroom	3
HST	480	Methods of Teaching History: Classroom Resources	3
HST	481	Methods of Teaching History: Community Resources	3

Courses may be substituted for POS 417 with departmental approval.

Social Studies. This degree is offered through the Initial Teacher Certification program in the College of Education. Students pursuing a major in Secondary Education have an advisor in the College of Education and an advisor within the department of their academic specialization area.

See "College of Education," page 349, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

JOINT BACHELOR/MASTER'S PROGRAM

Admission. Any undergraduate Political Science major with a GPA of 3.40 or higher, who has accumulated at least 90 hours toward the undergraduate degree, or who is on the verge of doing so, and who has taken at least one 400-level political science course at ASU can be considered for admission into the joint program.

The following items should be submitted to the director of graduate studies of the Department of Political Science by April 15 in order to ensure recommendation for admission to the five-year program beginning the following fall:

1. the department's graduate application, available in the department's graduate office or online;
2. a statement of purpose that describes the applicant's educational objectives and identifies a faculty member who will serve as an advisor;
3. an official transcript;
4. a writing sample that best represents the applicant's analytical and writing skills; and
5. three letters of recommendation, two of which must be written by members of the political science faculty.

Students applying to the five-year program do not need to take the Graduate Record Exam.

Note: Students must also apply for admission to the Division of Graduate Studies at the same time they submit materials to the director of graduate studies of the department.

Program of Study. The Division of Graduate Studies has approved a plan whereby undergraduates can "share" credits for both their undergraduate and graduate degrees. Students can count one 400-level course and two 500-level courses as credit hours for both degrees. Using this system of shared credits, undergraduates will be able to complete both degrees in five years.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Once all existing degree requirements for the undergraduate degree have been completed, students will have completed enough courses to be able to finish their master's degree in one academic year. Students are only eligible for research or teaching assistantships, health insurance, financial aid, or graduate awards once they have completed all requirements for the undergraduate degree and the undergraduate degree has been posted.

A minimum of 30 semester hours is required for the Master of Arts degree. All candidates must take POS 503 and the core courses in the student's major and minor fields. Additional hours must be taken in graduate-level courses and seminars. Each student is expected to take seminars each semester in his/her major field, minor field, and an elective until course work is completed. If the thesis option is followed, the program must include a combination of at least six semester hours of research (POS 592) and thesis (POS 599) credit. A maximum of six semester hours in approved courses taken outside of the department or six hours of reading and conference (POS 590) courses may count toward the 30-semester-hour requirement.

Foreign Language Requirement. None.

Lattie F. Coor Hall is home to many College of Liberal Arts and Sciences degree programs, including Audiology, History, Philosophy, and Political Science. Tim Trumble photo

Thesis Option Requirement. MA students seeking admission to the PhD program are expected to complete the thesis early in their fourth semester. A copy of the *Format Manual* is available in the Division of Graduate Studies. A careful review of this document well in advance of preparation for the final copy of the thesis is recommended. An oral examination in defense of the thesis is required.

Non-Thesis Option Requirements. The program of study must include 27 semester hours of approved course work and at least one three-hour reading and conference course (POS 590) during the fourth semester to enhance the student's research capabilities. A research paper must be defended by the end of the third semester before a faculty committee appointed by the director of graduate studies.

GRADUATE PROGRAMS

The faculty in the Department of Political Science offer programs leading to the MA and PhD degrees. See the *Graduate Catalog* for requirements.

POLITICAL SCIENCE (POS)

M POS 101 Political Ideologies. (3)
fall and spring
Leading political ideas and belief systems, e.g., Marxism, liberalism, conservatism, theories of democracy, and alternative futures.
General Studies: SB

M POS 110 Government and Politics. (3)
fall and spring
Major institutions of modern government and processes of individual and group political activity, with emphasis on the American experience. Meets the federal government requirement for teacher certification. Credit is allowed for only POS 110 or 310.
General Studies: SB

M POS 150 Comparative Government. (3)
fall and spring
Political institutions and processes in selected foreign countries, including origins, strengths, and weaknesses of contemporary political systems and political development.
General Studies: SB, G

M POS 160 Global Politics. (3)
fall and spring
Nature of contemporary world politics through the study of both general theoretical topics and specific geographical areas.
General Studies: SB, G

M POS 220 Political Issues and Public Policy. (3)
once a year
Contemporary social problems and political issues, particularly development of public policy.
General Studies: SB

M POS 230 Current Issues in National Politics. (3)
fall and spring
Major issues facing national governments in the domestic field. Prerequisite: ENG 101 or 105.
General Studies: L/SB

M POS 240 Introduction to Southeast Asia. (3)
fall and spring
Interdisciplinary introduction to the cultures, religions, political systems, geography, and history of Southeast Asia. Cross-listed as ASB 240/GCU 240/HST 240/REL 240. Credit is allowed for only ASB 240 or GCU 240 or HST 240 or POS 240 or REL 240.
General Studies: HU/SB, G

M POS 260 Current Issues in International Politics. (3)
fall and spring
Analyzes major current problems in world politics. Prerequisite: ENG 101 or 105.
General Studies: L/SB, G

M POS 270 American Legal System. (3)
fall and spring
Concepts, institutions, classifications, and functions of law. Role of the courts and impact of judicial decision making on social change.
General Studies: SB

M POS 300 Contemporary Controversies in Global Politics. (3)
fall and spring
Explores key controversies in global politics, including security, economic stability, poverty, gender, race, and the environment.
General Studies: SB, G

M POS 301 Empirical Political Inquiry. (3)
fall and spring
Logic of political inquiry, including research problems, concepts, hypotheses, theories, measurement, data collection, and analysis.
General Studies: SB

M POS 305 Politics and Film. (3)
once a year
Examines portrayal of political events, ethnic groups, and sociopolitical situations in film, a major medium addressing questions of human values. May be repeated for credit when topics vary. Lecture, film, discussion.
General Studies: SB

M POS 310 American National Government. (3)
fall and spring
Powers, functions, and agents of American political institutions. Meets the federal government requirement for teacher certification. Credit is allowed for only POS 310 or 110.
General Studies: SB

M POS 311 Arizona Constitution and Government. (2)
fall and spring
Constitution and government of the State of Arizona. Credit is allowed for only POS 311 or 316 or 417. Meets the Arizona constitution requirement for teacher certification. May not be counted for the major or a teaching major or minor in Political Science.

M POS 313 The Congress. (3)
once a year
Lawmaking process in the U.S. Congress.
General Studies: SB

M POS 314 The American Presidency. (3)
once a year
Office, role, and power of the American presidency in the American political system.
General Studies: SB

M POS 315 The Supreme Court. (3)
once a year
Role of the Supreme Court in American society and politics; examines decision-making process and impact of decisions; restraint versus activism.
General Studies: SB

M POS 316 State and Local Government. (3)
once a year
Survey of the operations, problems, and policies of state and local governments in the United States. Credit is allowed for only POS 316 or 311.
General Studies: SB

M POS 320 Public Administration. (3)
once a year
Role of the administrator in the political process with an examination of the basic concepts of bureaucracy.
General Studies: SB

M POS 325 Public Policy Development. (3)
once a year
Examines one or more aspects of public policy development, including agenda setting and policy formulation, implementation, and analysis.
General Studies: SB

M POS 330 Contemporary Controversies in Domestic Politics. (3)
fall and spring
Explores key controversies in domestic politics, including the environment, the economy, poverty, gender, race, and security.
General Studies: SB

M POS 331 Public Opinion. (3)
once a year
Formation, expression, and influence of individual and organized opinion on political institutions.
General Studies: SB

M POS 332 American Political Parties. (3)
once a year
Development of the American party system. Party organization and functions.
General Studies: SB

M POS 333 Interest Groups. (3)
once a year
Examines how minority, corporate, labor, farm, consumer, environmental, health, education and public interest groups, and single-issue movements influence government.
General Studies: SB

M POS 336 Voters in America. (3)
once a year
Voting behavior and the attitudes, perceptions, and activities of the citizenry in the political process.
General Studies: SB

M POS 340 History of Political Philosophy I. (3)
once a year
Western political philosophers and their theories to the 17th century.
General Studies: HU, H

M POS 341 History of Political Philosophy II. (3)
once a year
Western political philosophers and their theories from the 17th to the 20th centuries.
General Studies: HU, H

M POS 346 Problems of Democracy. (3)
once a year
Issues and problems in democratic theory, e.g., the nature of democracy, majority rule, representation, equality, and the value of political participation.
General Studies: HU

M POS 350 Comparative Politics. (3)
once a year
Theoretical approaches and political institutions, such as parties, pressure groups, legislatures, and executives, from a cross-national perspective.
General Studies: SB, G

M POS 351 Democratization. (3)
fall
Examines the consolidation of democracies in postauthoritarian and postcommunist settings (e.g., Latin America, Eastern Europe, Asia).
General Studies: SB, G

M POS 355 Russia and Successor States. (3)
once a year
Description and analysis of political institutions and practices in Russia and successor states.
General Studies: SB, G

M POS 356 European Union. (3)
once a year
History and workings of EU member states, including single market, Euro, legal system, ethnonationalism, immigration, expansion, trade wars, and defense.
General Studies: SB, G

M POS 357 South Asia Politics. (3)
once a year
Political culture and systems of South Asia examined through study of political writings, novels, and poetry. Lecture, discussion.
General Studies: SB, G

M POS 358 Southeast Asia. (3)
once a year
Political background, governmental institutions, political dynamics, and developmental problems of Southeast Asian nations.
General Studies: SB, G

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M POS 359 African Politics and Society. (3)
selected semesters
Comparative analysis of socioeconomic forces, political processes, government institutions, and political novels in Sub-Sahara Africa.
General Studies: SB, G

M POS 360 World Politics. (3)
once a year
Theory and practice of statecraft as applied to selected issues, regions, or eras. May be repeated for credit when topics vary.
General Studies: SB, G

M POS 361 American Foreign Policy. (3)
once a year
United States in world affairs; foreign policy since World War I. Techniques in formulating American foreign policies.
General Studies: SB, G

M POS 364 National Security, Intelligence, and Terrorism. (3)
once a year
Theoretical and empirical assessment of U.S. national security policy in the post-cold war era.
General Studies: SB

M POS 368 Ethics and Human Rights. (3)
spring
Explores issues of ethics, morality, and human rights in the global community. Lecture, discussion.

M POS 369 War, Politics, and Society. (3)
fall in odd years
Relationships between techniques/technology of war and political/social structures in different time periods and locations. Who commands, dies, and pays?

M POS 370 Law and Society. (3)
once a year
Analyzes debates among social scientists and legal theorists concerning the relationship between "law" and "society."
General Studies: SB

M POS 401 Political Statistics. (3)
fall and spring
Basic concepts in statistics as they facilitate the description, explanation, and prediction of social and political phenomena. Prerequisite: POS 301 (or its equivalent) or instructor approval.
General Studies: CS

M POS 410 Governing American Cities. (3)
once a year
Reviews modern urban problems, their sources, and potential solutions, including structural and policy alternatives.
General Studies: SB

M POS 417 The Arizona Political System. (3)
selected semesters
Contemporary political problems within the context of Arizona's constitutional, political, and social frameworks. Meets the Arizona Constitution requirement for teacher certification. Credit is allowed for only POS 417 or 311.
General Studies: SB

M POS 426 Elements of Public Policy. (3)
once a year
Each section may cover one of the following topics: consumer protection, natural resources, criminal justice, environmental protection, science and technology, or theories of public policy. May be repeated for credit when topics vary.
General Studies: SB

M POS 431 Campaigns and Elections. (3)
once a year
Examines campaigns from a multitude of perspectives, including the politician, reporter, campaign strategist, and voter. Lecture, discussion.
General Studies: SB

M POS 433 Money and Politics. (3)
once a year
Role of money and special interests in elections, campaign politics, and public policy-making in American politics. Lecture, discussion.
General Studies: SB

M POS 434 Media and Politics. (3)
once a year
Studies mass media and politics in the United States, e.g., media and elections, media and government. Lecture, discussion.
General Studies: SB

M POS 435 Women and Politics. (3)
selected semesters
Focuses on the uniqueness of women in modern political systems and political thought. Emphasis may vary with instructor.
General Studies: SB, C

M POS 439 Minority Group Politics in America. (3)
selected semesters
Role of minority groups in American politics.
General Studies: SB, C

M POS 442 American Political Thought. (3)
once a year
Political theories and movements from the colonial period to the present.
General Studies: HU

M POS 443 Topics in Contemporary Political Theory. (3)
once a year
Major problems and theories in contemporary political thought.
General Studies: HU

M POS 445 Asian Political Thought. (3)
once a year
Contemporary political ideas and theories in selected Asian countries, including the impact of Marxist and non-Marxist theories on revolutionary processes.
General Studies: SB, G

M POS 451 China, Japan, and the Koreas. (3)
once a year
Comparative analysis of the political modernization experiences of China, Japan, and the two Koreas, focusing on their differing reactions to the West.
General Studies: SB, G

M POS 452 China. (3)
once a year
Background of the Communist revolution, political processes, and developmental problems in China from a comparative perspective.
General Studies: SB, G

M POS 453 South America. (3)
once a year
Political institutions, process, and developmental problems of South American states examined through comparative analysis, novels, and poetry.
General Studies: SB, G

M POS 454 Mexico. (3)
once a year
Mexican federal, state, and local governmental institutions.
General Studies: SB, G

M POS 455 Central America and the Caribbean. (3)
once a year
Governmental institutions, political processes, and developmental problems of the nation-states and dependent areas of Central America and the Caribbean.
General Studies: SB, G

M POS 459 South and Southern Africa. (3)
once a year
Post-apartheid South African government and politics; South Africa and the southern African region; regional security and development.
General Studies: SB, G

M POS 463 Inter-American Relations. (3)
once a year
Diplomatic relations among the Latin American states. Development of U.S. foreign policy toward Latin America.
General Studies: SB, G

M POS 465 International Organization and Law. (3)
once a year
History, practical political significance, and future of international institutions, transnational regimes, and international law.
General Studies: SB, G

M POS 467 International Security. (3)
once a year
Examines issues affecting the international security of states and peoples, e.g., military, economic, technological, environmental, and demographic.
General Studies: SB, G

M POS 468 Comparative Asian Foreign Policies. (3)
once a year
Foreign policies of the Asian states, emphasizing their security relations and movements toward regionalism.
General Studies: SB, G

M POS 471 Constitutional Law I. (3)
once a year
Development of the U.S. Constitution as reflected in decisions of the Supreme Court; jurisdiction and organization of the federal courts; judicial review; separation of powers; federalism; the commerce clause; national taxing and spending power; state police power.
General Studies: SB

M POS 472 Constitutional Law II. (3)
once a year
Development of the U.S. Constitution as reflected in decisions of the Supreme Court; due process; equal protection of laws; individual rights; civil liberties.
General Studies: SB

M POS 484 Internship. (1–12)
selected semesters

M POS 485 Political Economy. (3)
once a year
Problems, policies, and possibilities of various political-economic systems and the interrelationship of capitalism, socialism, and democracy.
General Studies: SB

M POS 486 International Political Economy. (3)
once a year
Contending approaches to historical and contemporary issues of international political economy, including global welfare, equality, ecology, and peace.
General Studies: SB, G

M POS 498 Pro-Seminar. (3)
once a year
Small group study and research for advanced students within their major area. Prerequisite: major in the department or instructor approval.
General Studies: L

M POS 499 Individualized Instruction. (3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Psychology

www.asu.edu/clas/psych
480/965-3326
PSY 237

Keith A. Crnic, Chair

Regents' Professors: Cialdini, Eisenberg, Russo, Sandler

Foundation Professor: Crnic

Professors: Aiken, Barrera, Braver, Castro, Chassin, Goldinger, Gonzales, Homa, Karoly, Kenrick, Killeen, Knight, Lanyon, MacKinnon, Millsap, Neisewander, Neuberg, Okun, Parkinson, Presson, Reich, Sadalla, Somerville, Van Orden, West, Wolchik, Zautra

Associate Professors: Alexander, Castaneda, Conrad, Davis, Fabricius, Leshowitz, McBeath, Nagoshi, Nemeroff, Saenz, Stone

Assistant Professors: E. Amazeen, P. Amazeen, Bimonte-Nelson, Enders, Lemery, Luecken, Piña

Senior Lecturers: Barton, Wosinski

Lecturer: Palmer

The Department of Psychology maintains an undergraduate advising office staffed by trained personnel. All psychology majors are encouraged to meet with an advisor once each semester to ask questions regarding choices of courses. Failure to do so may prevent graduation at the expected time. It is the responsibility of the student to consult with an undergraduate advisor.

PSYCHOLOGY—BA

The BA degree in Psychology consists of 37 semester hours in psychology, including at least 24 upper-division semester hours, and 12 semester hours of related course work. All courses must be passed with a minimum grade of "C" (2.00). The requirements are as follows:

I. Foundations of Psychology (10 semester hours)

PGS 101 Introduction to Psychology *SB* (3)
PSY 230 Introduction to Statistics *CS* (3)
PSY 290 Research Methods *L*/*SG* (4)

II. Breadth (12 semester hours)

One course from each of four of the following five clusters:

Biological: PSY 325

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Cognitive/Learning: PSY 320, 323, 324
Developmental: PGS 341
Personality/Mental Health: PGS 315, 466
Social: PGS 306, 350, 351

III. Depth (six semester hours)

Two additional courses from one of the clusters used to meet the breadth requirements. At least one of the courses must be at the 400 level.

Biological: PSY 424, 425, 426, 470
Cognitive/Learning: PSY 320, 323, 324, 420, 434, 437
Developmental: PGS 344, 427, 441, 445, 446
Personality/Mental Health: PGS 315, 365, 443, 444, 462, 464, 465, 466, 468, 471, 472
Social: PGS 306, 350 or 351, 430, 451, 452, 458, 461

IV. Additional Psychology Courses (nine semester hours)

Three courses in psychology (two must be in the upper division) excluding PGS 270, 484 and PSY 484. Approved 200-level community college courses may be used in this category. These courses may not be used to also satisfy breadth or depth requirements. Students may count up to six semester hours in PGS or PSY 399 or 499 to satisfy this requirement. Honors students may count up to three semester hours of PSY 492 and three semester hours of PSY 493 (six semester hours total), in lieu of six semester hours of PGS or PSY 399 or 499, to satisfy this requirement.

V. Mathematics Foundation (three semester hours)

MAT 119, 170, 242, 251, or higher than 251.

VI. Foundations of Behavior (nine semester hours)

Any three courses from among the following prefixes: ASB, ASM, BIO, GCU, HPS, PHI, and SOC.

For more information, see "College Graduation Requirements," page 503.

PSYCHOLOGY—BS

The BS degree in Psychology is focused on the science of psychology and is designed specifically for students planning to pursue an advanced degree in psychology or related disciplines. The requirements for the BS degree in Psychology are identical to the requirements for the BA degree with the following three exceptions:

1. PSY 330 must be completed as one of the options in the additional psychology course requirements.
2. At least three semester hours of PSY 390 or PGS or PSY 399 or 499 must be completed as one of the options in the additional psychology course requirements.
3. MAT 251 or higher must be completed for the mathematics foundation requirement.

MINOR IN PSYCHOLOGY

The minor in Psychology consists of completing the 22 semester hours of course work in the foundations of psychology and the breadth categories described above. Students with an appropriate equivalent course may exclude PSY 230 from the requirements but need an additional three hours in psychology to equal the 22 hours minimum. All courses must be passed with a minimum grade of "C" (2.00).

BIS CONCENTRATION

A concentration in psychology is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

GRADUATE PROGRAMS

The faculty in the Department of Psychology offer a program leading to the PhD degree. See the *Graduate Catalog* for requirements.

PSYCHOLOGY (SOCIAL AND BEHAVIORAL) (PGS)

For more PGS courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M PGS 101 Introduction to Psychology. (3)
fall, spring, summer
Major areas of theory and research in psychology. Requires participation in department-sponsored research or an educationally equivalent alternative activity.
General Studies: SB

M PGS 194 Special Topics. (1–4)
selected semesters

M PGS 222 Human Sexual Behavior. (3)
fall and spring
Patterns of sexual behavior, including variations and deviations; theories of sexual attraction, sex differences, and sexual dysfunction and treatment. Prerequisite: PGS 101.
General Studies: SB

M PGS 270 Psychology of Adjustment. (3)
fall, spring, summer
Principles of mental health, adjustment, conflict, stress, and coping processes derived from clinical and experimental research. Intended for nonmajors; cannot be used for major credit. Prerequisite: PGS 101.
General Studies: SB

M PGS 304 Effective Thinking. (3)
once a year
Understanding and improving intellectual and behavioral skills; information analysis, inference, logic, problem solving, and decision making. Prerequisite: MAT 119 (or 170 or higher than MAT 170) or PSY 230 (or their equivalents).
General Studies: L

M PGS 306 Environmental Psychology. (3)
fall, spring, summer
Concepts and research strategies in the study of behavior in interaction with physical environment. Prerequisite: PGS 101.
General Studies: SB

M PGS 315 Personality Theory and Research. (3)
fall, spring, summer
Definition and description of personality in terms of theoretical and methodological approaches. Prerequisites: PGS 101; PSY 290.
General Studies: SB

M PGS 341 Developmental Psychology. (3)
fall and spring
Analyzes behavior development in terms of psychological principles. Current research in human development. Prerequisites: PGS 101; PSY 290.
General Studies: SB

M PGS 344 Directed Child Study. (3–4)
fall, spring, summer
Theories and methods of intervention with preschool children and supervised practicum in the Child Study Laboratory. 1 hour lecture, 6–8 hours practicum. Prerequisites: CDE 232 (or ECD 214 or PGS 341); PSY 290.

M PGS 350 Social Psychology. (3)
fall, spring, summer
Human social behavior, including such concepts as aggression, attraction, attribution, conformity, groups, helping, person perception, and persuasion. Prerequisite: PGS 101.
General Studies: SB

M PGS 351 Honors Social Psychology. (3)
selected semesters
Critical analysis of human social behavior for honors students; topics include stereotyping, social influence, attraction, aggression, helping, groups, and attitudes. Open only to students without previous credit for PGS 350. Lecture, discussion. Prerequisites: both PGS 101 and admission to the Barrett Honors College or only instructor approval.
General Studies: L/SB

M PGS 365 Community Psychology. (3)
fall and spring
Mental health and psychological well-being in the community, emphasizing current issues and related research. Prerequisites: PGS 315 (or 350 or 351); PSY 290.
General Studies: SB

M PGS 394 Special Topics. (1–4)
selected semesters

M PGS 399 Supervised Research. (1–3)
fall, spring, summer
Experience within the context of current faculty research projects. Responsibility is assigned depending on qualifications. "Y" grade only. May be repeated for a total of 6 hours. Prerequisites: approval of faculty member before registration; 3.00 GPA in major. Pre- or corequisite: PSY 230 (or its equivalent).

M PGS 414 History of Psychology. (3)
fall and spring
Historical development of psychology from its philosophical beginnings to the present. Prerequisites: PGS 101; PSY 230, 290.
General Studies: L/SB

M PGS 427 Psychology of Aging. (3)
selected semesters
Analyzes loss, maintenance, and gain associated with cognitive and affective aging. Individual differences in coping with normative life transitions. Prerequisites: PGS 341; PSY 290.
General Studies: L/SB

M PGS 430 Industrial Psychology. (3)
fall, spring, summer
Organizations and management systems; motivation and work performance; human factors in systems design and evaluation; personnel selection and testing. Prerequisite: PSY 290 or instructor approval.

M PGS 441 Cognitive Development. (3)
fall and spring
Experimental and theoretical literature in child development and behavior. Prerequisites: PGS 341; PSY 290.
General Studies: L/SB

M PGS 443 Abnormal Child Psychology. (3)
fall and spring
Covers major disorders of childhood and adolescence (e.g., autism, hyperactivity, phobias, and delinquency), including cause, diagnosis, treatment, and prevention. Prerequisites: PGS 315 (or 341 or 350 or 351); PSY 290.
General Studies: L/SB

M PGS 444 Adolescent Psychology and Psychopathology. (3)
selected semesters
Advanced-level survey of normal adolescent psychological development and psychological disorders of this age period. Lecture, discussion. Prerequisites: PGS 341; PSY 290.
General Studies: L

M PGS 445 Child Language and Drawing. (3)
fall
Language acquisition and developmental changes in drawing, considered in the context of cognitive developmental stages. Children's representation and communication of knowledge through language and drawing. Prerequisites: PGS 341; PSY 290.
General Studies: SB

M PGS 446 Social Development. (3)
selected semesters
Discusses theory, research, and issues regarding social development. Example topics: formation of attachments, prosocial development, and gender-role development. Lecture, seminar. Prerequisites: PGS 341; PSY 290.
General Studies: L

M PGS 451 Stereotyping, Prejudice, and Discrimination. (3)
selected semesters
Critical investigation of the processes underlying, and the factors contributing to, stereotyping, prejudice, and discrimination. Lecture, discussion. Prerequisites: PGS 350 (or 351); PSY 290.
General Studies: L

M PGS 452 Applied Social Psychology. (3)
fall
Studies applications of social psychological theory and concepts in natural settings; research design and data analysis. Lecture, lab-type activities. Prerequisites: PGS 350 (or 351); PSY 230, 290.
General Studies: L

M PGS 458 Group Dynamics. (3)
fall
Theories and methods of group leadership, group effectiveness, communication within groups, and relations between groups and individual members. Prerequisites: PGS 350 (or 351); PSY 290.

M PGS 461 Interpersonal Influence. (3)
selected semesters
Principles and procedures that affect the process of social influence; consideration of attitudinal, compliance-inducing, and perceptual influences. Prerequisites: PGS 350 (or 351); PSY 290.
General Studies: SB

M PGS 462 Health Psychology. (3)
fall and spring
Contributions of psychology to health promotion and illness prevention, adaptation to acute and chronic illness, and to the health care system. Prerequisites: PSY 230, 290.

M PGS 464 Minority Issues in Psychology. (3)
spring
Psychological issues relating to the diversity of human cultural experiences among ethnic minorities in the U.S. Prerequisite: PSY 290.

M PGS 465 Psychology of Stress and Coping. (3)
fall
Readings in theory and research in the area of stress and coping. Lecture, discussion, class presentations. Prerequisites: PGS 315 (or 350 or 351); PSY 290.
General Studies: L

M PGS 466 Abnormal Psychology. (3)
fall, spring, summer
Historical and current definitions, theory, and research concerning abnormal behavior. Major categories of psychopathology, including related treatment approaches. Prerequisites: PGS 101; PSY 290.
General Studies: SB

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M PGS 467 Psychology of Magical Beliefs. (3)
selected semesters
Psychological nature and bases of magical beliefs and their impact on health behaviors, eating practices, and interpersonal relations. Lecture, seminar. Prerequisites: PGS 315 (or 466 or PSY 434); PSY 290.
General Studies: L

M PGS 468 Psychology and Law. (3)
fall and spring
Theories, research, and practice in psychology as related to law, including criminal, civil, domestic relations, and professional issues. Lecture, discussion. Prerequisite: PSY 290.

M PGS 471 Psychological Testing. (3)
spring
Methods and theory of psychological testing; various types of psychological tests; consideration of ethical, social, and legal aspects of testing. Prerequisite: PSY 290.

M PGS 472 Clinical Psychology. (3)
fall and spring
Clinical psychology as a science and profession. Historical development, methods of interviewing, assessment, and therapeutic intervention. Prerequisites: PGS 443 (or 466); PSY 290.

M PGS 484 Internship. (1–12)
selected semesters

M PGS 494 Special Topics. (1–4)
selected semesters

M PGS 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

PSYCHOLOGY (SCIENCE AND MATHEMATICS) (PSY)

For more PSY courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M PSY 230 Introduction to Statistics. (3)
fall, spring, summer
Basic concepts in descriptive and inferential statistics, emphasizing applications to psychology. Self-paced (PSI) and lecture sections. Prerequisites: MAT 119 (or 170 or 242 or 251 or any MAT course higher than MAT 251); PGS 101.
General Studies: CS

M PSY 290 Research Methods. (4)
fall and spring
Planning, execution, analysis, and reporting of experiments. Literature, procedures, and instruments in representative areas of psychological research. 3 hours lecture, 3 hours lab. Prerequisites: ENG 101 (or 105); PSY 230.
General Studies: L/SG

M PSY 320 Learning and Motivation. (3)
fall, spring, summer
Principles of conditioning and motivation; approaches to learning, including acquisition of verbal materials, concepts, and motor skills; memory and transfer. Prerequisite: PSY 290.

M PSY 323 Sensation and Perception. (3)
fall and spring
Underlying processes of vision, audition, and the other senses. Applies current research and theory in a lab environment. Prerequisite: PSY 290.

M PSY 324 Memory and Cognition. (3)
fall, spring, summer
Processes underlying information storage and retrieval, including different kinds of memory, forgetting, depth of processing, and control processes. Prerequisite: PSY 290.

M PSY 325 Physiological Psychology. (3)
fall, spring, summer
Relationships of physiological processes to behavior. Emphasizes nervous system functioning. Prerequisite: PSY 290 or instructor approval.

M PSY 330 Statistical Methods. (3)
spring
Advanced application of statistics to psychology. Highly recommended for students interested in attending graduate school. 3 hours lecture, 1 hour lab. Prerequisite: PSY 230.
General Studies: CS

M PSY 390 Experimental Psychology. (3)
spring
Continuation of concepts in PSY 290, with emphasis on multifactor designs and programmatic sequence of experiments. Lecture, lab. Prerequisite: PSY 290.
General Studies: L

M PSY 399 Supervised Research. (1–3)
fall, spring, summer

M PSY 420 Analysis of Behavior. (3)
selected semesters
Research, applications, and philosophy of the analysis and control of human behavior. Prerequisites: PSY 290, 320.
General Studies: L

M PSY 422 Motor Control in Special Populations. (3)
selected semesters
Discusses principles of motor control theories and related practical applications for certain special developmental populations. Lecture, discussion. Cross-listed as KIN 422. Credit is allowed for only KIN 422 or PSY 422. Prerequisite: KIN 345.
General Studies: L

M PSY 424 Genetic Psychology. (3)
spring
Introduces the concepts, methodologies, and findings of behavioral genetics for Psychology majors. Prerequisites: PGS 101; PSY 230, 290.
General Studies: L

M PSY 425 Biological Bases of Behavior. (3)
selected semesters
Critical study of physiological psychology; brain mechanisms underlying motivation and learning. Prerequisites: PSY 290, 325.
General Studies: L

M PSY 426 Neuroanatomy. (4)
selected semesters
Structure and function of mammalian brain, including sheep brain dissection. 3 hours lecture, 3 hours lab. Prerequisites: PSY 290, 325.

M PSY 434 Cognitive Psychology. (3)
spring
Human organism as a processor of information, from perception to cognition. Abstract concepts, semantic memory, attention, and mental imagery. Prerequisites: PSY 290, 323 (or 324).
General Studies: L

M PSY 437 Human Factors. (3)
fall
Emphasizes human factors in high-technology systems. Specific topics include systems development, systems analysis techniques, displays, and controls. Prerequisite: PSY 290.
General Studies: L

M PSY 470 Psychopharmacology. (3)
fall and spring
Basis of drug action at physiological and behavioral levels. Psychological and medical applications and limitations of drugs used in the treatment of mental illness. Prerequisites: PSY 290, 325.

M PSY 484 Internship. (1–12)
selected semesters

M PSY 492 Honors Directed Study. (1–6)
selected semesters

M PSY 493 Honors Thesis. (1–6)
selected semesters

M PSY 494 Special Topics. (1–4)
selected semesters

M PSY 497 Honors Colloquium. (1–6)
selected semesters

M PSY 498 Pro-Seminar. (1–7)
fall and spring
Topics may include the following:
- Behavioral Neuroscience Research. (3)
  General Studies: L

M PSY 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Religious Studies

www.asu.edu/clas/religious_studies
480/965-7145
ECA 377

Joel D. Gereboff, Chair

Professors: Cady, Feldhaus, Foard, Morrison, Samuelson

Associate Professors: Clay, Fessenden, Gereboff, Henn, Moore, Schober, Swanson, Woodward

Assistant Professors: Aguilera, Carlson, Duncan, Espinosa, Park, Umar, Wenger

Lecturer: Kefeli-Clay

RELIGIOUS STUDIES—BA

The BA degree in Religious Studies consists of 45 semester hours, 30 of which must be in religious studies (including 21 in upper-division courses) and 15 of which must be in related fields. In order for the student to become acquainted with the character and role of religions across a wide spectrum of social and historical contexts, the 30 semester hours in religious studies must include the following courses:

1. REL 305 Ritual, Symbol, and Myth;
2. at least one course from each of the following distribution areas: Religion in the Americas, Religion and Asian Cultures, and Religion and Western Cultures;
3. REL 400 Approaches to Religion; and
4. two research seminars, including REL 405 Problems in Religious Studies, which may be repeated for credit; or
5. in place of a second seminar, a student may take REL 499 to write an undergraduate thesis.

The Religious Studies major is an appropriate choice for students wishing to explore such areas as African or African American studies; Islamic studies; myth, ritual, and the arts; Native American studies; and religion and politics. All majors must plan their programs in consultation with a departmental advisor. A minimum GPA of 2.50 is required in the 30 semester hours of religious studies courses.

MINOR IN RELIGIOUS STUDIES

The minor in Religious Studies consists of 18 semester hours, at least 15 of which must be in the upper division. REL 305 is required. For minor verification, students must consult a department advisor.

BIS CONCENTRATION

A concentration in religious studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

CERTIFICATES AND EMPHASES

The following certificate programs or emphases are offered in conjunction with the BA in Religious Studies. For more information on each, see "Certificate Programs and Areas of Emphasis," page 509, or access the department Web site at www.asu.edu/clas/religious_studies.

Asian Studies Certificate. Students majoring in Religious Studies may elect to pursue an Asian Studies emphasis or East Asian Studies Certificate combining courses from the major with selected outside courses of wholly Asian content.

Islamic Studies Certificate. Students majoring in Religious Studies may elect to earn an Islamic Studies Certificate by successfully completing the requirements mentioned in "Islamic Studies Certificate," page 512.

Jewish Studies Certificate. Students majoring in Religious Studies may elect to pursue a Jewish Studies Certificate combining courses from the major with selected outside courses in the area of Jewish Studies.

Latin American Studies Certificate. Students majoring in Religious Studies may elect to pursue a Latin American Studies certificate combining courses from the major with selected outside courses of wholly Latin American content.

Russian and East European Studies. Students majoring in Religious Studies may elect to earn a Russian and East European Studies Certificate by successfully completing one of the options mentioned in "Russian and East European Studies," page 513.

Southeast Asian Studies Emphasis. Students majoring in Religious Studies may elect to earn a Southeast Asian Studies Certificate by successfully completing the requirements.

Women and Gender Studies. Students majoring in Religious Studies may elect to earn a Women and Gender Studies Certificate by successfully completing the requirements.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

GRADUATE PROGRAM

The faculty in the Department of Religious Studies offer a graduate program leading to the MA degree for those who wish to enter a doctoral program in the study of religions, for those who wish to teach at the community college level, and for those in nonacademic careers who desire general competence in the academic study of religions. A doctoral program is offered. See the *Graduate Catalog* for requirements.

RELIGIOUS STUDIES (REL)

M REL 100 Religions of the World. (3)
fall and spring
Introduces the history of religious traditions of the world, including Buddhism, Christianity, Hinduism, Islam, Judaism, and others. Credit is allowed for only REL 100 or 200.
General Studies: HU, G

M REL 200 The Study of Religious Traditions. (3)
selected semesters
Writing-intensive course introducing analytical skills necessary for understanding religious traditions. Beliefs, practices, and communities of several religious traditions of the world. Credit is allowed for only REL 200 or 100. Prerequisite: ENG 101 or 105.
General Studies: L/HU, G

M REL 201 Religion and the Modern World. (3)
once a year
Introduces the nature and role of religious beliefs and practices in shaping the lives of individuals and societies, with particular attention to the modern world. Prerequisite: ENG 101 or 105.
General Studies: L/HU

M REL 202 Religion and Popular Culture. (3)
once a year
Explores various intersectors between religion and the popular media, including music, news, advertising, the visual arts, literature, performance, and film. Lecture, discussion.
General Studies: HU, C

M REL 203 Saints and Sinners: Explorations in Sacred Biography. (3)
selected semesters
Comparison of the role of biography across religions to examine the process of categorizing people as saints or sinners. Lecture, discussion.
General Studies: HU, H

M REL 210 Introduction to Judaism. (3)
once a year
Beliefs, ceremonies, festivals, and institutions of Judaism emphasizing the contemporary era. Assumes no previous knowledge about Judaism. Prerequisite: ENG 101 or 105.
General Studies: L/HU, H

M REL 225 African American Religion. (3)
selected semesters
Introduces the history and development of the African American religious tradition. Lecture, discussion.
General Studies: HU, C

M REL 240 Introduction to Southeast Asia. (3)
fall and spring
Interdisciplinary introduction to the cultures, religions, political systems, geography, and history of Southeast Asia. Cross-listed as ASB 240/GCU 240/HST 240/POS 240. Credit is allowed for only ASB 240 or GCU 240 or HST 240 or POS 240 or REL 240.
General Studies: HU/SB, G

M REL 260 Introduction to Islam. (3)
spring
Examines Islamic beliefs, ceremonies, festivals, and institutions. Assumes no prior knowledge about Islam. Lecture, discussion.
General Studies: HU, G

M REL 270 Introduction to Christianity. (3)
once a year
Beliefs, ceremonies, festivals, and institutions of Christianity, emphasizing the contemporary era. Assumes no previous knowledge about Christianity.
General Studies: HU

M REL 301 Comparative Mysticism. (3)
once a year
Comparative examination of Eastern and Western mystical traditions from antiquity to the present. Lecture, discussion. Prerequisite: REL 100.
General Studies: HU

M REL 305 Ritual, Symbol, and Myth. (3)
fall and spring
Ritual, symbol, and myth as types of religious expression, with examples selected from the nonliterate religions of the world.
General Studies: L/HU

M REL 310 Western Religious Traditions. (3)
fall and spring
Religious traditions of Judaism, Christianity, and Islam, comparing their doctrinal, institutional, and ritual systems and social histories. Lecture, discussion.
General Studies: HU, H

M REL 315 Hebrew Bible (Old Testament). (3)
once a year
Nature, content, background, historical situation, and message of the books of the Hebrew Bible in English translation.
General Studies: L/HU, H

M REL 317 Introduction to Rabbinic Judaism. (3)
selected semesters
Historical analysis of the thought, literature, and institutions of rabbinic Judaism.
General Studies: HU, H

M REL 318 Contemporary American Jewish Identities. (3)
spring
Analyzes the complexity and diversity of the contemporary American Jewish community in religious and secular affairs. Lecture, discussion. Cross-listed as SOC 375. Credit is allowed for only REL 318 or SOC 375.
General Studies: HU/SB, C

M REL 320 American Religious Traditions. (3)
fall and spring
Examines the formation, development, and interaction of major American religious traditions (indigenous, African American, Asian American, and Euro-American).
General Studies: HU, C, H

M REL 321 Religion in America. (3)
fall and spring
History of religion in America with attention to issues of historiography, pluralism, gender, race, ethnicity, politics, and social reform.
General Studies: HU, C, H

M REL 322 Malcolm and Martin. (3)
selected semesters
Examines and contrasts the lives, ministries, contributions, and legacies of Malcolm X and Martin Luther King, Jr.
General Studies: HU, C

M REL 323 Black Religion: A Biographical Approach. (3)
selected semesters
Examines the experiences, motivations, and contributions of a number of figures associated with African American religion.
General Studies: HU, C

M REL 324 Spirituals and the Blues. (3)
spring
Multidisciplinary exploration of the African American religious and musical response to the North American diaspora experience. Lecture, discussion.

M REL 326 U.S. Latino Religion and Culture. (3)
fall
Survey of the formative myths, rituals, and symbols of Mexican Americans, Puerto Ricans, and Cuban Americans. Lecture, discussion.
General Studies: HU, C

M REL 330 Native American Religious Traditions. (3)
once a year
Presents world views and religious thought through the art, architecture, literature, music, mythology, ritual, and folklore of representative tribes in North America.
General Studies: HU, C

M REL 331 History of Native American Religious Traditions. (3)
once a year
Role of religion in Native American history, including missionization; religious adaptation; and prophetic, messianic, and religious revitalization movements.
General Studies: L/HU, C, H

M REL 332 South American Indian Religions. (3)
selected semesters
Introduces the sacred stories, ceremonies, and beliefs of Native South American peoples in their historical contexts.
General Studies: HU, G

M REL 343 Taoism. (3)
fall
Introduces the history, doctrines, and practices of Taoism from the mid-second century CE up to the present. Lecture, discussion.
General Studies: L/HU, G, H

M REL 344 Religion and Values in Japanese Life. (3)
once a year
Japanese values expressed in the life and annual cycles of the family, local and national identities, and popular culture. Lecture, discussion.
General Studies: HU, G

M REL 345 Asian Religious Traditions. (3)
once a year
Introduces the major concepts of religious beliefs, rituals, and practices in Hinduism and Buddhism. Lecture, discussion.
General Studies: HU, G

M REL 346 Chinese Religions. (3)
selected semesters
Examines the history and practices of Chinese religions with particular attention to culture, society, and history.

M REL 350 Hinduism. (3)
once a year
Studies diverse forms of Hinduism through its institutions, literature, folklore, art, and architecture.
General Studies: L/HU, G

M REL 351 Buddhism. (3)
once a year
Doctrines, practices, and institutions of the Buddhist religion, emphasizing its role in the history and culture of Asian societies.
General Studies: L/HU, G

M REL 352 Modern Buddhism. (3)
fall
Examines diverse modernities with regard to Buddhist institutions, practices, colonialism and cultural transformations in Asia and the West. Lecture, discussion. Prerequisite: REL 100 or 345 or 351.

M REL 355 Japanese Cities and Cultures to 1800. (3)
once a year
Relations among ideas and literary, visual, and performing arts of the ancient aristocracy, medieval samurai, and early modern townspeople. Cross-listed as HUM 310. Credit is allowed for only HUM 310 or REL 355.
General Studies: L/HU, H

M REL 365 Islamic Civilization. (3)
fall
Global historical survey of Islamic cultures and societies up to the modern period. Lecture, discussion.
General Studies: HU, H

M REL 366 Islam in the Modern World. (3)
spring
Examines the worldwide transformations of Islamic religion, cultures, and societies in the modern period. Lecture, discussion.
General Studies: HU, G, H

M REL 369 Women in Islam. (3)
fall
Examines the roles women have played through Islamic history (Middle East) and the changing discourse on gender identity. Lecture, seminar.

M REL 371 New Testament. (3)
once a year
Origins and literature of early Christian communities; historical investigations of the types of oral and written tradition in the New Testament.
General Studies: HU

M REL 372 Formation of the Christian Tradition. (3)
once a year
Origins, development, and expansion of Christianity; major themes and tensions from the New Testament world to the beginning of the Middle Ages.
General Studies: HU, H

M REL 373 Women in Judaism. (3)
spring
Studies the legal, social, and cultural status of Jewish women in various historical and contemporary societies. Cross-listed as WST 372. Credit is allowed for only REL 373 or WST 372.

M REL 374 Witchcraft and Heresy in Europe. (3)
selected semesters
Background, origins, and development of the Inquisition; persecution of women and marginal groups. Cross-listed as HST 361. Credit is allowed for only HST 361 or REL 374. Prerequisite: upper-division standing or instructor approval.
General Studies: L/HU, H

M REL 377 Religion in Russia. (3)
selected semesters
Examines the history of the various religious traditions of Russia and the former USSR from an interdisciplinary perspective.
General Studies: HU, H

M REL 378 Religion, Violence, and Conflict Resolution. (3)
selected semesters
Presents ambiguous role of religion in conflict; how it can foment violence or serve as a moral guide for principled peace. Discussion, case studies, field trips.

M REL 379 Religion, Nationalism, and Ethnic Conflict. (3)
selected semesters
Examines the role of religion in national and ethnic conflict in the contemporary world.
General Studies: HU, G

M REL 381 Religion and Moral Issues. (3)
once a year
Manner in which human religiousness relates to social concerns, e.g., sexuality, the environment, bioethical issues, and violence.
General Studies: L/HU

M REL 382 Religion, Magic, and Science. (3)
once a year
Relationship and conflict between religion, magic, and science in the West from antiquity to the present. Lecture, discussion.
General Studies: L/HU

M REL 383 Origins, Evolution, and Creation. (3)
selected semesters
Examines scientific, mythic, and religious ideas relating to origins (particularly human). Place of antievolutionism and "scientific creationism" in American culture. Lecture, discussion. Cross-listed as BIO 344/HPS 311/HUM 371. Credit is allowed for only BIO 344 or HPS 311 or HUM 371 or REL 383.

M REL 384 The Bible and Archaeological Discoveries. (3)
spring
Studies the Bible alongside the stories that architecture, pottery, metalwork, sculpture, tombs, and paintings of the ancient Near East have to tell. May be repeated for credit.

M REL 385 Contemporary Western Religious Thought. (3)
selected semesters
Introduces contemporary Jewish and Christian thought. Topics include religion and politics, problem of evil, interpretations of God, and feminist theology.
General Studies: HU

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M REL 386 America and the Holocaust. (3)
fall
Analyzes the historical and sociopolitical factors that shaped U.S. policy decisions regarding Germany's assault on Europe's Jews.
General Studies: HU/SB

M REL 390 Women and Religion. (3)
fall and spring
Role of women in several organized religions and/or religious sects, including a study of myth and symbols as they are used to establish, maintain, and enforce sex roles within specific religions.
General Studies: HU, G

M REL 394 Special Topics. (1–4)
selected semesters

M REL 400 Approaches to Religion. (3)
fall
Examines the intellectual history of academic study of religion through various theoretical approaches, major themes, and thinkers. Seminar. Prerequisite: REL 305.

M REL 405 Problems in Religious Studies. (3)
fall and spring
Selected topics in religious studies; involves students in research interests of instructor. May be repeated for credit when topics vary. Seminar. Prerequisite: at least 9 semester hours of REL courses or instructor approval.

M REL 410 Judaism in Modern Times. (3)
selected semesters
Variety of expressions of Judaism and Jewishness in the modern period. Topics may include American Judaism or religious responses to the Holocaust.
General Studies: HU, H

M REL 420 Religion in American Life and Thought. (3)
selected semesters
Influence of religion on American society, culture, and ideas; the distinctive character of religion in America. Prerequisite: REL 320 or 321 (or its equivalent).
General Studies: HU

M REL 427 American Religious Thought. (3)
selected semesters
Thought of representative American religious thinkers, e.g., Jonathon Edwards, William Ellery Channing, Horace Bushnell, and Reinhold Niebuhr. Prerequisite: REL 320 or 321 (or its equivalent).
General Studies: HU, H

M REL 444 Religion in Japan. (3)
once a year
Religion in Japanese history, especially the development of Japanese Buddhism, and religion in the modern transformation of Japan. Prerequisite: instructor approval.
General Studies: HU, G, H

M REL 460 Studies in Islamic Religion. (3)
selected semesters
Issues in the interpretation and understanding of Islamic texts, history, society, culture, and rituals. May be repeated for credit when topics vary. Prerequisites: both REL 365 and Religious Studies major or only instructor approval.
General Studies: HU, G

M REL 470 Religion in the Middle Ages. (3)
selected semesters
Religious aspects of medieval life and thought; variety of forms of dissent, heresy, and reform movements from the 4th to 13th centuries.
General Studies: HU, H

M REL 471 Reformation and Modern Christianity. (3)
selected semesters
Protestant Reformation to contemporary Christian movements; includes factors in the dissolution of the Medieval Christian synthesis, variety of reform movements and reformation patterns, Catholic counter-reform measures, formation of liberal theology, ecumenical movement, and the World Council of Churches.
General Studies: HU, H

M REL 480 Religion and Global Politics. (3)
once a year
Explores the nature and role of religion in international politics in the modern period. Lecture, discussion.
General Studies: G

M REL 483 Religion and Science. (3)
spring
Investigates the correlation between science and religion as an interdisciplinary study from a historical perspective. Readings, film, lecture, discussion. Prerequisite: junior standing or instructor approval.

M REL 494 Special Topics in Religious Studies. (3)
fall and spring
Open to all students. Topics may be selected from various areas. Prerequisite for freshmen: instructor approval.

M REL 498 Pro-Seminar in Religious Studies. (3)
selected semesters
For students with a major or minor emphasis in Religious Studies.

M REL 499 Individualized Instruction. (1–3)
fall and spring

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Sociology

www.asu.edu/clas/sociology
480/965-3546
COOR 5681

Jennie Jacobs Kronenfeld, Chair

Professors: Cobas, Kronenfeld, Kulis, Weitz

Associate Professors: Agadjanian, Benin, Glick, Keith, Menjívar, Miller-Loessi, Sullivan

Assistant Professor: Yabiku

Senior Lecturer: Fine

Lecturers: Fey, Lewin

SOCIOLOGY—BA

The BA degree in Sociology requires a minimum of 30 semester hours of Sociology course work and 15 hours in closely related fields. Of the 30 required hours, a minimum of 18 hours must be upper-division with at least 12 of the 18 upper-division hours taken in residence at the Tempe campus. All upper-division courses in the major must be completed with a grade of "C" (2.00) or higher. The following courses are required:

SOC	101	Introductory Sociology *SB*	3
		or SOC 301 Principles of Sociology *SB* (3)	
SOC	390	Social Statistics I *CS*	3
SOC	391	Sociological Research *SB*	3
SOC	483	History of Social Thought *SB*	3
		or SOC 486 Contemporary Theory *SB* (3)	
Total			12

Sociology majors may complete the remaining 18 required hours through selecting one of two options. For a general sociology degree, students must choose six courses that sample at least three of the following seven sociology content areas:

1. family;
2. intergroup relations and social psychology;
3. political/comparative-historical;
4. social problems and processes;
5. stratification/occupations/organization;
6. urban sociology/demography; or
7. race and ethnicity.

If majors desire a more focused preparation in a specialized area, they may complete the remaining 18 hours in one of five focus areas: family issues, urban issues, diversity issues, work/organizational issues, and health issues. Students choosing this option must complete one required focus area course. Other requirements include four courses from a list of optional courses within that focus area and one additional sociology course. Internships (SOC 484) are available within the focus area option for those who qualify.

Information concerning the two options for fulfilling major requirements is available in the Department of Sociology office in COOR 5681, and on the Internet at www.asu.edu/clas/sociology/undergraduate/undergraduate.html.

MINOR IN SOCIOLOGY

The minor in Sociology requires 18 hours, of which 12 hours must be upper-division courses, with at least six upper-division hours completed at the Tempe campus. The required courses are as follows:

SOC	101	Introductory Sociology *SB*	3
		or SOC 301 Principles of Sociology *SB* (3)	
SOC	391	Sociological Research *SB*	3
		or SOC 483 History of Social Thought *SB* (3)	
		or SOC 486 Contemporary Theory *SB* (3)	
Total			6

The remaining four courses consist of sociology electives.

BIS CONCENTRATION

A concentration in sociology is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

GRADUATE PROGRAMS

The faculty in the Department of Sociology offer programs leading to the MA and PhD degrees. See the *Graduate Catalog* for requirements.

SOCIOLOGY (SOC)

For more SOC courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M SOC 101 Introductory Sociology. (3)
fall, spring, summer
Fundamentals of sociology, organization of human groups and society, processes of interaction, and social change. Credit is allowed for only SOC 101 or 301.
General Studies: SB

M SOC 220 Sport and Society. (3)
fall and spring
Examines sports in American society as a source of socialization and an institution where gender, race/ethnicity, and class interact. Prerequisite: SOC 101.
General Studies: SB

M SOC 270 Racial and Ethnic Relations. (3)
fall, spring, summer
Problems of minorities in heterogeneous societies. Evaluates theories of prejudice and research dealing with discrimination, desegregation, and assimilation. Lecture, discussion. Prerequisite: SOC 101 or 301 or instructor approval.
General Studies: SB, C

M SOC 301 Principles of Sociology. (3)
fall, spring, summer
Intensive and critical analysis of the concepts of sociology. Credit is allowed for only SOC 301 or 101.
General Studies: SB

M SOC 312 Sociology of Adolescence. (3)
fall, spring, summer
Cultural values and the social processes that help explain the development of the phenomenon of modern adolescence, including investigation of adolescent subcultures and cross-cultural references. Prerequisite: SOC 101 or 301 or instructor approval.
General Studies: SB

M SOC 315 Courtship and Marriage. (3)
fall, spring, summer
Overview of courtship, marriage, and related processes, focusing on problematic aspects of these institutions from the sociological perspective. Prerequisite: SOC 101 or 301 or instructor approval.
General Studies: SB

M SOC 321 Sociology of Work. (3)
fall and spring
Social and cultural analysis of industry. Occupational roles, status, and social participation of workers. Prerequisite: SOC 101 or 301 or instructor approval.
General Studies: SB

M SOC 331 Environmental Sociology. (3)
fall and spring
Analyzes human organizational responses to population growth, technological change, and environmental stressors on both a national and global scale. Prerequisite: SOC 101 or 301 or instructor approval.
General Studies: SB, G

M SOC 332 Urban Sociology. (3)
selected semesters
Growth, characteristics, and problems of the modern city. Prerequisite: SOC 101 or 301.
General Studies: SB, G

M SOC 333 Population. (3)
fall and spring
Global trends in population growth, composition, and distribution; theories, policies, and impact of population trends on environmental quality and development. Prerequisite: SOC 101 or 301.
General Studies: SB, G

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M SOC 334 Technology and Society. (3)
selected semesters
Development of technology in relation to society, work, science, the environment, public health, and cultural values related to social change. Lecture, discussion. Prerequisite: SOC 101 or 301 or instructor approval.
General Studies: SB

M SOC 340 The Sociology of Deviance. (3)
fall, spring, summer
Sociological analysis of stigmatized behaviors and conditions, including the causes, effects, and management of stigma. Prerequisite: SOC 101 or 301 or instructor approval.
General Studies: SB

M SOC 341 Modern Social Problems. (3)
fall, spring, summer
Selected issues such as education, poverty, race relations, crime, drugs, and international issues such as population, environment, global inequality, conflict. Prerequisite: SOC 101 or 301.
General Studies: SB

M SOC 352 Social Change. (3)
selected semesters
Patterns of social change, resistance to change, and change-producing agencies and processes. Prerequisite: SOC 101 or 301.
General Studies: SB, G, H

M SOC 360 Sociological Psychology. (3)
fall and spring
Interaction patterns between the sociocultural order and individuals; socialization process; norms, roles, and statuses; collective behavior. Prerequisite: SOC 101 or 301.
General Studies: SB

M SOC 363 Men and Masculinity. (3)
selected semesters
Sociological analysis of how masculine identity is defined, negotiated, and variously constructed depending upon class, ethnicity, age, and sexual orientation. Prerequisites: SOC 101 (or 301); WST 100 (or 300).
General Studies: SB

M SOC 365 Sociology of Mass Communication. (3)
fall and spring
Sociological exploration of the major mass media as a communicative process in American society. Prerequisite: SOC 101 or 301 or instructor approval.
General Studies: SB

M SOC 375 Contemporary American Jewish Identities. (3)
spring
Analyzes the complexity and diversity of the contemporary American Jewish community in religious and secular affairs. Lecture, discussion. Cross-listed as REL 318. Credit is allowed for only REL 318 or SOC 375.
General Studies: HU/SB, C

M SOC 390 Social Statistics I. (3)
fall, spring, summer
Descriptive and inferential statistical methods for analysis of social data. Computer applications. Prerequisites: SOC 101 (or 301); a General Studies MA course.
General Studies: CS

M SOC 391 Sociological Research. (3)
fall, spring, summer
Methods of sociological research, including the fundamental assumptions underlying research and some practical experience in research design, data collection techniques, and data analysis. Prerequisites: both SOC 101 (or 301) and 390 or only instructor approval.
General Studies: SB

M SOC 415 The Family. (3)
fall and spring
Family considered from the institutional viewpoint; its historical development and its adaptation to a changing culture; the family system in many cultures. Prerequisite: SOC 101 or 301 or instructor approval.
General Studies: SB

M SOC 416 Marriage Problems in Contemporary Society. (3)
spring
Marital and family problems in today's society from the viewpoint of personal and cultural adjustment. Prerequisites: both SOC 101 (or 301) and an additional 3 hours in sociology or only instructor approval.
General Studies: L/SB

M SOC 417 Family Violence. (3)
selected semesters
Current research and theories about domestic violence, including child maltreatment, spousal aggression, and courtship violence. Prerequisite: SOC 101 or 301 or instructor approval.
General Studies: SB

M SOC 418 Aging and the Life Course. (3)
fall and spring
Social aspects of aging. Theoretical and methodological perspectives and problems of aging such as life satisfaction, retirement, and adjustment to role loss. Prerequisite: SOC 101 or 301 or instructor approval.
General Studies: SB

M SOC 420 Sociology of Religion. (3)
selected semesters
Interrelationship of culture, society, and religion; religion and social stratification; religious, economic, and political institutions; social change and religion. Emphasizes American society and institutions. Prerequisite: SOC 101 or 301 or instructor approval.
General Studies: L/SB

M SOC 421 Education and Society. (3)
fall
Uses contemporary sociological perspectives to examine effects of schools and schooling on individuals and society. Prerequisite: SOC 101 or 301 or instructor approval.
General Studies: SB

M SOC 423 Social Class and Stratification. (3)
spring
Classical and contemporary theories about who gets what and why. Examines social and economic inequalities by class, gender, and race/ethnicity. Lecture, discussion. Prerequisites: both SOC 101 (or 301) and an additional 3 hours in sociology or only instructor approval.
General Studies: L/SB

M SOC 424 Women and Health. (3)
selected semesters
Women as health care workers and issues of health, illness, and health care for women. Prerequisite: SOC 101 or 301 or instructor approval.
General Studies: SB

M SOC 427 Sociology of Health and Illness. (3)
fall and spring
Social aspects of illness and sociological analysis of the health care system and its practitioners. Prerequisite: SOC 101 or 301 or instructor approval.
General Studies: L/SB

M SOC 429 Sociology of Law. (3)
selected semesters
Examines law as an institution; its origins, operations, and consequences. Emphasizes contemporary legal issues and problems. Prerequisite: SOC 101 or 301.
General Studies: SB

M SOC 433 Applied Demography. (3)
spring
Science of population analysis. Covers techniques for measuring fertility, mortality, migration, and population composition. Lecture, projects. Prerequisite: SOC 101 or 301 or instructor approval.
General Studies: SB

M SOC 446 Sociology of Crime. (3)
fall and spring
Process of criminalization, exploring the behavior of the definers of crime, and the behavior of those defined as criminals. Prerequisites: both SOC 101 (or 301) and 340 or only instructor approval.
General Studies: SB

ASU Foundation Building

Tim Trumble photo

M SOC 448 Epidemics and Society. (3)
fall
How epidemics occur; how they are perceived in society; how epidemics affect society. Prerequisite: SOC 101 or 301 or instructor approval.
General Studies: SB, G

M SOC 451 Comparative Sociology. (3)
selected semesters
Cross-cultural study of basic social institutions; the methodology of cross-cultural research. Prerequisite: ASB 102 or SOC 101 (or 301) or instructor approval.
General Studies: SB, G

M SOC 464 Sociology of Women. (3)
spring
Sociological analysis of the development, nature, and consequences of women's position in contemporary society. Lecture, discussion. Prerequisite: SOC 101 or 301 or instructor approval.
General Studies: L/SB, C

M SOC 474 African Americans in Modern Society. (3)
selected semesters
Social and cultural heritage of black Americans; achievements and current trends. Lecture, discussion. Prerequisite: SOC 101 or 301 or instructor approval.
General Studies: SB, C

M SOC 483 History of Social Thought. (3)
fall, spring, summer
Social thought in human culture. Background of modern sociology. Prerequisite: SOC 101 or 301.
General Studies: SB

M SOC 484 Internship. (1–12)
fall and spring
See Department of Sociology advisor. Topics may include the following:
- Service Learning

Fee.

M SOC 486 Contemporary Theory. (3)
selected semesters
Contemporary issues and crises in social theory with major focus on particular theorists. Ideological factors in theory, philosophical issues, the nature of theory and its relationship with methodology. Prerequisite: SOC 101 or 301 or instructor approval.
General Studies: SB

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Department of Speech and Hearing Science

www.asu.edu/clas/shs
480/965-2374
COOR 2211

Sid P. Bacon, Chair

Professors: S. Bacon, Dorman, D. Ingram, Wilcox

Associate Professors: Azuma, Liss, Restrepo

Assistant Professors: Bian, Gray, Pittman, Wright

Clinical Professors: Mathy, Wiley

Clinical Associate Professors: C. Bacon, Brown, Maxwell, McBride, Mehta

Clinical Assistant Professors: K. Ingram, Wexler, Woods

Senior Lecturer: Forestal

Lecturers: Ammons, Francini, Howard, O'Brien, Quinn

SPEECH AND HEARING SCIENCE—BS

The BS degree in Speech and Hearing Science consists of 40 semester hours of speech and hearing science courses emphasizing the developmental and scientific aspects of language, speech, and hearing. The following courses, or their approved equivalents, are required:

SHS 250 Introduction to Phonetics 3
SHS 310 Anatomical and Physiological Bases of Speech 3
SHS 311 Physical and Physiological Bases of Hearing 3
SHS 367 Language Science *SB* 3
SHS 375 Speech Science 3
SHS 376 Psychoacoustics 3
SHS 401 Introduction to Audiology 3
SHS 402 Modifying Communicative Behavior 3
Choose two from the courses below 6
  SHS 431 Developmental Speech Disorders (3)
  SHS 470 Developmental Language Disorders (3)
  SHS 485 Acquired Speech and Language Disorders (3)
SHS 450 Observation 1
SHS 465 Speech and Language Acquisition *SB* 3
SHS 496 Aural Rehabilitation 3
Total 37

The remaining speech and hearing science courses to complete the major are determined by the students in consultation with an advisor. A list of approved electives is available through the department. Supporting courses from related fields must include the following or their equivalents:

BIO 201 Human Anatomy and Physiology I *SG* 4
MAT 170 Precalculus *MA* 3
PGS 101 Introduction to Psychology *SB* 3
PHY 101 Introduction to Physics *SQ* 4
PSY 230 Introduction to Statistics *CS* 3

PSY 290 Research Methods is strongly recommended.

MINOR IN SPEECH AND HEARING SCIENCE

The minor in Speech and Hearing Science consists of 24 semester hours with the following classes required:

SHS 105 Introduction to Human Communication Disorders 3
SHS 250 Introduction to Phonetics 3
SHS 310 Anatomical and Physiological Bases of Speech 3
SHS 311 Physical and Physiological Bases of Hearing 3
Choose one from the courses below 3
  SHS 367 Language Science *SB* (3)
  SHS 375 Speech Science (3)
  SHS 376 Psychoacoustics (3)

The remainder of the 24 credits must come from the following courses:

SHS 320 Facilitating Speech and Language Development in Early Childhood 3
SHS 401 Introduction to Audiology 3
SHS 402 Modifying Communicative Behavior 3
SHS 431 Developmental Speech Disorders 3
SHS 465 Speech and Language Acquisition *SB* 3
SHS 470 Developmental Language Disorders 3
SHS 485 Acquired Speech and Language Disorders 3
SHS 496 Aural Rehabilitation 3

BIS CONCENTRATION

A concentration in speech and hearing science is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

GRADUATE PROGRAMS

The faculty in the Department of Speech and Hearing Science offer programs leading to the MS degree in Communication Disorders, the AuD degree in Audiology, and the PhD degree in Speech and Hearing Science. See the *Graduate Catalog* for requirements.

SPEECH AND HEARING SCIENCE (SHS)

M SHS 101 American Sign Language I. (4)
fall and spring
Basic receptive/expressive conversational skills; basic grammar and syntax rules. Orientation to deafness and deaf culture. Lecture, drill, practice, lab.

M SHS 102 American Sign Language II. (4)
fall and spring
Further development of receptive/expressive conversation skills in ASL; finger spelling. Continued exploration of deaf culture. Lecture, drill, practice, lab. Prerequisite: SHS 101.

M SHS 105 Introduction to Human Communication Disorders. (3)
fall and spring
Introduces hearing, language, and speech problems in children and adults. Lecture, demonstration.

M SHS 201 American Sign Language III. (4)
fall and spring
Continued development of fluency in ASL with emphasis on more abstract concepts and the ability to narrate events. Lecture, discussion, drill, lab. Prerequisite with a grade of "C" (2.00) or higher: SHS 102.

M SHS 202 American Sign Language IV. (4)
fall and spring
Further development of fluency in ASL with emphasis on literature, folklore, and signing narratives with multiple characters. Lecture, discussion, drill, lab. Prerequisite with a grade of "C" (2.00) or higher: SHS 201.

M SHS 250 Introduction to Phonetics. (3)
fall
Introduces English phonetics with emphasis on phonetic transcription, articulation, phonology, and disorders of speech.

M SHS 310 Anatomical and Physiological Bases of Speech. (3)
fall
Noncadaveric study of anatomical systems that underlie human speech and language, including respiration, phonation, articulation, and related nervous system processes. Prerequisite: BIO 201.

M SHS 311 Physical and Physiological Bases of Hearing. (3)
fall
Studies the physical characteristics of sound and of the structure and function of the human auditory system. Prerequisites: BIO 201; PHY 101.

M SHS 320 Facilitating Speech and Language Development in Early Childhood. (3)
fall and spring
Speech and language development and strategies for facilitating communication skills in early childhood educational settings.

M SHS 350 Brain Memory and Language. (3)
fall
Covers memory and language and their associated brain areas, and the resulting behavioral consequences of injury and disease. Lecture, discussion, case studies, demonstrations. Prerequisite: PGS 101 or SHS 105.

M SHS 367 Language Science. (3)
fall
Normative aspects and integration of language structure, comprehension, and production in children and adults.
General Studies: SB

M SHS 375 Speech Science. (3)
spring
Normative aspects of speech, hearing, and language. Prerequisites: SHS 310, 311.

M SHS 376 Psychoacoustics. (3)
spring
Introduces acoustics, cochlear anatomy and physiology, and the perception of sound. Prerequisite: SHS 311 or instructor approval.

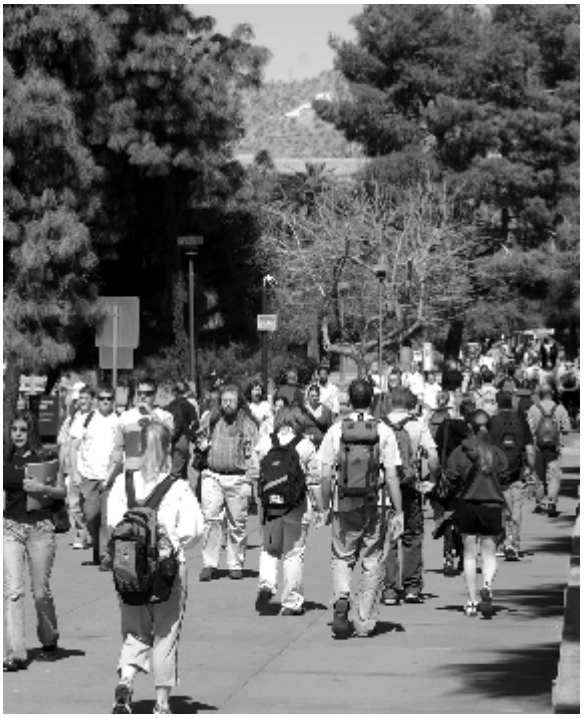
M SHS 394 Special Topics. (1–4)
selected semesters

M SHS 401 Introduction to Audiology. (3)
fall
Introduces hearing disorders and the purposes and procedures for basic clinical tests of auditory function. Credit is allowed for only SHS 401 or 501. Prerequisites: both SHS 311 and 376 or only instructor approval.

M SHS 402 Modifying Communicative Behavior. (3)
fall
Principles and techniques of modifying speech and language behavior. Prerequisite: SHS 250 (or its equivalent).

M SHS 431 Developmental Speech Disorders. (3)
fall
Introduces the nature of articulation, fluency, resonance, and voice disorders in childhood. Prerequisites: SHS 250 and 310 (or their equivalents).

M SHS 450 Observation. (1)
fall and spring
Opportunity to obtain observation experience at the ASU Speech and Hearing Center or at external sites. Prerequisite: instructor approval.



A view of Cady Mall with "A Mountain" in the background

Tim Trumble photo

M SHS 465 Speech and Language Acquisition. (3)
spring
Speech and language development in the normal child. Prerequisite: SHS 367 (or its equivalent).
General Studies: SB

M SHS 470 Developmental Language Disorders. (3)
fall
Introduces the nature and treatment of language disorders in children. Prerequisite: SHS 465 or instructor approval.

M SHS 485 Acquired Speech and Language Disorders. (3)
spring
Introduces acquired speech and language disorders across the lifespan. Prerequisites: SHS 250, 310.

M SHS 494 Special Topics. (1–4)
fall and spring
May be repeated for credit. Topics may include the following:
- Hearing Disorders. (3)
- Research. (3)
- Speech and Language Disorders. (3)

Prerequisite: instructor approval.

M SHS 496 Aural Rehabilitation. (3)
spring
Approaches to aural rehabilitation of children and adults. Introduces educational audiology and assistive listening devices. Prerequisites: SHS 375 and 376 and 401 (or their equivalents).

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Women and Gender Studies Program

www.asu.edu/clas/womens_studies
480/965-2358
ECA 209

Mary Margaret Fonow, Director

CORE FACULTY

Professors: Fonow, Koblitz, Rothschild, Weitz

Associate Professors: Anderson, Cruz-Torres, Leong, Scheiner Gillis

Assistant Professors: Durfee, Fisher, Katsulis

Lecturer: McGibbney Vlahoulis

AFFILIATED FACULTY

African and African American Studies
Professor: Reyes
Assistant Professor: Robillard

American Indian Studies
Assistant Professor: Vicenti Carpio

Architecture and Landscape Architecture
Associate Professor: Fish Ewan

Art
Professors: Codell, Fahlman, Magenta, Schleif, Wolfthal
Assistant Professor: Mesch

Chicana and Chicano Studies
Regents' Professor: Candelaria
Associate Professor: Magaña
Assistant Professors: Danielson, Szkupinski-Quiroga

Community Resources and Development
Professor: Allison

Curriculum and Instruction
Professors: Cannella, Edelsky, Guzzetti

Educational Leadership and Policy Studies
Professor: Turner
Faculty Associate: Ewing

English
Professors: Adams, Crowley, Hogue, Horan, Lester, Nilsen, Pritchard, Rhodes
Associate Professor: Tohe
Assistant Professors: Fox, Parchesky, Sadowski-Smith, Thompson
Senior Lecturers: Heenan, Norton
Service Professional: McNeil

Exercise and Wellness (Polytechnic campus)
Associate Professor: Swan

Family and Human Development
Professor: Martin

History
Professors: Fuchs, Green, Lavrin, Warnicke
Associate Professors: Gray, Gullett, Stoner

Human Communication
Professors: Carlson, Nakayama
Associate Professors: Davis, De la Garza, Martinez
Assistant Professor: Park-Fuller

Human Evolution and Social Change
Professor: Brandt

Interdisciplinary Studies
Senior Lecturer: Nelson
Lecturer: Lattouf

Justice and Social Inquiry
Lincoln Professor: Walker
Professors: Jurik, Provine, Romero, Zatz
Associate Professors: Adelman, Menjívar

Kinesiology
Professor Emerita: Wells

Languages and Literatures
Regents' Professor: Foster
Professors: Losse, Sanchez, Williams
Associate Professors: Choi, Orlich, Tompkins
Assistant Professors: Ali, Duncan, George, Gruzinska

Mathematics and Statistics
Professor: Barcelo
Research Professor: Greenwood

Music
Professor: Williamson
Associate Professor: Norton
Assistant Professor: Sullivan

Philosophy
Associate Professor: McGregor

Psychology
Regents' Professors: Eisenberg, Russo
Professor: Chassin
Associate Professor: Saenz

Psychology in Education
Professors: Arredondo, Bernstein, Hackett, Moore

Religious Studies
Professor: Feldhaus
Associate Professor: Fessenden

Social and Behavioral Sciences (West campus)
Professor: Mueller
Associate Professor: Vaughan
Assistant Professor: Guevarra

Social Work
Professor: Segal
Associate Professors: Brzuzy, Gerdes, Stromwall
Assistant Professor: Larson

Sociology
Professors: Kronenfeld, Kulis
Associate Professors: Agadjanian, Benin, Miller-Loessi, Sullivan

Theatre and Film
Professors: Honegger, Knapp
Assistant Professor: Woodson

Women's Studies (West campus)
Professor: Stage

The Women and Gender Studies Program is an interdisciplinary university program housed in the College of Liberal Arts and Sciences. Information on faculty affiliation is provided for reference.

WOMEN AND GENDER STUDIES—BA

Women and Gender Studies provides students with an intensive interdisciplinary liberal arts education that enables them to write well, think critically, and analyze problems effectively. Students take a variety of courses, including a capstone seminar requiring original research and writing, and an internship that helps them prepare for life after college. Original undergraduate research is encouraged, and some courses involve students in studying community problems and formulating policy solutions.

The BA degree in Women and Gender Studies consists of 45 semester hours (with a grade of "C" [2.00] or higher), of which 30 must be taken from WST or WSH prefixes or from other prefixes designated as part of the major. The other 15 must be in closely related fields chosen in consultation with an academic advisor. At least 36 of the 45 hours required for the major must be completed in upper-division courses.

Required Courses. Students must complete these courses:

WST	100	Women and Society *SB, C* ....3 or WST 300 Women in Contemporary Society *SB, C* (3)
WST	377	History of American Feminist Thought *L, C* 3
WST	378	Global Feminist Theory *L, C* 3
WST	380	Gender, Race, and Class *L/SB, C* 3
WST	484	Internship 3
WST	498	PS: Theoretical Issues in Women's Studies 3
Total		18

Electives. Students majoring in Women and Gender Studies must complete four courses (12 semester hours) chosen from the WST or WSH course list.

Related Fields. Students majoring in Women and Gender Studies must complete five courses (15 semester hours) in closely related fields from the WST or WSH course list, cross-listed or interdisciplinary courses, or other courses selected in consultation with a academic advisor.

Students must complete one course chosen from the electives or related fields on nonwestern women. A second course chosen from these same areas must also be completed on either nonwestern, racial or sexual minority women in the U.S. For more information, see an academic advisor.

MINOR IN WOMEN AND GENDER STUDIES

The Women and Gender Studies minor consists of 18 semester hours, 12 of which must be in the upper division. The following courses are required:

WST	100	Women and Society *SB, C* ....3 or WST 300 Women in Contemporary Society *SB, C* (3)
WST	377	History of American Feminist Thought *L, C* ....3 or WST 378 Global Feminist Theory *L, C* (3)
Total		6

Twelve additional hours of approved women and gender studies courses must be taken after consultation with the Women and Gender Studies advisor.

Students pursuing a minor must register at least one semester before graduation and are encouraged to meet with the Women and Gender Studies academic advisor early in their course of studies.

CERTIFICATE PROGRAM IN WOMEN AND GENDER STUDIES

The certificate program is equivalent to an interdisciplinary minor, consisting of 18 semester hours, and is open to graduate as well as undergraduate students. Students pursuing a certificate must consult with the Women and Gender Studies advisor. See "Women and Gender Studies," page 514, for a description of the certificate program.

BIS CONCENTRATION

A concentration in women and gender studies is available under the Bachelor of Interdisciplinary Studies degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

GRADUATE STUDIES

The Women and Gender Studies Program plans to offer a graduate degree program within the next two years. In the interim, it is possible to pursue a graduate degree in some existing programs with a thesis or dissertation topic related to women's studies. For more information, contact a Women and Gender Studies academic advisor.

WOMEN'S STUDIES HUMANITIES (WSH)

M WSH 330 Women, Film, and Culture. (3)
fall
Explores how narrative films portray women, romantic relationships, and the possibilities for social change in gender relationships. Prerequisite: WST 100 or 300.

M WSH 413 Lesbian, Gay, and Gender Studies. (3)
spring
Explores lesbian, gay, bisexual, transgender, and queer experiences in the U.S. and globally, from sociological, psychological, historical, and literary perspectives. Lecture, discussion. Prerequisite: WST 100 or 300 or instructor approval.
General Studies: HU, C

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

M WSH 421 Girlhood and Adolescence. (3)
spring
Examines the changing construction of girlhood and female adolescence through history, memoir, fiction, myth, music, and media. Lecture, discussion.

M WSH 464 Voices and Visions. (3)
fall and spring
Explores the contributions of visionary women in the humanities; topics vary from semester to semester. May be repeated for credit when topics vary. Lecture, discussion. Prerequisite: WST 100 or 300 or instructor approval.
General Studies: HU, C

M WSH 470 Women and Popular Culture. (3)
spring
Interdisciplinary examination of how gender is constructed in popular cultural forms. Lecture, discussion. Prerequisite: WST 100 or 300 or instructor approval.
General Studies: HU, C

M WSH 494 Special Topics. (1–4)
fall and spring
Topics include a wide variety of interdisciplinary courses. Check department for current semester offerings.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

WOMEN'S STUDIES (WST)

For more WST courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M WST 100 Women and Society. (3)
fall, spring, summer
Interdisciplinary introduction examining critical issues in women's studies. Credit is allowed for only WST 100 or 300.
General Studies: SB, C

M WST 191 First-Year Seminar. (1–3)
selected semesters
Restricted to freshmen. Pass/fail. Topics may include the following:
- All About Feminism. (1)

M WST 294 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Women and Social Action
  Fee.

M WST 300 Women in Contemporary Society. (3)
fall, spring, summer
Intensive interdisciplinary examination of such topics as gender roles, work, education, sexuality, politics, health, and law. Credit is allowed for only WST 300 or 100.
General Studies: SB, C

M WST 313 Women and Sexuality. (3)
fall and spring
Explores feminist theories about women's sexuality and the relationship of these theories and related research to women's experience. Lecture, discussion. Prerequisite: WST 100 or 300 or instructor approval.
General Studies: SB

M WST 360 Women as Healers. (3)
spring
Examines the role of women as caregivers, healers, physicians, midwives, and nurses in different cultures and historical periods. Lecture, discussion.
General Studies: SB, G

M WST 372 Women in Judaism. (3)
spring
Studies the legal, social, and cultural status of Jewish women in various historical and contemporary societies. Cross-listed as REL 373. Credit is allowed only for REL 373 or WST 372.

M WST 373 Latina/Chicana Issues. (3)
selected semesters
Examines the roles Mexican American, Chicana, and/or Latina immigrant women play historically, socially, and politically in the United States. Prerequisite: WST 100 or 300 or instructor approval.
General Studies: SB, C

M WST 375 Women and Social Change. (3)
spring
Combines research and theory on a contemporary social problem with a community action experience focusing on women's social change initiatives. Lecture, field placement. Prerequisite: WST 100 or 300 or instructor approval.
General Studies: SB, C

M WST 377 History of American Feminist Thought. (3)
fall
Explores the development of American feminist theory from its roots to 1975. Lecture, discussion. Prerequisite: WST 100 or 300 or instructor approval.
General Studies: L, C

M WST 378 Global Feminist Theory. (3)
spring
Global feminist theories and exploration of the intersections of gender, race, ethnicity, class, and nation through critical analysis. Prerequisite: WST 100 or 300.
General Studies: L, C, G

M WST 380 Gender, Race, and Class. (3)
fall and spring
Explores cultural diversity, class, and gender issues in American social life. Lecture, seminar, analysis papers, and writing. Prerequisite: WST 100 or 300 or instructor approval.
General Studies: L/SB, C

M WST 394 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Feminist Voices of Color
- Gender and Performance
- Girlhood and Adolescence
- Women and Religion
- Women Warriors

M WST 457 Gender, Culture, and Development. (3)
fall or spring
Economic, cultural, and sociopolitical contexts for understanding women's roles related to health, family, work, education, and politics in developing countries. Prerequisite: 6 hours in social science or instructor approval.
General Studies: L/SB, G

M WST 460 Women and the Body. (3)
fall or spring
Interdisciplinary look at how representations of woman as body permeate culture and affect a woman's sense of self. Lecture, discussion. Prerequisite: WST 100 or 300 or instructor approval.
General Studies: SB, C

M WST 477 Women and Violence. (3)
fall or spring
Global examination of forms of violence against women at the individual, institutional, and cultural levels, and efforts to control it. Lecture, discussion. Prerequisite: WST 100 or 300 or instructor approval.
General Studies: SB, C

M WST 484 Internship. (1–3)
fall and spring
Practical experience to enhance the academic perspectives that emerge from women's studies instruction. Prerequisite: internship coordinator approval.

M WST 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Women, Science, and Technology

M WST 498 Pro-Seminar. (1–7)
fall and spring
Topics may include the following:
- Theoretical Issues in Women's Studies. (3)
  Reading and research on important theoretical issues in women's studies. Prerequisite: WST 100 or 300 or instructor approval.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

West Campus

www.west.asu.edu

Mark S. Searle, PhD, Vice President, ASU; Provost, West Campus

ASU at the West campus, a community-focused metropolitan campus of Arizona State University located in Phoenix, serves the community and nearly 8,000 residential and commuter students of diverse ages, ethnic backgrounds, and experiences through 32 baccalaureate programs, one doctoral program, nine master's programs, and eight certificate programs. The West campus focuses on developing a learning community that addresses the needs of a dynamic metropolitan environment. The campus does this by offering learner-centered academic programs that enhance learning through teaching, service, and enrichment opportunities; promoting discovery and innovation; pursuing new knowledge; introducing insights and creative ideas through instruction; encouraging direct involvement in new fields of inquiry; investigating important community-based issues; and integrating with the community through service. The vision of the West campus is to enhance the intellectual, social, cultural, and economic qualities of its urban environment through research and creative activity and to provide access to a quality liberal arts education for undergraduates, professional programs grounded in the liberal arts, and an array of graduate programs.

The West campus commitment to integrated learning extends to Las Casas, an apartment-style, living-learning–based housing facility. Las Casas features faculty and academic advisors who live in the residence, faculty mentors, courses taught on site at the community center, and student affinity groups focusing on topics such as global awareness, leadership, and the arts.

Faculty and staff are dedicated to serving the evolving needs of high school graduates, working adults, and returning and continuing students. Expanding campus facilities and programs, along with a diverse student body, faculty, and staff, contribute to a culturally rich academic and social campus environment.

The West campus offers many on-campus services and facilities, all fully accessible for those with disabilities. These include a multimedia resource library, state-of-the-art computer classrooms and labs, housing facilities, tutoring services, a disability resource center, bookstore, cafeteria, credit union, fitness center, recreational facilities, child care, and post office, plus many student activities, clubs, and organizations. Classes are offered days, evenings, and weekends and via television and the Internet.

The West campus occupies approximately 300 square acres between 43rd and 51st Avenues on West Thunderbird Road in Phoenix, easily accessed from Interstate 17 and Loop 101. Its architecture and courtyards are modeled on those of the University of Oxford in England, enhanced by a beautifully landscaped natural environment featuring widely acclaimed public art.

HISTORY

The year 2004 marked the 20th anniversary of the West campus. Governor Bruce Babbitt signed legislation officially establishing the campus on April 18, 1984. Two years later members of several western Maricopa County communities, legislators, and the Arizona Board of Regents (ABOR) joined in the ground-breaking ceremony for the West campus, which culminated more than 10 years of intensive effort by numerous citizens' groups working to establish educational facilities in western Maricopa County. This grass-roots effort began in 1972 with the formation of the West Side Citizens' Committee for Higher Education. Citizens and legislators in western Maricopa County worked with officials at ASU and the ABOR to demonstrate

the need for higher education facilities beyond those offered by the community colleges.

In 1982, the legislature provided an exchange of 171.66 acres of general revenue lands for "approximately 300 acres of state trust land located in Maricopa County." These 300 acres constitute the permanent site of the West campus. The first permanent building, Fletcher Library, opened in March of 1988, and the first classroom building, Sands Classroom Building, opened in 1989 for spring semester classes. Shortly thereafter, the legislature authorized a lease purchase agreement to fund construction of additional buildings. The first phase, consisting of seven buildings and 600,000 gross square feet, opened in the spring of 1991.

The West campus received its initial accreditation from North Central Association of Colleges and Secondary Schools in August 1992. In fall 2001, ASU at the West campus became a four-year university campus with the addition of freshman and sophomore classes. Student housing facilities opened in August 2003.

For more than two decades, the campus has demonstrated responsiveness to the community, providing an ethos of resolving social issues, creating an involved citizenry, and ultimately creating a better quality of life for all. The West campus vision is to build on its successful past in ways that enhance the intellectual, social, cultural and economic qualities of a diverse, urban environment, through research and quality programs. This commitment to the community is punctuated by the economic vitality that the West campus contributes.

ACCREDITATION

ASU at the West campus is accredited by the Higher Learning Commission and is a member of the North Central Association. For more information, call 312/263-0456, access the Web site at www.ncahigherlearningcommission.org, or write

HIGHER LEARNING COMMISSION
30 N LaSALLE ST
SUITE 2400
CHICAGO IL 60602-2504

Professional programs in various academic areas are also accredited.

The Business and Accountancy degree programs in the School of Global Management and Leadership are accredited by AACSB International—The Association to Advance Collegiate Schools of Business. The Accountancy program is also an Endorsed Internal Auditing Program by the Institute of Internal Auditors. In the College of Human Services, the Department of Recreation and Tourism Management is accredited by the National Recreation and Park Association/American Association for Leisure and Recreation Council on Accreditation, and the Bachelor of Social Work and Master of Social Work programs are accredited by the Council on Social Work Education.

See the "Academic Accreditation at the West Campus" table, page 857.

ACADEMIC ORGANIZATION AND ADMINISTRATION

The provost provides executive leadership for the continuing development and management of the campus and reports to the executive vice president and provost of ASU. The provost is aided in the administration of the campus by vice provosts, deans, directors, department chairs, faculty, and other officers. There are four schools and colleges at the West campus administered by deans:

College of Human Services
College of Teacher Education and Leadership
New College of Interdisciplinary Arts and Sciences
School of Global Management and Leadership

These academic units develop and implement the teaching, research, and service programs of the institution, aided by the Fletcher Library and other student services.

The faculty and students of the institution play an important role in campus governance, with the Academic Senate, Associated Students of the West Campus, and numerous cross-campus and joint West campus–Tempe campus–Polytechnic campus committees serving the needs of a rapidly growing institution. For more information, see "West Campus," page 837, and "West Campus," page 854.

ADMISSION

Nondegree Students

Nondegree students may take courses at the West campus according to the special provisions under "Admission of Undergraduate Nondegree Applicants," page 74.

Degree-Seeking Students

Any student admitted to ASU may take courses at the West campus. To be admitted to a West campus degree program, the student must meet university admission requirements and the specific admission requirements of the West campus program. A student who is admitted to a West campus degree program is defined as a West campus student.

Prospective students should access the Web site at www.west.asu.edu/gowest for information on admission requirements and processes. The fastest, most efficient way to apply for admission is online at asu.edu/admissions. Printable applications are available at the same site. These applications can be completed and submitted by mail to

ADMISSION SERVICES
ARIZONA STATE UNIVERSITY
PO BOX 37100
PHOENIX AZ 85069-7100

The Arizona Board of Regents establishes undergraduate admission standards for state universities. Particular colleges, schools, academic units, programs or departments may impose additional requirements. These are explained later in this catalog under the appropriate section. For admission information and procedures, access the Web site at www.asu.edu/graduate/admissions. Students are encouraged to apply via the Web. If students cannot access the Internet, they may call the Division of Graduate Studies at 602/543-4567 or send e-mail to asuwgrad@asu.edu.

West Campus Academic Advising

College or School	Phone	Location
Barrett Honors College	602/543-4503	UCB 201
College of Human Services	602/543-6600	FAB S105A
College of Teacher Education and Leadership	602/543-6354	FAB S210
New College of Interdisciplinary Arts and Sciences	602/543-6052	FAB N201
School of Global Management and Leadership	602/543-6200	FAB N101

Change of Major from Tempe Campus or Polytechnic Campus to West Campus

Currently enrolled Polytechnic campus or Tempe campus degree-seeking students who want to relocate to a West campus degree program should contact Admissions Services at the West campus for the appropriate procedures. Acceptance to a West campus degree program requires the student to meet the prerequisites for entry to the student's choice of major as stated in the appropriate catalog. Students should be aware that requirements may differ between the West campus and the Tempe campus for the same major.

Application of Course Credit. The application of transfer course credit to the degree program is determined by the department of the student's major. Because of these constraints, students should seek advice from the appropriate advisor for their major before registering for classes at another university or ASU campus.

ACADEMIC ADVISING

Prospective Students

Effective academic advising is an essential aspect of the educational experience at the West campus. Prospective students seeking help with the application and admission process should call an admissions counselor as a first step at 602/543-8550 or visit the Recruitment and Outreach office in UCB 105. Prospective students can find a variety of information on the "GoWest" Web site at www.west.asu.edu/gowest.

Exploratory Freshmen and Transfer Students

Exploratory freshmen and transfer students who have not declared a major should call the University College Academic Advising Office for assistance at 602/543-9222 or visit UCB 201.

For community college students, a convenient alternative is to meet with an outreach advisor at one of the Transfer Centers shown in the "Transfer Centers" table below.

Transfer Centers

College	Phone
Estrella Mountain Community College	623/935-8826
Glendale Community College	623/845-3090
Paradise Valley Community College	602/787-7060
Phoenix College	602/285-7110
South Mountain Community College	602/243-8154

Students Admitted to Academic Programs

To assure timely and accurate advising for their majors, each academic unit has advisors to assist students in developing programs of study and understanding rules, procedures, and curriculum requirements. See the "West Campus Academic Advising" table, on this page.

FRESHMAN ORIENTATION

To ease the transition from high school to the West campus, University College (UC) offers several programs for freshman students. The UC offers online and on-campus orientations designed to familiarize new students with university and campus programs and services and to assist them with registering for classes. For more information, call 602/543-4600, or access the Web site at www.west.asu.edu/uc/orientation.htm.

DEGREE PROGRAMS

For more information on West campus undergraduate degree requirements, see the specific college, school, or program description in this catalog.

For information on West campus graduate degrees see the *Graduate Catalog*.

Minors and Certificates

The West campus offers an extensive selection of minors and certificate programs that may be taken in conjunction with a major. Other certificate programs may be taken independently. See the "West Campus Minors" table, page 654, and the "West Campus Certificates" table, page 655.

For information on the minor and certificate program requirements, see the specific college, school, or program description in this catalog.

Programs Hosted at West Campus

Courses for the Bachelor of Science in Nursing (BSN) degree are offered at the West campus. For specific information on requirements, see "College of Nursing," page 174.

UNIVERSITY GRADUATION REQUIREMENTS

In addition to fulfilling college and major requirements, each student must meet all university graduation requirements. For complete information, see "University Graduation Requirements," page 89.

GENERAL STUDIES REQUIREMENT

All Students enrolled in a baccalaureate degree program must satisfy the university requirement of a minimum of 35 hours of approved course work in General Studies, as described in "General Studies," page 93.

West Campus Minors

Minor	Administered By
American Studies	Department of Language, Cultures, and History
Communication Studies	Department of Communication Studies
English	Department of Language, Cultures, and History
Ethnic Studies	Ethnic Studies Program
Film and Video Studies	Department of Interdisciplinary Arts and Performance
Gerontology	Gerontology Program
History	Department of Language, Cultures, and History
Interdisciplinary Arts and Performance	Department of Interdisciplinary Arts and Performance
Interdisciplinary Organizational Studies	Department of Social and Behavioral Sciences
Life Sciences	Department of Integrated Natural Sciences
Mathematics	Department of Integrative Studies
Philosophy	Department of Integrative Studies
Political Science	Department of Social and Behavioral Sciences
Prelaw	College of Human Services
Psychology	Department of Social and Behavioral Sciences
Public Relations and Strategic Communications	Department of Communication Studies
Recreation Management	Department of Recreation and Tourism Management
Religious Studies	New College of Interdisciplinary Arts and Sciences
Social and Behavioral Sciences	Department of Social and Behavioral Sciences
Sociocultural Anthropology	Department of Social and Behavioral Sciences
Sociology	Department of Social and Behavioral Sciences
Spanish	Department of Language, Cultures, and History
Special Events Management	Department of Recreation and Tourism Management
Tourism Management	Department of Recreation and Tourism Management
Women's Studies	Women's Studies Program
Youth Services Leadership	Department of Recreation and Tourism Management

General Studies courses are listed in the "General Studies Courses" table, page 96, in the course descriptions, and in the *Schedule of Classes*. General Studies credit for a course may vary by campus; however, General Studies credit granted at one campus is honored at all campuses. Students should seek advice from the appropriate academic advisor for their major before registering for classes on another ASU campus.

CAMPUS GRADUATION REQUIREMENTS

Some graduation requirements are specific to the campus of enrollment. The following requirements apply to baccalaureate programs offered at the West campus.

Declaration of Graduation Requirements

A student must file a Declaration of Graduation (DOG) form no later than the semester he or she earns his or her 81st semester hour. The intention of the policy is to help the student successfully complete degree requirements in a timely manner. Students who fail to submit the DOG by completion of the 81st semester hour are prevented from further registration.

Any student wishing to have a college or university requirement variance must petition the appropriate standards committee of the academic unit in which the student is enrolled. All petitions must originate with the student's advisor, see "Student Grievances," page 655.

Credit Requirements

A minimum of 120 semester hours is required for graduation with a baccalaureate degree. A minimum of 50 semester hours in upper-division courses is required for graduation.

Graduation with Academic Recognition

An undergraduate student must have completed at least 50 semester hours of resident credit at ASU to qualify for graduation with academic recognition for a baccalaureate degree. A student with a cumulative GPA of 3.40 to 3.59 graduates *cum laude*, 3.60 to 3.79 graduates *magna cum laude*, or 3.80 to 4.00 graduates *summa cum laude*. The cumulative GPA for these designations is based solely on ASU resident course work. For example, ASU correspondence course grades are not calculated in the honors GPA. All designations of graduation with academic recognition are indicated on the diploma and the ASU transcript.

West Campus Certificates

Certificate	Administered By
Accountancy, Postbaccalaureate Certificate in	Department of Accounting
Communication and Human Relations, Postbaccalaureate Certificate in	Department of Communication Studies
Ethnic Studies, Certificate in	Ethnic Studies Program
Film and Video Studies, Certificate in	Department of Interdisciplinary Arts and Performance
Gerontology, Certificate in	Gerontology Program
Professional Accountancy, Postbaccalaureate Certificate in	Department of Accounting
Women's Studies, Certificate in	Women's Studies Program
Writing, Certificate in	Department of Language, Cultures, and History

Graduation with academic recognition applies only to undergraduate degrees.

Minors

A minor is an approved, coherent concentration of academic study in a single discipline, involving substantially fewer hours of credit than the corresponding major.

Students in most majors may pursue one or more minors and, upon successful completion of the prescribed course work, have that accomplishment officially recognized on the ASU transcript at graduation if (1) the academic unit/department of the minor officially certifies, through established verification procedures, that all requirements for the minor have been met, and (2) the academic unit (and, in certain academic units, the department) of the student's major allows the official recognition of the minor. A student wishing to pursue a specific minor should consult an academic advisor in the unit offering that minor to ensure that an appropriate set of courses is taken.

A minor consists of a minimum of 18 hours of course work. For any minor offered at the West campus, a minimum of nine upper-division hours in the minor must be taken in residence at the West campus. All upper-division courses in the minor must be completed with a minimum grade of "C" (2.00). Counting courses in the major and the minor is allowed; however, certain major and minor combinations may be deemed inappropriate by the academic unit or department of the major or minor. Inappropriate combinations include (but would not be limited to) ones in which an excessive number of courses in the minor are simultaneously being used to fulfill requirements of the student's major (e.g., major in Integrative Studies with a concentration in sociology and a minor in Sociology). Some West campus departments may have more specific or stringent requirements for minors.

For a list of the minors available at the West campus, refer to the "West Campus Minors" table, page 654.

Certificates

Students may pursue some certificate programs along with a major and other certificate programs independently.

For certificate programs offered at the West campus, at least 50 percent of the semester hours required to earn a certificate must be West campus resident credit. All course work in the certificate must be completed with a minimum grade of "C" (2.00) or higher. Some departments may have more specific or stringent requirements for certificates.

University-wide ASU programs (e.g., Certificate in Gerontology) are the only exceptions to this policy. Courses completed on any ASU campus fulfill the resident credit requirements for the certificate.

For a list of the certificates available at the West campus, refer to the "West Campus Certificates" table, on this page.

STUDENT GRIEVANCES

Appeal procedures vary from one ASU campus to another. The following procedures apply to students enrolled in West campus degree programs and courses.

Petition for Variance from University-Wide Academic Requirements

The Campus Standards Committee advises the vice president and provost for the West campus regarding undergraduate student petitions that concern university-wide academic requirements. These requirements include but are not limited to requirements on the amount of transfer credit, undergraduate admissions decisions, graduation requirements, resident credit requirements, and general studies requirements. To petition for a variance of such university requirements, students should discuss the matter with an academic advisor and complete a petition form. The petition is reviewed by the relevant unit-level administrator and committee before being forwarded to the Office of the Associate Vice Provost for Academic Programs and Graduate Studies.

Grade Appeals

The professional responsibility for assigning grades is vested in the instructor of the course, and requires the careful application of professional judgment. However, the following grievance process allows deans to change a particular grade if evidence presented in the process warrants such a change.

It is university policy that students filing grievances and those who provide support for the student are protected from retaliation. Students who feel that they are victims of retaliation should immediately contact the dean of the academic unit in which the course is offered.

The grade appeal process follows the steps described below. "Day" is defined as a normal business day, not including Saturday, Sunday, or any officially recognized university employee holiday or campus closure.

1. A student wishing to appeal a grade must first meet with the instructor who assigned the grade to try to

resolve the dispute. The instructor must review the matter in good faith, explain how the original grading decision was made, and decide whether to change the grade in response to the student's appeal. The instructor must respond to the student's request for a meeting in writing, via phone, or by e-mail within 10 days. If the grade dispute is not or cannot be resolved to the satisfaction of the student via this meeting, within 10 days after receiving the instructor's response the student may appeal to the program chair/director. (If the program chair/director is also the instructor and/or responsible for the disputed grade, the student may appeal directly to the campus Academic Grade Appeals Committee.)

2. Within 10 days after receiving the appeal, the program chair/director confers with the student and the instructor to try to work out a mutually acceptable resolution to the dispute. If the grading dispute is not resolved to the satisfaction of the student, within 10 days after receiving the program chair/director's response the student may appeal to the Academic Grade Appeals Committee. Appeals must be made in writing, with a separate document submitted for each grade being contested. Each appeal must provide the name of instructor, course section, semester taken, grade received, and attempts made to resolve the situation.
3. Both the student and the instructor are invited to appear before the committee within 20 days after the committee receives the appeal. The committee shall operate under written procedures that satisfy due process requirements. The committee considers all of the evidence bearing on the dispute and then decides by majority vote whether the grade should be changed. The committee then sends its recommendation to the dean of the academic unit where the course was offered.
4. Within 15 days of receiving the committee's recommendation, the dean makes the final decision in the case after full consideration of the recommendation and a review of pertinent materials. If the dean determines that a grade change is warranted, the grade change may be made either by the instructor or by the dean. The dean notifies the student, instructor, program chair/director, and the Academic Grade Appeals Committee of the final outcome of the case.

For summer session or fall semester grade appeals, the student must contact the course instructor within 60 days after the last day of instruction of the session or semester. To appeal a spring semester grade, the student must contact the instructor within 60 days after the first day of instruction of the following fall semester.

For more information, regarding the campus Academic Grade Appeals Committee, call 602/543-4567, or visit the Academic Programs and Graduate Studies Office, FAB S301.

SCHOOL OF EXTENDED EDUCATION

The university-wide School of Extended Education provides an interactive link between ASU and the diverse communities it serves. The college assesses lifelong learning requirements and works in partnership with campuses, other colleges, and the community to serve learners, using a network of locations, programs, schedules, and technologies.

For more information, see "School of Extended Education," page 134, or access the Web site at www.asu.edu/xed.

West campus with the University Center Building and Faculty and Administration Building in the foreground

Mark Boisclair photo

West Campus and Student Services

CAMPUS AND STUDENT SERVICES

Admissions and Registration Services

Admission and Registration Services, located in UCB 120, provides students with a central location for all admission, academic records-related functions, and class registration processes.

For more information or assistance, call 602/543-8203, or access the Web site at www.west.asu.edu/registrar.

ASU Alumni Association—West Campus Chapters

Staying involved with the ASU Alumni Association helps preserve your lifelong connection to the university that honors your past, respects your present and supports your future. By joining the association you can stay in touch with friends, build career connections, network within your profession and serve your community. Most major academic areas are represented with alumni chapters. At the West campus, there are several alumni chapters, including College of Teacher Education and Leadership Alumni Chapter; Communication Studies Alumni Chapter; Criminal Justice and Criminology Alumni Chapter; Department of Social Work Alumni Chapter; New College Alumni Chapter; School of Global Management and Leadership Alumni Chapter; and MBA Alumni Chapter.

Students can enjoy the benefits of joining an alumni chapter before graduation. Call 602/543-ALUM (2586), or access the Web site at www.west.asu.edu. Click on "Alumni" for more information.

Associated Students

Associated Students of ASU at the West campus is the student government of the campus. It is the official representative of the student body in matters of campus governance. Programs and services include the promotion of campus clubs and organizations, active participation in political activities affecting the university, provision of student representation on campus committees, and the sponsorship of cultural, educational, and social activities. For more information, call 602/543-8186 or access the Web site at www.west.asu.edu/asasuw.

ASU Shuttle Service

The ASU Express is a shuttle bus that makes regular trips between the Tempe campus and West campus and between the Tempe campus and Polytechnic campus during regular semesters. Trips are scheduled Monday to Thursday between 6:10 A.M. and 9:45 P.M. and on Friday between 6:10 A.M. and 5:45 P.M. Books of ten tickets are available from the West campus Cashier's Office and Parking Services. For more information, and ticket prices, call 602/543-PARK or access the Web site at westcgi.west.asu.edu/adaff/auxs/parking.

Bookstore

The West campus Bookstore offers new and used textbooks, course packets, computer hardware and software, general books, magazines, newspapers, general supplies, ASU insignia clothing and gifts, class rings, and graduation supplies. As a complimentary service, merchandise may be transferred from the Tempe campus Bookstore upon request.

The bookstore is located in the UCB 140. Regular hours are Monday - Thursday, 9 A.M. to 6 P.M. and Friday, 9 A.M. to 5 P.M. The bookstore is open for extended hours at the beginning of each semester. For more information, call 602/543-6800 or access the Web site at bookstore.asu.edu.

Career Services

Students are encouraged to acquire skills, knowledge, and support for their career planning and personal development, thus enhancing chances of success in life.

A wide variety of workshops, groups, and special events are offered throughout the year. Resource room materials and self-paced computerized career guidance tools are available. The Sun Devil Career Link Program offers students job and internship interviews. For more information, call 602/543-8124, visit UCB 320, or access the Web site at www.west.asu.edu/cspc.

Child Development and Family Studies Center

In partnership with Phoenix Headstart and West campus, the Child Development and Family Studies Center's Lab School integrates full-time and part-time preschool child care and education into the research, teaching and service missions of the campus. The children's educational enrichment program incorporates features of the most successful national preschool education programs and promotes the experience and expression of cultural diversity. The center is an important adjunct to faculty research and teaching activities in psychology, family studies, early childhood development, curriculum, and education.

The Child Development and Family Studies Center's Lab School is accredited by the National Association for the Education of Young Children (NAEYC). NAEYC accreditation is a rigorous, voluntary process by which early childhood education programs demonstrate that they consistently meet national standards of excellence.

For more information, call 602/543-5437, visit UCB 190, or access the Web site at www.west.asu.edu/cdc.

Computing Facilities and Services

Information Technology offers state-of-the-art computing facilities for use by students, faculty, and staff. A pervasive high-speed communications network provides access to

university servers and to the Internet. Classrooms are equipped with DVDs/VCRs, access to television and satellite broadcasts, projectors, and networked computers for presenters. Some classrooms are equipped with computers for every student.

Technopolis, a student computing access center located on the lower level of Fletcher Library, contains networked PC and Macintosh microcomputers and high-quality peripherals such as laser printers and scanners. Adaptive technology for students with disabilities is available. A wide variety of software is provided. Information and help for computer users are available at the center. For more information, call Technopolis at 602/543-8278 or access the Web site at www.west.asu.edu/it.

Consortium for Interdisciplinary Projects and Residencies in the Arts

The Department of Interdisciplinary Arts and Performance (IAP) sponsors Interdisciplinary Projects and Residencies in the Arts. Under this sponsorship, practicing professional artists engage their creative work with the curriculum and share their perspectives with the public through courses, workshops, and performances. The IAP department also produces numerous artistic events each year, which are open to the public, featuring artist/faculty, visiting artists, students, and regional artists. For more information about performance events, call 602/543-ARTS.

Copy Services

A variety of services are available from the Copy Center, located in the lower level of the FAB B23. The Copy Center has high speed, high quality multifeatured photocopy machines and is able to provide high quality images, digital printing, duplexing, saddlestitching, covers, and tab inserts with minimal turnaround time. The center provides course packets and copyright permission acquisition services. Other services include spiral binding, steel back binding, padding, laminating, custom cutting, poster making, color copies, shrink-wrapping, thermal transfers, personalized mouse pads, puzzles and T-shirts, and FAX service. Copy Center hours are 7 A.M. to 6 P.M. Monday to Thursday and 8 A.M. to 5 P.M. Friday. For more information, call 602/543-5575 or access the Web site at westcgi.west.asu.edu/adaff/auxs/copyservices/index.cfm.

Credit Union

The Arizona State Savings and Credit Union has a branch office located in the Welcome and Information Building. The organization offers a full range of services, including savings and checking accounts, loans, insurance, Costco memberships, a vehicle buying assistance service, a telephone account access system, automated teller machines and more. All ASU students, employees and their families are eligible for membership. For more information, call 602/644-4620 or access the Web site at www.azstcu.org.

Devils' Den Game Room

The Devils' Den is located in the second floor Student Lounge of the University Center Building. It is furnished with air hockey, foosball, ping-pong, and pool tables. Equipment for these games may be checked out through the ASASUW office located in UCB 226. A current ASU ID card is required to check out equipment. For more information, call 602/543-8186.

Margaret Francis Disability Resource Center (DRC)

ASU is committed to providing a fully integrated and accessible environment for students with disabilities. Professional staff assist students in obtaining the services and support needed to succeed at the university. The following are examples of academic accommodations which may be secured through the DRC, as appropriate: testing accommodations (including proctors, readers, and scribes), interpreters, notetakers, adapted course materials, and adaptive technology.

Students with disabilities are encouraged to contact the DRC at the beginning of the admission process to discuss service needs. Disclosure of a disability to the university is optional and confidential. However, for students requesting accommodations, qualifying documentation must be provided to the DRC to substantiate the need for these accommodations. The Disability Resource Center is located in the UCB 130.

For more information, call 602/543-8145, TDD 602/543-4327, or access the Web site at www.west.asu.edu/drc.

Event Scheduling

An event is any meeting, seminar, or activity that is not an ASU credit course. Reservation forms for registered student organizations are available at Student Life, UCB 221, 602/543-8200. Event requests for other on-campus groups should be sent by e-mail to eventschedule@asu.edu at least five working days in advance of the event. Space is available on a first-come, first-serve basis. For more information, call Events and Meeting Services at 602/543-7740. AV/media support is provided through Event Scheduling.

Campus catering services must be used for all activities held on campus or paid for with university funds. For more information and help in planning food events, call 602/543-3663.

Financial Aid Services

The Financial Aid Services office, located in the University Center Building 120, provides information and services about need based and non–need-based grants, scholarships, loans, and employment opportunities.

All students seeking financial assistance must complete the FAFSA (Free Application for Federal Student Aid) annually. See the "Financial Aid" section of this catalog. For more information, call 602/543-8178 or access the Web site at www.west.asu.edu/financialaid or asu.edu/fa

Food Services

Food service is provided at Cafe West on the first floor of the UCB west wing. A diversified menu is available for breakfast, lunch, and dinner Monday through Friday. Normal hours of operation are 7 A.M. to 6:30 P.M. Monday through Thursday and 7 A.M. to 3 P.M. Friday. Catering services are available for functions held on campus. For more information, call 602/543-3663 or access the Web site at westcgi.west.asu.edu/adaff/auxs/foodservices.

The Sand Trap, located in SANDS 115, provides grab and go drinks, sandwiches, salads, and snacks plus a Starbucks coffee bar. Hours are Monday to Thursday 9 A.M. to

8:30 P.M., Friday 9 A.M. to 2 P.M., and Saturday 9 A.M. to 2 P.M.

Graduate Studies

The Graduate Studies Office provides students and faculty with application materials, information regarding academic programs, assistance with the application process, and information on Graduate Studies policies and procedures. Information on hiring and management of graduate assistants, program of study, faculty serving on thesis and dissertation committees, graduate academic and tuition scholarships, graduate assistants orientations, and information workshops can also be obtained through the Graduate Studies Office. For more information, call 602/543-4567, visit the office, FAB S301, or access the Web site at westcgi.west.asu.edu/acadaffairs/gradstudies.

International Programs Office/Study Abroad and Exchange Programs

ASU offers study abroad and exchange programs in nearly 50 countries. Information on study abroad is available through Multicultural Student Services (see, "Multicultural Student Services," on this page). Study Abroad 101 information sessions are offered each semester. Students can also call the International Programs Office (IPO) at 480/965-5965 or access the IPO Web site at ipo.asu.edu. Application deadlines are generally March 1 for fall and October 1 for spring programs. The *Summer Sessions Bulletin* is available in March and includes information about summer and winter study abroad programs.

Learning Enhancement Center

The Learning Enhancement Center's peer tutors and writing coaches offer collaborative support to promote students' academic success. LEC resources include a walk-in lab for studying and completing homework for math, science, and business classes. Lab tutors respond to questions or offer clarification for course material. Tutors also conduct small group tutoring and workshops for some classes. In addition, LEC writing coaches offer students an opportunity to discuss writing conventions for application to their own written communication. The LEC is located in FLHLB LL2. For more information, call 602/543-6151 or access the Web site at www.west.asu.edu/lec.

Library Services

Fletcher Library provides resources that support the curriculum of the West campus with a collection of 335,000 volumes, 1.5 million microforms, 9,600 videos and DVDs, and 15,000 slides. As participants in the shared resources environment of ASU libraries, users may access more than 50,000 print and e-journals and nearly 4.1 million monographic titles. Approximately 95 percent of electronic databases are available to ASU registered users from home computers.

The Library is open seven days a week to meet the informational needs of the campus community. Knowledgeable staff members are available to provide reference service and instruction in the use of the Library's considerable resources. Individual consultations with subject specialist librarians are available by appointment. The library instruction program provides introduction to the tools and resources available for research in an academic discipline, including Internet resources.

A wide range of information and research tools, most accessible from off-campus, are available through the Fletcher Library Web site at library.west.asu.edu. For library hours and information, call 602/543-8501.

Mail/Postal Services

In addition to processing incoming and outgoing university mail and providing an inter-campus courier service, first class, priority mail, parcel post, certified, registered, and special delivery services are also provided by Mail Services. Padded manila and utility mailing envelopes and U.S. postage stamps are available for purchase through the Mail Services station as are fax transmissions and receipts. Mail Services hours are 9 A.M. to 4 P.M. Monday through Friday. They are located in CSC. For more information, call 602/543-POST or access the Web site at westcgi.west.asu.edu/adaff/auxs/property/mail.cfm.

Multicultural Student Services

Multicultural Student Services (MSS) provides programs that help build a greater understanding and appreciation of cultural diversity. New student orientation, cultural activities, workshops and opportunities for student involvement in campus life assist students to achieve personal, educational, and developmental goals. The Multicultural Student Services Office is located in the UCB 220. For more information, call 602/543-8148 or access the Web site at www.west.asu.edu/multicultural.

International Student Services. The mission of the International Student Services is to provide support services that meet the unique needs of international students throughout their academic program and to support campus and community activities that promote international awareness and enrich the educational experiences of all students.

Services include advising international students on immigration and visa matters, admission procedures and credentials evaluation, international student orientation, information workshops, and cultural activities. Undergraduate students may contact Multicultural Student Services at 602/543-8201 or visit UCB 220. Graduate students should call 602/543-4567 or stop by the FAB S301E. For more information, access the Web site at www.west.asu.edu/international.

Kids' Evening Enrichment Program. Kids' Evening Enrichment Program offers learning enrichment activities for children, ages six to 12, of West campus evening students. For more information, call 602/543-8010 or access the Web site at www.west.asu.edu/multicultural/KEEP.

Native American Student Services. Native American Student Services (NASS) assists Native American students to obtain a university education by providing outreach and retention services and activities which facilitate their academic success and graduation. Student services include assisting with the transition into the university by providing one-to-one information and support regarding tribal financial aid opportunities, communication resources, and referrals to campus services. For more information, call

602/543-8138 or access the Web site at www.west.asu.edu/nativeamerican or UCB 220C.

Parking Services

Parking permits. All students, faculty and staff are required to have a current West campus parking permit in order to utilize the parking lots on campus. West campus parking permits may be purchased at www.west.asu.edu/adaff/auxs/parking or at the Parking Services office in WIB. The annual cost for a parking permit is $75. The cost is prorated if purchased after September 7th. Payment for permits may be made by cash, check, VISA, or MasterCard. New permits are required for each academic year.

Prorated refunds will be given upon request if permits are returned before the close of business on the last business day of April. Photo ID will be required for refunds.

West campus permits are valid in Lot 59 at the Tempe campus and in some lots at the Polytechnic campus. Tempe campus and Polytechnic campus parking permits are valid in student lots at West campus.

Parking lots are designated for specific types of permits. Parking maps (available at the Information Desks and Parking Services) and signage at each lot indicate which type of permit is appropriate for each lot. Visitors are encouraged to park in the visitor lot west of 47th Avenue, north of WIB.

For more information, on parking services, call 602/543-PARK (7275) or access the Web site at westcgi.west.asu.edu/adaff/auxs/parking.

Residential Life

Residential Life is committed to establishing a living and learning environment by developing programs that promote academic success and personal development while providing attractive, accessible facilities that meet the needs of the campus community.

The 400-bed residential community, Las Casas, features two 3-story buildings of apartment-style residential units with full kitchens, laundry facilities, a multipurpose room and computer lab, sand volleyball, a swimming pool, and parking. Amenities include tutoring services, in-room Internet access, coordinated educational and social activities, and easy access to campus resources. For more information, call 602/543-CASA (2272), or access the Web site at www.west.asu.edu/lascasas.

Statistics Laboratory

The Statistics Laboratory (Stat Lab) provides support and supplementary instruction for students who are involved in courses or projects requiring the use of quantitative research methods. The Stat Lab provides access to statistical software and technical assistance in the application of the software for West campus students. The Stat Lab is located in CLCC 107. For more information, call 602/543-6117, or access the Web site at www.west.asu.edu/statlab.

Student Accounts

Fee payment and cashiering are services of Student Accounts, located in the UCB 101. Student Accounts is open for business 9 A.M. to 6 P.M. Monday to Thursday and 9 A.M. to 4 P.M. on Friday.

The Fee Payment section is responsible for the acceptance of tuition payments from registered students, assistance with accounts receivable matters and disbursement of pre-approved financial aid checks.

The Cashier's Office handles all cash transactions, graduate application and graduation fees, plus requests for official transcript payments and shuttle tickets. In addition, a personal check can be cashed for up to $50 per student per day. For more information, call 602/543-6709, or access the Web site at westcgi.west.asu.edu/adaff/fss/fssstudent.cfm.

Student Affairs

Student Affairs is responsible for the delivery of a variety of enrollment and student development services and programs in support of students' educational pursuits and extracurricular needs. Special attention is given to the enrollment and retention of a culturally diverse student population. Student Affairs' stated mission is to assess and respond to the enrollment, support, and development needs of students and to contribute to the learner-centered environment of the campus. The Dean of Student Affairs Office is located in the UCB 301. For more information, access the Student Affairs Web site at www.west.asu.edu/sa.

Student Counseling Services

Confidential professional counseling services are available to help ASU students achieve their academic goals by addressing a variety of problems and issues often faced in college. Professional help is offered in the following areas: psychological issues, personal concerns, relationship issues, career/life decision making, and crisis intervention. Individual and group sessions are available at no cost. To schedule an appointment or for more information, call 602/543-8124, or visit USB 320, or access the Web site at www.west.asu.edu/cspc.

Student Employment

Student Employment provides job opportunities, both on and off campus, for students who desire to work to meet their educational expenses. Students may be eligible for student hourly or Federal Work Study positions.

For more information about student employment or to view the jobs currently available, visit UCB 120, call 602/543-8178, or access the Web site at www.west.asu.edu/financialaid/stdemply.htm.

Student Health Insurance

Students have the option to purchase health insurance through the university. Specific information regarding the insurance, including cost and coverage, is available in Student Health Services located in UCB 170, at www.west.asu.edu/studenthealth, or by calling Student Health Services at 602/543-8019.

Student Health Services

All registered students are eligible to use Student Health Services, located in UCB 170. Services include, but are not limited to the areas of general medicine, women's health, mental health, health promotion and education, nursing triage, laboratory testing, immunizations, and limited pharmacy services. Contact Student Health at 602/543-8019 to schedule an appointment, or to receive information about student health insurance. For more information, access the Web site at www.west.asu.edu/studenthealth.

West campus, located in northwest Phoenix, serves more than 7,700 residential and commuter students. Tim Trumble photo

Student Life

The Student Life office encourages students to enhance their education by being actively involved in campus life. Several events and activities are held by Student Life to provide a holistic program that meets the social and co-curricular needs of students in the residence halls and on campus. The office also serves as a resource for student clubs and organizations and the Associated Students of ASU's West campus (ASASUW). Information about student rights and responsibilities and the ASU Student Code of Conduct can also be obtained in Student Life. Additionally, resources and information are available for off-campus housing, leadership training, and campus posting guidelines. For more information, call 602/543-8200, visit UCB 221, or access the Web site at www.west.asu.edu/studentlife.

Sun Card

The Sun Card office in UCB 140C provides ID cards for students and university employees. The fee for a Sun Card is $25.

Sun Dollars. Sun Dollars is a prepaid services account managed by the Sun Card office. It works as a bank debit card except that cash cannot be withdrawn (however, refunds are available when the card holder leaves ASU). Deposits are made to the account and then accessed by presenting the Sun Card to make purchases at the Bookstore, Food Services, Copy Center, and Fletcher Library. For more information, visit UCB 140C, call 602/543-5000, or access the Web site at www.suncard1.com.

Testing Services

Testing Services, located in the WIB 102, offers information on national and state qualifying examinations such as the GRE, GMAT, MAT, CLEP, LSAT, and MCAT. Regularly scheduled exams include CLEP and MAT. For more information or assistance, call 602/543-8136, or access the Web site at www.west.asu.edu/testing.

TRiO Academic Achievement Center

The TRiO Program provides undergraduate degree-seeking students with a comprehensive system of learning assistance resources. The resources are designed to strengthen academic success as well as complement a student's overall educational experience. Personalized assistance such as math and writing tutoring, career and graduate school advising cultural enrichment, faculty-student and community mentorships, and learning strategies for students, is offered to meet the diverse needs of our student population. Participation in the program is voluntary and free of charge.

Students must meet U.S. Department of Education eligibility requirements. For more information, call 602/543-8121, visit the program office, UCB 220, or access the Web site at www.west.asu.edu/trio.

Veteran Services

Veteran Services, located in the University Center Building 120, assists veterans eligible for VA educational benefits. Services include enrollment certification, benefits advising and assistance with the university admission and registration process. For more information, call 602/543-8220 or access the Web site at www.west.asu.edu/veteran.

Wellness and Fitness Facility

The Wellness and Fitness Facility, located in the lower level of the University Center Building, is available to students, faculty/staff, family members, and alumni on a fee for service basis. Students also have the option of taking credit classes in a variety of fitness programs. Non ASU-affiliated individuals may use the facility on a monthly or multiple monthly fee basis.

The 6,000 square-foot facility houses a fully equipped weight room, aerobics room, men's and women's locker rooms, and is accessible to individuals with disabilities. Amenities at the center include elliptical trainers, lifecycles, treadmills, stairclimbers, weight machines/free weights, and the capability to do fitness assessments and body composition analysis. A variety of specialty classes, including yoga and aerobics, are offered each semester.

The facility also lends recreation equipment to individuals with an ASU ID card for use on campus basketball courts, racquetball courts, sand volleyball courts, and the multipurpose soccer/football field. These facilities, located west of SANDS and south of UCB, are available at no charge to ASU and University-College Center faculty, staff, and students. For more information or to make reservations, call 602/543-3488, visit UCB B119, or access the Web site at westcgi.west.asu.edu/fitness.

Women's Studies Resource Center

As a multicomponent program of Women's Studies, the Women's Studies Resource Center supports research pertaining to local, national, and global issues in women's studies. The Center also promotes leadership opportunities, serves as a resource and action center, and acts as an advocate for women both within the university and in the larger community. The Women's Studies Resource Center is located in the UCB 323. For more information, call 602/543-3426 or access the Web site at www.west.asu.edu/ws/wrc.

CAMPUS FACILITIES

The West campus occupies 300 acres between 43rd and 51st Avenues on West Thunderbird Road in Phoenix. Its architecture and courtyards are modeled after those of the University of Oxford in Great Britain, enhanced by a beautifully landscaped natural environment featuring widely acclaimed public art. The core campus includes the following facilities:

Fletcher Library. With a seating capacity of 600 and space for 450,000 volumes, the 106,000 square-foot facility is a state-of-the-art information access center designed to take full advantage of electronic technology.

Sands Classroom Building. Containing 38 class and seminar rooms, the building provides an intimate atmosphere in which to exchange ideas.

Kiva Lecture Hall. The Kiva seats 100 to 200 and serves as an auditorium for a variety of programs, faculty lectures, and public forums.

Classroom Laboratory/Computer Classroom Building. Classroom Laboratory/Computer Classroom Building contains computer classrooms, science laboratories, studios for art, dance and music, a 150-seat lecture hall, and an astronomy platform located on the roof.

Faculty and Administration Building. Most faculty and administrative offices are located in this building. Classrooms are located in the basement of the east wing.

Faculty and Administration Building Annex. This temporary facility houses Human Resources and other administrative offices.

Las Casas Residence. Located in the northwest corner of the campus, the Las Casas student housing facility includes two three-story residential units, a community hall with dining and meeting facilities, and a swimming pool.

University Center Building. This facility houses admissions and records, an array of student assistance programs, health services, a preschool, and student activities. Other building facilities include food service, a bookstore, cashier and fee payment services, student lounges, an art gallery, a wellness/fitness facility, a black box theater, meeting rooms, and a divisible, multipurpose auditorium.

Welcome and Information Building. Located west of the 47th Avenue entrance, the Welcome and Information Building houses parking services, testing services, and a branch office of the Arizona State Savings and Credit Union.

WEST CAMPUS HOUSING

Residential Life at the West campus is committed to establishing a living and learning environment by developing programs that promote academic success and personal development while providing attractive, accessible facilities that meet the needs of the campus community. The living and learning program offers tutoring and other support services designed to assist all residents with their academic development. The 400-bed residential community, Las Casas, features two three-story buildings of apartment-style residential units with full kitchens, laundry facilities, a multipurpose room, a computer lab, a swimming pool, and sand volleyball. Amenities include basic cable, in-room Internet access, coordinated educational and social activities, and easy access to campus resources. For more information, call 602/543-CASA (2272), or access the Web site at www.west.asu.edu/lascasas.

The Barrett Honors College

westcgi.west.asu.edu/honors

Andrew Kirby, PhD, Associate Dean

The Craig and Barbara Barrett Honors College serves students seeking degrees at the Downtown Phoenix campus, the Polytechnic campus, the Tempe campus, and the West campus. For more information, see "The Barrett Honors College," page 145. Students take advantage of the university's full resources with the assurance of consistently distinguished teaching and research and with commensurately rigorous expectations for performance.

Participants in the Barrett Honors College have diverse interests and strong records of success. Many go on to the nation's finest graduate and professional programs.

The first two years of the honors curriculum typically focus on general studies. The second two years of upper-division study concentrate on the student's academic major and lead to graduation from both a disciplinary college and the Barrett Honors College. Participating in the upper-division curriculum involves the creation of an honors thesis. In conceiving and completing this project, each student works closely with a faculty mentor to identify and develop an original concept.

BENEFITS

Honors students working on the West campus enjoy the benefits of a smaller program and all the resources of the entire Barrett Honors community, including study abroad, research, and internship opportunities. College advisors help students plan individualized programs of study, and they receive priority at preregistration. Honors courses are normally limited to 20 students.

The Office of National Scholarship Advisement assists honors and other high-achieving students by identifying nationally competitive programs appropriate to each person's intellectual and career goals, nurturing these prospective applicants, and advancing their candidacy. Students who meet all requirements of the Barrett Honors College receive transcript recognition of their accomplishment as well as special acknowledgment in graduation ceremonies and honors convocations.

ADMISSION

Students who have demonstrated high levels of academic achievement at the high school, community college, or university level are encouraged to apply for admission to the Barrett Honors College. All candidates for admission must file a separate application to the college at honors.asu.edu.

Applicants to the West campus are evaluated on the basis of high school GPA and class rank, performance on the SAT or ACT, and other talents that constitute academic leadership and community service. Continuing ASU or transfer students are evaluated on their college GPA.

For more information, call Barrett Honors College at the West campus at 602/543-3410, or access the Web site at westcgi.west.asu.edu/honors.

RETENTION

Honors students must maintain high standards of academic performance and show progress toward completion of graduation requirements in their disciplinary majors and the Barrett Honors College. Students who fail to complete an average of one honors course in two semesters may be placed on inactive status. A student on inactive status within the college is not eligible for extended library privileges, early registration, or honors internship placement. Reinstatement to active status requires a formal application and an appointment with an honors advisor.

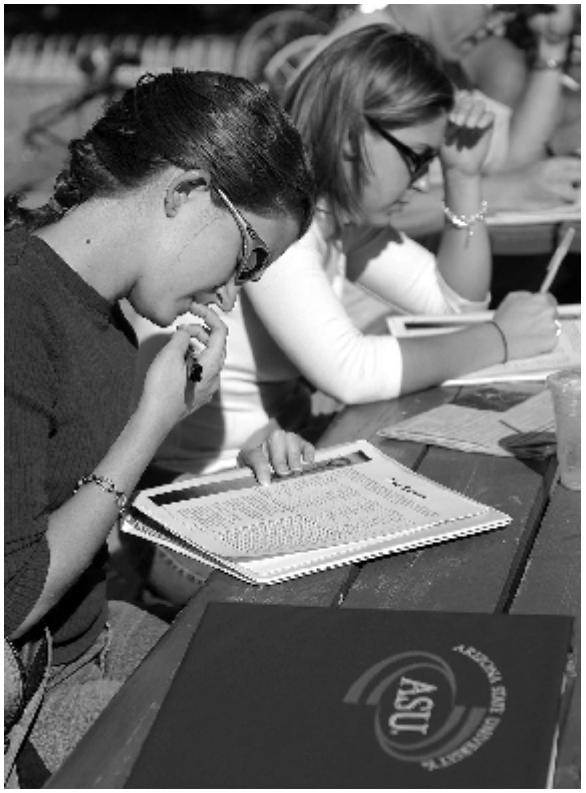
COURSE REQUIREMENTS

Only courses in which a student earns at least a grade of "C" (2.00) may be used to meet Barrett Honors College requirements.

Freshmen and students entering the college with fewer than 45 semester hours of course work must take HON 171 and 172 The Human Event. This cross-disciplinary seminar acquaints students with ideas that form the foundation of a university education and emphasize critical thinking, discussion, and writing.

Transfer students with 45 or more semester hours entering the college must take HON 394, a junior-level seminar that introduces them to critical thinking, discussion, and writing in an area chosen by the instructor. Honors students may also contract with instructors for honors credit in departmental courses by pursuing enrichment activities. When several students in the same section arrange such contracts, the instructor may require them to meet for supplemental sessions. These footnote 18 contracts must be filed

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.



The Phoenix area's pleasant climate allows students to study outside most days of the year. Tim Trumble photo

during the first four weeks of class during the semester in which the course is offered, or the first week of a summer session.

Departmental courses carrying footnote number 19 in the *Schedule of Classes* are limited to honors students and others who receive special permission from the instructor to enroll. Enrollment in these courses is limited to 25 students.

Departmental courses with the number 492 or 493 are reserved for honors students completing their honors theses or creative projects. A student may enroll for these courses only with the approval of the sponsoring academic department and of the faculty member who serves as the student's thesis director. Students may receive a maximum of six semester hours credit for an honors thesis or project, three semester hours of which may fulfill the student's literacy and critical inquiry (L) General Studies requirement.

All courses a student takes for honors credit count toward graduation, even if the student does not graduate from the Barrett Honors College.

HONORS TRANSCRIPT RECOGNITION

All courses used to fulfill graduation requirements for the Barrett Honors College must carry earned letter grades of "C" (2.00) or higher. A "Y" grade does not meet college requirements.

Lower Division. To receive transcript recognition for lower-division honors work, students must complete 18 semester hours of honors course work within 60 earned semester hours with a cumulative ASU GPA equal to or greater than 3.40 (4.00 = A). Courses *must* include HON 171 and 172 The Human Event. Courses that earn automatic honors credit, although not carrying a footnote number 19 in the *Schedule of Classes*, include any section of ENG 105, CHM 117 and 118, and MAT 290 and 291. *Note*: CHM 117 and 118, and MAT 290 and 291 are Tempe campus courses.

Students may apply upper-division honors course work toward lower-division requirements; however, those classes may not also be used to meet Barrett Honors College upper-division/graduation requirements.

Upper-Division/Graduation Requirements. To graduate from the Barrett Honors College, students must complete HON 171 and 172 The Human Event for continuing ASU or transfer students with fewer than 45 semester hours or HON 394 Special Topics for continuing or transfer students with 45 or more semester hours, and complete 18 additional semester hours of upper-division honors course work for an earned letter grade, which must include three to six semester hours of Honors Thesis and six semester hours outside the academic major and may include graduate courses.

The Barrett Honors College

westcgi.west.asu.edu/honors

602/543-3410

UCB 201

Andrew Kirby, Associate Dean

Professor: Kirby

Associate Professor: Ramsey

HONORS (HON)

For more HON courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W HON 171 The Human Event. (3)
fall
Landmarks in the social and intellectual development of the human race, with emphasis on Western civilization. Enrollment restricted to members of the Barrett Honors College.
General Studies: L/HU, H

W HON 172 The Human Event. (3)
spring
Continuation of HON 171, with emphasis on the Renaissance through the modern period. Prerequisite: HON 171.
General Studies: L/HU, H

W HON 394 Special Topics. (3)
fall and spring
Junior-level seminar that introduces students to critical thinking, discussion, and writing in various content areas.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

University College

www.west.asu.edu/uc

Afsaneh Nahavandi, PhD, Director

Academic discovery and community engagement are distinguishing characteristics of the University College at the West campus of ASU. The college extends university access to exploratory freshmen, transfer, and reentry students, and provides an opportunity to consider many academic options. High academic standards and individualized attention are hallmarks of University College academic advising, student success and engagement programs, and campus orientation and parent programs.

The University College includes these units at the West campus:

Academic Advising Office
Student Success and Engagement Programs
Orientation and Parent Programs
GCC-ASU Partnership at the West campus

ACADEMIC ADVISING

The Academic Advising Office provides professional academic advising for the following types of students:

1. exploratory freshmen who have not declared a major;
2. exploratory transfer students who have not declared a major;
3. all students in transition who have left a professional program and are exploring majors across the university; and
4. students who are part of the GCC-ASU Partnership at the West campus.

STUDENT SUCCESS AND ENGAGEMENT PROGRAMS

The Student Success and Engagement Programs unit is designed to support the success of all students through university academic success courses (such as UNI 101), student development workshops, Peer-2-Peer mentoring and advising, tutoring, and other programs such as Campus Match and Summer Academy.

The goal of Student Success and Engagement Programs is to actively involve students in their education and with the community in which they live and work by connecting them to the multitude of service and experiential learning opportunities offered at the West campus.

University Success Courses

The purpose of the UNI course is to assist first-year, transfer, and reentry students in making a successful transition to the university. Students learn about university resources, policies and procedures, study skills, values and goal setting, human diversity, academic and career planning, and other skills.

UNIVERSITY ACADEMIC SUCCESS (UNI)

For more UNI courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W UNI 101 Student Success Seminar. (1)
fall and spring
Understanding human diversity, perspectives, and values as they relate to student success. Orientation to ASU resources, study skills, and academic and social issues for students. Seminar, discussion.

W UNI 194 Special Topics. (1–4)
selected semesters
Topics may include the following
- Career/Major Exploration. (1)
  fall
  Topics include identifying personal and professional interests, exploring majors and occupations, developing self-marketing skills, and designing an effective academic and career strategy.
- Peer Program. (1)
  fall and spring
  Topics include understanding the purpose and role of peer mentors and advisors in other students' success, understanding the university catalog, developing skills to assist other students during orientation and registration.
- Tutor Training. (1)
  fall and spring
  Topics include effective tutoring strategies for various disciplines.

W UNI 294 Special Topics. (1–4)
fall
Topics may include the following
- Student Development Workshop. (1)
  Topics may include stress management, time management, financial planning, goal setting, cultural diversity.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Students relax between classes on the beautiful ASU West campus.

Scott Baxter photo

Student Development Workshops

Noncredit seminars are offered in the fall to support freshmen with their transition to university life. Topics include study skills, diversity, career exploration, stress and time management, goal setting, and financial management.

Peer-2-Peer Program

The Peer-2-Peer program provides an opportunity for upper-division students to work with freshmen and help them make a successful transition to the West campus. Participants can become either peer mentors and work with students on an informal basis, or peer advisors who are formally trained to provide basic academic advising. For more information or to become a peer advisor or peer mentor, call the University College at the West Campus at 602/543-4360.

Campus Match

Campus Match offers freshmen who are enrolled in large introductory classes the opportunity to register for a matching University Academic Success (UNI 101) course of no more than 15 students. The goal of the UNI course is to provide students with support and to build a sense of community in a smaller class environment. For more information, access the Web site at www.west.asu.edu/uc/campus-mat.htm.

Summer Academy Program

The Summer Academy Program was developed to address the needs of incoming freshmen who may be underprepared for the rigors of university classes. The program focuses on enhancing students' English and math skills. Students are invited to the Academy based on their high school GPA or ACT/SAT scores. For more information about the program, call 602/543-4600.

ORIENTATION AND PARENT PROGRAMS

Freshman Orientation provides a comprehensive online and on-campus program for all freshmen beginning their education at the West campus in the fall. Orientation programs begin in March and continue through August and are aimed at connecting new freshmen and their parents with university and campus resources as well as with the faculty, administration, and advisors from their colleges. For more information about freshman orientation, call 602/543-4600, or access the Web site at www.west.asu.edu/uc/orientation.

The Parent Programs unit offers a series of opportunities designed to connect parents to the life of the university, to one another, and to the campus through workshops, receptions and organized group activities. For more information about Parent Programs, call 602/543-4300, or access the Web site at www.west.asu.edu/uc/parent.htm.

GCC-ASU PARTNERSHIP AT THE WEST CAMPUS

Glendale Community College and ASU at the West campus have joined hands to create a partnership that offers freshman and sophomore GCC courses on the West campus. The partnership provides students who are thinking about completing a bachelor's degree the courses and information they need to make a seamless and efficient transition to the university in the shortest period of time.

In addition to offering classes that meet a variety of university general studies requirements, the GCC-ASU Partnership provides students access to all university support services such as the library, tutoring, the Las Casas residence halls, and student employment. For information, call 602/543-4222, or access the Web site at www.west.asu.edu/uc/ucc.htm.

School of Global Management and Leadership

www.west.asu.edu/sgml

Leanne Atwater, PhD, Interim Dean

PURPOSE

The School of Global Management and Leadership prepares students to become innovative and skilled business leaders in today's dynamic and global business economy, whether in their own community or elsewhere in the world. Faculty are experts in their fields who bring international research and current events into the classroom. The school's programs are accredited by AACSB International—The Association to Advance Collegiate Schools of Business—a distinction achieved by fewer than 350 schools around the world.

ORGANIZATION

The school houses the following academic units and the Institute for International Management:

Department of Accounting
Department of Economics, Finance, Marketing, and Quantitative Business Analysis
Department of Management

DEGREE PROGRAMS

See the "School of Global Management and Leadership Baccalaureate Degrees and Majors" table, page 668. The faculty of the School of Global Management and Leadership offer the Master of Business Administration degree program. For more information, see the *Graduate Catalog*, or access the school's Web site at www.west.asu.edu/sgml.

CERTIFICATES

See the "West Campus Certificates" table, page 655.

BACCALAUREATE DEGREE PROGRAMS

The school offers baccalaureate programs in Accountancy, Global Business, and Leadership in International Management (LIM). The Accountancy program provides the foundational requirements for professional certification in accounting. The BS in Global Business and the BS in LIM provide two very different learning experiences for West campus students. Students in the new LIM program are drawn to the advantages of the foreign language component and international exposure for their career preparation. For other students, the flexibility of being able to attend part-time and not being away from family make the Global Business program a better match. The goal of the SGML is to provide programs that meet student needs as well as the demands of the industry.

Nature of Program

The undergraduate curriculum has been devised so that the student completes 50 percent of work in general education and other nonbusiness courses and 45 percent in courses offered by the School of Global Management and Leadership, with the remaining 5 percent selected from either area by the student in consultation with his or her advisor.

Admission to the Professional Programs

The School of Global Management and Leadership offers the upper-division level of the undergraduate curriculum. Admission is awarded to those applicants demonstrating the highest promise for professional success.

The admission requirements for the professional programs in Accountancy, Global Business, and LIM are enumerated in each program section.

For more information, call the school's Undergraduate Program Advising Office at 602/543-6200.

To be accepted for credit as part of the academic program in business, all courses transferred from other institutions must carry prerequisites similar to those of the courses they are replacing at ASU.

Nondegree and Nonbusiness Students

Nondegree and nonbusiness students may be permitted to enroll in selected 300-level business courses only during online registration and only if, (1) the student has an ASU cumulative GPA of at least 2.50 and an ASU cumulative business GPA of at least 2.50 at the time of online registration, or (2) the student has never attended ASU, in which case he or she is given a one-semester period to register during online registration and to establish a GPA at ASU. Students must meet all prerequisites and course requirements as listed in the catalog. Course registration must be approved by a school representative.

Nondegree and nonbusiness students are limited to a maximum of 15 semester hours of selected upper-division business courses (excluding economics courses).

School of Global Management and Leadership Baccalaureate Degrees and Majors

Major	Degree	Concentration*	Administered By
Accountancy	BS	—	Department of Accounting
Global Business	BS	Financial management, leadership and management, or marketing	School of Global Management and Leadership
Leadership in International Management	BS	—	School of Global Management and Leadership

* If a major offers concentrations, one must be selected unless noted as *optional*.

Transfer Credit

Freshman- and sophomore-level courses (numbered 100 to 299) at a community college or another four-year university will not be accepted as transfer credit in the upper-division program.

Professional business courses taught in the junior or senior year in the three state universities may not be completed at a two-year college for transfer credit in the business core or major. A maximum of nine semester hours of upper-division business credits may, upon approval, be transferred from the Tempe campus or from another AACSB-accredited four-year institution.

An Associate in Transfer Partnership Degree is available to Maricopa County Community College students who wish to complete their first two years of course work at a Maricopa County Community College and transfer to the School of Global Management and Leadership without loss of credit. The Arizona Associate in Business degree is also available for transfer to any business program at an Arizona state-funded university without loss of credit. A student should consult with an academic advisor in the School of Global Management and Leadership to assist in planning his or her program.

Degree Requirements

Students seeking a Bachelor of Science (BS) degree in the School of Global Management and Leadership must satisfactorily complete a curriculum of 120 semester hours.

Specific requirements for the BS degree in Accountancy, Global Business, and LIM are explained under the respective academic program sections.

University General Studies Requirements

All students pursuing a baccalaureate at ASU must successfully complete a minimum of 35 semester hours of approved general studies courses. Courses completed in the business major, as well as selected courses required for admission to the BS degree program can be applied toward meeting the university General Studies requirement. Students should consult with their advisor when selecting courses to fulfill the General Studies requirement.

Additional Graduation Requirements

In addition to completion of the courses outlined above, to be eligible for a BS degree in the School of Global Management and Leadership, a student must have

1. attained a cumulative GPA of 2.00 or higher for all business courses taken at this university and for all courses for the concentration/major taken at this university;
2. earned at least 50 percent of the business semester hours required for the business degree in resident credit at the West campus; and
3. earned a grade of "C" (2.00) or higher in all upper-division business courses required for the major or concentration.

Pass/Fail

School of Global Management and Leadership undergraduate students may not include among the semester hours required for graduation any courses taken at this university on a pass/fail basis. This policy excludes some courses such as internship, which may be offered only for satisfactory/fail credit.

ACADEMIC STANDARDS

The following are minimum academic standards applicable to all degree and certificate programs offered by the School of Global Management and Leadership. Some programs may have more specific or more stringent requirements.

Probation

Students are placed on probation when their GPA for all courses taken at ASU drops below a 2.00 minimum.

Disqualification

Probationary students have at most the next two consecutive semesters to raise their ASU GPA to the minimum 2.00 or higher. In the first semester of probation the student must receive a grade of "C" (2.00) or higher in all courses and have a GPA of at least 2.50 for the semester. Immediate disqualification occurs if either of these conditions are not met. If both are satisfied but the GPA for ASU courses still remains below 2.00, then the student may be given a second semester under probation to raise the GPA to the minimum. The student is disqualified from the business program if the ASU GPA has not been restored to at least 2.00 after the two semesters.

Reinstatement

The School of Global Management and Leadership does not accept applications for reinstatement until the disqualified student has remained out of the college for at least a 12-month period. Merely remaining in a disqualified status for the above period of time does not, in itself, constitute a basis for reinstatement. Evidence of ability to do satisfactory academic work is required.

Students who have been academically disqualified are permitted to enroll in courses during summer sessions in

order to raise their ASU GPA. Disqualified students may not enroll in upper-division business courses until they have been reinstated in a business program.

Academic Dishonesty

School of Global Management and Leadership students are expected to adhere to the ASU Academic Integrity Policy. A copy of the policy may be obtained from the school's Advising Office.

GLOBAL BUSINESS—BS

Nature of Program

The Global Business degree program establishes the foundation for understanding the entire business enterprise operating in a global economy. The program emphasizes real-world skills, such as conflict management, team building, diversity awareness, and problem solving, by integrating innovative courses into its curriculum.

The Global Business curriculum is composed of a global business core, a business concentration, and focused liberal studies courses. The core courses integrate concepts to develop the understanding of how businesses operate and how to make decisions in the global marketplace.

Each student's degree program includes courses in a specialized area of interest in business. The focused liberal studies courses are directly linked to global awareness, understanding diverse customers and markets, communication, and problem solving skills.

Career Outlook

The Global Business major is designed for students seeking careers in a variety of domestic business organizations as well as those focused on worldwide business activity. Opportunities for graduates exist with both large and small employers. Most career-related positions tend to be in private firms, followed by government agencies, and by nonprofit organizations. The program emphasizes the analysis of business environments, and related business practices and issues. In addition, the global business program serves as an excellent foundation for graduate study in business and for the study of law.

To further enhance the program of study, the ASU Global Business major provides a professional career development component that is integrated into the degree program and requires each student to participate in several workshops/seminars each semester.

Admission

To be considered for admission to the Global Business program, the student must be admitted to the West campus and must have

1. completed a minimum of 57 semester hours of the lower-division requirements for the degree at ASU or a regionally accredited college or university, or the Arizona Associate of Business degree, or the Associate in Transfer Partnership degree;
2. attained a minimum cumulative GPA of 2.50; and
3. completed the following required courses with a grade of "C" (2.00) or higher in each course:
   a. ACC 230 Uses of Accounting Information I or a Financial Accounting course (3 hours)
   b. ACC 240 Uses of Accounting Information II or a Managerial Accounting course (3 hours)
   c. CSE 180 Computer Literacy *CS*
   d. ECN 211 Macroeconomic Principles *SB*
   e. ECN 212 Microeconomic Principles *SB*
   f. ENG 101, 102 First-Year Composition
   g. MAT 119 Finite Mathematics *MA*
   h. MAT 210 Brief Calculus *MA*
   i. PGS 101 Introduction to Psychology *SB*
   j. QBA 221 Statistical Analysis *CS*
   k. SOC 101 Introductory Sociology *SB*
   l. two SQ laboratory science courses or an SQ and an SG laboratory science course (8 hours)
   m. a course in oral communication (3 hours).

Major Requirements

Upper-Division Business Core

ACC	346	Information Systems Management	3
FIN	301	Fundamentals of Finance	3
GLB	301	Business in the Global Environment *G*	4
GLB	302	Culture and Diversity Management	3
GLB	303	Relationship Management	3
GLB	401	Global Business Integration *L*	4
MGT	301	Principles of Management	3
MKT	301	Fundamentals of Marketing	3
OPM	301	Operations Management	3
Business elective or internship			4
Total core			33

Focused Liberal Studies. Select 15 upper-division semester hours from the following areas.

Ethics

Choose one of these two 3

PHI	306	Applied Ethics *HU* (3)
PHI	360	Business and Professional Ethics *HU* (3)

Creativity

Choose one of the following courses 3

COM	422	Argumentation, Critical Reasoning, and Public Communication *L* (3)
IAP	331	Performance, Acting, and the Individual (3)
IAP	335	Vocalization and Movement (3)
IAP	352	Seeing and Drawing (3)
IAP	442	Movement and Music (3)

Writing

Choose one of the following courses 3

ENG	301	Writing for the Professions *L* (3)
ENG	311	Persuasive Writing *L* (3)
ENG	323	Rhetoric and Grammar *L* (3)

Global/Regional/American Studies

Choose one global/regional studies course and one American studies course from the following courses 6

AMS	311	History of American Systems since 1865 *H* (3)
AMS	321	American Cultural History II *SB, H* (3)
AMS	330	Introduction to American Lives *HU* (3)
ASB	340	Migration and Culture *SB, G* (3) or SOC 328 Migration *SB, G* (3)
ASB	440	Women in the Global Factory *SB, G* (3)
HIS	356	World History Since 1500 *G, H* (3)

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

HIS 394 ST: Japan (3)
HIS 423 Mexico *SB, H* (3)
LSC 330 Pollution vs. Protection: Counting the Cost *G* (3)
POL 350 Comparative Politics *SB, G* (3)
POL 360 World Politics Theory *SB, G* (3)
POL 361 American Foreign Policy *SB* (3)
POL 430 Race and Politics in the Americas *SB, C* (3)
POL 435 Women, Power, and Politics *SB, C* (3)
POL 453 Latin American Cities *SB, G* (3)
POL 454 Mexico: Politics, Economy, Cultures *SB, G* (3)
POL 460 Politics of Globalization *SB, G* (3)
or SOC 457 Social Movements and Social Change *SB, G* (3)
POL 464 Border Cities: Action Research on Globalization *SB, G* (3)
POL 486 Global Political Economy *SB, G* (3)
SBS 450 Topics in Local/Global *SB, G* (3)
SOC 352 Social Change *SB, G, H* (3)
SOC 364 Popular Culture *SB* (3)
WST 487 Gender and International Development *SB, G* (3)

Total focused liberal studies.....15

Concentrations

Each student's degree program includes one of the following areas of concentration: financial management, leadership and management, or marketing. Each concentration consists of 12 semester hours.

Honors Thesis

With the approval of the thesis advisor, honors students may substitute the Honors Thesis for one course in the concentration.

Financial Management Concentration

The objective of the financial management concentration is to prepare students to enter a career in finance. Students will get an in-depth look at the quantitative and qualitative aspects of the analytical tools needed to make financial decisions. Emphasis is on domestic and global capital market institutions and securities.

The financial management concentration consists of four required courses as follows:

ACC 410 Contemporary Financial Reporting.....3
FIN 410 Investments 3
FIN 411 International Finance 3
FIN 412 Financial Management.....3

Total 12

Leadership and Management Concentration

The leadership and management concentration provides students with a broad introduction to principles and practices relevant in today's complex business world. Emphasis is placed on leadership applications and development and on management of human resources in a domestic and global business environment. This concentration is designed for students who seek a challenging and rewarding management position.

MGT 411 Leading Organizations 4
MGT 412 Managing Human Resources 4
MGT 494 Special Topics in Leadership and Management.....4

Total 12

Marketing Concentration

Study in the field of marketing involves analysis of how organizations design, distribute, price, and promote products and services that satisfy customer needs as well as meet organizational objectives. Marketing students prepare for careers in general marketing management, brand management, advertising, marketing research, international marketing, distribution, retail sales, and sales management.

The marketing concentration consists of three required courses as follows:

MKT 410 Consumer Behavior 4
MKT 413 Marketing Research Concepts and Practice.....4
MKT 414 Global Strategic Marketing.....4

Total 12

LEADERSHIP IN INTERNATIONAL MANAGEMENT —BS

Nature of Program

The School of Global Management and Leadership offers a new bachelor's degree in Leadership in International Management (LIM) beginning fall 2006. The LIM program offers a more extensive international curriculum and greater multicultural experiences than the Global Business program. The new program requires a cohort learning experience for all upper-division core courses, a foreign language (Spanish), a semester of upper-division study at a university in Mexico, and a partnership with international exchange students who are in residence at ASU on the West campus. As a border state to Mexico, the number two global trading partner of the U.S., Arizona offers students a rich opportunity to learn the language while studying in a key trading partner country.

Career Outlook

The ultimate outcome of the LIM program is to develop graduates who possess the knowledge, skills and techniques necessary to significantly participate in international business operations. Trade with Central American countries is expected to increase in the near future. The Central American Free Trade Agreement (CAFTA), signed into law in August 2005, will create opportunities for U.S.-based businesses to export goods with reduced tariffs, and eventually many goods will become duty-free. To be successful in this new environment, businesses will need a workforce that understands the Central American business environment, its cultures, and how to communicate and develop relationships with such businesses. This program is helping to provide such a workforce.

Admission

Because of the cohort nature of the program, students are admitted to the program only for the fall semester. To be considered for admission to the LIM program, the student must be admitted to the West campus and must have

1. completed a minimum of 44 semester hours of the lower-division requirements for the degree (excluding language) at ASU or a regionally accredited college or university, or the Arizona Associate of Business degree, or the Associate in Transfer Partnership degree;

2. attained a minimum cumulative GPA of 3.50 and completed the following required courses with a grade of "C" (2.00) or higher in each course:
   a. ACC 230 Uses of Accounting Information I or a Financial Accounting course (3 hours)
   b. ACC 240 Uses of Accounting Information II or a Managerial Accounting course (3 hours)
   c. CSE 180 Computer Literacy *CS*
   d. ECN 211 Macroeconomic Principles *SB*
   e. ECN 212 Microeconomic Principles *SB*
   f. ENG 101, 102 First-Year Composition
   g. MAT 119 Finite Mathematics *MA*
   h. MAT 210 Brief Calculus *MA*
   i. PGS 101 Introduction to Psychology *SB*
   j. QBA 221 Statistical Analysis *CS*
   k. two SQ laboratory science courses or an SQ and an SG laboratory science course (8 hours)
   l. a course in oral communication (3 hours); and
3. submitted an admission essay and participate in an on-campus interview. Out-of-state students may fulfill this with a phone interview.

Acceptance is contingent upon the fulfillment and assessment of these activities by a LIM program committee composed of two LIM faculty members, an academic advisor, and the SGML undergraduate program director.

Major Requirements

Upper-Division Business Core

ACC	346	Information Systems Management	3
FIN	301	Fundamentals of Finance	3
GLB	301	Business in the Global Environment *G*	4
GLB	302	Culture and Diversity Management	3
GLB	401	Global Business Integration *L*	4
MKT	301	Fundamentals of Marketing	3
OPM	301	Operations Management	3
Focused liberal studies			9
LIM courses at West campus*			14
Semester of course work at a Mexican University			15

* These courses are under development.

Language Requirement. To enrich the experiences of the senior semester of study in a Latin American country, each student is required to demonstrate knowledge of Spanish at the intermediate level by the middle of the junior year. Although the students take their courses in English during their semester of study in Latin America, familiarity and comfort with Spanish enhances their out-of-class interactions and cultural experiences. This language requirement may be satisfied through one of the following:

1. completion of secondary education at a school in which the language of instruction is Spanish; or
2. completion of 16 semester hours of Spanish (through the second intermediate Spanish course, equivalent to SPA 202) or an equivalent score earned on a standardized proficiency exam, such as the CLEP test.

For more information, call 602/543-6200, or access the SGML Web site at www.west.asu.edu/sgml.

GRADUATE DEGREE

The faculty of the School of Global Management and Leadership offer the professional Master of Business Administration (MBA) degree. The MBA program is accredited by AACSB International—The Association to Advance Collegiate Schools of Business. For more information, see the *Graduate Catalog*.

Department of Accounting

www.west.asu.edu/sgml/accountancy
602/543-6275
FAB S190

William Duncan, Chair

Professor: Vickrey

Associate Professors: Duncan, Lowe, Prosch, Swenson

Assistant Professors: Chen, Chung, Samuels

Senior Lecturer: Muller

Lecturers: Dallmus, Finger, Wood

Three accounting programs are available at the West campus. The BS degree in Accountancy is available for students pursuing an undergraduate degree. The Postbaccalaureate Certificate in Accountancy is available for those already possessing a bachelor's degree who seek a career change to accounting or upgraded accounting skills. The Postbaccalaureate Certificate in Professional Accountancy is designed to allow BS in Accountancy graduates to meet the educational requirements for CPA licensure.

Either certificate program can be used as a foundation to pursue professional certification as a Certified Public Accountant (CPA), Certified Management Accountant (CMA), or Certified Internal Auditor (CIA).

ACCOUNTANCY—BS

Nature of Program

The faculty of the Accountancy Program is dedicated to improving the quality of accounting practice. This objective is achieved primarily through offering rigorous and relevant educational experiences through the bachelor's program. The complexity of the modern business world and its growing interaction with social, political, and economic environments is reflected in the revised accountancy program with its emphasis on a solid foundation of accounting and business courses with a selection from a number of optional courses for specialized career development. Students who

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

study accountancy aspire to enter a challenging professional environment. An accounting professional in today's environment must possess technical expertise and excellent communication, analytical, and interpersonal skills.

Career Outlook

Graduates of the Accountancy Program accept positions as accountants, auditors, and internal auditors, while some students pursue business careers outside traditional accounting roles. Students are recruited by CPA firms, banks, other financial institutions, manufacturing companies, utilities, and government agencies. The curriculum in the undergraduate accountancy program provides the foundational requirements for professional certification as a CPA, CMA, or CIA. Additional course work may be necessary for licensure.

Admission

To be considered for admission to the Accountancy program, the student must be admitted to the West campus and must have

1. completed a minimum of 57 semester hours of the lower-division requirements for the degree at ASU or a regionally accredited college or university, or the Arizona Associate of Business degree, or the Associate in Transfer Partnership degree;
2. attained a minimum cumulative GPA of 2.50;
3. completed the accounting core with a grade of "B" (3.00) or higher in each course:
   a. ACC 230 Uses of Accounting Information I or a Financial Accounting course (3 hours)
   b. ACC 240 Uses of Accounting Information II or a Managerial Accounting course (3 hours)
   c. ACC 250 Introductory Accounting Lab (0–1 hour)*; and
4. completed the following required courses with a grade of "C" (2.00) or higher in each course:
   a. CSE 180 Computer Literacy *CS*
   b. ECN 211 Macroeconomic Principles *SB*
   c. ECN 212 Microeconomic Principles *SB*
   d. ENG 101, 102 First-Year Composition
   e. MAT 119 Finite Mathematics *MA*
   f. MAT 210 Brief Calculus *MA*
   g. PGS 101 Introduction to Psychology *SB*
   h. QBA 221 Statistical Analysis *CS*
   i. SOC 101 Introductory Sociology *SB*
   j. two SG laboratory science courses or an SQ and an SG laboratory science course (8 hours)
   k. a course in oral communication (3 hours).

* This course is required for those completing the ACC 230 and 240 sequence.

Major Requirements

Upper-Division Business Core

ACC 346 Information Systems Management 3
FIN 301 Fundamentals of Finance 3
GLB 401 Global Business Integration *L* 4
MKT 301 Fundamentals of Marketing 3
OPM 301 Operations Management 3
Choose one of the following management courses 3–4
GLB 303 Relationship Management (3)
MGT 301 Principles of Management (3)
MGT 412 Managing Human Resources (4)
Total upper-division business core 19–20

Accounting Core

ACC 326 External Financial Reporting I 3
ACC 327 External Financial Reporting II 3
ACC 336 Cost Management and Control 3
ACC 356 Income Tax Accounting 3
ACC 361 Accounting Technology 3
Total accounting core 15

Career Focus

Choose three from the following courses, at least two of which must be ACC 9
ACC 426 Advanced Reporting: Consolidation, International and Not-for-Profit Topics (3)
ACC 436 Advanced Topics in Cost Management (3)
ACC 456 Advanced Taxation (3)
ACC 476 External Auditing (3)
ACC 477 Internal Auditing (3)
ACC 478 Governmental and Not-for-Profit Accounting (3)
ACC 484 Accounting Internship (3)
FIN 410 Investments (3)
FIN 411 International Finance (3)
FIN 412 Financial Management (3)
LES 306 Business Law (3)

General Studies Requirements

COM 100 Introduction to Human Communication *SB* 3
or COM 230 Small Group Communication *SB* (3)
COM 259 Communication in Business and the Professions 3
ENG 301 Writing for the Professions *L* 3
PHI 306 Applied Ethics *HU* 3
or PHI 360 Business and Professional Ethics *HU* (3)
General Studies curriculum course* 3
Total 15

Total major requirements 58–59

* This course must be approved by a business advisor and must have subject matter in political science, government, or business and society.

Academic Good Standing

Accountancy majors must receive grades of "C" (2.00) or higher in the required upper-division accounting courses to be in good standing. If an Accountancy major receives a grade below "C" (2.00) in any required course, this course must be repeated before any other upper-division accounting course can be taken. If a second grade below "C" (2.00) is received in an upper-division accounting course already taken, the student is no longer eligible to take additional upper-division accounting courses.

POSTBACCALAUREATE CERTIFICATE IN ACCOUNTANCY

Nature of the Program. The Postbaccalaureate Certificate in Accountancy is a flexible 30-semester-hour program designed for students already possessing an undergraduate degree. The undergraduate degree may be in any field, business related or not.

The certificate program is particularly useful for persons seeking a career change to accounting or upgrading existing

accounting skills. The program involves undergraduate course work in accounting and related fields and prepares a student to sit for the Certified Public Accountant examination or other professional accounting certification such as the Certified Management Accountant or Certified Internal Auditor.

The curriculum is designed to provide students with a solid foundation, teaching students the technical accounting expertise they need while learning the communication, analytical, and interpersonal skills necessary to succeed in today's business world. Classes are conveniently offered during day and evening hours. Students also have the opportunity to receive work experience through internship programs with local firms and governmental agencies. Students who complete the certificate are highly sought after by employers because of their practical work experience and strong communication skills.

Admission. To be admitted to the Postbaccalaureate Certificate in Accountancy program, an individual must

1. possess a four-year baccalaureate degree with a minimum GPA of 2.50 from an accredited college or university;
2. be admitted to West campus as a nondegree graduate student; and
3. have completed Financial and Managerial Accounting (six semester hours) with a grade of "B" (3.00) or higher and the prerequisite Business core with a minimum GPA of 2.50 and a grade of "C" (2.00) or higher in each course:
   a. Computers in Business (three hours)
   b. Finite Mathematics (three hours)
   c. Microeconomic Principles and Macroeconomic Principles (six hours)
   d. Statistical Analysis (three hours).

Program Requirements

Accounting Core

W ACC 326 External Financial Reporting I 3
W ACC 327 External Financial Reporting II 3
W ACC 336 Cost Management and Control 3
W ACC 346 Information Systems Management 3
W ACC 356 Income Tax Accounting 3
W ACC 361 Accounting Technology 3

Core total 18

Career Focus

Choose two from the following courses, at least one of which must be ACC 6
- W ACC 426 Advanced Reporting: Consolidation, International, and Not-for-Profit Topics (3)
- W ACC 436 Advanced Topics in Cost Management (3)
- W ACC 456 Advanced Taxation (3)
- W ACC 476 External Auditing (3)
- W ACC 477 Internal Auditing (3)
- W ACC 478 Governmental and Not-for-Profit Accounting (3)
- W ACC 484 Accounting Internship (3)
- W ACC 494 Special Topics (3)
- W FIN 410 Investments (3)
- W FIN 411 International Finance (3)
- W FIN 412 Financial Management (3)
- W LES 306 Business Law (3)

Business Electives

Choose two from the following courses 6
- W FIN 301 Fundamentals of Finance (3)
- W GLB 303 Relationship Management (3) or W MGT 301 Principles of Management (3)
- W MKT 301 Fundamentals of Marketing (3)
- W OPM 301 Operations Management (3)

Program minimum total 30

Students admitted to the Postbaccalaureate Certificate in Accountancy program are permitted to enroll in courses other than those listed above only with the written permission of the accountancy director.

At least 21 of the upper-division semester hours for the certificate and 18 of the upper-division semester hours in accounting must be taken in residence at West campus. Candidates must achieve a grade of "C" (2.00) or higher in each course presented for the postbaccalaureate certificate.

Academic Good Standing. Postbaccalaureate Certificate students must receive grades of "C" (2.00) or higher in the required upper-division accounting courses to be in good standing. If a postbaccalaureate certificate student receives a grade below "C" (2.00) in any required accounting course, this course must be repeated before any other upper-division accountancy course can be taken. If a second grade below "C" (2.00) is received in an upper-division accountancy course already taken, the student is no longer eligible to take additional upper-division accountancy courses.

POSTBACCALAUREATE CERTIFICATE IN PROFESSIONAL ACCOUNTANCY

Nature of the Program. The Postbaccalaureate Certificate in Professional Accountancy is designed for students who have earned a Bachelor of Science in Accountancy and need additional college course work to meet the educational requirements for Certified Public Accountant (CPA) licensure in the State of Arizona. Upon completion of the Postbaccalaureate Certificate in Professional Accountancy, students will have met the 150 semester hour requirement for CPA certification in Arizona that took effect June 30, 2004.

Admission. To be admitted to the Postbaccalaureate Certificate in Professional Accountancy program, an individual must possess a four-year baccalaureate degree in Accountancy with a minimum GPA of 2.50 from ASU or the equivalent from another regionally accredited university or college with a minimum of 120 semester hours.

Program Requirements. In consultation with a program advisor, students design individualized programs of study that enable them to meet the educational requirements for certification as CPAs in Arizona. Certificates are awarded to students who have completed at least 150 semester hours of college-level course work, including at least 36 semester hours of accounting courses, of which at least 30 semester

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

hours must be in the upper division. Thirty semester hours of related business courses acceptable for certification must also be completed. All course work presented for the certificate must be completed with a minimum grade of "C" (2.00) and be earned at regionally accredited universities or colleges. At least 18 semester hours must be taken in residence at West campus.

Academic Good Standing. Postbaccalaureate certificate students must complete all courses used to fulfill the certificate requirements with a grade of "C" (2.00) or higher.

ACCOUNTANCY (ACC)

For more ACC courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W ACC 230 Uses of Accounting Information I. (3)
fall and spring
Introduces the uses of accounting information focusing on the evolution of the business cycle and how accounting information is used for internal and external purposes. Prerequisite: sophomore standing.

W ACC 240 Uses of Accounting Information II. (3)
fall and spring
Introduces the uses of accounting information focusing on the evolution of the business cycle and how accounting information is used for internal and external purposes. Prerequisite: sophomore standing. Prerequisite with a grade of "C" (2.00) or higher: ACC 230.

W ACC 250 Introductory Accounting Lab. (1)
fall and spring
Procedural details of accounting for the accumulation of information and generation of reports for internal and external users. Lab.

W ACC 326 External Financial Reporting I. (3)
fall and spring
Theory, U.S. standards, and practice applicable to financial statements, revenue recognition, and assets. Prerequisite: 250 (or its equivalent).

W ACC 327 External Financial Reporting II. (3)
fall and spring
Theory, U.S. standards, and practice applicable to equities, cash flow statement, earnings per share, leases, pensions, and other essential topics. Prerequisite: ACC 326.

W ACC 336 Cost Management and Control. (3)
fall and spring
Concepts and principles for product costing, planning and control, and internal decision making. Prerequisite: previous course work in managerial accounting or director approval.

W ACC 346 Information Systems Management. (3)
fall, spring, summer
Information requirements and transaction processing for integrated accounting systems emphasizing database systems analysis and design, controls, and computer processing. Prerequisite: previous course work in information systems or director approval.

W ACC 356 Income Tax Accounting. (3)
fall and spring
Public policy concepts and rules of federal income tax for all taxpayers. Individual tax returns and use of tax software. Prerequisite: ACC 326.

W ACC 361 Accounting Technology. (3)
fall and spring
Use and understanding of a computerized accounting package and other software for accounting applications. Prerequisites: ACC 326, 336, 346.

W ACC 410 Contemporary Financial Reporting. (3)
fall and spring
Topics include financial statements, roles and effects of accounting information in society, policy setting, managers' choice of accounting techniques. Cannot be used for major credit in Accountancy. Prerequisite: FIN 301.

W ACC 426 Advanced Reporting: Consolidation, International, and Not-for-Profit Topics. (3)
fall and spring
Consolidated financial statements, not-for-profit accounting, and international accounting standards and topics including foreign currency transactions and translation. Prerequisite: ACC 326.

W ACC 436 Advanced Topics in Cost Management. (3)
selected semesters
Issues in contemporary manufacturing environments. Topics include cost estimation, activity-based management, just-in-time inventories, budgeting, and variances. Prerequisites: ACC 326, 336.

W ACC 446 Advanced Topics in Information Systems. (3)
fall and spring
Use of contemporary technology in modern organizations. Topics include analysis and design, advanced database design, and electronic commerce. Prerequisite: ACC 346.

W ACC 456 Advanced Taxation. (3)
spring
Advanced problems in business and fiduciary income tax. Formation, operation, and liquidation of corporation and partnerships. Use of research software. Prerequisite: ACC 356.

W ACC 476 External Auditing. (3)
fall and spring
Theory and standards underlying the attestation process. Topics include evidence gathering, analysis, reporting, and development of professional judgement skills. Prerequisites: ACC 327, 346.

W ACC 477 Internal Auditing. (3)
spring
Contemporary issues and practices of internal auditing. Standards and process of management/operation audits. Prerequisites: ACC 326, 346.

W ACC 478 Governmental and Not-for-Profit Accounting. (3)
selected semesters
Accounting and reporting systems for governmental entities, health-care organizations, colleges and universities, and other nonprofit organizations. Prerequisite: ACC 326.

W ACC 484 Accounting Internship. (3)
fall, spring, summer
Undergraduate and postbaccalaureate students are eligible to apply for internship positions designed to provide experience in the areas of accounting, tax, and internal and external auditing. Placements are made in organizations throughout the metropolitan Phoenix area. Prerequisites: vary depending on the nature of the internship.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog,* or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

LEGAL AND ETHICAL STUDIES (LES)

For more LES courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W LES 306 Business Law. (3)
spring
Legal and ethical aspects of contracts, sales, commercial paper, secured transactions, documents of title, letters of credit, and bank deposits and collections.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Economics, Finance, Marketing, and Quantitative Business Analysis

www.west.asu.edu/sgml
602/543-6101
FAB N120A

Joseph Bellizzi, Chair

Professor: Bellizzi

Associate Professors: Anderson, Greenhut, Mizzi

Assistant Professors: Bristol, McCabe, Mola, Zhang

Visiting Assistant Professor: Oke

Lecturers: Macfie, Olander, Singh

ECONOMICS (ECN)

For more ECN courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W ECN 211 Macroeconomic Principles. (3)
fall and spring
Basic macroeconomic analysis. Economic institutions and factors determining income levels, price levels, and employment levels.
General Studies: SB

W ECN 212 Microeconomic Principles. (3)
fall and spring
Basic microeconomic analysis. Theory of exchange and production, including the theory of the firm.
General Studies: SB

W ECN 494 Special Topics. (3)
selected semesters
Current topics of interest in economics, e.g., managerial economics, microeconomic policy issues. Prerequisite: instructor approval.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

FINANCE (FIN)

For more FIN courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W FIN 301 Fundamentals of Finance. (3)
fall, spring, summer
Introduces the basic concepts, principles, and tools of financial management. Prerequisites: ACC 240 (or its equivalent); ECN 212; QBA 221.

W FIN 410 Investments. (3)
fall and spring
Strategies and mechanics of investing in stocks, bonds, and derivatives. Topics include investment selection, portfolio management, financial markets, and institutions. Prerequisite with a grade of "C" (2.00) or higher: FIN 301.

W FIN 411 International Finance. (3)
fall and spring
Explores the environmental challenges facing financial managers in global financial markets and develops tools and techniques to meet such challenges. Prerequisites: FIN 301; GLB 301.

W FIN 412 Financial Management. (3)
fall and spring
In-depth extension of core finance course. Typical topics include financial planning/control, risk and valuation, capital budgeting. Prerequisite: FIN 301. Pre- or corequisite with a grade of "C" (2.00) or higher: ACC 326 or 410.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog,* or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

MARKETING (MKT)

For more MKT courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W MKT 301 Fundamentals of Marketing. (3)
fall, spring, summer
Examines the role and process of marketing within the society, economy, and business organization. Prerequisite: ECN 212.

W MKT 410 Consumer Behavior. (4)
fall and spring
Applies social, cultural, and behavioral concepts for analyzing consumer behavior, with implications for marketing strategy and marketing communication strategy. Prerequisite: MKT 301.

W MKT 413 Marketing Research Concepts and Practice. (4)
fall and spring
Research techniques for collecting, analyzing, and interpreting marketing information. Includes design and completion of a client-sponsored, industry-based research project. Prerequisites: MKT 301; QBA 221.

W MKT 414 Global Strategic Marketing. (4)
fall and spring
Examines marketing and marketing communication strategy development, and evaluation in the context of global markets and organizational objectives. Prerequisites: GLB 301; MKT 301.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog,* or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

QUANTITATIVE BUSINESS ANALYSIS (QBA)

For more QBA courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W QBA 221 Statistical Analysis. (3)
selected semesters
Methods of statistical description. Applies probability theory and statistical inference in business. Prerequisite: MAT 119.
General Studies: CS

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Management

www.west.asu.edu/sgml/glb

602/543-6204

FAB N120D

David Waldman, Interim Chair

Professors: G. Anders, Atwater, Nahavandi, Van Fleet, Waldman

Associate Professors: Balthazard, Brett, Carey, Gopalakrishnan, Meznar

Assistant Professors: Mesquita, Mohan, Peterson, Printezis, Walumbwa

Visiting Associate Professor: Cabrera

Lecturers: K. Anders, Goldman, Washburn

BUSINESS (BUS)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

COMPUTER INFORMATION SYSTEMS (CIS)

For more CIS courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W CIS 200 Computer Applications and Technology. (3)
selected semesters
Introduces business information systems and the uses of business application software. Fee. Prerequisite: MAT 117 or higher.
General Studies: CS

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

GLOBAL BUSINESS (GLB)

W GLB 301 Business in the Global Environment. (4)
fall and spring
Discusses multinational corporate strategy, structure, operations, and the social and economic factors affecting global business.
General Studies: G

W GLB 302 Culture and Diversity Management. (3)
fall and spring
Develops an understanding of culture (individual, organizational, national, subcultural, transnational, and global) and change and interaction applied to management decisions. Prerequisite: MGT 301.

W GLB 303 Relationship Management. (3)
fall and spring
Overviews types of relationships found in organizations, then trains students in the interpersonal skills necessary to effectively manage those relationships.

W GLB 401 Global Business Integration. (4)
fall and spring
Provides an integrative framework for global corporate strategic analysis and opportunities for integrated decision making in actual and simulated businesses. Prerequisites: all 300-level business core courses (GLB 302 and 303 may be taken concurrently); ENG 101 (or 105).
General Studies: L

W GLB 411 Global Competitiveness. (4)
fall and spring
Discusses factors contributing to international competitive success of nation-states, national industries, and specific firms. Includes detailed analysis of actual firms. Prerequisite with a grade of "C" (2.00) or higher: GLB 301.

W GLB 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

MANAGEMENT (MGT)

For more MGT courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W MGT 301 Principles of Management. (3)
fall and spring
Introduces the theoretical and practical foundations of organizations with a focus on individuals, groups, and organizational systems. Prerequisites: one course in psychology (social and behavioral); one course in sociology.

W MGT 411 Leading Organizations. (4)
fall, spring, summer
Comprehensive overview of leadership in organizations. Provides students with understanding of leadership research and its applications to global organizations and the development of leaders.

W MGT 412 Managing Human Resources. (4)
fall, spring, summer
Overview of domestic and global human resources management topics pertinent to managers and first-line supervisors, as well as those with interest in human resources management.

W MGT 494 Special Topics. (3)
fall and spring
Chosen from topics in human resources, strategic management, and international management, including seminars in international management in Asia or Europe.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

OPERATIONS AND PRODUCTION MANAGEMENT (OPM)

W OPM 301 Operations Management. (3)
fall and spring
Introduces the management of service and manufacturing conversion processes, with emphases on quality management and computer applications. Prerequisites: ACC 240 (or its equivalent); ECN 212; QBA 221.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

College of Human Services

www.west.asu.edu/chs

John R. Hepburn, PhD, Dean

PURPOSE

The College of Human Services serves students and the community by combining forward-reaching education with world-class faculty in a number of service areas. The college focuses on expanding research and influence in areas of violence prevention, lifelong learning, quality of life issues, communication assessment, and advocacy and leadership effectiveness.

ORGANIZATION

The college houses the following academic units:

Center for Violence Prevention and Community Safety
Department of Communication Studies
Department of Criminal Justice and Criminology
Department of Recreation and Tourism Management
Department of Social Work
Gerontology Program
Nursing Program (ASU College of Nursing)
Partnership for Community Development

DEGREE PROGRAMS

See the "College of Human Services Baccalaureate Degrees and Majors" table, page 678, and the "College of Human Services Graduate Degrees and Majors" table, page 679.

Baccalaureate Degree Programs

Admission. Admission to programs in Communication Studies, Criminal Justice and Criminology, Recreation and Tourism Management, or Social Work requires a minimum cumulative GPA of 2.00, and any additional requirements the respective programs impose.

Transfer Students. Any person applying for admission or transfer to the Communication Studies or Criminal Justice and Criminology programs is admitted as a major of that program. A student applying for admission to the Recreation and Tourism Management or Social Work programs must fulfill additional requirements identified in the respective academic program sections that follow.

Degree Requirements. Students seeking a baccalaureate in a College of Human Services major must successfully complete 120 semester hours of college course work, fulfill all university degree requirements, and complete the specific requirements of the degree program. Specific degree requirements are explained under the respective academic program sections that follow.

Graduate Degree Programs

Information regarding university requirements, including admission policies and procedures are explained in the *Graduate Catalog*.

MINORS AND CERTIFICATES

See the "West Campus Minors" table, page 654, and the "West Campus Certificates" table, page 655.

SPECIAL GRADING OPTIONS

The College of Human Services grades some courses, internships, field experiences, and individualized instruction on a satisfactory/fail basis. Students who successfully complete these experiences receive a "Y" grade. Such grades are acceptable for meeting program requirements, but these grades are not computed in the GPA.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

College of Human Services Baccalaureate Degrees and Majors

Major	Degree	Concentration*	Administered By
Communication Studies	BA, BS	—	Department of Communication Studies
Criminal Justice and Criminology	BS	—	Department of Criminal Justice and Criminology
Nursing	BSN	—	College of Nursing (Downtown Phoenix campus)
Recreation and Tourism Management	BS	—	Department of Recreation and Tourism Management
Social Work	BSW	—	Department of Social Work

* If a major offers concentrations, one must be selected unless noted as *optional*.

Department of Communication Studies

www.west.asu.edu/chs/comm

602/543-6606

FAB S141C

J. Macgregor Wise, Chair

Professors: Morris, Waldron

Associate Professors: Di Mare, Kassing, Kelley, Nadesan, Ramsey, Shome, Wise

Assistant Professor: Meân

Lecturers: Burk, French, Gruber

The Department of Communication Studies prepares professionals with highly effective communication skills—speaking, writing, cultural sensitivity, critical thinking, problem solving, and conflict management—through a number of academic program options. The department offers BA and BS degrees in Communication Studies, undergraduate minors in Communication Studies and Public Relations and Strategic Communication, the MA degree in Communication Studies, and a postbaccalaureate certificate in Communication and Human Relations.

COMMUNICATION STUDIES—BA AND BS

Nature of Program

The Department of Communication Studies prepares students to enter the global age with competencies necessary to become active participants in democratic life. Because few phenomena are as central to society as communication, students in the program have the opportunity to achieve critical understanding of their increasingly international, multicultural, gendered worlds. Using scientific, interpretive, rhetorical, and critical research approaches, graduates learn to produce, analyze, and critique social and cultural information created by the practices of communication. Understanding communication's centrality in human experience brings a rich variety of material into the student's view. Contexts for studying communication include diversity, media, public influence, critical/rhetorical inquiry, personal relationships, and social organizations.

Career Outlook

The academic and scholarly focus on the criticism of communicative practices across various conditions prepares students well for a multitude of vocations in an increasingly complex world. Conceptualizing the world as one overflowing with meanings related to diverse social groups, identities, and relationships, students of communication are able to think critically about how meaning is made, how meaning can be made to change, and how communication fosters democratic ideals for the workplace and the world. The successful graduate will be able to work productively with other people; assimilate, organize, and analyze information; solve problems; make effective presentations; and show potential for leadership. The program prepares students for advanced education; advancement toward careers in teaching, counseling, law, and medicine; and various careers and professions, including

1. training and development,
2. public relations,
3. public administration,
4. public office,
5. public advocacy,
6. speech writing,
7. lobbying,
8. research,
9. advertising,
10. mediation,
11. customer relations,
12. human resources,
13. health and human services,
14. international service,
15. fund-raising, and
16. the ministry.

College of Human Services Graduate Degrees and Majors

Major	Degree	Concentration*	Administered By
Communication Studies	MA	—	Department of Communication Studies
Criminal Justice	MA	—	Department of Criminal Justice and Criminology
Social Work	MSW	Advanced generalist practice	Department of Social Work

* If a major offers concentrations, one must be selected unless noted as *optional*.

ADMISSION REQUIREMENTS

A minimum GPA of 2.00 is required for entrance into the major and for enrollment in all upper-division courses.

MAJOR REQUIREMENTS

Of the minimum required 48 semester hours, majors must complete nine semester hours of program core courses, 18 semester hours of selected course work across competency-based categories (all of which must be upper division, and nine hours of which must be at the 400-level), and 21 semester hours of elective course work (up to nine hours of which may be lower division). COM 484 and 499 may not be used to satisfy selected course work requirements but may fulfill elective course work requirements. Students seeking the BS degree must complete one lower-division statistics course and one additional upper-division statistics course. All courses must be completed with a minimum grade of "C" (2.00).

Required Course Work

COM 225 Public Speaking *L* 3
COM 308 Empirical Research Methods in Communication *L* 3
COM 309 Rhetorical, Interpretive, and Critical Methods in Communication 3
Total 9

Selected Upper-Division Course Work

Students are required to complete one course from each of the six categories below, nine hours of which must be at the 400-level.

Diversity

Choose one of the following 3
- COM 316 Gender and Communication *C* (3)
- COM 371 Cross-Cultural Communication Perspectives *G* (3)
- COM 394 Special Topics[1] (3)
- COM 416 Gender, Race, Colonialism, and Media (3)
- COM 463 Cultural and Intercultural Communication Theory and Research SB, *G* (3)
- COM 465 Intercultural Communication Workshop (3)
- COM 471 International Communication *G* (3)
- COM 494 Special Topics[1] (3)

Media Literacy

Choose one of the following 3
- COM 324 Rhetoric and Media Criticism (3)
- COM 394 Special Topics[1] (3)
- COM 424 Television Studies and Criticism (3)
- COM 429 Semiotics and Visual Communication (3)
- COM 457 New Media (3)
- COM 494 Special Topics[1] (3)

Public Influence Processes

Choose one of the following 3
- COM 325 Advanced Public Speaking (3)
- COM 329 Persuasion (3)
- COM 353 Professional Communication (3)
- COM 394 Special Topics[1] (3)
- COM 414 Crisis Communication (3)
- COM 454 Rhetorical and Critical Approaches to Public Relations (3)
- COM 494 Special Topics[1] (3)

Critical/Rhetorical Inquiry

Choose one of the following 3
- COM 321 Rhetorical Theory and Research *L/HU* (3)
- COM 394 Special Topics[1] (3)
- COM 421 Rhetoric of Social Issues *HU* (3)
- COM 422 Argumentation, Critical Reasoning, and Public Communication *L* (3)
- COM 456 Political Communication (3)
- COM 494 Special Topics[1] (3)

Relational Interaction

Choose one of the following 3
- COM 310 Relational Communication (3)
- COM 312 Communication, Conflict, and Negotiation (3)
- COM 394 Special Topics[1] (3)
- COM 410 Interpersonal Communication Theory and Research *SB* (3)
- COM 411 Communication in the Family *SB* (3)
- COM 417 Communication and Aging (3)
- COM 475 Nonverbal Communication Theory and Research (3)
- COM 494 Special Topics[1] (3)

Social Organizations

Choose one of the following 3
- COM 320 Communication and Consumerism *SB* (3)
- COM 394 Special Topics[1] (3)
- COM 430 Leadership in Group Communication (3)
- COM 450 Theory and Research in Organizational Communication *SB* (3)
- COM 451 Employee Participation Processes in Organizations (3)
- COM 453 Communication Training and Development (3)
- COM 494 Special Topics[1] (3)

Selected upper-division total 18

Communication Electives

COM electives[2] 21

Program total 48

[1] The topic must be designated as an appropriate course by the instructor.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

[2] Select COM electives in consultation with a faculty advisor. A maximum of nine hours may include COM 100 and courses at the 200 level.

Other Requirements

In addition to the above listed requirements, students must satisfy the General Studies Program requirements. Students should consult their advisors for current information concerning College of Human Services and the Communication Studies courses applicable to General Studies requirements.

MINOR IN COMMUNICATION STUDIES

The minor consists of 18 semester hours of Communication Studies courses. Students wishing to pursue a minor must meet with a Communication Studies faculty advisor to construct a minor that reflects a particular area of specialty and interest. At least 12 semester hours must come from upper-division courses. To graduate with the minor, students must earn a minimum cumulative GPA of 2.00 in Communication Studies courses. All courses must be passed with a minimum grade of "C" (2.00).

MINOR IN PUBLIC RELATIONS AND STRATEGIC COMMUNICATIONS

The Public Relations and Strategic Communications minor will provide students with professional and academic expertise in persuasion and campaign communication, public relations, crisis communication, special events planning, marketing, professional writing, and editing (among other areas). Additionally, students will have the opportunity to refine the presentation skills needed for public and community relations.

Program Requirements

The minor consists of 18 semester hours upper-division course work, including nine semester hours of required course work and nine semester hours of electives.

Required Core Courses

Choose three of the following courses 9
- COM 320 Communication and Consumerism *SB* (3)
- COM 329 Persuasion (3)
- COM 353 Professional Communication (3)
- COM 454 Rhetorical and Critical Approaches to Public Relations (3)

Electives

Select three of the following courses[1] 9–10
- COM 414 Crisis Communication (3)
- COM 453 Communication Training and Development (3)
- COM 484 Communication Internship[2] (3)
- ENG 301 Writing for the Professions *L* (3)
- ENG 311 Persuasive Writing *L* (3)
- ENG 412 Writing for Publication (3)
- MKT 301 Fundamentals of Marketing (3)
- MKT 410 Consumer Behavior (4)
- RTM 404 Marketing Recreation and Tourism (3)
- RTM 486 Special Events Management (3)
- Or other approved courses

Program total 18–19

[1] Electives or other approved courses must be chosen in consultation with an advisor.

[2] Communication internships are limited to students with senior status and a cumulative GPA of 2.80 or higher.

POSTBACCALAUREATE CERTIFICATE IN COMMUNICATION AND HUMAN RELATIONS

Nature of the Program. The contemporary workplace increasingly requires employees to develop advanced knowledge and skill in the processes of communication.

The certificate program is designed for working professionals in communication-intensive fields such as public affairs, employee relations, mediation, organizational development, public relations, training and development, community relations, customer relations, media relations, change management, sales and sales management, marketing, public administration, event planning, and health communication.

Admission Requirements. To be admitted to the Postbaccalaureate Certificate in Communication and Human Relations program, an individual must

1. possess a four-year baccalaureate degree from a regionally accredited college or university;
2. be admitted to West campus as a nondegree graduate student; and
3. have completed the following college-level courses with a grade of "C" (2.00) or higher in each course:
   a. quantitative, qualitative, or critical research methods (three semester hours), and
   b. oral communication performance (200 level or above) (three semester hours).

Program Requirements. The certificate requires completion of 18 semester hours of upper division course work in communication studies and related disciplines.

Focused Course Work. In consultation with a faculty advisor, students design a program of study composed of five courses (15 semester hours) focused in an area of human relations, such as employee communications, interpersonal relations, or community relations. Course selections are made from the following:

- COM 410 Interpersonal Communication Theory and Research *SB* 3
- COM 411 Communication in the Family *SB* 3
- COM 414 Crisis Communication 3
- COM 417 Communication and Aging 3
- COM 421 Rhetoric of Social Issues *HU* 3
- COM 430 Leadership in Group Communication 3
- COM 450 Theory and Research inOrganizational Communication *SB* 3
- COM 451 Employee Participation Processes in Organizations 3
- COM 453 Communication Training and Development 3
- COM 456 Political Communication 3
- COM 457 New Media 3
- COM 494 Special Topics 3
- Other approved substitution 3

Capstone Project. Students are required to complete an independent research project (supervised by a faculty member) on a communication topic related to their professional or research interests. The project should reflect the integration and application of course work to a social or organiza-

tional problem. The scope and quality of the written report must be appropriate for postbaccalaureate students. A minimum of three semester hours of COM 499 Individualized Instruction is required.

GRADUATE DEGREE

The faculty in the Department of Communication Studies offer a professional Master of Arts degree in Communication Studies. For more information, see the *Graduate Catalog*.

COMMUNICATION STUDIES (COM)

For more COM courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W COM 100 Introduction to Human Communication. (3)
fall and spring
Topics-oriented introduction to basic theories, dimensions, and concepts of human communicative interaction and behavior. Fee.
General Studies: SB

W COM 124 Intercultural Issues in Mediated Communication. (3)
selected semesters
Introduces contemporary intercultural issues as expressed through various media in American society.
General Studies: C

W COM 222 Argumentation. (3)
once a year
Philosophical and theoretical foundations of argumentation, including a comparison of models of advocacy and evidence. Prerequisite: ENG 101 or 105.
General Studies: L

W COM 225 Public Speaking. (3)
fall and spring
Verbal and nonverbal communication in platform speaking. Discussion and practice in vocal and physical delivery and purposeful organization of public communication. Fee. Prerequisite: ENG 101 or 105.
General Studies: L

W COM 230 Small Group Communication. (3)
spring
Principles and processes of small group communication, attitudes and skills for effective participation and leadership in small groups, small group problem solving, and decision making.
General Studies: SB

W COM 259 Communication in Business and the Professions. (3)
fall
Interpersonal, group, and public communication in business and professional organizations. Fee.

W COM 308 Empirical Research Methods in Communication. (3)
fall and spring
Examines social science approaches to the study of communication, including experimental, survey, descriptive, and other quantitative approaches. Prerequisite: ENG 101 or 105.
General Studies: L

W COM 309 Rhetorical, Interpretive, and Critical Methods in Communication. (3)
fall and spring
Examines humanistic and qualitative approaches to communication. Introduces textual, interactional and ethnographic methods.

W COM 310 Relational Communication. (3)
once a year
Examines communication processes as they relate to relationship development, maintenance, and termination.

W COM 312 Communication, Conflict, and Negotiation. (3)
once a year
Theories and strategies of communication relevant to the management of conflicts and the conduct of negotiations.

W COM 316 Gender and Communication. (3)
once a year
Introduces gender-related communication. Examines verbal, nonverbal, and paralinguistic differences and similarities within social, psychological, and historic perspectives.
General Studies: C

W COM 320 Communication and Consumerism. (3)
once a year
Critical evaluation of messages designed for public consumption. Perceiving, evaluating, and responding to political, social, and commercial communication.
General Studies: SB

W COM 321 Rhetorical Theory and Research. (3)
once a year
Historical development of rhetorical theory and research in communication, from classical antiquity to the present. Prerequisite: ENG 101 or 105.
General Studies: L/HU

W COM 324 Rhetoric and Media Criticism. (3)
once a year
Critical examination of media arts, including cinema, television, and video. Applies rhetorical, textual, and interpretive methods of criticism.

W COM 325 Advanced Public Speaking. (3)
selected semesters
Social and pragmatic aspects of public speaking as a communicative system; strategies of rhetorical theory and the presentation of forms of public communication.

W COM 329 Persuasion. (3)
once a year
Variables that influence and modify attitudes and behaviors of message receivers, including analysis of theories, research, and current problems.

W COM 353 Professional Communication. (3)
once a year
Introduces both verbal and written professional communication styles and technologies in preparation for communication-related internships and careers.

W COM 371 Cross-Cultural Communication Perspectives. (3)
selected semesters
Explores different cultures' approaches to theories of and practices in social interaction and public discourse.
General Studies: G

W COM 382 Classroom Apprenticeship. (1–3)
fall and spring
Nongraded credit for students extending their experience with a content area by assisting with classroom supervision in other COM courses. Maximum 3 semester hours each semester. Prerequisite: instructor approval.

W COM 394 Special Topics. (1–3)
selected semesters
Variable topics course designed around specific themes, concepts, and questions central to the study of communication. Prerequisite: instructor approval.

W COM 410 Interpersonal Communication Theory and Research. (3)
selected semesters
Survey and analysis of major research topics, paradigms, and theories dealing with message exchanges between and among social peers. Prerequisite: COM 308 or 309 or instructor approval.
General Studies: SB

W COM 411 Communication in the Family. (3)
selected semesters
Broad overview of communication issues found in marriage and family life, focusing on current topics concerning communication in the family.
General Studies: SB

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

W COM 414 Crisis Communication. (3)
selected semesters
Role of communication in crisis development and intervention.

W COM 416 Gender, Race, Colonialism, and Media. (3)
once a year
Explores how the mass media constructs gender and race and perpetuates colonial views of minorities and varied nationalities.

W COM 417 Communication and Aging. (3)
once a year
Critical study of changes in human communicative patterns through the later adult years, with attention on intergenerational relationships and self-concept functions.

W COM 421 Rhetoric of Social Issues. (3)
selected semesters
Critical rhetorical study of significant speakers and speeches on social issues of the past and present. Prerequisite: COM 321 or instructor approval.
General Studies: HU

W COM 422 Argumentation, Critical Reasoning and Public Communication. (3)
fall and spring
Advanced study of argumentation theories and research as applied to public forums including: political, business, and legal contexts. Prerequisite: COM 222 or instructor approval.
General Studies: L

W COM 424 Television Studies and Criticism. (3)
once a year
Surveys critical and historical approaches to television as a medium; to television research; and to television's effects. Prerequisite: COM 309 or instructor approval.

W COM 429 Semiotics and Visual Communication. (3)
selected semesters
Semiotic analysis of mediated forms of communication, including film, television, and photography. Includes the political and aesthetic dimensions of images. Prerequisite: COM 309 or instructor approval.

W COM 430 Leadership in Group Communication. (3)
selected semesters
Theory and process of leadership in group communication, emphasizing philosophical foundations, contemporary research, and applications to group situations.

W COM 450 Theory and Research in Organizational Communication. (3)
once a year
Critical review and analysis of the dominant theories of organizational communication and their corollary research strategies. Prerequisite: COM 308 or 309, or instructor approval.
General Studies: SB

W COM 451 Employee Participation Processes in Organizations. (3)
selected semesters
Communication principles and practices associated with employee empowerment, team-based organizing, and similar employee involvement processes. Prerequisite: COM 308 or 309 or instructor approval.

W COM 453 Communication Training and Development. (3)
selected semesters
Examines the procedures and types of communication training and development in business, industry, and government. Prerequisite: COM 308 or instructor approval.

W COM 454 Rhetorical and Critical Approaches to Public Relations. (3)
once a year
An historical and contemporary account of how public relations messages build corporate identities and persuade audiences by shaping public values. Prerequisite: COM 309 or instructor approval.

W COM 456 Political Communication. (3)
selected semesters
Theory and research related to political campaign communication. The persuasive process of political campaigning, the role of the media, the candidate and image creation.

W COM 457 New Media. (3)
once a year
Explores how new communication and information technologies affect communication and culture. Prerequisite: COM 308 or 309.

W COM 463 Cultural and Intercultural Communication Theory and Research. (3)
once a year
Survey and analysis of major theories and research dealing with communication within cultures and between people of different cultural backgrounds. Prerequisite: COM 308 or 309 or instructor approval.
General Studies: SB, G

W COM 465 Intercultural Communication Workshop. (1–3)
selected semesters
Experientially based study of communication among members of different cultures designed to help students improve their intercultural communication skills.

W COM 471 International Communication. (3)
selected semesters
Explores the political, economic, sociocultural, and communicative dimensions of mediated communication across borders and the processes of globalization. Prerequisite: COM 463 or instructor approval.
General Studies: G

W COM 475 Nonverbal Communication Theory and Research. (3)
selected semesters
Critical study of theories and research concerning nonlinguistic aspects of communication. Examines functions of nonverbal behaviors in various communication contexts.

W COM 484 Internship. (1–12)
fall and spring
Supervised field experience. Fee. Prerequisites: 2.80 GPA; senior status; internship director approval; Communication Studies major or Public Relations and Strategic Communications minor.

W COM 494 Special Topics. (1–4)
fall, spring, summer
Topics may include the following:
- Special Events Management

Prerequisite: minimum cumulative ASU GPA of 2.50.

W COM 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Criminal Justice and Criminology

www.west.asu.edu/chs/aoj
602/543-6607
FAB S323

Scott Decker, Chair (beginning fall 2006)
Chester Britt III, Chair (through spring 2006)

Professor: Hepburn

Associate Professors: Bernat, Britt, Decker, Katz, Rodriguez

Assistant Professors: Griffin, Shaffer, Schnebly, Whitlock

The Department of Criminal Justice and Criminology offers the Bachelor of Science degree in Criminal Justice and Criminology and the Master of Arts degree in Criminal Justice to accommodate the needs of one of the most rapidly growing academic and professional fields in the United States.

CRIMINAL JUSTICE AND CRIMINOLOGY—BS

Nature of Program

The program provides a social science, interdisciplinary perspective to the study of the administration of justice. The focus is on the policies and practices of criminal justice system components, including law enforcement, corrections, and the courts. Students are exposed to the criminal law and its origins, patterns, and theories of crime and crime analysis, and to the body of research-based literature that examines and evaluates contemporary criminal justice practice.

The Criminal Justice and Criminology curriculum offers students a solid foundation of courses that provide the content, analytical, and communication skills required for working in complex criminal justice occupations. The program also prepares students to enter into graduate studies and exposes students considering law school to substantive and procedural criminal law.

During their senior year, students are encouraged to complete an internship in a justice-related placement. CRJ 484 Internship in Criminal Justice and Criminology has been designed to provide the student with a well-rounded learning experience in an experiential setting. It involves a three-way partnership among students, the department, and cooperating institutions. It is guided by goals and objectives that are based on the needs and resources of those involved. The intern's goals and objectives are developed with the assistance of the internship coordinator and the cooperating agency supervisor. They represent skills and competencies that can be reasonably accomplished during the internship period.

Career Outlook

The Criminal Justice and Criminology Department provides an interdisciplinary approach to understanding issues related to the field of criminal justice. Societal concern about issues of crime, crime prevention, and victimization necessitate that state and federal money be devoted to the field of criminal justice. Consequently, this field is one of the fastest growing areas of employment.

Graduates of the Criminal Justice and Criminology program find employment in the public and private sectors. Employment opportunities exist in the areas of law enforcement, probation, parole, corrections, private security, court personnel, legal offices, and victim witness advocate agencies. Graduates may also pursue advanced degrees in law and in social science disciplines.

Major Requirements

The 51-semester-hour Bachelor of Science degree program in Criminal Justice and Criminology consists of 24 hours of major core courses, 21 hours of major elective courses, and six hours in a related field. A student must attain a grade of "C" (2.00) or higher in all courses credited toward the major, including courses in the related area. A minimum of 24 upper-division semester hours of course work toward the major must be completed at West campus.

Criminal Justice and Criminology Core Courses

CRJ	100	The Justice System SB	3
CRJ	230	The Police Function	3
CRJ	240	The Correctional Function	3
CRJ	302	Research Methods	3
CRJ	303	Statistical Analysis CS	3
CRJ	304	Criminology	3
CRJ	305	Women, Crime, and Justice C	3
CRJ	306	Race, Ethnicity, and Justice C	3
CRJ	485	Student Assessment	0
Total			24
Electives*			21
Related field courses*			6
Program total			51

* The 21 semester hours of elective courses in the major and the six hours of courses in related fields must be strategically assembled with appropriate advising to make up a specialty area consistent with the student's intellectual and career interests and objectives.

Community College Courses

Many Criminal Justice and Criminology courses are taught at Arizona community colleges. The transferability of these courses is governed by the course equivalency in effect when the course was taken. This information is maintained in the Course Applicability System–CEG function at az.transfer.org/cas. Community college courses that are equivalent to upper-division CRJ courses apply to the program, if completed with a grade of "C" (2.00) or higher, and should not be repeated at West campus; however, these

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

courses do not count toward the required upper-division semester hours.

West campus courses may have Tempe campus or community college transfer equivalents and should not be repeated at West campus, as shown in the "Criminal Justice Equivalent Courses" table below.

Criminal Justice Equivalent Courses

West Campus	Course Title	Tempe Campus
CRJ 100	The Justice System	—
CRJ 200	Topics in Concepts and Issues of Justice	JUS 200
CRJ 230	The Police Function	JUS 306
CRJ 240	The Correctional Function	JUS 310
CRJ 360	Substantive Criminal Law	—
CRJ 410	Procedural Criminal Law	—
CRJ 442	Community Relations in the Justice System	JUS 320

Other Requirements

Students must complete all university degree requirements (including General Studies program requirements). For descriptive information on these requirements, refer to the "General Studies," page 93.

GRADUATE DEGREES

The faculty in the Department of Criminal Justice and Criminology offer a professional Master of Arts degree in Criminal Justice. For more information, see the *Graduate Catalog*.

CRIMINAL JUSTICE (CRJ)

W CRJ 100 The Justice System. (3)
fall and spring
Overview of the justice system. Roles of law enforcement personnel, the courts, and correctional agencies. Philosophical and theoretical views in historical perspective.
General Studies: SB

W CRJ 200 Topics in Concepts and Issues of Justice. (3)
fall
Uses critical thinking skills to analyze and comprehend controversial social issues. May be repeated for credit when topics vary.
General Studies: SB

W CRJ 230 The Police Function. (3)
fall and spring
Introduces policing in the United States covering the history of police, contemporary police work, and problems in policing.

W CRJ 240 The Correctional Function. (3)
fall and spring
Introduces the structure and function of the corrections system from historical and contemporary perspectives.

W CRJ 302 Research Methods. (3)
fall and spring
Focuses on developing and evaluating research designs, data collection, and the relationship between validity and reliability. Also stresses methods for conducting research. Pre- or corequisite: CRJ 100 or instructor approval.

W CRJ 303 Statistical Analysis. (3)
fall and spring
Introduces the fundamentals and application of descriptive and inferential statistics, with emphasis in the administration of justice area. Pre- or corequisites: CRJ 100 (or instructor approval); the university mathematics requirement.
General Studies: CS

W CRJ 304 Criminology. (3)
fall and spring
Provides a basic overview of the nature, the causes and consequences, and the theories of criminal behavior. Pre- or corequisite: CRJ 100 or instructor approval.

W CRJ 305 Women, Crime, and Justice. (3)
fall and spring
Studies women as offenders, victims, and professionals in the criminal justice system. Pre- or corequisite: CRJ 100.
General Studies: C

W CRJ 306 Race, Ethnicity, and Justice. (3)
fall and spring
Studies minority issues in the criminal justice system. Pre- or corequisite: CRJ 100.
General Studies: C

W CRJ 312 Police and Culture. (3)
once a year
Covers broad concept of culture, theoretical approaches to police subculture, and major themes that characterize police culture (suspicion, danger, solidarity, and isolationism). Prerequisites: CRJ 100, 230.

W CRJ 314 Innovations in Policing. (3)
once a year
Examines current theories and research findings that guide police work, and the practical implications of evaluation within police departments. Prerequisites: CRJ 100, 230.

W CRJ 315 Police Organization and Management. (3)
once a year
Provides a thorough understanding of the structure, processes, and behavior of police organizations. Prerequisites: CRJ 100, 230.

W CRJ 320 The Adjudication Function. (3)
once a year
History and development of courts, trial by jury, and other dispute resolution mechanisms; selection and removal of judges and juries; organization, structure, and jurisdiction of courts; trial and nontrial processes of the judiciary. Pre- or corequisite: CRJ 100.

W CRJ 340 Juvenile Justice. (3)
fall and spring
Critical examination of the history and development of the juvenile court and the juvenile justice system. Pre- or corequisite: CRJ 100.

W CRJ 350 Law and Social Control. (3)
once a year
Resolution of social issues through the application of law as an agent of social control. Nature, sanctions, and limits of law. Categories of law and schools of jurisprudence. Pre- or corequisite: CRJ 100.
General Studies: SB

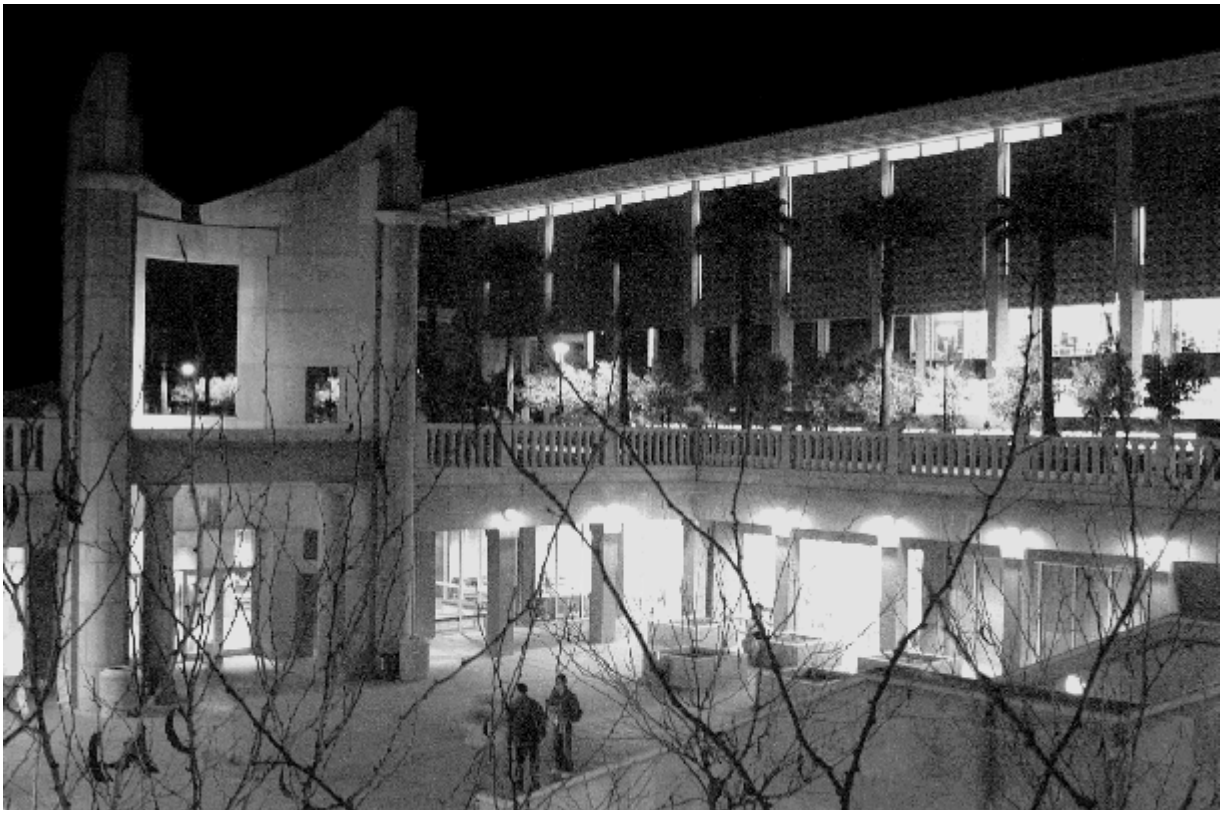
W CRJ 360 Substantive Criminal Law. (3)
fall and spring
Criminal liability. Crimes against persons, property, and society. Governmental sanctions of individual conduct as formulated by legislatures and the courts. Pre- or corequisite: CRJ 100.

W CRJ 410 Procedural Criminal Law. (3)
fall and spring
The criminal process. Constitutional and legal problems associated with arrest, search and seizure, and due process of law. Prerequisite: CRJ 100.

W CRJ 420 Imperatives of Proof. (3)
once a year
Problems and means of establishing identity and fact in relation to arrest, detention, adjudication, sentencing, and correctional case management. Prerequisite: CRJ 100.

W CRJ 430 Correctional Law. (3)
once a year
Studies the rights of inmates and the duties of corrections officials. Prerequisite: CRJ 100, 240.

W CRJ 441 Prevention of Crime and Delinquent Behavior. (3)
once a year
Theories of prevention, individual, group, and community approaches: intervention at appropriate stages; contemporary law enforcement, and corrections practices. Prerequisite: CRJ 100.



Hayden Library illuminated as night falls

Tim Trumble photo

W CRJ 442 Community Relations in the Justice System. (3)
once a year
Focuses on developing an informed plan and policy for incorporating research findings about the surrounding community within various justice services and agencies. Topics include social stratification, minority groups, and victimology. Prerequisite: CRJ 100.

W CRJ 443 Probation and Community Corrections. (3)
once a year
Examines the probation and parole functions as well as the numerous and diverse types of community corrections programs. Prerequisites: CRJ 100, 240.

W CRJ 461 Domestic Violence. (3)
once a year
Legal, historical, theoretical, and treatment aspects of domestic violence, including child abuse, woman battering, incest, and marital rape. Prerequisite: CRJ 100.

W CRJ 462 Gangs. (3)
once a year
Critical examination of the history and development of gangs, including criminal justice system responses to gangs and gang-related behaviors. Prerequisite: CRJ 100.

W CRJ 463 Occupational Crime. (3)
once a year
Overview of major issues in business, professional, and official rule violations. Includes consumer fraud, securities violations, unethical professionalism, and political corruption. Prerequisite: CRJ 100.

W CRJ 464 Organized Crime. (3)
once a year
The nature of organized crime and its illegal activities, theories of containment, and efforts by justice agencies to counter its dominance in society. Prerequisite: CRJ 100.

W CRJ 470 Discretionary Justice. (3)
once a year
Use/abuse, key issues/manifestations of discretion in legal system and other societal institutions. Theoretical/empirical linkages between discretion and discrimination, based on race, ethnicity, and gender. Prerequisite: CRJ 100.
General Studies: L/SB

W CRJ 484 Internship. (1–12)
fall, spring, summer
Assignments in a justice-related placement designed to further the student's integration of theory and practice. Placements are arranged through consultation with students and agencies. May be taken for a total of up to 12 hours credit, of which a maximum of 6 are applied to the major. Students must consult with the program to arrange internships.

W CRJ 485 Student Assessment. (0)
fall, spring, summer
Students may attend a mid-semester information session on the assessment process. At the end of the semester, students take part in a standardized examination and self-administered survey. "Y/E" grade only. Students must register for this class their final semester.

W CRJ 490 Senior Seminar in Criminal Justice. (3)
fall and spring
Covers a variety of topics in the criminal justice system. Content varies with each offering. May be repeated for credit for a maximum of 6 hours. Prerequisite: completion of Criminal Justice and Criminology core courses with a minimum 2.00 GPA.
General Studies: L

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

W CRJ 499 Individualized Instruction. (1–3)
fall, spring, summer
Original study or investigation in the advanced student's field of interest under the supervision of a faculty member. May be repeated for credit up to a maximum of 6 hours, all applicable to the major. Readings, conferences, tutorials. Prerequisite: CRJ 100.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog,* or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Gerontology

Interdisciplinary Certificate Program

www.west.asu.edu/chs/grn
602/543-6642
FAB S117

Richard Gitelson, Director

Communication Studies (West Campus)
Professor: V. Waldron
Associate Professors: Di Mare, Kelley

Industrial Design (Tempe Campus)
Assistant Professor: Boradkar

Interior Design (Tempe Campus)
Associate Professor: Cutler

Exercise and Wellness (Polytechnic Campus)
Associate Professor: Swan

Geography (Tempe campus)
Associate Professor: McHugh

Gerontology (West Campus)
Lecturer: K. Waldron

Health Management and Policy (Tempe Campus)
Professor: Schneller

History (Tempe Campus)
Professor: Gratton

Human Evolution and Social Change (Tempe Campus)
Professor: Carr

Integrative Studies (West Campus)
Professor: McGovern

Kinesiology (Tempe Campus)
Regents' Professor: Daniel Landers
Professor: Stelmach
Senior Lecturer: Donna Landers

Language, Cultures, and History (West Campus)
Associate Professor: Hattenhauer

Marketing (Tempe Campus)
Associate Professor: Stephens

Music (Tempe Campus)
Professor: Crowe
Associate Professor: Rio

Nursing (Downtown Phoenix Campus)
Professors: Keller, Komnenich
Associate Professors: Cesarotti, Killeen, McCarthy

Nutrition (Polytechnic Campus)
Professor: Vaughan
Assistant Professor: Woolf

Psychology (Tempe Campus)
Professors: Karoly, Okun, Reich, Sadalla, Zautra
Associate Professors: Alexander, Leshowitz

Psychology in Education (Tempe Campus)
Professor: Strom

Recreation and Tourism Management (West Campus)
Professors: Gitelson, Knopf, Searle

Social and Behavioral Sciences (West Campus)
Professor: Náñez
Associate Professors: Burleson, Coon
Assistant Professor: Anastasi

Social Work (Downtown Phoenix Campus)
Assistant Professor: Kang

Social Work (West Campus)
Associate Professor: Fitzpatrick
Assistant Professors: Bushfield, McCabe
Lecturer: Ealy

Sociology (Tempe Campus)
Professors: Kronenfeld, Kulis
Associate Professors: Keith, Miller-Loessi, Sullivan

The Gerontology Program is a university-wide, multidisciplinary program designed so that students may take course work at any of the four ASU campuses and apply it toward the graduate Certificate in Gerontology or the minor in Gerontology. The program has an affiliated faculty of more than 50 members housed in more than 20 different departments throughout the university. Courses related to aging are taught by faculty who are active contributors to research, theory, and public policy and practice.

Program activities are designed for students who wish to study the psychological, sociological, biological, and policy-related aspects of aging, as well as for those interested in the health, economic, and social concerns of older people. Students study the aging process from multiple perspectives and develop knowledge and skills to prepare them for careers in an aging society. Students may also gain practical experience in working with older adults through field-based experiences and internships.

Since older Americans are becoming an increasing percentage of the population, there is a growing need for professionals with gerontology expertise. This is especially the case in Arizona due to the large number of retirement communities located here. Careers are available in a broad range

of fields, including recreation, social work, nursing, counseling, public policy, and long-term care administration.

MINOR IN GERONTOLOGY

The minor in Gerontology requires 18 semester hours of course work. The Gerontology minor is designed to explore the study of aging from an interdisciplinary perspective. Students select two of the three gerontology core courses and four additional aging-related courses that are approved as electives. The Gerontology Program allows double counting of courses from the student's major in the minor; however, students should consult with their major department to determine if it has more stringent requirements. A 2.50 GPA or higher must be earned in the six courses.

Undergraduates may begin taking courses for the minor upon completion of 56 semester hours with a minimum cumulative GPA of 2.00.

Core Courses

GRN 400 Perspectives on Aging *SB* 3
Choose one of the following courses 3
GRN 420 Health Aspects of Aging *SB*[1] (3)
PGS 427 Psychology of Aging *SB* (3)

Electives

Electives[2] 12

Total 18

[1] An approved course can be substituted.

[2] All courses carrying a GRN prefix can be counted as elective courses in the program. A list of elective courses carrying other disciplinary prefixes that may be used toward completion of the minor and certificate in gerontology is available from the Gerontology Program office.

GRADUATE PROGRAM

The Gerontology Program offers a professional graduate Certificate in Gerontology. Consult the ASU *Graduate Catalog* for information about the program.

For more information, call 602/543-6642, or access the program Web site at www.west.asu.edu/chs/grn.

GERONTOLOGY (GRN)

W GRN 400 Perspectives on Aging. (3)
selected semesters
Broad overview of gerontological issues, including physical aging, retirement, living options, caregiving, theoretical background, death. Cross-listed as W SOC 400. Credit is allowed for only W GRN 400 or W SOC 400.
General Studies: SB

W GRN 420 Health Aspects of Aging. (3)
spring
Examines biological, social, and behavioral aspects of health in the later years. Considers the organization and delivery of care.
General Studies: SB

M GRN 430 Multidisciplinary Approaches to Gerontology. (3)
selected semesters
Examines literature that each discipline brings to the study of gerontology. Covers both theory and practice. Lecture, discussion.
General Studies: SB

M GRN 431 Caregiving. (3)
selected semesters
Examines theory and practice of caregiving for the senior population. Lecture, discussion.

M GRN 440 Aging and Wellness. (3)
selected semesters
One-on-one service/experiential learning with seniors from the community. May be repeated once for credit. Lecture, lab.

M GRN 450 Biology of Aging. (3)
selected semesters
Examines normal biological aging and changes in functional capabilities in the elderly. Lecture, lab.

M GRN 460 Alzheimer's and Related Dementias. (3)
selected semesters
Familiarization with Alzheimer's disease and related dementias from a caregiver's perspective.

W GRN 484 Undergraduate Internship. (3–6)
fall, spring, summer

W GRN 498 Undergraduate Pro-Seminar. (3)
selected semesters

W GRN 499 Undergraduate Individualized Instruction. (3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Nursing Program

nursing.asu.edu
602/543-6605
FAB S331-1

Shirley Bell, Site Manager

NURSING—BSN

The College of Human Services hosts the ASU College of Nursing Bachelor of Science in Nursing program. Taught by ASU College of Nursing faculty, all upper-division requirements for a nursing degree are offered at West campus.

The Nursing faculty acknowledge their responsibility to health care consumers for the preparation of individuals who provide nursing care of professional quality through teaching, research, and service. Within the context of a liberal education, the undergraduate degree program prepares professional nurses who

1. understand and respond to changing health and social needs and services;
2. influence nursing practice and health care through leadership and participation in professional and sociopolitical activities; and
3. utilize scientific knowledge to advance professional nursing practice.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

The continuing education program provides opportunities for nurses to improve and expand their nursing practice to meet the health care needs of various populations and to further their own professional development.

For information on admission, advising, and degree requirements, see "College of Nursing," page 174, call 480/965-2987, or access the Web site at nursing.asu.edu.

Department of Recreation and Tourism Management

www.west.asu.edu/chs/RTM
602/543-6603
FAB S115A

Wendy Hultsman, Chair

Professors: Andereck, Gitelson, Knopf

Associate Professor: Hultsman

Assistant Professor: Autry

The Recreation and Tourism Management Department offers the Bachelor of Science degree in Recreation and Tourism Management and minors in Recreation Management, Special Events Management, Tourism Management, and Youth Services Leadership for majors outside the department.

RECREATION AND TOURISM MANAGEMENT—BS

Nature of Program

The Recreation and Tourism Management program prepares students for leadership roles in the recreation, park, tourism, and travel management fields. Its primary purpose is to help students acquire the knowledge and perspective they will need to lead these fields through the social, economic, and environmental challenges of the next century.

The program offers a curriculum that places the study of recreation and tourism in a broad, multidisciplinary context. Students will integrate perspectives from such diverse arenas as human development and behavior, law, marketing, strategic planning, urban and regional planning, financing, economic development, social justice, environmental management, human resource management, organizational behavior, and public policy. At the same time, the curriculum emphasizes experiential learning in professional settings to develop the core competencies required for professional-level entry into the recreation and tourism fields.

Students graduating from this program are eligible to sit for the examination to become a Certified Park and Recreation Professional (CPRP) and thereby acquire this valuable credential for professional advancement.

Career Outlook

Recreation and Tourism combined is the second-largest industry in the United States. While no university degree automatically ensures employment, Recreation and Tourism Management graduates who have tailored their programs and work experience to market opportunities have done very well in securing relevant career positions.

Public sector and for-profit recreation operations, resorts, employee recreation, special events, and nonprofit agency recreation services have continued to grow to meet recreation demands. Employment for recreation professionals working with youth, older adults, and other special populations has grown significantly. Strong citizen and government emphasis has recently been placed on how to best use natural resources and how to best plan, design, operate, and maintain these resources.

Employment opportunities are expanding in areas such as resorts, outdoor recreation programs, fitness facilities, private membership clubs, military recreation, camps, and commercial recreation businesses. Federal, state, and local recreation agencies are contracting for many recreation services to handle increased demands they cannot presently meet. There are opportunities for assertive, highly motivated, competent, and innovative graduates to create their own nontraditional jobs. Career opportunities for minority students are good, especially in parks and natural resources where there is significant underrepresentation of minorities. In terms of career opportunities, it is the Recreation and Tourism Management Department's goal to provide the best professional training possible to help our students be leading candidates for jobs upon graduation.

Admission Requirements

Admission to the degree program is based upon the applicant's educational and career goals. The applicant must meet the university and College of Human Services admission requirements.

Application forms are available in the Recreation and Tourism Management department office (FAB S115A; 602/543-6603). The application must be completed and accepted for the student to be considered a Recreation and Tourism Management major.

Major Requirements

The 66-semester-hour Bachelor of Science degree program in Recreation and Tourism Management consists of 42 hours of major core courses, 15 hours of major elective courses, and nine hours of nonmajor elective courses from related areas.

The major core courses include six hours of lower-division courses and 36 hours of upper-division courses.

Core Courses

Lower-Division Core

RTM 120 Leisure and Quality of Life *SB* 3
RTM 210 Leisure Delivery Systems 3
Lower-division total 6

Upper-Division Core

RTM 301 Leadership in Recreation and Tourism 3
RTM 302 Recreation and Tourism for Diverse Populations *C* 3
RTM 303 Programming Recreation and Tourism Services 3

RTM 304 Recreation and Tourism Areas and Facilities Management *L* 3
RTM 401 Administration of Recreation and Tourism Services 3
RTM 402 Evaluation and Assessment in Recreation and Tourism 3
RTM 403 Professional Development Seminar 3
RTM 404 Marketing Recreation and Tourism 3
RTM 484 Senior Internship 12

Core total 42

Major electives[1] 15
Related course work[2] 9

Program total 66

[1] Fifteen hours of elective courses in the major must be strategically assembled to craft a specialty area in recreation or tourism management.

[2] Nine hours of nonmajor course work in related areas must be chosen to enhance development within that specialty area. To achieve these goals, all elective hours within the degree program must be chosen in consultation with a faculty advisor.

Additional Major Requirements

The program requires two hundred hours of professional field experience approved by a faculty advisor, which must be completed and documented before enrollment in RTM 484 Senior Internship. A minimum 2.00 cumulative GPA is required for major courses before enrollment in the internship.

Students may enroll in the internship anytime after completion of RTM 301, 302, 303, and 304 with a grade of "C" (2.00) or higher.

A grade of "C" (2.00) or higher is required for all courses credited toward the 66 semester hours of major courses required by the program.

Students must complete all university degree requirements, including General Studies Program requirements as articulated in the "General Studies Program" section of this catalog.

MINOR IN RECREATION MANAGEMENT

Nature of Program

The minor in Recreation Management is designed to offer students who may choose to work in the field part-time or seasonally a fundamental understanding of recreation programming and management. In addition to the four required courses, which provide a solid groundwork for the field, each student will be able to select electives to meet his or her specific interests.

Minor Requirements

The minor consists of 12 semester hours of required courses and six semester hours of electives. At least 12 semester hours must be completed at the West campus. To earn a minor, students must complete all course work in the minor with a minimum grade of "C" (2.00) or higher. Recreation and Tourism Management majors are not eligible to earn a minor in Recreation Management.

Required Core Courses

RTM 120 Leisure and Quality of Life *SB* 3
RTM 303 Programming Recreation and Tourism Services 3
RTM 304 Recreation and Tourism Areas and Facilities Management *L* 3
RTM 401 Administration of Recreation and Tourism Services 3

Electives

Choose two courses from the following[1, 2] 6
- RTM 210 Leisure Delivery Systems (3)
- RTM 301 Leadership in Recreation and Tourism (3)
- RTM 302 Recreation and Tourism for Diverse Populations *C* (3)
- RTM 345 Team Building Strategies (3)
- RTM 360 Policy, Planning, Development of Recreation and Tourism Resources (3)
- RTM 402 Evaluation and Assessment in Recreation and Tourism (3)
- RTM 403 Professional Development Seminar (3)
- RTM 404 Marketing Recreation and Tourism (3)
- RTM 450 Leisure and Aging (3)
- RTM 451 Grant Writing for Human Service Professionals (3)
- RTM 453 Volunteer Management in Human Service Organizations (3)
- RTM 454 Human Services for At-Risk Youth (3)
- RTM 475 Entrepreneurial Recreation and Tourism (3)
- RTM 484 Senior Internship (3)
- RTM 486 Special Events Management (3)
- RTM 494 ST: Leadership and Professional Development in Youth Services (3)

Program total 18

[1] Select courses in consultation with an RTM faculty advisor.

[2] Courses may have prerequisites. See catalog course description.

MINOR IN SPECIAL EVENTS MANAGEMENT

Nature of Program

The minor in Special Events Management is designed to offer students a solid understanding of special event programming and management. In addition to the two-tiered special event courses, which provide basic and advanced instruction, as well as experiential learning opportunities through event production, each student will be able to select electives to meet his or her specific interests.

Minor Requirements

The minor consists of six semester hours of required courses and 12 semester hours of electives selected in consultation with a faculty advisor. At least 12 semester hours must be completed at the West campus in upper-division classes. To earn the minor, students must complete all course work in the minor with a minimum grade of "C" (2.00) or higher.

Recreation and Tourism Management majors are not eligible to earn the minor in Special Events Management.

Required Core Courses

RTM 486 Special Events Management 3
RTM 487 Special Events Management, Advanced 3

Electives

Choose four courses from the following* 12
- D REC 345 Meeting and Convention Planning (3)

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

RTM 301 Leadership in Recreation and Tourism (3)
RTM 303 Programming Recreation and Tourism Services (3)
RTM 304 Recreation and Tourism Areas and Facilities Management *L* (3)
RTM 373 Leisure Travel and Tourism *SB* (3)
RTM 403 Professional Development Seminar (3)
RTM 404 Marketing Recreation and Tourism (3)
RTM 451 Grant Writing for Human Service Professionals (3)
RTM 453 Volunteer Management in Human Service Organizations (3)
RTM 458 International Tourism *G* (3)
RTM 475 Entrepreneurial Recreation and Tourism (3)
RTM 484 Senior Internship (3)
RTM 494 ST: Nonprofit Management for Human Services Professionals (3)

* Select from these or other approved courses in consultation with the minor advisor.

MINOR IN TOURISM MANAGEMENT

Nature of Program

The minor in Tourism Management is designed to provide students with fundamental knowledge in travel and tourism management. The minor may be useful to students pursuing degrees in Communication Studies, Criminal Justice and Criminology, Global Business, Interdisciplinary Arts and Performance, and Spanish.

Minor Requirements

The minor consists of 18 semester hours, of which 15 semester hours must be at the upper-division level. To earn the minor, students must complete all courses with a minimum grade of "C" (2.00). Recreation and Tourism Management majors are not eligible to earn the minor in Tourism Management.

Required Core Courses

Choose two from the following 6
RTM 373 Leisure Travel and Tourism *SB* (3)
RTM 458 International Tourism *G* (3)
RTM 475 Entrepreneurial Recreation and Tourism (3)

Electives

Choose four courses from the following[1] 12
RTM 303 Programming Recreation and Tourism Services (3)
RTM 304 Recreation and Tourism Areas and Facilities Management *L* (3)
RTM 360 Policy, Planning, Development of Recreation and Tourism Resources (3)
RTM 401 Administration of Recreation and Tourism Services (3)
RTM 404 Marketing Recreation and Tourism (3)
RTM 458 International Tourism *G*[2] (3)
RTM 475 Entrepreneurial Recreation and Tourism[2] (3)
RTM 486 Special Events Management (3)

Program total.....18

1 Select courses in consultation with the minor advisor (an other approved course may be lower-division).
2 Course may be taken as an elective if not selected to fulfill core requirement.

MINOR IN YOUTH SERVICES LEADERSHIP

Nature of Program

The minor in Youth Services Leadership is designed to explore the area of youth leadership from the perspective of those who work face-to-face with youth in a variety of settings.

Minor Requirements

The minor consists of 12 semester hours of core courses and six hours of electives. Of the 18 semester hours of requirements, at least 12 semester hours must be completed in upper-division courses at the West campus. To earn the minor, students must complete all course work in the minor with a minimum cumulative GPA of 2.00 or higher and all courses with a minimum grade of "C" (2.00) or higher.

Required Core Courses

RTM 301 Leadership in Recreation and Tourism 3
RTM 303 Programming Recreation and Tourism Services.....3
RTM 394 ST: Recreation and Leisure Services for Youth Development 3
RTM 454 Human Services for At-Risk Youth.....3

Electives

Choose two courses from the following[1, 2].....6
CRJ 340 Juvenile Justice (3)
CRJ 441 Prevention of Crime and Delinquent Behavior (3)
CRJ 462 Gangs (3)
IAP 331 Performance, Acting, and the Individual (3)
IAP 347 Movement in Education (3)
RTM 302 Recreation and Tourism for Diverse Populations *C* (3)
RTM 345 Team Building Strategies (3)
RTM 451 Grant Writing for Human Service Professionals (3)
RTM 484 Senior Internship (3)
RTM 494 ST: Leadership and Professional Development in Youth Services (3)
SOC 340 Sociology of Deviant Behavior *SB* (3)
SPE 222 Orientation to Education in Exceptional Children *SB* (3)
SPE 322 Behavior Management and Consultation[3] (3)

Program total.....18

1 Select courses in consultation with an RTM faculty advisor.
2 Courses may have prerequisites. See catalog course description.
3 This course requires instructor approval.

HEALTH SCIENCE (HES)

For more HES courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W HES 301 Adult Fitness I. (1)
fall, spring, summer
Physical fitness and benefits of exercise. Emphasizes fitness assessment and designing an individualized assessment program. Y/E grade only. 2 hours a week. Fee.

W HES 302 Adult Fitness II. (1)
fall, spring, summer
Continuation of HES 301. Y/E grade only. 2 hours a week. Fee. Prerequisite: HES 301.

W HES 303 Adult Fitness III. (1)
fall, spring, summer
Continuation of HES 302. Y/E grade only. 2 hours a week. Fee. Prerequisites: HES 301, 302.

W HES 394 Special Topics. (1)
fall and spring
Selected topics in health science, such as Tai Chi and yoga. Y/E grade only.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

RECREATION AND TOURISM MANAGEMENT (RTM)

W RTM 120 Leisure and Quality of Life. (3)
fall and spring
Conceptual foundations for understanding the role of leisure in quality of life, socially, historically, psychologically, culturally, economically, and politically.
General Studies: SB

W RTM 210 Leisure Delivery Systems. (3)
spring
Introduces development, management, and organization of the public, not-for-profit, and private sectors for the leisure services profession.

W RTM 301 Leadership in Recreation and Tourism. (3)
fall
Leadership theory and strategies applied to recreation and tourism settings, emphasizing group dynamics, motivational processes, and supervisory skills.

W RTM 302 Recreation and Tourism for Diverse Populations. (3)
fall
The role of recreation and tourism in serving the needs of culturally, physically, emotionally, mentally, and demographically diverse populations. Involves fieldwork.
General Studies: C

W RTM 303 Programming Recreation and Tourism Services. (3)
spring
Foundations for effective programming of leisure services in public, not-for-profit, and private sectors. Involves fieldwork. Prerequisite: Recreation and Tourism Management major or instructor approval.

W RTM 304 Recreation and Tourism Areas and Facilities Management. (3)
spring
Principles of management, care, function, and maintenance of recreation and tourism areas, facilities, and resources. Field and classroom based.
General Studies: L

W RTM 345 Team Building Strategies. (3)
summer
Explores the concepts and strategies for facilitating team building, self-confidence, and positive self-esteem in situations across the lifespan.

W RTM 360 Policy, Planning, Development of Recreation and Tourism Resources. (3)
spring
Investigates the policy, planning, development, and management practices related to the provision of recreation and tourism opportunities.

W RTM 373 Leisure Travel and Tourism. (3)
fall
Examines leisure travel and tourism, tourist behavior, and the effect of tourism on communities. Prerequisite: ENG 101 or 105.
General Studies: SB

W RTM 401 Administration of Recreation and Tourism Services. (3)
spring
Basic application of management principles to recreation and tourism services. Includes budgeting, personnel actions, legal issues, and public relations. Involves fieldwork. Prerequisite: RTM 210.

W RTM 402 Evaluation and Assessment in Recreation and Tourism. (3)
spring
In-depth development of a program evaluation. Specification of objectives, instrument development and administration, data analysis, and reporting findings. Prerequisite: RTM 210 or instructor approval.

W RTM 403 Professional Development Seminar. (3)
fall
Emphasizes current professional issues and refinement of professional philosophy and competencies that enable transition from student to professional. Prerequisite: Recreation and Tourism Management major.

W RTM 404 Marketing Recreation and Tourism. (3)
fall
Principles of marketing and promotional strategy for recreation and tourism operations. Emphasizes case study experience with leading professionals.

W RTM 450 Leisure and Aging. (3)
spring
Examines the factors influencing leisure among older adults, including policy issues and program service implications. Involves fieldwork.

W RTM 451 Grant Writing for Human Service Professionals. (3)
fall and spring
How to increase grant funding: creating fundable ideas, identifying sponsors, following guidelines, writing effectively, constructing budgets, responding to reviewers.

W RTM 453 Volunteer Management in Human Service Organizations. (3)
fall
Administration of volunteer service programs. Study and analysis of volunteer personnel process.

W RTM 454 Human Services for At-Risk Youth. (3)
spring
Overview of policy and programs affecting at-risk youth; examines risk factors and programmatic solutions to them. Lecture, seminar.

W RTM 458 International Tourism. (3)
fall and spring
Global examination of international tourism and its significance as a vehicle for social and economic development.
General Studies: G

W RTM 475 Entrepreneurial Recreation and Tourism. (3)
spring
Examines the development, management, and future of for-profit ventures in recreation and tourism.

W RTM 484 Senior Internship. (1–12)
fall, spring, summer
Supervised field experience in selected recreation and tourism management enterprises. Prerequisites: Recreation and Tourism Management major or minor; 2.00 GPA in major or minor. Prerequisite for major: all 300-level courses completed.

W RTM 486 Special Events Management. (3)
fall
Principles of programming and managing special events for diverse populations. Class plans, conducts, and evaluates a community special event. Involves fieldwork.

W RTM 487 Special Events Management, Advanced. (3)
spring
Advanced principles of special event sponsorship, public relations, marketing, contracting, risk management, and financial management. Prerequisite: RTM 486 (or COM 494 ST: Special Events Management or RTM 598 ST: Special Events Management) or instructor approval.

W RTM 494 Special Topics. (1–4)
fall, spring, summer
Topics in recreation, parks, and tourism, including commercial recreation, special events management, professional development seminar, management issues in leisure studies, issues in clinical therapeutic recreation, and activities and facilities modification in therapeutic recreation.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Social Work

www.west.asu.edu/chs/sw
602/543-6602
FAB S126

Wendy Hultsman, Interim Chair

Associate Professors: Fitzpatrick, Zorita

Assistant Professors: Bushfield, Farone, Hodge, Langer, McCabe, Nadir

Lecturers: Ealy, Lietz, Montaño

The primary goal of the Social Work Department is to enable students to realize their maximum potential as agents of change and leaders in the social services profession. The department offers the Bachelor of Social Work and the Master of Social Work degree programs.

SOCIAL WORK—BSW

Nature of Program

The goal of the Social Work Department is to train professional social workers for entry-level, generalist practice focused on populations that are most oppressed and most in need of the services social workers offer. A special emphasis is placed on working with diverse groups of the Southwest.

The undergraduate curriculum leads to a Bachelor of Social Work (BSW). Juniors and seniors majoring in Social Work focus on social work courses in social policy and services, human behavior in the social environment, social work practice, research, and field instruction in community agencies. In addition, majors take elective courses in related areas.

The BSW practitioner is a generalist focusing on roles such as advocacy, referral, case management, and problem-solving functions with individuals, groups, families, organizations, and the community.

Career Outlook

The Department of Social Work prepares students for professional generalist BSW practice. Employment in social work is expected to increase commensurately with the needs of a growing and diverse population.

Social Workers are employed in public and private agencies dealing with a wide variety of social issues, including child abuse, foster care, adoptions, health, mental health, aging, delinquency, corrections, family dysfunction, poverty, teen pregnancy, domestic violence, homelessness, AIDS, school-related problems, discrimination, disability, substance abuse, and others. Social work skills such as problem solving, resource utilization, counseling, group work, and community organization are also useful for positions with industry in employee relations and mediation.

Admission Requirements

In order to be considered for admission to the Bachelor of Social Work program, applicants must have

1. completed the university First-Year Composition requirement with a grade of "C" (2.00) or higher;
2. completed the following Social Work courses with a grade of "C" (2.00) or higher:
   a. SWU 171 Introduction to Social Work: Social Problems and Social Justice *SB, H* (3)
   b. SWU 291 Social Service Delivery Systems (3)
3. completed a minimum of 120 hours of volunteer or paid experience in social work related settings;
4. completed the following courses with a grade of "C" (2.00) or higher:
   a. ECN 211 Macroeconomic Principles *SB* (3)
   b. PGS 101 Introduction to Psychology *SB* (3)
   c. PHI 101 Introduction to Philosophy *HU* (3)
   d. POL 110 Government and Politics *SB* (3) or POL 310 American National Government: Ideas and Institutions *SB*, *H* (3)
   e. SOC 101 Introductory Sociology *SB* (3) or SOC 301 Principles of Sociology *SB* (3)
   f. a course in human biology (e.g., LSC 365; M BIO 201)
   g. a course in statistical analysis
   h. a lower-division literacy and critical inquiry course
5. completed and submitted the Social Work Department application packet; and
6. been admitted to the university as a degree-seeking student.

Applications

Students wishing to enter the Social Work program are required to apply for admission to the program in addition to obtaining an official Certificate of Admission to the university. Students are eligible to apply for admission to the Social Work major during the semester they are completing the lower-division requirements listed above.

A student may obtain a Social Work Department application packet at the Department of Social Work office (FAB S126) or request one by mail by calling 602/543-6602.

Criteria for Admission

Admission is based on the following criteria:

1. The applicant must have a minimum cumulative GPA of 2.50.
2. The applicant must provide documentation of the 120 hours of paid experience or volunteer activity. Verification forms are available on the department Web site at www.west.asu.edu/chs/sw.
3. The applicant's educational and career goals must be compatible with the educational objectives of the program.

4. Three references are required for each applicant. Two references should be from individuals who have known the applicant in a professional capacity. The other reference is provided by the either the applicant's SWU 171 or 291 instructor.
5. The applicant must demonstrate physical and emotional capabilities congruent with the functioning of a professional social worker.

Community College Transfer Students. Students who have completed the Associate in Transfer Partnership degree from a Maricopa County Community College or an Arizona Associate of Arts degree with the Social Work common courses, and have a GPA of 2.50 or higher, have completed the lower-division course admission requirements and may apply for admission to the BSW program.

Admission Decision

The BSW Admissions Committee meets each semester to review applications for the upcoming semester.

Students may submit their applications during the semester in which they are completing the lower-division course requirements. Applicants who are in the process of meeting eligibility requirements and are admissible are granted provisional admission status. Upon successful completion of the semester, the BSW program staff determines that all requirements have been met and the applicant is granted full admission status. In the event that all requirements are not met, the applicant is not admitted into the BSW program.

Admission Appeal

Applicants who have been denied admission may request a conference to discuss the decision and to obtain guidance in the development of future plans. Students may appeal the decision to the Standards Committee.

Readmission

Undergraduate students who have previously attended ASU but have not been enrolled at this institution for one or more semesters are required to apply for readmission following university procedures. Students who were previously BSW majors may, in addition, be required to apply for readmission to the program.

Transfer Credit

Direct transfer of courses from other accredited institutions to the Social Work program is subject to the existence of parallel and equal courses in the school's curriculum. Transfer credit is not given for courses in which the lowest passing grade ("D" [1.00]) or a failing grade ("E" [0.00]) was received. Credit for life experience is not given in lieu of course requirements.

Major Requirements

The required Social Work core consists of 48 semester hours.

SWU	171	Introduction to Social Work: Social Problems and Social Justice *SB, H* 3
SWU	291	Social Service Delivery Systems 3
SWU	301	Human Behavior in the Social Environment I *L* 3
SWU	310	Social Work Practice I 3
SWU	331	Social Policy and Services I *H* 3
SWU	402	Human Behavior in the Social Environment II *SB* 3
SWU	410	Social Work Practice II 3
SWU	411	Social Work Practice III 3
SWU	412	Field Instruction I 5
SWU	413	Field Instruction Seminar I 1
SWU	414	Field Instruction II 5
SWU	415	Field Instruction Seminar II 1
SWU	420	Practice-Oriented Research 3
SWU	432	Social Policy and Services II 3
SWU	474	Ethnic/Cultural Variables in Social Work *C* 3
Social Work Elective 3		
Core total 48		

Related Areas. Students are required to take a course in each of the following: a course with a contemporary focus on ethnic minorities of the Southwest (3 hours) and a course with a contemporary focus on women (3 hours).

Program total 54

Field Instruction. Field instruction for the BSW program is offered concurrently with classroom study. Students are assigned to a social service agency and work under the supervision of an experienced and certified social work professional. Field instruction permits testing theory in practice and gives a base of experience to class discussions. Qualified agencies in several Arizona communities are utilized for field instruction.

BSW students work in one placement for 16 hours a week, usually two full days each week, for a total of 480 hours over two semesters. Students are in their field placements at different parts of the school year from January 2 through December 31, excluding university holidays. In assigning the placement, the program takes into account the student's educational needs and career goals. Generalist social workers need to be familiar with the methods of working with individuals, families, and groups, as well as in organizations and communities and with all ages and ethnic groups. The faculty is committed to establishing the capabilities necessary for high-quality, social work generalist practice.

BSW field instruction agencies are located primarily in the Phoenix metropolitan area. Personal transportation is strongly recommended while in field placement.

Graduation Requirements

Social Work majors must file a Declaration of Graduation within the semester that they earn their 81st credit. A minimum of 120 semester hours, a minimum of 50 semester hours in upper-division courses, a minimum of 480 hours in field education, and a minimum GPA of 2.00 are required for graduation with a BSW degree. To be acceptable as graduation credit, all course and field work in the major must show an earned grade of "C" (2.00) or higher.

Academic Policies

In order to remain in good academic standing, students must maintain a minimum cumulative GPA of 2.00 (BSW) at the end of each semester. Most courses in the program are sequential; successful completion of each course in the

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

sequence is required to enroll in the following course. Students may not enroll in any second-year required courses until all foundation courses have been completed successfully.

Retention and Disqualification

Students must maintain a minimum cumulative GPA of 2.00 (BSW). A student is placed on probationary status automatically when (1) the GPA is less than the minimum at the end of any semester or (2) a grade less than "C" (2.00) is received for any major core requirement, regardless of the GPA. Students may also be put on probation for reasons other than grades. See the Policies and Procedures Manual of the Department of Social Work for information on the resolution of probationary status.

Termination from the Program

A student may be terminated from the program under any one of the following circumstances:

1. A student fails to carry out the plan developed during a probationary semester.
2. The student receives an "E" (0.00) grade (failure) in field practicum.
3. The student does not accept or is not accepted by three or more field agencies if, in the judgment of faculty and field staff, the placements can provide appropriate field experiences without undue inconvenience to the student.
4. The student does not adhere to professional expectations and standards (see the ASU Student Code of Conduct, the National Association of Social Workers (NASW) Code of Ethics, and the Council on Social Work Education (CSWE) Curriculum Policy Statement).
5. A student does not demonstrate physical and/or emotional capabilities congruent with the functioning of a professional social worker.

The responsibility for reviewing and determining the qualification of students whose behavior and/or performance are in question is vested in the Academic Standards Committee.

Appeal Procedures

Students who feel they have been unjustly treated in academic or other matters relating to their career as students may appeal by following the guidelines set forth in the "Academic Policies" section of the *BSW Student Handbook*.

Student Responsibilities

Students are expected to support and maintain the highest professional standards as spelled out in the ASU Student Code of Conduct and the NASW Code of Ethics. Regular attendance is expected in all classes and in field education and is a critical factor in evaluation of performance.

GRADUATE DEGREE

The faculty of the Department of Social Work offer a 60-semester-hour professional Master of Social Work degree. The MSW is accredited by the Council on Social Work Education. For more information, see the *Graduate Catalog*.

SOCIAL WORK (GRADUATE) (SWG)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

SOCIAL WORK (UNDERGRADUATE PROGRAM) (SWU)

For more SWU courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W SWU 171 Introduction to Social Work: Social Problems and Social Justice. (3)
fall
Descriptive and historical perspectives of social problems, social justice issues and society's response to them.
General Studies: SB, H

W SWU 291 Social Service Delivery Systems. (3)
spring
Introduces federal and state social service delivery systems as well as private social service agencies. Explores purpose and structure of community resources. During the semester, students must complete 40 hours of service learning in a social agency. Prerequisite: SWU 171 or instructor approval.

W SWU 301 Human Behavior in the Social Environment I. (3)
fall and spring
Introduces interrelation of bio-psycho-sociocultural systems and their effect on behavior, birth-adolescence, focused on southwestern ethnic and cultural groups. Prerequisite: admission to BSW major.
General Studies: L

W SWU 310 Social Work Practice I. (3)
fall and spring
Introduces social work methods, emphasizing the following skills: relationship development, cross-cultural interviewing, communication patterns, and case-recording. Prerequisite: admission to BSW major.

W SWU 331 Social Policy and Services I. (3)
fall
History, philosophy, and values of social welfare; function and role of social welfare in society; development of the social work profession and practice. Prerequisite: admission to BSW major.
General Studies: H

W SWU 402 Human Behavior in the Social Environment II. (3)
spring
Sequel completing study of life span development and behavior which forms base for social work practice. Prerequisite: SWU 301.
General Studies: SB

W SWU 410 Social Work Practice II. (3)
fall
Introduces generalist social work; major areas of knowledge, values and skills basic to the social work helping process focused on individuals and families. Prerequisites: PHI 101; SWU 301, 310; Social Work major. Corequisites: SWU 412, 413.

W SWU 411 Social Work Practice III. (3)
spring
Applies theoretical frameworks to social work practice at group and community levels. Prerequisites: SWU 410, 412, 413; Social Work major. Corequisites: SWU 414, 415. Pre- or corequisite: SWU 420.

W SWU 412 Field Instruction I. (5)
fall
16 hours a week of supervised practice in an approved placement. "Y/E" grade only. Prerequisite: Social Work major. Corequisites: SWU 410, 413.

W SWU 413 Field Instruction Seminar I. (1)
fall
Field-focused seminar, including practice evaluation. 1.5 hours a week. Prerequisite: Social Work major. Corequisites: SWU 410, 412.

W SWU 414 Field Instruction II. (5)
spring
16 hours a week of supervised practice in an approved placement. "Y/E" grade only. Prerequisites: SWU 410, 412, 413; Social Work major. Corequisites: SWU 411, 415.

W SWU 415 Field Instruction Seminar II. (1)
spring
Field-focused seminar, including practice evaluation. 1.5 hours a week. Prerequisites: SWU 410, 412, 413. Corequisites: SWU 411, 414.

W SWU 420 Practice-Oriented Research. (3)
fall and spring
Applies scientific principles to field practice, problem formulation, intervention procedures, and impact assessment in social work. Prerequisite: SWU 310. Pre- or corequisite: approved course in data analysis techniques or instructor approval.

W SWU 432 Social Policy and Services II. (3)
spring
Contemporary social, political, and economic issues. Special emphasis on poverty and inequality in the Southwest. Analysis and development of social welfare policies and programs. Prerequisite: SWU 331.

W SWU 474 Ethnic/Cultural Variables in Social Work. (3)
fall and spring
Basic conceptual approach to understanding ethnic and cultural variables of southwestern ethnic minorities and how these factors influence social work practice.
General Studies: C

W SWU 494 Special Topics. (1–4)
fall and spring
Topics in social work related to in-depth theory and practice in a specific social work area, including child welfare, gerontology, domestic violence, mental health, disability, culturally-sensitive practice, family intervention, advocacy, crime and delinquency, school-based practice, and others.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Prelaw Minor

www.west.asu.edu/chs/prelaw
602/543-6600
FAB S105

NATURE OF PROGRAM

The Prelaw minor is designed to explore the study of law from an interdisciplinary perspective. Students will take a core of classes that are reflective of courses taken by first-year law students and will enhance a student's critical thinking skills. In addition, students will select elective courses for the minor with assistance from the college's Human Services Advising Office and from a faculty member on the college's Prelaw Advising Committee. In general, the courses selected as prelaw minor electives are those that:

1. enhance the student's critical thinking and writing skills;
2. develop the student's knowledge of the law; and
3. enhance the student's understanding of the social, cultural, historical, economic and political development of the law in our society and the world.

The minor is designed for students who plan to attend law school or who contemplate careers in fields closely related to the legal profession. Students who exhibit exceptional critical thinking and writing skills are highly successful in their legal studies. It is expected that students in the minor will be able to think both logically and creatively about the law and its philosophical basis. In addition, students will be able to effectively apply legal principles to various factual problems, a rudimentary part of the case book method of legal study.

Minor Requirements

The 18-semester-hour minor in Prelaw consists of nine hours of required courses and nine hours of elective courses to be selected with an advisor. Students may not count classes toward both completion of their major and the Prelaw minor.

Core Classes

Choose three of the following courses 9

COM	422	Argumentation, Critical Reasoning and Public Communication *L* (3)
CRJ	360	Substantive Criminal Law (3)
LES	306	Business Law (3)
POL	470	Law and the Political Order *SB* (3)

Electives 9

Total 18

Electives. The nine hours of electives must be strategically assembled from courses that are either reflective of the different types of law they are interested in studying (e.g., business law, civil liberties, criminal law, environmental law, family law, international law, legal history and jurisprudence, and mental health law), or that enable them to develop critical thinking and writing skills. A list of elective courses that may be used toward completion of the minor is available from the College of Human Services Advising Office or from a member of the Prelaw Advising Committee.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

New College of Interdisciplinary Arts and Sciences

www.west.asu.edu/newcollege

Emily F. Cutrer, PhD, Dean

PURPOSE

The New College of Interdisciplinary Arts and Sciences offers academic programs that prepare students to take their places as active participants in a rapidly changing social, political, and natural environment. These programs seek to provide students with the skills necessary for independent thinking and effective expression; an understanding and appreciation of diverse cultures past and present; sensitivity to the aesthetic dimensions of human endeavor and the natural environment; and, an appreciation and understanding of scientific perspectives and methods as tools for understanding nature and society. The college's integrating principle or focus is social concern and community engagement.

The college has built a blend of interdisciplinary, integrative, and disciplinary programming that transcends academic boundaries while providing much of the general studies for the campus. The college's teaching and research are guided by a linkage of theory and practice, engaging the local community through service learning activities, internships, and arts programming.

ORGANIZATION

The New College of Interdisciplinary Arts and Sciences is organized into six interdisciplinary departments and three academic programs:

Department of Integrated Natural Sciences
Department of Integrative Studies
Department of Interdisciplinary Arts and Performance
Department of Language, Cultures, and History
Department of Mathematical Sciences and Applied Computing
Department of Social and Behavioral Sciences
Ethnic Studies Program
Religious Studies Minor
Women's Studies Program

DEGREE PROGRAMS

See the "New College of Interdisciplinary Arts and Sciences Baccalaureate Degrees and Majors" table, page 697.

The faculty of the New College of Interdisciplinary Arts and Sciences offer a 30-semester-hour Master of Arts degree in Interdisciplinary Studies. For more information, see the *Graduate Catalog*.

MINORS AND CERTIFICATES

See the "West Campus Minors" table, page 654, and the "West Campus Certificates" table, page 655.

Admission

Any student who is admitted to the university and who wishes to major in an interdisciplinary or disciplinary field offered by the New College of Interdisciplinary Arts and Sciences is admitted to the degree program.

Degree Requirements

All candidates for graduation in the BA and BS degree curricula are required to present at least 120 semester hours, of which at least 50 semester hours must consist of upper-division courses. A minimum cumulative GPA of 2.00 is required for graduation.

In cooperation with their college and faculty advisors, students file a Declaration of Graduation in accordance with the degree requirements. It is the students' responsibility to be aware of the requirements for their degree program and to select courses accordingly.

To graduate, a student must satisfy separate requirements of three kinds:

1. college proficiency requirements for Language and Cultures and Mathematics;
2. university First-Year Composition and General Studies requirements; and
3. major requirements that involve concentrated course work in one program.

Proficiency Requirements

Each student is required to demonstrate proficiency in the analysis of language and cultures and mathematics by passing an examination or by completing the courses

New College of Interdisciplinary Arts and Sciences Baccalaureate Degrees and Majors

Major	Degree	Concentration*	Administered By
American Studies	BA	—	Department of Language, Cultures, and History
Applied Computing	BS	Database systems, network and distributed processing, or digital media and graphic design	Department of Mathematical Sciences and Applied Computing
Applied Science	BAS	Any minor available at the West campus or individualized concentration	Department of Integrative Studies
English	BA	—	Department of Language, Cultures, and History
Ethnicity, Race, and First Nations Studies	BA	—	Ethnic Studies Program
History	BA	—	Department of Language, Cultures, and History
Integrative Studies	BA	Any minor available at the West campus or individualized concentration	Department of Integrative Studies
Interdisciplinary Arts and Performance	BA	—	Department of Interdisciplinary Arts and Performance
Life Sciences	BS	—	Department of Integrated Natural Sciences
Political Science	BA, BS	—	Department of Social and Behavioral Sciences
Psychology	BA, BS	—	Department of Social and Behavioral Sciences
Social and Behavioral Sciences	BA, BS	—	Department of Social and Behavioral Sciences
Sociology	BA, BS	—	Department of Social and Behavioral Sciences
Spanish	BA	—	Department of Language, Cultures, and History
Women's Studies	BA, BS	—	Women's Studies Program

* If a major offers concentrations, one must be selected unless noted as *optional*.

specified below with a grade of "C" (2.00) or higher in each course.

Students considering graduate work after completion of a bachelor's degree should consult with faculty advisors regarding language requirements in their intended areas of study.

Language and Cultures. This requirement may be satisfied through one of the following:

1. completion of secondary education at a school in which the language of instruction is not English;
2. completion of a language course at the intermediate level (202 or equivalent), including American Sign Language IV;
3. completion of upper-division course(s) taught in a foreign language, taken in the United States or the relevant country;
4. completion of six semester hours of upper-division courses that have a Global Awareness (G) or Cultural Diversity in the U.S. (C) designation, in addition to the courses used to meet the University General Studies requirements; or
5. completion of two sequential semesters of course work in a current computer language. Contact the college Advising Office for information on applicable course work.

Mathematics. MAT 142 or any MAT course for which MAT 117 or a higher level MAT course is a prerequisite.

Major Requirements

Each student is required to select a major from among the programs offered by the New College of Interdisciplinary Arts and Sciences. The requirements for completion of the major are described under department listings.

The major program may require up to 45 semester hours of course work. The minimum is 30 hours. A maximum of 18 additional hours may be required in related courses and

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

prerequisites. No more than 63 semester hours of course work may be required to complete the major, related courses, and prerequisites. A minimum of 12 upper-division semester hours in the major must be taken in campus resident credit.

No credit is granted toward fulfilling major or minor requirements in any upper-division course in the subject field of the major unless the grade in that course is at least a "C" (2.00). Normally a "Y" (satisfactory) grade needs confirmation that it is equivalent to a "C" (2.00) or higher.

General Electives

Once the three kinds of requirements have been satisfied, the remainder of the minimum of 120 semester hours required for graduation are general electives. Contact college advisors for assistance in selecting elective courses.

Ethnic Studies Program

www.west.asu.edu/ethnic
602/543-6007
FAB N205A

Gloria H. Cuádraz, Director

ETHNICITY, RACE, AND FIRST NATIONS STUDIES—BA

Nature of the Program

The purpose of the Bachelor of Arts degree in Ethnicity, Race, and First Nations Studies is to provide an integrated comparative and comprehensive approach to the study of diversity among ethnic and racial groups and first nations. Most traditional ethnic studies programs offer degrees based on one major ethnic group, whereas the approach we propose fills a void by emphasizing interdisciplinary and comparative approaches to the study of ethnic and racial groups and first nations in one degree program.

Course work in the Ethnicity, Race, and First Nations Studies program incorporates a framework that fosters the study of ethnicity, race, and first nations across the curriculum. Both theoretical and applied perspectives are embedded in a curriculum that addresses how ethnicity, race, and first nations shape identities, literacies, public policies, and communities in local and transnational U.S. contexts.

Students will identify a career area that will enable them to integrate their knowledge in ethnicity, race, and first nations with specific course work tied to their career and advanced educational goals. The incorporation of research methods and information competency places graduates at a significant advantage in acquiring jobs in the state and local labor markets. Students participate in high quality community experiences where they apply skills and knowledge attained in the classroom to ethnically diverse public and private work settings.

Student Outcomes

The Ethnicity, Race, and First Nations Studies program prepares graduates with the following knowledge and skills:

1. an interdisciplinary and comparative understanding of ethnicity, race, and first nations in the U.S.;
2. knowledge of the various theoretical frameworks employed in the study of ethnicity, race, and first nations;
3. an understanding of how ethnicity, race, and first nations shape identities;
4. an understanding of how ethnicity, race, and first nations shape literacies and information competencies;
5. an understanding of how ethnicity, race, and first nations shape communities and public policies;
6. an understanding of how ethnicity, race, and first nations shape orientations to issues spanning local and transnational U.S. contexts;
7. effective skills in technological literacy and information competency;
8. effective critical writing;
9. an ability to marshal evidence and argue a central thesis effectively in written assignments;
10. effective oral communication; and
11. an ability to apply knowledge and understanding of ethnicity, race, and first nations to real world problems and issues.

Career Outlook

Rapid socioeconomic change, changing demographics, increased global competition, and rapid cultural diversification have created an increasing need for workers and citizens knowledgeable about diverse ethnic and racial groups. Graduates of the undergraduate program in Ethnicity, Race and First Nations Studies will be positioned to enter the workforce and function effectively and critically as informed citizens in a diverse and complex society.

Major Requirements

The degree program requires 45 semester hours. The major consists of

1. 12 semester hours of core requirements,
2. 24 semester hours of cluster requirements, and
3. nine semester hours in a career-focused area.

Core Requirements

ENG 317 Cross-Cultural Writing *L/HU, G* 3
ETH 300 Principles of Ethnic Studies *C* 3
ETH 310 Research Methods in Ethnic, Racial, and First Nations Populations *SB* 3
ETH 484 Ethnic Studies Internship 3

Cluster Requirements[1]

Choose two of the following for identity matters credit 6

AMS 330 Introduction to American Lives *HU* (3)
ENG 476 Folklore in Everyday Life *HU* (3)
ETH 100 Introduction to Ethnic Studies *SB, C* (3)
IAS 220 Psychology, Multicultural Narratives, and Religion *L/HU, C* (3)
IAS 420 Multicultural Autobiographies *L/HU, C* (3) or ENG 420 Multicultural Autobiographies *L/HU, C* (3)

SBS 301 Cultural Diversity *L/SB, C* (3)
SBS 410 TIID: Introduction to Asian American Experiences (3)
WST 370 Chronicling Women's Lives *HU, C* (3)
WST 473 Latina/Chicana Representation *SB, C* (3)
Other approved course (3)

Choose two of the following for literacy matters credit 6
ENG 353 African American Literature: Beginnings through the Harlem Renaissance *L/HU, C* (3)
ENG 354 African American Literature: Harlem Renaissance to the Present *L/HU, C* (3)
ENG 359 American Indian Literature *L/HU, C* (3)
ENG 363 Chicano Literature *HU, C* (3)
ENG 460 Ethnic Women Writers *L/HU, C* (3)
or WST 467 Ethnic Women Writers *L/HU, C* (3)
ENG 462 Africana Literature *HU, G* (3)
ENG 463 African-American Literature *HU, C* (3)
IAP 464 Media and Diversity (3)
Other approved course (3)

Choose two of the following for community and policy matters credit 6
AMS 327 Regional Cultures (3)
AMS 428 Chicano Cultures in the Southwest *SB* (3)
ASB 442 Urban Anthropology *SB* (3)
HIS 331 American Indians (3)
IAS 407 Environmental Philosophy and Policy *L/HU* (3)
or PHI 407 Environmental Philosophy and Policy *L/HU* (3)
POL 320 Latino Politics *SB, C* (3)
SOC 370 Racial and Ethnic Minorities *SB, C* (3)
WST 300 Women in Contemporary Society *SB, C* (3)
WST 350 Race, Class, and Gender *SB, C* (3)
Other approved course (3)

Choose two of the following for transitional matters credit 6
ASB 340 Migration and Culture *SB, G* (3)
ASB 440 Women in the Global Factory *SB, G* (3)
HIS 454 History of Genocide *G, H* (3)
HIS 462 The African Diaspora *G, H* (3)
HIS 465 Origins of Racism *G, H* (3)
POL 430 Race and Politics in the Americas *SB, C* (3)
SOC 324 Work and the Workplace *SB, H* (3)
WST 390 Women and World Religions *L/SB, G* (3)
WST 475 Women of the Diaspora Across Cultures *HU, G* (3)
Other approved course (3)

Career Focus

Choose courses from the following areas[2].....9
Arts and music
Business
Education and teaching
Health
Law
Policy and public sector
Spanish
Science and technology
Social entrepreneurship

Program total.....45

[1] Select two courses from each cluster; one course from each cluster may be lower-division for a maximum of 12 semester hours of lower-division courses.

[2] These courses must be chosen in consultation with a faculty advisor.

Minor and Certificate in Ethnic Studies

Nature of the Programs. The minor and certificate in Ethnic Studies explore the study of ethnicity within the United States. The programs are designed to foster direct linkages between the university and community through student participation in community-based internships. With an emphasis on service learning that combines the acquisition of analytical skills from classroom instruction and work experience gained through community-based organization internships, students are placed at a significant advantage in acquiring jobs in the state and local labor market.

Courses in the Ethnic Studies minor and certificate are designed to

1. address theoretical, analytical, and practical issues relevant to understanding race, culture, and ethnicity in American society from a comparative and interdisciplinary perspective;
2. enhance the student's critical thinking and writing skills through the study of ethnicity in the U.S.;
3. develop more effective skills for working in diverse communities through integration of service-learning experiences in course content; and
4. create collaborations among faculty, students, and community members to address concrete issues facing racial and ethnic groups in the United States.

This minor and certificate are designed for students who plan to work and live in ethnically diverse communities and seek to acquire the skills for understanding the complexities of race, class, and gender at a local or national level. It is expected that students in the minor and certificate programs will be able to think both analytically and creatively about ethnicity in the United States. The minor or certificate is strongly recommended for students who plan to enter a wide variety of jobs in business, the health professions, the criminal justice system, social services, education, public relations, community development, public policy, or government. It is also valuable for students preparing for further graduate study.

Minor in Ethnic Studies

The minor consists of 21 semester hours, 15 of which must be at the upper-division level. Students are encouraged to take courses that develop breadth rather than limiting their selection to courses in one particular discipline. Up to three semester hours of individualized instruction may be applied toward the minor. All courses must be passed with a minimum grade of "C" (2.00).

Required Courses

ETH 300 Principles of Ethnic Studies *C* 3
ETH 484 Ethnic Studies Internship 3
Electives* 15

Total 21

* These courses must be chosen from the approved ethnic studies course list in consultation with the ethnic studies advisor.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Certificate in Ethnic Studies

The Certificate Program is recommended for graduate students, nondegree students, and students with majors in professional programs. A certificate in Ethnic Studies is awarded for successful completion of 21 semester hours, including ETH 300 and 18 semester hours of elective courses from the approved course list.

ETHNIC STUDIES (ETH)

W ETH 100 Introduction to Ethnic Studies. (3)
fall and spring
Undertakes an introductory comparative analysis of ethnic groups to understand cultural diversity within the United States.
General Studies: SB, C

W ETH 300 Principles of Ethnic Studies. (3)
fall and spring
Familiarizes students with a range of analytical and theoretical frameworks in the field of ethnic studies.
General Studies: C

W ETH 310 Research Methods in Ethnic, Racial, and First Nations Populations. (3)
spring
Examines analytical tools and methodological approaches (ethnography, oral histories, digital-storytelling, information literacy) to study ethnic, racial, and first nations populations.
General Studies: SB

W ETH 484 Ethnic Studies Internship. (3)
fall, spring, summer
Seminar with structured practical experience in the field and/or in community organizations.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Department of Integrated Natural Sciences

www.west.asu.edu/dins
602/543-6050
CLCC 217

Douglas Dennis, Chair

Professors: Dennis, Sullivan

Associate Professor: Deutch

Assistant Professors: Boorse, Harrington, Johnson, Jurutka, Marshall, Morse, Solis

The Department of Integrated Natural Sciences offers an interdisciplinary Bachelor of Science degree and minor in Life Sciences. In addition, the department offers a strong prehealth/premedical curriculum for students who intend to pursue a career in the health professions.

LIFE SCIENCES—BS

Nature of Program

The intricate connections between biology, chemistry, geology, and physics form the basis of the Integrated Natural Sciences curriculum. The department is heavily invested in experiential learning and all required core courses have laboratories. Because of this focus on hands-on learning, students will find that they will be competitive in their career aspirations, whether it is in the health field, in an environmental discipline, or pursuing a graduate degree. Students will also find that by learning in an integrative environment that emphasizes the connectedness between disciplines, they will possess a better understanding of larger scientific concepts and will be able to view these concepts from multiple perspectives. The department emphasizes doing as a way of learning and supports undergraduates in conducting independent research under the mentorship of faculty members or in internships outside of the department. Students are encouraged to consider both of these opportunities.

Path to Health Field Careers

Medical colleges base admission decisions on a variety of factors, including GPA, the courses a student has taken, scores in required national exams, extracurricular activities, quality of letters of recommendation, and hands-on experience. All medical colleges in the United States have extensive science prerequisites, including lower-division courses in biology, chemistry, and physics. Many medical colleges have additional course requirements, often including courses in communication, math, or psychology as well as upper-division biochemistry or biology courses. The Health Professions Advisory Committee in the Integrated Natural Science department aids students in preparing for a career in the health field by informing them of the particular entrance requirements of each school. In addition, the committee guides students in the best strategies to strengthen their application and prepare for national exams. Students who are considering a health-related career that requires professional training are strongly urged to consult with the chair of the Health Professions Advisory Committee as soon as they enter the university.

Information on the committee and on applying to health professional schools can be found at the Integrated Natural Sciences Web site at www.west.asu.edu/dins.

Career Outlook

A degree in Life Sciences provides broad training in laboratory, data-gathering, writing, communication, quantitative, problem-solving, and critical thinking skills that prepare students for a wide variety of careers. Graduates may enter careers in laboratory or field research, business, scientific journalism, publishing, teaching, and medicine. Laboratory technician or research associate positions are available in university and government research laboratories, hospital and diagnostic laboratories, and pharmaceutical, biotechnology, agricultural, and food processing companies. Laboratory experience at the undergraduate level, available in laboratories on and off campus, will enhance employability in these areas. Students who emphasize field studies may prepare themselves for entry level positions in private companies as well as state and federal agencies. These positions include wildlife biologist, environmental consultant, and conservation officer. Participation in internships in government agencies or private companies as an undergraduate will provide the student with experience valuable to

potential employers. The Bachelor of Science in Life Sciences degree is appropriate for students who wish to enter master's and doctoral programs in basic or applied areas of biology.

Special Grading Options

The Department of Integrated Natural Sciences grades internships (484), pro-seminars (498), and individualized instruction (499) on a satisfactory/fail basis. Students who successfully complete these experiences receive a "Y" grade. Such grades are acceptable for meeting program requirements, but these grades are not computed in the GPA.

Major Requirements

The Bachelor of Science in Life Sciences consists of 20 semester hours of core courses, 18 semester hours of distribution courses, and 32 to 33 semester hours of cognate courses. The cognate courses are integral for the understanding of biology, but are not biology courses. The core courses provide a firm foundation for further study in the discipline, while the distribution courses ensure that students maintain breadth in their upper-division studies.

A grade of "C" or higher is required for all course work taken to fulfill major requirements.

Core Courses

BIO 187 General Biology I *SG* 4
BIO 188 General Biology II *SQ* 4
LSC 320 Fundamentals of Ecology 3
LSC 322 Fundamentals of Ecology Laboratory 1
LSC 347 Fundamentals of Genetics 3
LSC 348 Fundamentals of Genetics Laboratory 1
LSC 353 Cell Biology 3
LSC 355 Cell Biology Laboratory 1

Cognate Courses

CHM 113 General Chemistry *SQ* 4
CHM 115 General Chemistry with Qualitative Analysis *SQ* 5
CHM 331 General Organic Chemistry Lecture I 3
CHM 335 General Organic Chemistry Laboratory I 1
CHM 332 General Organic Chemistry Lecture II 3
CHM 336 General Organic Chemistry Laboratory II 1
PHY 111 General Physics *SQ*[1] 3
PHY 113 General Physics Laboratory *SQ*[1] 1
PHY 112 General Physics *SQ*[2] 3
PHY 114 General Physics Laboratory *SQ*[2] 1
Choose one of the following combinations 7–8

MAT 270 Calculus with Analytic Geometry I *MA* (4)
MAT 271 Calculus with Analytic Geometry II *MA* (4)

——— *or* ———

MAT 210 Brief Calculus *MA* (3)
LSC 415 Biometry *CS* (4)

[1] Both PHY 111 and 113 must be taken to secure SQ credit.
[2] Both PHY 112 and 114 must be taken to secure SQ credit.

Distribution Courses. Students must take at least 18 semester hours from these courses. This includes one course from each of the following groups: cellular, molecular, and physiological biology, organismal biology, and integrative systems ecology. No more than six semester hours of internship, externship, pro-seminar, or individualized instruction may count toward the major (LSC 350, 450, 484, 498, or 499).

Cellular, Molecular, and Physiological Biology

LSC 308 Plant Physiology 4
LSC 358 Animal Physiology 3
LSC 359 Animal Physiology Laboratory 1
LSC 366 Principles of Biochemistry 3
LSC 367 Elementary Biochemistry Laboratory 1
LSC 432 Basic Pharmacology 3
LSC 443 Molecular Genetics 3

Organismal Biology

LSC 309 Flora of Arizona 4
LSC 370 Vertebrate Zoology 4
LSC 385 Invertebrate Zoology 4
LSC 444 Fundamentals of Microbiology 3
LSC 445 Fundamentals of Microbiology Laboratory 1
LSC 473 Ichthyology *L* 3
LSC 474 Herpetology 3

Integrative Systems Ecology

LSC 307 Comparative Plant Diversity 4
LSC 345 Organic Evolution 3
LSC 408 Population Biology 3
LSC 410 Techniques in Wildlife Conservation Biology *L* 3
LSC 434 Marine Ecology 3

Electives

LSC 350 Premedical Professional Seminar 3
LSC 415 Biometry *CS** 4
LSC 450 Premedical Externship 3
LSC 484 Internship 1–6
LSC 489 Capstone in Integrated Natural Sciences 1
LSC 494 Special Topics 1–3
LSC 498 Pro-Seminar 1–3
LSC 499 Individualized Instruction 1–6

Program total 70–71

* BS students taking Biometry for the mathematics cognate requirement cannot also count it as an elective toward the major.

Minor in Life Sciences

A minor in Life Sciences can be a valuable asset particularly when paired with an appropriate major. For instance, a Biology minor paired with a Political Science major would provide a good background for someone who wanted to practice environmental law.

Minor Requirements

Required Courses

BIO 187 General Biology I *SG* 4
BIO 188 General Biology II *SQ* 4
CHM 113 General Chemistry *SQ* 4
CHM 115 General Chemistry with Qualitative Analysis *SQ* 5
LSC 320 Fundamentals of Ecology 3
LSC 322 Fundamentals of Ecology Laboratory 1
LSC 347 Fundamentals of Genetics 3
LSC 348 Fundamentals of Genetics Laboratory 1
LSC 353 Cell Biology 3
LSC 355 Cell Biology Laboratory 1

Total 29

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

BIOLOGY (BIO)

For more BIO courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W BIO 100 The Living World. (4)
fall and spring
Principles of biology. Cannot be used for major credit in the biological sciences. 3 hours lecture, 3 hours lab. Fee.
General Studies: SQ

W BIO 187 General Biology I. (4)
fall
Biological concepts emphasizing principles and the interplay of structure and function at the organismal, population, and community levels. Intended for life sciences, biology, and health-related science majors. 3 hours lecture, 3 hours lab. Fee.
General Studies: SG

W BIO 188 General Biology II. (4)
spring
Biological concepts emphasizing principles and the interplay of structure and function at the molecular, cellular, and organismal levels. 3 hours lecture, 3 hours lab. Fee. Prerequisite: BIO 187.
General Studies: SQ

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

CHEMISTRY (CHM)

For more CHM courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W CHM 101 Introductory Chemistry. (4)
spring
Elements of general chemistry. Designed for nonmajors. Credit is allowed for only CHM 101 or 107. 3 hours lecture, 3 hours lab. Fee.
General Studies: SQ

W CHM 113 General Chemistry. (4)
fall
Principles of chemistry. Adapted to the needs of students in the physical, biological, and earth sciences. Credit is allowed for only CHM 113 or 117. 3 hours lecture, 1 hour discussion, 2 hours lab. Fee. Prerequisite: MAT 106 (or 3 semesters of high school algebra). 1 year of high school chemistry recommended.
General Studies: SQ

W CHM 115 General Chemistry with Qualitative Analysis. (5)
spring
Continuation of CHM 113. Equilibrium theory; chemistry of metals, nonmetals, and metalloids; introduction to organic chemistry. Lab includes qualitative analysis. Credit is allowed for only CHM 115 or 116 or 118. 3 hours lecture, 2 hours discussion, 4 hours lab. Fee. Prerequisite: CHM 113 or 2 years of high school chemistry.
General Studies: SQ

W CHM 331 General Organic Chemistry Lecture I. (3)
fall
Chemistry of organic compounds. Prerequisite: CHM 115.

W CHM 332 General Organic Chemistry Lecture II. (3)
spring
Continuation of CHM 331. Prerequisite: CHM 331.

W CHM 335 General Organic Chemistry Laboratory I. (1)
fall
Microscale organic chemical experiments in separation techniques, synthesis, analysis and identification, and relative reactivity. 4 hours lab. Fee. Corequisite: CHM 331.

W CHM 336 General Organic Chemistry Laboratory II. (1)
spring
Continuation of CHM 335. 4 hours lab. Fee. Prerequisite: CHM 335. Corequisite: CHM 332.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

GEOLOGICAL SCIENCES (GLG)

For more GLG courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W GLG 110 Geological Disasters and the Environment. (3)
spring
Geological studies as they apply to interactions between humans and earth. Includes geological processes and hazards, resources, and global change.
General Studies: G, SG (if credit also earned in GLG 111)

W GLG 111 Geological Disasters and the Environment Laboratory. (1)
spring
Basic geological processes and concepts. Emphasizes geology-related environmental problems concerning Arizona. Case histories and field studies. Fee.
General Studies: SG (if credit also earned in GLG 110)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

LIFE SCIENCES (LSC)

W LSC 300 Modes of Biological Thought. (3)
selected semesters
Involves students in the process of biological discovery to examine how we identify truth in biological science. Prerequisites: BIO 188; ENG 101 (or 105).
General Studies: L

W LSC 301 Life Sciences: History and Method. (4)
selected semesters
Integrates philosophy, history, and methods of the life sciences. Includes issue of under representation of minorities in science. Lecture, lab.
General Studies: SG

W LSC 307 Comparative Plant Diversity. (4)
spring
Systematic and evolutionary survey of the plant kingdom, emphasizing diversity of gross and cellular structure, reproduction, life cycles, and habitat. 3 hours lecture, 3 hours lab. Fee. Prerequisites: ENG 101 (or 105); BIO 100 (or 188 or its equivalent).

W LSC 308 Plant Physiology. (4)
fall
Concepts of plant function: carbon metabolism, energy acquisition, regulation of growth and development, stress responses, and water and nutrient uptake. 3 hours lecture; 3 hours lab. Fee. Prerequisite: LSC 353.

W LSC 309 The Flora of Arizona. (4)
spring
Principles of taxonomy; identification of Arizona plants. 2 hours lecture, 6 hours lab. Fee. Prerequisites: BIO 187, 188.

W LSC 310 Natural History of Arizona. (3)
fall and spring
Plant and animal communities of Arizona. Cannot be used for major credit in the biological sciences.
General Studies: SG (if credit also earned in LSC 311)

W LSC 311 Field Natural History. (1)
fall and spring
Organisms and their natural environment. Cannot be used for major credit in the biological sciences. Lab, weekly field trips, field project. Fee. Pre- or corequisite: LSC 310.
General Studies: SG (if credit also earned in LSC 310)

W LSC 320 Fundamentals of Ecology. (3)
fall
Organization, functioning, and development of ecological systems; energy flow; biogeochemical cycling; environmental relations; population dynamics. Prerequisite: BIO 188 or instructor approval.

W LSC 322 Fundamentals of Ecology Laboratory. (1)
fall
Investigational field course on fundamental concepts in ecology. 3 hours lab. Fee. Prerequisite: BIO 188; CHM 115. Corequisite: LSC 320.

W LSC 330 Pollution vs. Protection: Counting the Cost. (3)
spring
Compares the economic costs and global consequences of permitting versus preventing pollution.
General Studies: G

W LSC 342 Hormones and Behavior. (3)
selected semesters
Examines the short-term and long-term effects of hormones on the behavior of animals, including humans. Prerequisite: BIO 188.

W LSC 345 Organic Evolution. (3)
selected semesters
Processes of adaptive change and speciation in sexual populations. Prerequisite: BIO 188.

W LSC 347 Fundamentals of Genetics. (3)
spring
Science of genetics, gene flow, and genetic engineering in humans and other organisms. Prerequisites: BIO 187, 188; CHM 113, 115.

W LSC 348 Fundamentals of Genetics Laboratory. (1)
spring
Investigational lab using modern molecular techniques to analyze various genetic phenomena. 3 hours lab. Fee. Corequisite: LSC 347.

W LSC 350 Premedical Professional Seminar. (3)
fall and spring
An opportunity for students who anticipate a career in any area of medicine to explore the realities of the field. Prerequisites: LSC 353, 347; instructor approval.

W LSC 351 Developmental Anatomy. (3)
selected semesters
General developmental biology (embryology) and comparative structure of organ systems, illustrated mainly by vertebrate examples. Prerequisite: BIO 188.

W LSC 353 Cell Biology. (3)
fall
Surveys major topics in cell biology, including structural, biochemical, and molecular aspects of cell function. Prerequisite: BIO 187, 188; CHM 113, 115.

W LSC 355 Cell Biology Laboratory. (1)
fall
Investigational lab using modern molecular and cellular techniques to analyze molecular, biochemical, and anatomical traits of cells. 3 hours lab. Fee. Corequisite: LSC 353.

W LSC 358 Animal Physiology Lecture. (3)
fall and spring
Physiological mechanisms of the higher vertebrates. Prerequisites: BIO 188; CHM 115; MAT 117.

W LSC 359 Animal Physiology Laboratory. (1)
fall and spring
Investigative lab experience using animals (including humans) and models. 3 hours lab. Fee. Prerequisites BIO 187, 188; CHM 115; MAT 117. Corequisite: LSC 358.

W LSC 360 The Biology of Human Experience. (3)
selected semesters
Introduces the evolutionary origins and characteristics of humans as they are reflected in morphology, physiology, ecology, and behavior. Prerequisite: BIO 188.

W LSC 361 Human Sexual Biology. (3)
selected semesters
Human sexuality from a biological and integrative perspective, including comparisons to other vertebrates and examination of social, behavioral, and physiological factors. Cannot be used for major credit in the biological sciences.

W LSC 362 The Human Environment. (3)
selected semesters
Evolution of humans' physiological, ecological, and behavioral interaction with their environment.

W LSC 363 Genes, Race, Gender, and Society. (3)
selected semesters
Examines biological events and theories on race and gender and their interface with societal views. Prerequisites: BIO 187, 188, 340 (LSC 347).

W LSC 365 The Human Organism. (4)
fall
Analyzes human anatomy, physiology, and behavior in an ecological and evolutionary context with the methods of comparative biology. 3 hours lecture; 3 hours lab. Fee.
General Studies: SG

W LSC 366 Principles of Biochemistry. (3)
fall and spring
Structures, properties, and functions of proteins, enzymes, nucleic acids, carbohydrates, and lipids; the utilization and synthesis of these materials by living systems; and the relationship of these processes to energy production and utilization. Prerequisite: an organic chemistry course.

W LSC 367 Elementary Biochemistry Laboratory. (1)
fall and spring
Quantitative analysis of constituents of biological systems, enzyme assays, protein purification, and metabolic studies. 3 hours lab. Fee. Corequisite: LSC 366.

W LSC 370 Vertebrate Zoology. (4)
spring
Characteristics, classification, evolution, and natural history of the major groups of vertebrate animals. 3 hours lecture, 3 hours lab. Fee. Prerequisite: BIO 188.

W LSC 380 Medical Parasitology. (3)
selected semesters
Parasitic diseases of humans, including life cycle events and clinical manifestations. Prerequisite: BIO 385 or LSC 353 or instructor approval.

W LSC 385 Invertebrate Zoology. (4)
selected semesters
Characteristics, life cycles, adaptations, and evolution of invertebrate animals. 3 hours lecture, 3 hours lab. Fee. Prerequisite: BIO 188 or instructor approval.

W LSC 408 Population Biology. (3)
spring
Theoretical and applied aspects of distribution and abundance, population regulation, genetic flow, and interactions among populations, including humans. Prerequisites: LSC 320.

W LSC 410 Techniques in Wildlife Conservation Biology. (3)
selected semesters
Field and analytical techniques used in evaluating population structure, viability and environmental impacts. Lecture, lab. Fee. Prerequisites: BIO 188; ENG 101 (or 105). LSC 320, 347 recommended.
General Studies: L

W LSC 415 Biometry. (4)
fall
Statistical methods applied to biological problems, design of experiments, estimation, significance, analysis of variance, regression, correlation, chi square, and bioassay; the use of computers. 3 hours lecture, 3 hours lab. Prerequisite: MAT 210.
General Studies: CS

W LSC 422 Introductory Immunology. (3)
selected semesters
Fundamental concepts in research and medicine. Cellular immunity, antibody and antigen, immunogenetics, immunoregulation, hypersensitivity, clinical immunology, and nervous-immune system interactions. Prerequisites: CHM 231 (or 331); LSC 353 (or instructor approval).

W LSC 430 Environmental and Human Toxicology. (4)
selected semesters
Lecture/fieldwork course investigating toxic substances in the environment and their effect on the health of organisms, including humans. Prerequisites: BIO 188; CHM 113, 115.

W LSC 432 Basic Pharmacology. (3)
selected semesters
Aspects of pharmacology using an integrated approach to familiarize students with natural and synthetic therapeutic agents used in

medicine. Prerequisite: either LSC 353 or both LSC 358 and 359 or only instructor approval.

W LSC 434 Marine Ecology. (3)
selected semesters
Examines ecological processes in oceans, seas, and estuaries that emphasizes species- and community-level phenomena. Prerequisite: LSC 320.

W LSC 443 Molecular Genetics. (3)
selected semesters
Nature and function of the gene; emphasizes the molecular basis of inheritance and gene expression in prokaryotes and eukaryotes. Prerequisites: LSC 347; a course in organic chemistry.

W LSC 444 Fundamentals of Microbiology. (3)
fall
Overview of microorganisms; their anatomy, physiology, genetics, metabolic diversity, and ecological significance. Not open to students with credit in MIC 205. Prerequisite: LSC 353.

W LSC 445 Fundamentals of Microbiology Laboratory. (1)
fall
Principles and lab techniques used in culturing, identifying, and analyzing microorganisms. Not open to students with credit in MIC 206. 3 hours lab. Fee. Corequisite: LSC 444.

W LSC 447 Molecular Genetics Laboratory. (1)
selected semesters
Investigative lab involving DNA isolation, PCR, gel electrophoresis, enzyme digestion and ligation, transformation, and hybridization analysis. 3 hours lab. Fee. Pre- or corequisite: LSC 443.

W LSC 450 Premedical Externship. (3)
fall and spring
Provides hands-on experience in a hospital setting for premedical students. Prerequisite: BIO 188. Pre- or corequisites: LCS 350; instructor approval.

W LSC 453 Animal Histology. (4)
selected semesters
Microscopic study of animal tissues. 3 hours lecture; 3 hours lab. Fee. Prerequisites: BIO 187; LSC 353 (or instructor approval).

W LSC 471 Ornithology. (3)
selected semesters
The biology of birds. 2 hours lecture, 3 hours lab, weekend field trips. Fee. Prerequisite: LSC 370 or instructor approval.

W LSC 473 Ichthyology. (3)
selected semesters
Systematics and biology of recent and extinct fishes. 2 hours lecture, 3 hours lab or field trip, weekend field trips required. Fee. Prerequisites: ENG 101 (or 105); LSC 370 (or instructor approval).
General Studies: L

W LSC 474 Herpetology. (3)
selected semesters
Systematics and biology of recent and extinct reptiles and amphibians. 2 hours lecture, 3 hours lab or field trip. Fee. Prerequisite: LSC 370 or instructor approval.

W LSC 482 Methods of Teaching Biology. (3)
fall
Methods of instruction, experimentation, organization, and presentation of appropriate content in biology. Fee. Prerequisite: 20 hours in the biological sciences.

W LSC 484 Internship. (1–6)
fall, spring, summer
Opportunities for students to pursue interests they develop in course work. Especially appropriate for applied aspects of science. Prerequisite: department chair approval.

W LSC 489 Capstone Course in Integrated Natural Sciences. (1)
selected semesters
Integrates the core curriculum and makes connections between the science and careers/graduate school. Prerequisite: at least 28 semester hours in the major.

W LSC 498 Pro-Seminar. (1–7)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

PHYSICS (PHY)

For more PHY courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W PHY 101 Introduction to Physics. (4)
selected semesters
Emphasizes applications of physics to life in the modern world. Presumes understanding of elementary algebra. 3 hours lecture, 1 hour recitation, 2 hours lab. Fee.
General Studies: SQ

W PHY 111 General Physics. (3)
fall
Noncalculus treatment of the principles of physics for nonphysics majors. Students whose curricula require a lab course must also register for PHY 113. Prerequisite: trigonometry.
General Studies: SQ (if credit also earned in PHY 113)

W PHY 112 General Physics. (3)
spring
Continuation of PHY 111. Students whose curricula require a lab course must also register for PHY 114. Prerequisite: PHY 111.
General Studies: SQ (if credit also earned in PHY 114)

W PHY 113 General Physics Laboratory. (1)
fall
Elementary experiments in physics. Requires outside preparation for experiments and report writing. May be taken concurrently with, or subsequent to, PHY 111. 2 hours lab, 1 hour recitation.
General Studies: SQ (if credit also earned in PHY 111)

W PHY 114 General Physics Laboratory. (1)
spring
See PHY 113. May be taken concurrently with, or subsequent to, PHY 112. 2 hours lab.
General Studies: SQ (if credit also earned in PHY 112)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Department of Integrative Studies

www.west.asu.edu/ias
602/543-6003
FAB N279

Shari Collins-Chobanian, Chair

Professor: McGovern

Associate Professors: Collins-Chobanian, Pambuccian, Stryker

Assistant Professor: Sander-Staudt

Senior Lecturer: Schmidtke

Lecturers: Anderson, Gately, Persau

The Department of Integrative Studies faculty offers an interdisciplinary Bachelor of Arts degree program in Integrative Studies, the Bachelor of Applied Science, minor in Philosophy, and courses in a number of areas that contribute to General Studies program requirements.

APPLIED SCIENCE—BAS

Nature of the Program

The Bachelor of Applied Science (BAS) is a flexible degree plan designed specifically to serve the additional education needs of students who have earned community college Associate of Applied Science (AAS) degrees. The AAS degree transfers as a block to the university as meeting all graduation requirements beyond the BAS requirements. BAS students then complete a 60-semester-hour capstone program.

To be admitted to the BAS, students must complete an AAS degree at a regionally accredited institution or an AAS equivalent to be determined by the BAS admissions committee. A student who is completing an AAS degree may be granted conditional admission into the BAS degree program. This conditional status is effective for one semester. An official transcript with the degree posted must be received by the BAS program coordinator in order to register for subsequent semesters.

Career Outlook

The BAS degree is primarily intended to assist in job progression rather than initial job qualification. Achievement of a bachelor's degree may remove promotional ceilings that can limit advancement. The degree may also be of use to those who wish to make mid-career changes. Most of the students for whom the BAS is designed have an occupational qualification by virtue of their AAS degrees, and most will be employed in related areas. The BAS curriculum can enhance the student's technical education and experience while providing the broader cognitive skills and perspective that are associated with baccalaureate education and are relevant in any working environment. With the assistance of an advisor, students will be able to tailor their programs to suit their personal or career objectives.

Admission

To be admitted to the BAS degree program, students must have completed an Associate of Applied Science (AAS) degree at a regionally accredited institution or an AAS equivalent to be determined by the BAS admissions committee.

Program Requirements

The BAS is composed of the AAS degree plus a 60-semester-hour capstone requirement. The 60 semester hours must all be in the upper division with the exception of the mathematics (MA) course if it is needed. The requirements are as follows:

1. BAS core, 21 semester hours;
2. General studies completion curriculum, 13 semester hours (minimum);
3. Concentration, 18 to 21 semester hours; and
4. Electives, zero to eight semester hours.

Core Requirements

The goals of the BAS core curriculum are

1. to provide an educational bridge between lower-division and upper-division programming,
2. to develop professional communication and quantitative skills, and
3. to hone critical and creative abilities.

BAS Core Courses

BAS Bridge
IAS 300 Adult Career Development *L*/*SB* 3

Management Skills
GLB 303 Relationship Management 3

Communication Skills
ENG 301 Writing for the Professions *L* 3

Quantitative Skills
Choose one of the following courses 3
EDT 321 Computer Literacy *CS* (3)
SBS 304 Social Statistics I *CS* (3)

Aesthetics/Creativity
Choose one of the following courses 3
IAP 300 Introduction to Interdisciplinary Arts *HU* (3)
IAP 301 Energetic Systems of Art: Collaboration in the Arts (3)
THE 321 History of Theatre *HU, H* (3)
THE 400 Focus on Film (3)
Other approved arts course

Ethics
Choose one of the following courses 3
PHI 306 Applied Ethics *HU* (3)
PHI 360 Business and Professional Ethics *HU* (3)
PHI 406 Moral Dilemmas *L*/*HU* (3)
PHI 407 Environmental Philosophy and Policy *L*/*HU* (3)

Exit Project
Choose one of the following courses 3
IAS 484 Internship (3)
IAS 493 Honors Thesis (3)
IAS 499 Individualized Instruction (3)

Core total 21

General Studies Completion Curriculum (13 Semester Hours). The BAS curriculum is based on the assumption that students have completed an AAS degree program with a general studies component of approximately 18 semester hours. To complete the remainder of their university requirements, students need to take one course in each of the following areas, in addition to any General Studies courses completed in the categories above:

1. cultural diversity in the U.S. (C);
2. global awareness (G);
3. historical awareness (H);
4. natural science—general core with lab (SG);
5. social and behavioral sciences (SB): students may complete the SB requirement in conjunction with one of the other program requirements; and
6. mathematics (MA): students may be required to take an MA course if the mathematics course included in

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

the AAS degree does not meet the criteria for MA; this course may be taken in the lower division.

Concentration (18 to 21 Semester Hours). In consultation with an advisor, the student completes the course work of a minor available at the West campus or develops an individualized concentration that has a coherent theme or purpose and fulfills intended learning outcomes. Specific requirements for the minor are described in this catalog under major field departments. The semester hours required in a minor vary by department. The courses taken to fulfill the concentration requirement may not be used to concurrently fulfill the requirements of a minor. A minimum of nine upper-division semester hours in the concentration area must be completed in residence at the West campus. Courses taken to fulfill the concentration requirement at the Tempe campus or the Polytechnic campus must be chosen in consultation with and approved by the department offering that course work.

Elective Credit (Zero to Eight Semester Hours). Electives, if needed, are chosen to fulfill the 60-semester-hour requirement.

Other Requirements. No credit is granted toward fulfilling major or concentration requirements in any upper-division course unless the grade in that course is at least a "C" (2.00). Normally a "Y" (satisfactory) grade needs confirmation that it is equivalent to a "C" (2.00) or higher.

Candidates for the BAS degree program are not required to fulfill the New College of Interdisciplinary Arts and Sciences proficiency requirements.

INTEGRATIVE STUDIES—BA

Nature of Program

The Bachelor of Arts degree in Integrative Studies enables students to design individualized programs of study for their academic, personal, and professional pursuits. Integrative Studies emphasizes focused study in the liberal arts, the development of critical thinking skills, and the capacity to synthesize problem-solving strategies for life in the 21st century. In this program, students will work closely with dedicated faculty who have scholarly training and teaching interests in the arts, humanities, mathematics, sciences, and social sciences. Students learn from one another's life experiences and from the professional expertise of their faculty.

Career Outlook

The Integrative Studies curriculum emphasizes advanced, interdisciplinary study combined with a concentration in a traditional disciplinary or professional area (e.g. communication studies, English, gerontology, history, psychology, prelaw, or pre-MBA). Students can tailor their academic programs to meet their individualized career goals. A capstone internship program prepares students to make the transition smoothly to postbaccalaureate employment in business, cultural, educational, community, and human service settings, as well as to graduate school. Students planning graduate or professional degrees in law, business, helping professions, or in traditional disciplinary areas will benefit from the flexibility of this program for a broad range of future academic and career pursuits.

Major Requirements

The Integrative Studies major consists of 39 to 48 semester hours with a grade of "C" (2.00) or higher in each course. Program requirements include 21 semester hours of core courses and 18 to 27 semester hours in a concentration.

Core Courses. Select one course from each category.

Gateway Course
IAS 300 Adult Career Development *L/SB* 3

Ethical Reflection
Choose one of the following courses 3
IAS 340 Bioethics *HU* (3)
IAS 406 Moral Dilemmas *L/HU* (3)
IAS 407 Environmental Philosophy and Policy *L/HU* (3)
IAS 408 Feminist Ethics *HU* (3)

Diverse Identities
Choose one of the following courses 3
IAS 305 Work and Identity *SB* (3)
IAS 420 Multicultural Autobiographies *L/HU, C* (3)
IAS 477 World Literature *L/HU, G* (3)

Scientific and Mathematical Perspectives
Choose one of the following courses 3
IAS 410 Evolution of Ideas *L/HU* (3)
IAS 411 History and Philosophy of Mathematics *HU, H* (3)
IAS 415 Life in the Universe (3)
IAS 416 Black Holes and Beyond (3)

Secular and Sacred Worldviews
Choose one of the following courses 3
IAS 220 Psychology, Multicultural Narratives and Religion *L/HU, C* (3)
IAS 430 Science and Religion *L/HU* (3)

Elective
IAS elective 3

Capstone Course
Choose one of the following courses 3
IAS 484 Internship (3)
IAS 494 ST: Research (3)
IAS 494 ST: Writing (3)

Program total 21

Concentration

Working with the Integrative Studies faculty advisor, students will complete the course work of a minor available at West campus or create an individualized concentration.

Approved Minor

Working with the Integrative Studies faculty advisor, students will select one of the minors available at West campus ("West Campus Minors" table, page 654). Specific requirements for these minors are described in this catalog under the major field departments and are available from the IAS faculty advisor. The credits required in a minor vary by department. The courses taken to fulfill the concentration requirement may not be used to concurrently fulfill the requirements of a minor.

Individualized Concentration

Working with the Integrative Studies faculty advisor, students may construct an individualized concentration of 18 upper-division semester hours that has a coherent theme or purpose and fulfills intended general learning outcomes.

Other options are a concentration of six literacy and critical inquiry General Studies (L) courses and the Writing Certificate Program.

MINOR IN PHILOSOPHY

Nature of Program

The minor is designed to provide students with an understanding of central philosophical issues. The minor provides students with

1. a knowledge of the most important problems and ideas in the philosophical areas studied;
2. a capacity for critical thinking and analytical reasoning; and
3. the ability to present one's positions effectively through oral and written communication.

Program Requirements

The minor in Philosophy consists of 21 semester hours of philosophy course work, of which 15 must be upper-division hours. Fifteen semester hours of campus resident credit is required. Only courses in which the student earns a grade of "C" (2.00) or higher will fulfill requirements for the minor. Courses are to be selected from the following list in consultation with a philosophy advisor to create a coherent and complete program of study:

Minor in Philosophy Course List

IAS	411	History and Philosophy of Mathematics *HU, H*	3
		or MAT 411 History and Philosophy of Mathematics *HU, H* (3)	
IAS	484	Internship	3
IAS	494	ST: Special Topics	3
PHI	101	Introduction to Philosophy *HU*	3
PHI	103	Principles of Sound Reasoning *L/HU*	3
PHI	306	Applied Ethics *HU*	3
PHI	340	Bioethics *HU*	3
		or IAS 340 Bioethics *HU* (3)	
PHI	360	Business and Professional Ethics *HU*	3
PHI	406	Moral Dilemmas *L/HU*	3
		or IAS 406 Moral Dilemmas *L/HU* (3)	
PHI	407	Environmental Philosophy and Policy *L/HU*	3
		or IAS 407 Environmental Philosophy and Policy *L/HU* (3)	
PHI	408	Feminist Ethics *HU*	3
		or IAS 408 Feminist Ethics *HU* (3)	
PHI	494	Special Topics	3
PHI	499	Individualized Instruction	1–3
		or IAS 499 Individualized Instruction (1–3)	

ASTRONOMY (AST)

For more AST courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W AST 111 Introduction to Solar Systems Astronomy. (3)
fall
History, properties of light, instruments, study of solar system and nearby stars. For nonscience majors. Optional lab (AST 113).
General Studies: SQ (if credit also earned in AST 113)

W AST 112 Introduction to Stars, Galaxies, and Cosmology. (3)
spring
Structure and evolution of stars, star clusters, galaxies, cosmology. For nonscience majors. Optional lab (AST 114).
General Studies: SQ (if credit also earned in AST 114)

W AST 113 Astronomy Laboratory I. (1)
fall
Astronomical observations and experiments designed to help the student become familiar with the sky, telescopes, and astronomical measurements. 3 hours lab. Pre- or corequisites: AST 111; a working knowledge of high school algebra and geometry.
General Studies: SQ (if credit also earned in AST 111)

W AST 114 Astronomy Laboratory II. (1)
spring
Similar to AST 113, but material chosen to supplement AST 112. 3 hours lab. Pre- or corequisites: AST 112; a working knowledge of high school algebra and geometry.
General Studies: SQ (if credit also earned in AST 112)

W AST 494 Special Topics. (1–4)
selected semesters
Topics may include modern topics in astronomy and astrophysics. Prerequisite: at least one astronomy course.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

INTEGRATIVE STUDIES (IAS)

IAS Note 1. Completion of the First-Year Composition requirement (ENG 101 and 102 or ENG 105 or ENG 107 and 108 [available at Tempe campus] with a grade of "C" [2.00] or higher) is a prerequisite for all English courses above the 100 level.

W IAS 220 Psychology, Multicultural Narratives, and Religion. (3)
fall
Examines contemporary multicultural life narratives that explore diversity in America and the authors' constructions of psychological identity and religious values. Prerequisite: ENG 101 or 105.
General Studies: L/HU, C

W IAS 300 Adult Career Development. (3)
fall, spring, summer
Analysis of sociological and economic factors of 21st-century work environments, integrated with a psychological understanding of adult development. Prerequisite: ENG 101 or 105.
General Studies: L/SB

W IAS 305 Work and Identity. (3)
spring
Explores the relationship between work and identity, as well as the search for meaning in work across generations.
General Studies: SB

W IAS 310 Women in Art. (3)
fall
Cultural, historical, and social issues relating to the seeming scarcity of women artists and changing social contexts for women artists. Cross-listed as IAP 310. Credit is allowed for only IAS 310 or IAP 310. Prerequisite: ENG 101 or 105.
General Studies: HU

W IAS 340 Bioethics. (3)
selected semesters
Philosophical exploration of ethical issues in health care delivery and the life sciences. Cross-listed as PHI 340. Credit is allowed for only IAS 340 or PHI 340.
General Studies: HU

W IAS 406 Moral Dilemmas. (3)
fall and spring
Philosophical analysis of moral dilemmas arising in professional and public settings. Ethical decision making in business, educational, human service, and scientific communities. Cross-listed as PHI 406. Credit is allowed for only IAS 406 or PHI 406. Prerequisite: ENG 101 or 105.
General Studies: L/HU

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

W IAS 407 Environmental Philosophy and Policy. (3)
selected semesters
Ethical concepts and theories applied to environmental issues: biotic community, biodiversity, degradation, ecofeminism, ecology, economics, population, property rights, and wilderness. Not open to students with credit in PHI 310. Cross-listed as PHI 407. Credit is allowed for only IAS 407 or PHI 407. Prerequisite: ENG 101 or 105.
General Studies: L/HU

W IAS 408 Feminist Ethics. (3)
selected semesters
Philosophical exploration of the theoretical and practical aspects of ethical issues affecting women from diverse feminist viewpoints. Cross-listed as PHI 408. Credit is allowed for only IAS 408 or PHI 408.
General Studies: HU

W IAS 410 Evolution of Ideas. (3)
fall
Investigates ideas (paradigms) and revolutions (paradigm shifts). Examines several topics from perspectives of science, arts, humanities, social sciences. Prerequisite: ENG 101 or 105.
General Studies: L/HU

W IAS 411 History and Philosophy of Mathematics. (3)
once a year
Examines nature of mathematics from origins to present, revealed by its history and philosophy. Strong background in mathematics not required. Cross-listed as MAT 411. Credit is allowed for only IAS 411 or MAT 411.
General Studies: HU, H

W IAS 415 Life in the Universe. (3)
fall
Examines the search for life in extreme environments on Earth and in remote locations beyond Earth.

W IAS 416 Black Holes and Beyond. (3)
spring
Explores developments in understanding nature's most basic force–gravity–from Aristotelian concepts to modern theories of curved space-time.

W IAS 420 Multicultural Autobiographies. (3)
fall and spring
Examines the human experience via autobiographies and personal narratives. Multicultural, literary, and psychological perspectives on individual lives. Cross-listed as ENG 420. Credit is allowed for only IAS 420 or ENG 420. See IAS Note 1.
General Studies: L/HU, C

W IAS 430 Science and Religion. (3)
fall and spring
Examines evolving relationships between scientific thought and Western and Eastern religious thought. Explores cosmologies, world views, and epistemologies. Prerequisite: ENG 101 or 105.
General Studies: L/HU

W IAS 477 World Literature. (3)
spring
Introduces world literature, mostly outside the United States and England. Cross-listed as ENG 477. Credit is allowed for only IAS 477 or ENG 477. Prerequisite: ENG 101 or 105.
General Studies: L/HU, G

W IAS 484 Internship. (1–12)
fall, spring, summer
Structured practical experience supervised in the field by practitioners with parallel, on-campus seminar held with program faculty.

W IAS 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Research. (3)
- Science and Religion. (3)
- Writing. (3)

W IAS 499 Individualized Instruction. (1–3)
fall and spring
Topics may include the following:
- Individual Research or Creative Project
  Applies interdisciplinary methods of inquiry to a problem identified by student and supervised by faculty.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

PHILOSOPHY (PHI)

For more PHI courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W PHI 101 Introduction to Philosophy. (3)
fall and spring
Explores issues that philosophers have traditionally considered, including morality, reality, and knowledge.
General Studies: HU

W PHI 103 Principles of Sound Reasoning. (3)
selected semesters
Fallacies, validity, and soundness of arguments. May include syllogistic, elementary symbolic, inductive logic, and scientific method. Prerequisite: ENG 101 or 105.
General Studies: L/HU

W PHI 306 Applied Ethics. (3)
fall and spring
Uses philosophical techniques to elucidate such vital moral issues as sexual perversion, civil disobedience, abortion, punishment, violence and pacifism, suicide, and euthanasia.
General Studies: HU

W PHI 340 Bioethics. (3)
selected semesters
Philosophical exploration of ethical issues in health care delivery and the life sciences. Cross-listed as IAS 340. Credit is allowed for only PHI 340 or IAS 340.
General Studies: HU

W PHI 360 Business and Professional Ethics. (3)
fall, spring, summer
Examines moral theories applied to cases of corporate responsibility, property rights, environment, fairness, profit, employee rights, and responsibilities.
General Studies: HU

W PHI 406 Moral Dilemmas. (3)
fall and spring
Philosophical analysis of moral dilemmas arising in professional and public settings. Ethical decision making in business, educational, human service, and scientific communities. Cross-listed as IAS 406. Credit is allowed for only PHI 406 or IAS 406. Prerequisite: ENG 101 or 105.
General Studies: L/HU

W PHI 407 Environmental Philosophy and Policy. (3)
selected semesters
Ethical concepts and theories applied to environmental issues: biotic community, biodiversity, degradation, ecofeminism, ecology, economics, population, property rights, and wilderness. Not open to students with credit in PHI 310. Cross-listed as IAS 407. Credit is allowed for only PHI 407 or IAS 407. Prerequisite: ENG 101 or 105.
General Studies: L/HU

W PHI 408 Feminist Ethics. (3)
selected semesters
Philosophical exploration of the theoretical and practical aspects of ethical issues affecting women from diverse feminist viewpoints. Cross-listed as IAS 408. Credit is allowed for only PHI 408 or IAS 408.
General Studies: HU

W PHI 494 Special Topics. (1–4)
selected semesters

W PHI 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Department of Interdisciplinary Arts and Performance

www.west.asu.edu/iap
602/543-6057
FAB N290A

Robert Taylor, Chair

Professor: Lerman

Associate Professors: Sabatini, Taylor

Assistant Professors: Byam, Clark, Kim

Senior Lecturer: Soto

Lecturer: Kennedy

Fine Arts Specialist: St. Clair

The Department of Interdisciplinary Arts and Performance (IAP) offers courses and program activities for practicing artists for the 21st century. It provides an interdisciplinary education in arts performance, media and technology for majors, courses on the arts for the general student body, and serves as a cultural resource for the core and community.

The department offers core and specialized IAP courses in the areas of digital media and technology, performance, visual art practices, and history and theory studies, plus a range of electives in music, theatre, and visual art, and media and performance studies.

INTERDISCIPLINARY ARTS AND PERFORMANCE—BA

Nature of Program

The Bachelor of Arts in IAP focuses on an interdisciplinary study of the arts and media with an emphasis on 20th and 21st century art, performance, technology, and practice. It encourages practical application of theory and content-area knowledge with the integration of skills and performance. IAP courses highlight creativity, innovation, integration, and presentation.

Student Outcomes

The IAP program provides graduates with the knowledge and skills needed to

1. understand the interrelationship among the art forms of music, theater, visual art, performance, and media arts;
2. develop creative work independently;
3. illustrate practical knowledge of the collaborative process in the arts;
4. continue self-development in the arts beyond the program itself;
5. engage in current levels of technology in the arts;
6. exhibit a historical awareness of artistic works, particularly of the 20th century and contemporary practices; and
7. demonstrate an understanding of artistic practices within cultural contexts.

Career Outlook

This interdisciplinary training can be the basis for a variety of personal and career pursuits. Students who major in the program receive practical professional training and solid academic skills. They gain in-depth preparation necessary for careers as artists and performers and creative professionals. They also develop critical backgrounds useful for becoming future teachers and scholars. Graduates of the program are prepared for advanced study in the performing arts or arts-related professions in education, art and cultural journalism, government and community arts administration, media services, and production.

Admission Requirements

Admission to the Interdisciplinary Arts and Performance program requires completion of at least 15 semester hours of course work from any single or combination of arts disciplines with a grade of "C" (2.00) or higher. Students with specialized practical training in a single art form may be admitted to the program based on portfolio assessment or audition and personal interviews.

Major Requirements

The Bachelor of Arts in Interdisciplinary Arts and Performance consists of at least 45 semester hours of Interdisciplinary Arts and Performance course work of which three semester hours may be at the lower-division level. Program requirements include

Required Core Courses

IAP 304 Traditions of the Avant-Garde and Experimental Art *L/HU* 3
or IAP 305 20th/21st Century Art, Performance, and Media *L/HU* (3)
IAP 325 Sound Performance: Exploring Alternative Performance Groups[1] 3
IAP 334 Conceptual Development in the Arts[1] 3
IAP 354 Visual Representations[1] 3
IAP 361 Digital Editing and Media Literacy[1] *CS* 3
IAP 360 IAP Laboratory 3

Socially Embedded Course

IAP 302 Cross-Cultural Perspectives on the Arts *L/HU* 3
or IAP 464 Media and Diversity (3)

IAP Electives

Upper-division electives[2] 18
One applied arts course (may be lower division)[3] 3

Senior Project

IAP 480 Senior Project 3

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Program total.....45

[1] A one-credit lab must be taken as a corequisite with three of the following core courses: IAP 325, 334, 354, and 361.
[2] Courses must be chosen in consultation with a faculty advisor.
[3] Course may be chosen if not previously used to fulfill requirement.

Senior Project. The goal of any senior project is to focus the body of course work undertaken in the IAP curriculum in an original creative work or comparable experience. This work may take the form of a performance (with the student as creator/producer and/or performer), or a written thesis, gallery exhibition, internship, media work, or some other acceptable format.

MINOR IN INTERDISCIPLINARY ARTS AND PERFORMANCE

The minor consists of 24 semester hours in the arts. Twelve of these must be at the upper division level (IAP prefix). Six of the 12 upper-division credits must be selected from IAP core courses. The other six credits must be from IAP courses selected with advisor approval. Twelve additional semester hours of approved electives are required.

MINOR/CERTIFICATE IN FILM AND VIDEO STUDIES

The minor and Certificate in Film and Video Studies explore theory and practice in the general field of the moving image. These interdisciplinary programs provide students the opportunity to develop interests, skills, and knowledge of the forms, channels, technologies, and histories of the media arts. Students may pursue focused interests in film studies or adopt a more generalized approach to visual media through television, film, and video. The minor or certificate program is useful to students who may pursue careers in broadcasting, writing, and public relations, as well as degrees in production, film studies, media studies, performance studies, and communication studies. Courses in the minor/certificate in Film and Video Studies are designed to

1. develop astute and discriminating critics and analysts of film and media arts;
2. strengthen critical thinking through an awareness of the philosophical, aesthetic, political, and technological debates in film, media, and video studies;
3. develop knowledge of the history of film, television, and the video arts as dynamic forces of social, cultural, and political expression; and
4. develop practical skills that enable students to be competitive in film, video, television, and media-related production industries.

MINOR IN FILM AND VIDEO STUDIES

For the minor, students select one of two areas of emphasis: film studies or media and video studies. The film studies emphasis focuses on the impact of film and video. The media and video studies emphasis is concerned with the rendering of film and video.

The minor consists of 21 semester hours, 15 of which must be at the upper-division level. A maximum of six semester hours of lower-division course work may be applied to nonfoundation course work. Both emphases identify foundational courses and available elective courses as listed below. Students are required to include courses drawn from two or more different prefixes and complete IAP 480, which requires a capstone experience.

Film Studies Emphasis. Course work requirements are as follows:

Foundational Courses
Choose two of the following courses.....6
- ENG 365 History of Film *HU* (3)
- IAP 351 Concept, Image, and Text (3)
- SOC 366 Film and Society *SB* (3)

Theoretical, Conceptual, or Historical Courses
Choose two of the following courses*.....6
- ENG 365 History of Film *HU* (3)
- IAP 351 Concept, Image, and Text (3)
- IAP 364 Documentaries (3)
- IAP 465 Media Technologies and the Arts (3)
- SOC 364 Popular Culture *SB* (3)
- SOC 365 Sociology of Mass Communication *SB* (3)
- SOC 366 Film and Society *SB* (3)
- THE 300 Film: The Creative Process *HU* (3)
- THE 400 Focus on Film (3)

Applied/Practical Courses
Choose two of the following courses*.....6
- COM 329 Persuasion (3)
- COM 421 Rhetoric of Social Issues *HU* (3)
- COM 429 Semiotics and Visual Communication (3)
- ENG 365 History of Film *HU* (3)
- IAP 322 Multitrack Digital Recording (3)
- IAP 334 Conceptual Development in the Arts (3)
- IAP 361 Digital Editing and Media Literacy *CS* (3)
- IAP 363 Sound, Image, and Media (3)
- IAP 364 Documentaries (3)
- IAP 365 Digital Interactivity (3)
- IAP 465 Media Technologies and the Arts (3)
- IAP 466 Digital Interactivity, Advanced (3)
- IAP 467 Acoustic Ecology (3)
- IAP 474 Art and Film *L/HU* (3)
- SOC 364 Popular Culture *SB* (3)
- SOC 365 Sociology of Mass Communication *SB* (3)
- SOC 366 Film and Society *SB* (3)
- THE 300 Film: The Creative Process *HU* (3)
- THE 400 Focus on Film (3)
- THP 394 ST: Acting for the Camera (3)
- THP 394 ST: Television Production (3)

Capstone Project
IAP 480 Senior Project.....3

Program total.....21

* Other approved courses may be used to meet this requirement.

Media and Video Studies Emphasis. Course work requirements are as follows:

Foundational Courses
Choose two of the following courses*.....6
- COM 324 Rhetoric and Media Criticism (3)
- IAP 351 Concept, Image, and Text (3)
- IAP 465 Media Technologies and the Arts (3)

SOC 365 Sociology of Mass Communication *SB* (3)

Theoretical, Critical, Performance, and/or Production Courses
Choose four of the following courses* 12
- COM 324 Rhetoric and Media Criticism (3)
- COM 329 Persuasion (3)
- COM 421 Rhetoric of Social Issues *HU* (3)
- COM 429 Semiotics and Visual Communication (3)
- ENG 365 History of Film *HU* (3)
- IAP 322 Multitrack Digital Recording (3)
- IAP 334 Conceptual Development in the Arts (3)
- IAP 351 Concept, Image, and Text (3)
- IAP 361 Digital Editing and Media Literacy *CS* (3)
- IAP 363 Sound, Image, and Media (3)
- IAP 364 Documentaries (3)
- IAP 365 Digital Interactivity (3)
- IAP 465 Media Technologies and the Arts (3)
- IAP 466 Digital Interactivity, Advanced (3)
- IAP 467 Acoustic Ecology (3)
- IAP 474 Art and Film *L*/*HU* (3)
- SOC 364 Popular Culture *SB* (3)
- SOC 365 Sociology of Mass Communication *SB* (3)
- SOC 366 Film and Society *SB* (3)
- THE 300 Film: The Creative Process *HU* (3)
- THE 400 Focus on Film (3)
- THP 394 ST: Acting for the Camera (3)
- THP 394 ST: Television Production (3)
- WST 431 Women and Film *L*, *G* (3)

Capstone Project
IAP 480 Senior Project.....3

Emphasis total.....21

* Other approved courses may be used to meet this requirement.

Senior Project. The project should reflect the integration of course work with creative initiative to generate a product that stands alone as a piece of original work. For the film studies emphasis the project focuses on an intellectual analysis of some dimension of film products, reception, institutions, economics, and so forth. In the media and video studies emphasis, the project may be intellectual or creative (performance/production) in nature. Projects are examined and evaluated by at least one faculty member involved in the Film and Video Studies minor.

CERTIFICATE IN FILM AND VIDEO STUDIES

The certificate program is recommended for graduate students, nondegree students, and students with majors in professional programs. A certificate of concentration in Film and Video Studies is awarded for the successful completion of the 21 semester hours required for the minor.

ART AUXILIARY (ARA)

For more ARA courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W ARA 460 Gallery Exhibitions. (3)
selected semesters
Practical experience in all phases of department gallery operations and preparation of gallery publications. May be repeated once for credit. Prerequisite: instructor approval.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

ART HISTORY (ARS)

For more ARS courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W ARS 101 Art of the Western World I. (3)
fall
History of Western art from the Paleolithic period through the Middle Ages.
General Studies: HU, H

W ARS 102 Art of the Western World II. (3)
spring
History of Western art from the Renaissance to the present.
General Studies: HU, H

W ARS 438 Art of the 20th Century I. (3)
selected semesters
Developments and directions in art between 1900 and World War II. Prerequisites: both ARS 101 and 102 or only instructor approval.
General Studies: HU

W ARS 439 Art of the 20th Century II. (3)
selected semesters
Art since World War II, with consideration of new concepts and experimentation with media and modes of presentation. Prerequisites: a combination of ARS 101 and 102 and 438 or only instructor approval.
General Studies: HU, H

W ARS 494 Special Topics. (3)
selected semesters
Topics may include art of the Southwest.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

ART (ART)

For more ART courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W ART 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Aesthetics of Visual Perception
- Music Videos
- Rock Culture and the Avant Garde

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

INTERDISCIPLINARY ARTS AND PERFORMANCE (IAP)

W IAP 101 Art, Artist, and Culture. (3)
fall and spring
Provides an approach to art, creativity, and culture in global, historical, and contemporary contexts.
General Studies: HU

W IAP 300 Introduction to Interdisciplinary Arts. (3)
fall
Considers interdisciplinarity in practical terms in all art forms. Also considers antecedents and cross-cultural issues.
General Studies: HU

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

W IAP 301 Energetic Systems of Art: Collaboration in the Arts. (3)
selected semesters
Identifies and explores the energetic systems at work in the creation, performance, and perception of art.

W IAP 302 Cross-Cultural Perspectives on the Arts. (3)
selected semesters
Social and cultural perspectives of art and performance through a survey of historical and contemporary attitudes. Prerequisite: ENG 101 or 105.
General Studies: L/HU

W IAP 303 Artists and the Contemporary American Experience. (3)
selected semesters
Explores the life of the contemporary American artist with respect to individuality, pluralism, gender, race, ethnicity, and regionalism.

W IAP 304 Traditions of the Avant-Garde and Experimental Art. (3)
selected semesters
Surveys 20th-century art movements and "isms," including futurism, dada, surrealism, constructivism, realism, the Bauhaus, abstract expressionism, minimalism.
General Studies: L/HU

W IAP 305 20th and 21st Century Art, Performance, and Media. (3)
selected semesters
Surveys artists, movements, and trends in the arts with an emphasis on interdisciplinary performance, media, and technology.
General Studies: L/HU

W IAP 306 Extended Traditions in Drawing. (3)
fall in even years
Explores alternative methods of rendering the drawn image. Emphasizes incorporating other art forms to inform students' individual work. Fee.

W IAP 307 Art and War. (3)
fall
Global interdisciplinary survey of the range of work created by artists in response to war, through time. Seminar, screening, listening.
General Studies: HU, G

W IAP 310 Women in Art. (3)
fall
Cultural, historical, and social issues relating to the seeming scarcity of women artists and changing social contexts for women artists. Cross-listed as IAS 310. Credit is allowed for only IAP 310 or IAS 310. Prerequisite: ENG 101 or 105.
General Studies: HU

W IAP 321 Music Composition I. (3)
fall
Study and implementation of specific compositional theories and procedures. May be repeated for credit when topics vary. Fee.

W IAP 322 Multitrack Digital Recording. (3)
spring in odd years
Introduces students to theory and practice of Musical Instrument Digital Interface (MIDI) technology.

W IAP 323 Music and the Visual Arts. (3)
spring in odd years
Histories and theories of music and visual arts with emphasis on convergences within 20th-century avant-garde traditions. Fee.

W IAP 324 The Voice and Performance. (3)
selected semesters
Involves all aspects of the human voice, including research, creation, and performance.

W IAP 325 Sound Performance: Exploring Alternative Performance Groups. (3)
spring
Utilizes innovative sound ensembles to explore all aspects of sound and its place in various art forms. Fee.

W IAP 331 Performance, Acting, and the Individual. (3)
fall
Explores the concepts of the "self," the "subject," and the "author" as each pertains to the solo artist.

W IAP 332 Technical Production for Interdisciplinary Arts. (3)
selected semesters
Develops basic technical knowledge and application of fundamental stagecraft techniques used in the creation and presentation of performance works. Fee.

W IAP 333 Directing for Performance. (3)
fall
Explores various strategies for performance. Emphasizes nontraditional staging and performance.

W IAP 334 Conceptual Development in the Arts. (3)
fall
Conceptual development processes in the arts from initial idea to formal project proposals, grants, and production plans.

W IAP 335 Vocalization and Movement. (3)
spring
Study, application, and coordination of vocal projection techniques with bodily movement competencies in presenting original and existing contemporary performance works.

W IAP 347 Movement in Education. (3)
selected semesters
Theory and practice of teaching dance and creative movement in schools, K–12. Open to all students.

W IAP 351 Concept, Image, and Text. (3)
selected semesters
The generation of images and metaphors using various media and visual stimuli. Fee.

W IAP 352 Seeing and Drawing. (3)
fall and spring
Develops drawing and seeing skills that are important not only to visual arts but also to music, dance, and theatre. Studio: 6 hours per week. Fee.

W IAP 354 Visual Representation. (3)
fall
Explores materials, processes, and aesthetic concepts of art making through various media with readings on cultural perspectives and contemporary theory. Lecture, studio. Fee.

W IAP 355 Illusion and Vision. (3)
spring in odd years
Inquiry into 2-D surfaces for visual representation and personal expression; includes readings on color theory, visual perception, and historical/cultural patterns. Lecture, studio. Fee.

W IAP 356 Spatial Impressions. (3)
spring in even years
Investigates 3-D forms, the processes and concepts of physicality, and the environment with readings on spatial perception and cultural objects. Lecture, studio. Fee.

W IAP 360 IAP Laboratory. (1)
fall, spring, summer
Provides instructor-student contact time focusing on the technical instruction of media and technology applications. Demonstrations, hands-on tutorial. Corequisites IAP 325 or 354 or 361.

W IAP 361 Digital Editing and Media Literacy. (3)
fall and spring
Investigates the approaches used in digital editing with a focus on interactivity, graphics, audio, and desktop video. Fee.
General Studies: CS

W IAP 363 Sound, Image, and Media. (3)
fall in odd years
Interdisciplinary arts projects for experimental approaches to relating sound and visual image, accompanied by survey of historical and contemporary material. Fee.

W IAP 364 Documentaries. (3)
fall in even years
Media arts projects exploring new and experimental forms of visualization based upon an interdisciplinary survey of historical and contemporary examples. Fee. Prerequisite: IAP 361 recommended.

W IAP 365 Digital Interactivity. (3)
spring in odd years
Combines graphics, video, and animation with digital authoring tools for creation of interactive multimedia Web sites. Fee. Pre- or corequisite: IAP 361.

W IAP 368 Digital Graphic Technologies. (3)
fall
Employs technology used in contemporary graphic designs to design concepts and techniques for modeling and representation applications. Lecture, lab. Prerequisite: ACO 201 or instructor approval.

W IAP 371 Verbal Art. (3)
fall in even years
Examines varieties of verbal art in everyday life, literature, oral and literate cultures. Considers diverse cultural forms and values. Prerequisite: ENG 101 or 105.
General Studies: L/HU

W IAP 373 The Critical Artist. (3)
selected semesters
Focuses on artists' critical thought, theorizing, and representation of art across disciplines and genres.

W IAP 421 Composition: Process, Technique, and Style II. (3)
selected semesters
Advanced study of specific compositional theories and procedures; in-depth analysis of individual work. May be repeated for credit when topics vary. Fee. Prerequisite: IAP 321.

W IAP 422 Contemporary Orchestration Practices. (3)
fall in odd years
Traditional and experimental scoring techniques for small and large ensembles using MIDI technology, digital samplers, and traditional instruments. Fee.

W IAP 431 Perspectives on Performance and Acting. (3)
spring
Focuses on the interaction of the performer with media, alternative stagings, and collaboration with other performers.

W IAP 433 Directing Workshop. (3)
fall
Applies experimental directorial techniques to presentations and deconstruction of classical works including European and cross-cultural traditions. Prerequisite: IAP 333.

W IAP 434 Production Laboratory. (3)
spring
Develops original scripts into showcase productions. Students function as theatrical ensemble, participate in all phases of performance and production values. Fee.

W IAP 441 Dance-Drama. (3)
spring
Explores the relationship of movement as it relates to drama, both historically and cross-culturally.

W IAP 442 Movement and Music. (3)
spring
Surveys ways artists have brought together movement and music in artistic creations in various disciplinary and interdisciplinary contexts.

W IAP 452 Elements of Painting. (3)
selected semesters
Develops painting skills and personal artistic vision through projects stimulated by other art forms. Studio: 6 hours per week. Fee. Prerequisite: ART 311 or 323 or IAP 352 or instructor approval.

W IAP 454 New Directions in Painting. (3)
selected semesters
Develops painting skills and personal artistic vision through projects stimulated by other art forms. Studio: 6 hours per week. Fee. Prerequisite: IAP 452 or instructor approval.

W IAP 457 Urban Narrative. (3)
fall in odd years
Conceptually based studio focusing on artists' voices in contemporary urban environment with readings on spatial perception and cultural objects. Lecture, studio. Fee. Prerequisite: instructor approval.

W IAP 464 Media and Diversity. (3)
spring in odd years
Interdisciplinary art projects exploring identity, perception, and technologies from a basis of class, race, ethnicity, gender, sexuality, and ecology.

W IAP 465 Media Technologies and the Arts. (3)
fall in odd years
Practical explorations of media arts interrelated with cultures, society, and technology, addressed through readings, discussion, research, and student arts projects.

W IAP 466 Digital Interactivity, Advanced. (3)
selected semesters
Advanced multimedia authoring skills for creation of interactive works in DVD, CD ROM, and other media formats. Fee. Prerequisite: IAP 365 or instructor approval.

W IAP 467 Acoustic Ecology. (3)
spring in even years
Investigations into the relationship between audio art and ecology; covers field recording, oral histories, digital editing, and designing audio Web site and databases. Fee. Prerequisite: IAP 361. Prerequisite for Life Sciences and Communication Studies majors: instructor approval.

W IAP 468 Digital Graphic Applications. (3)
spring
Targeting, planning, design, authoring, development, and presentation of professional digital media graphics for Internet and print. Prerequisite: IAP 368.

W IAP 469 Advanced Audio Production. (3)
fall
Engages advanced media students in the technical, logistical, and aesthetic concerns specific to audio in all forms of digital media. Fee. Prerequisite: IAP 322 or 361.

W IAP 471 Language, Culture, and Performance. (3)
selected semesters
In-depth examination of language in myth, poetry, social and aesthetic performance genres. Prerequisites: ENG 101 (or 105); IAP 371 (or instructor approval).
General Studies: L/HU

W IAP 472 Theories of Arts and Performance. (3)
spring in even years
Key texts, thinkers, concepts, and approaches to the arts and performance. Prerequisites: ENG 101 or 105

W IAP 473 Aesthetic Research. (3)
fall in odd years
Investigates how artists, in all disciplines and from different historical periods, conduct or participate in research. Prerequisites: ENG 101 (or 105); IAP 373.
General Studies: L/HU

W IAP 474 Art and Film. (3)
once a year
Focuses on film as an art form in relation to the arts through aesthetics, cinematic theory, period study. Prerequisite: ENG 101 or 105.
General Studies: L/HU

W IAP 480 Senior Project. (3–6)
fall and spring
Capstone course. Students develop an exit project for the IAP degree under the guidance of an advisor. Fee. Prerequisites: both IAP major and senior standing or only advisor approval.

W IAP 484 Internship. (1–12)
selected semesters

W IAP 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- HTML Creating a Web Page. (1)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

MASTER OF ARTS IN INTERDISCIPLINARY STUDIES (MAS)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

MUSIC (MUS)

For more MUS courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W MUS 340 Listening to Music. (3)
selected semesters
Major periods, composers, and compositions in the history of music.
General Studies: HU, H

W MUS 349 Music in America. (3)
selected semesters
Current styles of American music including jazz, popular, and folk music.
General Studies: HU, H

W MUS 354 Popular Music. (3)
selected semesters
Emphasizes historical, cultural, and performance patterns in a variety of popular idioms such as, but not limited to, rock, folk, jazz, and Afro-American music.
General Studies: HU

W MUS 355 Survey of American Music. (3)
selected semesters
Growth and development of American music.

W MUS 356 Survey of the Musical Theatre. (3)
selected semesters
Music's place in the theatre, viewed in terms of historical importance and relative function.
General Studies: HU

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

THEATRE (THE)

For more THE courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W THE 100 Introduction to Theatre. (3)
fall and spring
Surveys theatre production from the Greeks to contemporary theatre.
General Studies: HU

W THE 300 Film: The Creative Process. (3)
selected semesters
Elements of the theatrical film: cinematography, sound, editing, directing, acting, scriptwriting, producing, and criticism. 3 hours lecture, 2 hours lab.
General Studies: HU

W THE 320 History of the Theatre. (3)
fall
Traces major developments in theatre production from its beginning to the 17th century.
General Studies: HU, H

W THE 321 History of Theatre. (3)
spring
Traces major developments in theatre production from the 17th century to modern times.
General Studies: HU, H

W THE 400 Focus on Film. (3)
selected semesters
Specialized study of prominent film artists, techniques, and genres. Emphasizes the creative process. May be repeated once for credit. Prerequisite: ENG 101 or 105.

W THE 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Experimental Film. (3)
- Film and Society. (3)
- Women in Film. (3)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

THEATRE PERFORMANCE AND PRODUCTION (THP)

For more THP courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W THP 294 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Musical Theatre (History/Survey)

W THP 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Acting for Nonmajors. (3)
- Acting for the Camera. (3)
- Television Production. (3)
- Theatre Studio/Workshop I. (3)

W THP 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Acting for Nonmajors. (3)
- Acting for the Camera. (3)
- Storytelling and Poetry. (3)
- Theatre Studio/Workshop II. (3)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Department of Language, Cultures, and History

www.west.asu.edu/lch
602/543-6090
FAB N220

Eduardo Pagán, Chair

Professors: E. Cutrer, T. Cutrer

Associate Professors: Anokye, Bredbenner, Broaddus, Cárdenas, Cuádraz, Gilkeson, Hattenhauer, Pagán, Wertheimer

Assistant Professors: Bixby, DeBacker, Dorsey, Dudy Bjork, Friedrich, Lee, Stancliff, Toth, Ukpanah

Visiting Assistant Professor: Flynn

Lecturers: Cisler, Garcia, Raiser

The Department of Language, Cultures, and History faculty offer an interdisciplinary Bachelor of Arts degree program in American Studies, Bachelor of Arts degree programs in English, History, and Spanish, and courses in other disciplines represented in the program, such as Religious Studies and Art History.

AMERICAN STUDIES—BA

Nature of Program

The Bachelor of Arts in American Studies enables students to look at the experiences of North Americans and their environment from a variety of historical and

contemporary perspectives. Courses are grouped into four emphases:

1. American systems, which deals with political, economic, religious, and legal institutions;
2. American cultures, which concentrates on systems of belief and their symbolic expression in literature, art, philosophy, and regional and popular cultures;
3. American lives, which explores the ways in which categories of race, ethnicity, class, and gender intersect with individual and community experience; and
4. writing, which stresses critical writing skills and helps train students to undertake careers in which writing is a major activity.

American Studies offers a flexible, interdisciplinary degree program that allows students to take courses in a number of areas. Students who have interests in American history, society, literature, or art, for example, but prefer not to major in a single discipline, such as English or History, are ideal candidates for the program. All students complete a core of American Studies courses (12 semester hours) that provides them with an overview of American history and society and introduces them to interdisciplinary study. In addition, each student designs, with the approval of the American Studies faculty advisor, a program of focused course work (21 semester hours) tailored to the student's interests and career goals. Students may choose to emphasize a particular area in American Studies, for example, or select other courses to develop a program focusing on a particular topic, such as the American West, the twentieth century, or American multiculturalism. Of the focused course work, at least four courses (12 semester hours) must be at the upper division.

Students conclude the program with an exit project, developed with an individual faculty member, and approved by the faculty advisor. Exit projects take a variety of forms; they can include internships, theses, or a similar kind of creative project. The purpose of the exit project is to help students integrate the knowledge and skills that they have gained in the program. It also provides students with a means of exploring career interests before graduation.

Career Outlook

The BA in American Studies teaches students to think and write critically, to conduct research, and to appreciate the changing and diverse nature of American life. American Studies graduates accordingly are well equipped to embark on a wide variety of careers in government, education, business, museum and foundation work, journalism and other forms of professional writing, and in other areas where these capabilities are highly valued and sought. The program also serves as excellent preparation for law school and for graduate programs in fields such as American Studies, English, journalism, history, and art history. Most importantly, American Studies, by virtue of its interdisciplinary approach to the study of American cultures, systems, and lives, provides a rounded perspective, a chance to see issues and problems from a variety of angles. As such, it is ideally suited to careers in which research, analysis, and planning play a central role.

Major Requirements

A minimum of 36 semester hours (27 upper-division hours) with a grade of "C" (2.00) or higher is required.

Core Courses

AMS 301 Introduction to American Studies *L* 3
Choose from the following combinations 6
AMS 310 History of American Systems to 1865 *L, C, H* (3)
AMS 311 History of American Systems since 1865 *H* (3)
——— *or* ———
AMS 320 American Cultural History I *SB, H* (3)
AMS 321 American Cultural History II *SB, H* (3)
AMS 330 Introduction to American Lives *HU* 3
Core total 12

Focused Course Work (21 Semester Hours). Working with the American Studies faculty advisor, students designate appropriate lower-division course work (if applicable) and select upper-division course work to develop a coherent program or topic of study. The focused course work may be in a single American Studies area, or it may be spread across the areas of emphasis. Twelve semester hours must be from the upper division.

Exit Project (Three Semester Hours). Thesis, internship, or research designed in consultation with a faculty advisor.

Minor in American Studies

The minor in American Studies offers students the opportunity to pursue an interest in the interdisciplinary study of American Culture. This interdisciplinary minor is particularly appropriate for students majoring in one of the humanities or social sciences disciplines. The minor consists of 18 semester hours, 12 of which must be upper-division hours.

AMS 301 Introduction to American Studies *L* 3
Choose from the folllowing combinations 6
AMS 310 History of American Systems to 1865 *L,C, H* (3)
AMS 311 History of American Systems since 1865 *H* (3)
——— *or* ———
AMS 320 American Cultural History I *SB, H* (3)
AMS 321 American Cultural History II *SB, H* (3)
AMS 330 Introduction to American Lives *HU* 3
Core total 12

Supporting Courses. Select two courses (six semester hours) with substantial American content that must be approved by the American Studies faculty advisor.

Total 18

ENGLISH—BA

Nature of Program

As part of the Department of American Studies, the English curriculum emphasizes the study of texts in context. Students study not only the forms of writing but also the history of those forms as well as read and analyze literature from a broad range of periods and genres. Students will learn to produce good expository prose.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

The major allows students to emphasize particular genres, periods, regions, and themes through a mix of required courses and electives. Students determine appropriate programs of study in consultation with faculty advisors. Thus, each student is assured the general background that academia and business often require.

Career Outlook

The English curriculum prepares students for graduate and professional training (including law, business, teaching, and public policy) and because of its breadth and emphasis on the communication of ideas, serves as an excellent point of departure for careers in marketing, public relations, government, diplomacy, and community work.

Major Requirements

The program requires 45 semester hours in English, at least 24 of which must be in upper-division courses. A grade of "C" (2.00) or higher is required in all courses taken for the major.

Lower-Division Required Courses

ENG 221 Survey of English Literature *HU, H* 3
ENG 222 Survey of English Literature *HU, H* 3
ENG 241 American Literature *HU* 3
ENG 242 American Literature *HU* 3

Upper-Division Required Courses

ENG 311 Persuasive Writing *L* 3
ENG 323 Rhetoric and Grammar *L* 3
ENG 400 History of Literary Criticism *L/HU, H* 3
ENG 473 Shakespeare 3
Literature of gender or ethnicity course[1] 3
Elective[2] 18

Total 45

[1] AMS or ENG upper division course approved by advisor.
[2] English electives must be selected in consultation with a faculty advisor.

Minor in English

The minor in English requires 21 semester hours in English, at least nine of which must be in upper-division courses.

Lower-Division Required Courses

ENG 221 Survey of English Literature *HU, H* 3
ENG 222 Survey of English Literature *HU, H* 3
ENG 241 American Literature *HU* 3
ENG 242 American Literature *HU* 3

Upper-Division Required Courses

ENG 311 Persuasive Writing *L* 3
ENG 323 Rhetoric and Grammar *L* 3
ENG 473 Shakespeare 3

Total 21

SECONDARY EDUCATION—BAE

English Specialization

The requirements for the Bachelor of Arts in Secondary Education with a specialization in English consist of the Professional Teacher Preparation Program for secondary majors (see "College of Teacher Education and Leadership," page 745) and 39 semester hours in English, at least 24 of which must be in upper-division courses. The English major for teachers focuses on the skills, authors, periods, genres, regions, and themes that Arizona high schools teach most frequently: writing, Shakespeare, British and American classics, major recent texts, ethnicity, and gender. Students determine appropriate programs of study in consultation with faculty advisors. A grade of "C" (2.00) or higher is required in all courses taken for the major.

Lower-Division Required Courses

ENG 221 Survey of English Literature *HU, H* 3
or ENG 241 American Literature *HU* (3)
ENG 222 Survey of English Literature *HU, H* 3
ENG 242 American Literature *HU* 3

Upper-Division Required Courses

ENG 311 Persuasive Writing *L* 3
ENG 323 Rhetoric and Grammar *L* 3
ENG 473 Shakespeare 3
Literature of gender or ethnicity course[1] 3
Elective[2] 15

Total 39

[1] Choose course approved by advisor.
[2] English electives must be selected in consultation with a faculty advisor.

English Minor

The program requires 21 semester hours in English, at least 12 of which must be in upper-division courses. The minor focuses on material most frequently taught in Arizona high schools.

Lower-Division Required Courses

ENG 221 Survey of English Literature *HU, H* 3
or ENG 241 American Literature *HU* (3)
ENG 222 Survey of English Literature *HU, H* 3
ENG 242 American Literature *HU* 3

Upper-Division Required Courses

ENG 311 Persuasive Writing *L* 3
ENG 323 Rhetoric and Grammar *L* 3
ENG 473 Shakespeare 3
Literature of gender or ethnicity course* 3

Total 21

* English electives must be selected in consultation with a faculty advisor.

WRITING CERTIFICATE

Nature of the Program

The Department of Language, Cultures, and History offers a nonfiction writing certificate program for students enrolled in any college at Arizona State University. While taking writing certificate courses, students

1. learn and practice writing in the various styles and genres;
2. are introduced to computer technology relevant to writing and publishing;
3. discuss theoretical and pedagogical applications for classroom practices; and
4. are exposed to information about local and national markets for publishing their work.

One of the hallmarks of the program is that several of the classes offered are taught by professional writers.

Composed of 19 semester hours and only one required course, the program offers opportunity for customizing a plan of study that reflects each student's interests and goals. Additionally, projects in the student's major and internship are optional elements of the certificate.

At the discretion of the director of the program, students may fulfill a maximum of nine semester hours of the requirements for the certificate with

1. courses taken before formal admission;
2. courses taken to fulfill requirements of other programs; or
3. courses taken at other institutions.

For more information on the certificate program, visit FAB N220C, call 602/543-6090, or access the Web site at www.west.asu.edu/lch/degrees/writing_certificate.htm

Career Outlook

Certification of advanced writing skills opens the way to an array of opportunities, from journalism and publishing to public advocacy, military and government careers, elementary and secondary education, business management, economic development, legal/justice professions, and high-tech industry. Ability to communicate clearly and directly is a key to career advancement in all aspects of business, government, and community service.

Admission Requirements

To gain admission to the Writing Certificate program, students must demonstrate fundamental writing skills by submitting a portfolio of writing from lower-division courses or independent writing projects. A GPA of 3.00 in the prerequisite courses ENG 101 and 102, or ENG 107 and 108, or ENG 105 is required.

Program Requirements

The program requires a minimum of 19 semester hours of writing intensive and publication related course work, including at least 12 semester hours of upper-division courses. The Writing Certificate Portfolio (AMS 490) is mandatory for all students. A GPA of 3.00 or higher is required for course work taken for the Writing Certificate, with the exception of the exit portfolio, which is graded on a satisfactory/fail basis. Students will assemble a portfolio of writing that demonstrates their grasp of the skills presented during their program of study.

AMS 490 Writing Certificate Portfolio 1
Choose electives from the following*.....18
AMS 219 Newspaper Production *L* (3)
or ENG 219 Newspaper Production *L* (3)
AMS 301 Introduction to American Studies *L* (3)
AMS 342 Writing about American Culture (3)
AMS 344 Creative Writing (3)
AMS 345 Reporting (3)
AMS 346 Editing (3)
AMS 394 ST: Comedy Writing (1)
or ENG 394 ST: Comedy Writing (1)
AMS 394 ST: Desktop Publishing (1)
or ENG 394 ST: Desktop Publishing (1)
AMS 394 ST: Magazine Publication (1)
or ENG 394 ST: Magazine Publication (1)
AMS 394 ST: Scriptwriting (1)
or ENG 394 ST: Scriptwriting (1)
AMS 494 ST: Freelance Photography (1)
AMS 494 ST: Writing Historical Fiction (1)
AMS 494 ST: HTML Creating a Web Page (1)
or ENG 494 ST: HTML Creating a Web Page (1)
or IAP 494 ST: HTML Creating a Web Page (1)
AMS 494 ST: Layout and Design (1)
or ENG 494 ST: Layout and Design (1)
AMS 494 ST: Selling Your Writing (1)
or ENG 494 ST: Selling Your Writing (1)
COM 320 Communication and Consumerism *SB* (3)
COM 329 Persuasion (3)
COM 353 Professional Communication (3)
COM 414 Crisis Communication (3)
COM 484 Internship (1-3)
ENG 210 Introduction to Creative Writing (3)
ENG 301 Writing for the Professions *L* (3)
ENG 311 Persuasive Writing *L* (3)
ENG 316 Writing and Arguing Politics *L* (3)
ENG 323 Rhetoric and Grammar *L* (3)
ENG 394 ST: Research and Writing (3)
ENG 412 Writing for Publication (3)
IAP 351 Concept, Image, and Text (3)
IAP 361 Digital Editing and Media Literacy *CS* (3)
IAP 394 ST: Writing/Performance Seminar (3)
IAP 465 Media Technologies and the Arts (3)
Program total.....19

* These courses, or other courses offered under the ENG or AMS prefix or another prefix, must be selected in consultation with the director of the program.

Capstone Project (Optional)

An approved capstone experience from the student's major (or AMS 498) may fulfill one to three semester hours.

Internship (Optional)

Students may fulfill one to three semester hours through an internship with a company, agency, or publication related to the student's planned career.

HISTORY—BA

Nature of Program

The Bachelor of Arts in History trains students in the use of basic tools and methods of the historical discipline. It exposes students to a broad span of modern history, a wide range of historiographical perspectives and approaches, and such fundamental categories of historical analysis as race, class, gender, and ethnicity. Students in the history program develop habits of mind associated with history as a discipline, including an awareness of change over time, an ability to make reasoned arguments about historical events and developments, and a sensitivity to the varieties of historical experience.

The History major consists of several specific core courses and a range of electives and distributional requirements. It provides students with a solid foundation in historical methods while at the same time allowing them to tailor

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

the major to their personal and professional interests. Students will develop their program of study in History in consultation with a faculty advisor.

Career Outlook

The History major serves as excellent preparation for study in graduate or professional degree programs and for careers in which critical thinking, research, and writing skills are highly valued. The History major provides a strong foundation for understanding the forces of change that shape contemporary society, the marketplace, and the lives of individuals and groups, thereby equipping students to negotiate the complex cultural, community, and business environments of the 21st century.

Major Requirements

The Bachelor of Arts degree in History requires a minimum of 45 semester hours with a grade of "C" (2.00) or higher. Program requirements include

1. 12 semester hours of core requirements in history;
2. 18 semester hours of history electives; and
3. 15 semester hours of supporting course work.

At least 21 semester hours in history courses and six semester hours in supporting courses must be taken at the upper division.

The major requires completion of HIS 300 Historical Methods, which should be scheduled early in the student's program of study, and HIS 498 History Pro-seminar, to be completed as an exit project during the student's final semester.

Core Requirements

Choose one of the following combinations 6
A two-semester survey in U.S. history, European history, or world history (6)
——— *or* ———
AMS 310 History of American Systems to 1865 *L, C, H* (3)
or AMS 320 American Cultural History I *SB, H* (3)
or HIS 303 American Cultural History I *SB, H* (3)
or HIS 305 History of American Systems to 1865 *L, C, H* (3)
AMS 311 History of American Systems since 1865 II *H* (3)
or AMS 321 American Cultural History II *SB, H* (3)
or AMS 330 Introduction to American Lives *HU* (3)
or HIS 304 American Cultural History II *SB, H* (3)
or HIS 306 History of American Systems since 1865 *H* (3)
——— *or* ———
HIS 355 World History to 1500 *G, H* (3)
HIS 356 World History since 1500 *G, H* (3)

Upper-Division Requirements

HIS 300 Historical Methods *L, H* 3
HIS 498 History Proseminar *L* 3

Additional Course Work

History electives 18
Supporting course work 15
Total 45

History Electives. History majors are required to complete 18 semester hours of history electives, of which a maximum of three semester hours may be taken at the lower division. The 15 semester hours of upper-division course work must be distributed as follows: six semester hours in American history, six semester hours in European history, and three semester hours in comparative history.

Supporting Course Work. A minimum of 15 semester hours of supporting course work may be taken in American studies, ethnic studies, English and American literature, religious studies, foreign language courses, or in other related fields as approved by the history faculty advisor.

Language Proficiency (Optional). Students considering graduate studies upon completion of the baccalaureate degree should prepare themselves with proficiency in a foreign language.

Minor in History

The minor in History consists of 18 semester hours of history course work with a grade of "C" (2.00) or higher, of which six semester hours may be lower division.

Choose one of the following combinations 6
A two-semester survey in U.S. history, European history, or world history (6)
——— *or* ———
AMS 310 History of American Systems to 1865 *L, C, H* (3)
or AMS 320 American Cultural History I *SB, H* (3)
or HIS 303 American Cultural History I *SB, H* (3)
or HIS 305 History of American Systems to 1865 *L, C, H* (3)
AMS 311 History of American Systems since 1865 II *H* (3)
or AMS 321 American Cultural History II *SB, H* (3)
or AMS 330 Introduction to American Lives *HU* (3)
or HIS 304 American Cultural History II *SB, H* (3)
or HIS 306 History of American Systems since 1865 *H* (3)
——— *or* ———
HIS 355 World History to 1500 *G, H* (3)
HIS 356 World History since 1500 *G, H* (3)

Upper Division Requirements

HIS 300 Historical Methods *L, H* 3
History Electives 9
Total 18

SECONDARY EDUCATION, HISTORY SPECIALIZATION—BAE

The requirements for the Bachelor of Arts in Secondary Education with a specialization in history consist of the Professional Teacher Preparation Program for Secondary Education majors (see "College of Teacher Education and Leadership," page 745) and 39 semester hours in the specialization area.

History Requirements

U.S. History Survey

Choose one of the following combinations 6
HIS 103 The United States *SB, H* (3)
HIS 104 The United States *SB, H* (3)
——— *or* ———
HIS 303 American Cultural History I *SB, H* (3)
HIS 304 American Cultural History II *SB, H* (3)
——— *or* ———
HIS 305 History of American Systems to 1865 *L, C, H* (3)
HIS 306 History of American Systems since 1865 *H* (3)
HIS 300 Historical Methods *L, H* 3

U.S. History Upper-Division Electives

Choose three from the following courses[1] 9
- HIS 303 American Cultural History I *SB, H* (3)
- HIS 304 American Cultural History II *SB, H* (3)
- HIS 305 History of American Systems to 1865 *L, C, H* (3)
- HIS 306 History of American Systems since 1865 *H* (3)
- HIS 300-level course (3)
- HIS 300-level course (3)

Non-U.S. History electives[2] 9

Total 27

Supporting Course Work[3] 12

Program total 39

[1] Selected courses may be used to secure this credit, if not already taken.

[2] A minimum of six of the nine semester hours must be upper-division courses.

[3] These course must be approved by the BAE history advisor, and a minimum of six of the semester hours must be upper-division courses.

SPANISH—BA

Nature of Program

The Spanish program consists of three tracks: language, literature, and cultures. These tracks are integrated within the discipline and with other disciplines within the New College of Interdisciplinary Arts and Sciences. Spanish classes are taught through an intensive language approach using the most recent electronic technologies, including videos, CD-ROMs, electronic chat groups, and news groups devoted to Hispanic literature and culture.

The program also offers credit for internships in social and business agencies. This school-to-work experience, in addition to offering the student an entry-level job opportunity, provides stimulating linguistic and cultural rewards outside of the campus environment.

Career Outlook

The Spanish major serves as excellent preparation for graduate school or for employment as a teacher in either the elementary or secondary school system, especially in those districts where bilingual programs are integral to the curricula. Outside the education system, students majoring in Spanish can find employment as translators and interpreters in social agencies, federal and state courts, the diplomatic corps, law enforcement agencies, and law firms. The business world also provides employment for those fluent in Spanish. This is especially true in the southwest, with its proximity to Mexico and through new outlets opened by the trinational NAFTA agreement.

Major Requirements

The Spanish major consists of a minimum of 45 semester hours, of which at least 30 semester hours are in Spanish (SPA) courses and 15 are in related courses to be selected in consultation with an Arts and Sciences academic advisor. Of the 30 semester hours in Spanish, at least 24 upper division semester hours are required, with at least nine semester hours at the 400 level. A minimum grade of "C" (2.00) is required in all upper division courses in Spanish. First-year Spanish courses (SPA 101, 102) are not applicable to the major, but may be applied to the degree as electives.

Required Courses

SPA 313 Spanish Conversation and Composition *G* 3
or M SPA 315 Spanish Conversation and Composition for Bilinguals (3)

SPA 314 Spanish Conversation and Composition *G* 3
or M SPA 316 Spanish Conversation and Composition for Bilinguals (3)

SPA 325 Introduction to Hispanic Literature 3

SPA 412 Advanced Conversation and Composition *G* 3

SPA 425 Spanish Literature 3

Choose two from the following courses 6
- SPA 426 Spanish Literature *HU* (3)
- SPA 427 Spanish-American Literature (3)
- SPA 428 Spanish-American Literature (3)

Choose one from the following courses 3
- M SPA 471 Civilization of the Spanish Southwest *HU* (3)
- SPA 472 Spanish-American Civilization *HU* (3)

Spanish electives* 6

Related area course work* 15

Total 45

* These courses must be chosen in consultation with a faculty advisor.

Minor in Spanish

The minor in Spanish consists of 20 semester hours of Spanish course work, of which 12 semester hours must be in the upper division. All Spanish course work must be completed with a minimum grade of "C" (2.00) or higher.

Minor Requirements

Choose one of the following combinations 8
- SPA 201 Intermediate Spanish (4)
- SPA 202 Intermediate Spanish (4)

——— *or* ———

- SPA 207 Spanish for International Professions II (8)

Electives* 12

Total 21

* These SPA elective courses must be at the 300 or 400 level and chosen in consultation with a faculty advisor.

AMERICAN STUDIES (AMS)

AMS Note 1. Completion of the First-Year Composition requirement (ENG 101 and 102 or ENG 105 or ENG 107 and 108 [available at Tempe campus] with a grade of "C" [2.00] or higher) is a prerequisite for all English courses above the 100 level.

W AMS 219 Newspaper Production. (3)
fall and spring
Students work on campus newspaper to learn basics of news and column writing, digital photography, and layout. Cross-listed as ENG 219. Credit is allowed for only AMS 219 or ENG 219. See AMS Note 1.
General Studies: L

W AMS 301 Introduction to American Studies. (3)
fall
Introduces the interdisciplinary study of American culture, emphasizing critical reading and writing skills. Prerequisite: ENG 101 or 105.
General Studies: L

W AMS 310 History of American Systems to 1865. (3)
fall
First of a two-part survey of political, legal, and economic institutions, placed in the context of the nation's colonial background and early national period. Cross-listed as HIS 305. Credit is allowed for only AMS 310 or HIS 305. Prerequisite: ENG 101 or 105.
General Studies: L, C, H

W AMS 311 History of American Systems Since 1865. (3)
spring
Second in a two-part survey of political, legal, and economic institutions, placed in the context of a dynamic industrialist capitalist society, from the age of industrialism and modern America. Cross-listed as HIS 306. Credit is allowed for only AMS 311 or HIS 306. Prerequisite: ENG 101 or 105.
General Studies: H

W AMS 314 Military Studies. (3)
selected semesters
Topics in the history of the American military. May be repeated for credit when topics vary.

W AMS 316 American Religious Systems. (3)
selected semesters
Topics in American religion; may include Hispanic missions of the Southwest. May be repeated for credit when topics vary.

W AMS 320 American Cultural History I. (3)
fall
First of a two-part survey of American culture, broadly defined as historically transmitted patterns of meaning expressed in symbolic forms, including ideas, ideals, the arts, and social and economic standards from the nation's colonial background and early national period. Cross-listed as HIS 303. Credit is allowed for only AMS 320 or HIS 303.
General Studies: SB, H

W AMS 321 American Cultural History II. (3)
spring
Second of a two-part survey of American culture, broadly defined as historically transmitted patterns of meaning expressed in symbolic forms, including ideas, ideals, the arts, and social and economic standards from the age of industrialism and modern America. Cross-listed as HIS 304. Credit is allowed for only AMS 321 or HIS 304.
General Studies: SB, H

W AMS 322 Studies in American Literature. (3)
selected semesters
Topics in American literature. May be repeated for credit when topics vary.

W AMS 323 Studies in American Art and Architecture. (3)
selected semesters
Topics in the visual arts and material culture. May be repeated for credit when topics vary.

W AMS 326 Popular Culture. (3)
selected semesters
Topics in American popular culture, including theories of popular culture; the history and analysis of mass media, including television, film, and the music industry; and vernacular art and the folk tradition. May be repeated for credit when topics vary.

W AMS 327 Regional Cultures. (3)
selected semesters
Examines the concept of regionalism and regional cultures in America with a special emphasis on the Southwest/Borderlands.

W AMS 330 Introduction to American Lives. (3)
fall and spring
Examines American society through the study of autobiography and ethnography.
General Studies: HU

W AMS 332 Studies in Race and Ethnicity. (3)
selected semesters
Topics relating to issues of race and ethnicity in American life. May be repeated for credit when topics vary.

W AMS 334 The American Class System. (3)
selected semesters
Studies in social classes and their function within American society. May be repeated for credit when topics vary.

W AMS 335 American Biography. (3)
selected semesters
Topics in biographies of individuals, comparative biographies, the art of biography, and the function of autobiography. May be repeated for credit when topics vary.

W AMS 342 Writing about American Culture. (3)
selected semesters
Teaches methods of writing cultural criticism, emphasizing the essay form.

W AMS 344 Creative Writing. (3)
selected semesters
Emphasizes the study and practice of creative nonfiction. May be repeated for credit when topics vary.

W AMS 345 Reporting. (3)
selected semesters
Fundamentals of news gathering, interviewing, and in-depth reporting.

W AMS 346 Editing. (3)
selected semesters
Theory and practice of editing.

W AMS 351 Technical Writing. (3)
fall
Computer-based instruction in writing documents for online, oral, and print formats, focusing on audience-centered rhetoric. Hands-on lab. Prerequisite with a grade of "C" (2.00) or higher: ENG 102 or 105.

W AMS 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Comedy Writing. (1)
- Desktop Publishing. (1)
- Magazine Publication. (1)
- Scriptwriting. (1)

W AMS 412 Studies in American Politics and Law. (3)
selected semesters
Topics in American political and legal systems, including social movements in the United States and women and the law. May be repeated for credit when topics vary.

W AMS 414 Military Studies. (3)
selected semesters
Topics in the history of the American military. May be repeated for credit when topics vary.

W AMS 417 Religious Traditions of the American Southwest. (3)
spring
Examines the sacred traditions that have evolved within the North American Southwest context.
General Studies: C

W AMS 422 Studies in American Literature. (3)
selected semesters
Topics in American literature, including contemporary American comic fiction, literature of the American South, literature of American wars, Hispanic chronicles of the Southwest, literature of la Chicana, and American rhetoric. May be repeated for credit when topics vary. Prerequisite: ENG 101 or 105.
General Studies: L/HU

W AMS 428 Chicano Cultures in the Southwest. (3)
fall
Examines and explores Chicana and Chicano culture as place and sentiment. The physical place and space and the sentiment related to Chicanas and Chicanos.
General Studies: SB

W AMS 429 Interdisciplinary Topics. (3)
selected semesters
Senior-level seminar that examines issues relevant to two or more American cultures' fields. Topics may include Southwest/border Hispanic folklore, Southwestern corridos, American art and the city, and the West of the imagination. May be repeated for credit when topics vary.

W AMS 431 Gender Studies. (3)
selected semesters
Topics relating to issues of gender in American life. May be repeated for credit when topics vary.

W AMS 432 Studies in Race and Ethnicity. (3)
selected semesters
Topics relating to issues of race and ethnicity in American life. May be repeated for credit when topics vary.

W AMS 490 Writing Certificate Portfolio. (1)
fall, spring, summer
Preparing a portfolio demonstrating advanced writing skills. Limited to and required of students in the Writing Certificate Program. Prerequisite: completion of course work for Writing Certificate Program.

W AMS 494 Special Topics. (1–4)
fall and spring
Senior-level seminar exploring issues or topics from the perspective of each of the three tracks in American Studies. Topics may include the following:

- American Environment. (3)
- Exploration of America. (3)
- Freelance Photography. (1)
- HTML Creating a Web Page. (1)
- Layout and Design. (1)
- Modernism and Modernity. (3)
- Psychology of Religion. (3)
- Selling Your Writing. (1)
- The 1920s: Age of Experiment. (3)
- Writing Historical Fiction. (1)

W AMS 498 Pro-Seminar. (3)
spring
Senior-level exit seminar for American Studies majors.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

ENGLISH (ENG)

For more ENG courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

ENG Note 1. Completion of the First-Year Composition requirement (ENG 101 and 102 or ENG 105 or ENG 107 and 108 [available at Tempe campus] with a grade of "C" [2.00] or higher) is a prerequisite for all English courses above the 100 level.

W ENG 101 First-Year Composition. (3)
fall, spring, summer
Discovers, organizes, and develops ideas in relation to the writer's purpose, subject, and audience. Emphasizes modes of written discourse and effective use of rhetorical principles.

W ENG 102 First-Year Composition. (3)
fall, spring, summer
Critical reading and writing; emphasizes strategies of academic discourse. Research paper required. Prerequisite with a grade of "C" (2.00) or higher: ENG 101.

W ENG 105 Advanced First-Year Composition. (3)
selected semesters
Concentrated composition course for students with superior writing skills; intensive reading; research papers; logical and rhetorical effectiveness. Not open to students with credit in First-Year Composition.

W ENG 200 Critical Reading and Writing About Literature. (3)
selected semesters
Introduces the terminology, methods, and objectives of the study of literature, with practice in interpretation and evaluation. See ENG Note 1. Prerequisite: English major or minor.
General Studies: L/HU

W ENG 210 Introduction to Creative Writing. (3)
selected semesters
Beginning writing of poetry, fiction, and drama (both stage and screen). Separate sections for each genre. Each genre may be taken once. See ENG Note 1.

W ENG 213 Introduction to the Study of Language. (3)
selected semesters
Language as code; phonetics, phonology, morphology, and syntax; the lexicon; language acquisition; sociolinguistics. See ENG Note 1.

W ENG 219 Newspaper Production. (3)
fall and spring
Students work on campus newspaper to learn basics of news and column writing, digital photography, and layout. Cross-listed as AMS 219. Credit is allowed for only ENG 219 or AMS 219. See ENG Note 1.
General Studies: L

W ENG 221 Survey of English Literature. (3)
fall, spring, summer
Medieval, Renaissance, and 18th-century literature. Emphasizes major writers and their works in their literary and historical contexts. See ENG Note 1.
General Studies: HU, H

W ENG 222 Survey of English Literature. (3)
fall, spring, summer
Romantic, Victorian, and 20th-century literature. Emphasizes major writers and their works in their literary and historical contexts. See ENG Note 1.
General Studies: HU, H

W ENG 241 American Literature. (3)
fall, spring, summer
From colonial times to the Civil War, including the growth of nationalism and romanticism. See ENG Note 1.
General Studies: HU

W ENG 242 American Literature. (3)
fall, spring, summer
From the Civil War to the present. Development of realism, naturalism, and modernism, and contemporary trends in prose and poetry. See ENG Note 1.
General Studies: HU

W ENG 301 Writing for the Professions. (3)
fall, spring, summer
Advanced practice in writing and editing expository prose. Primarily for preprofessional majors. See ENG Note 1.
General Studies: L

W ENG 305 Classical and Biblical Backgrounds to Literature. (3)
selected semesters
Selected readings from the Bible and Greek and Latin literature in translation, emphasizing ideas, forms, and myths related to the development of English literature. See ENG Note 1.
General Studies: HU

W ENG 311 Persuasive Writing. (3)
fall, spring, summer
Advanced writing course that focuses on persuasive writing for diverse audiences. See ENG Note 1.
General Studies: L

W ENG 316 Writing and Arguing Politics. (3)
selected semesters
Logical argumentation and writing, enabling students to analyze and construct arguments. See ENG Note 1.
General Studies: L

W ENG 317 Cross-Cultural Writing. (3)
fall
Cultural differences and their impact on writing and/or their role in miscommunication and misinterpretation. See ENG Note 1.
General Studies: L/HU, G

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

W ENG 323 Rhetoric and Grammar. (3)
fall, spring, summer
Practical course taught in the computer lab. Emphasizes rhetorical strategies and grammar for writers. See ENG Note 1.
General Studies: L

W ENG 337 Major American Novels. (3)
selected semesters
Novels from the 19th century to the present studied in their historical and cultural contexts. See ENG Note 1.
General Studies: L/HU

W ENG 352 Short Story. (3)
once a year
Development of the short story as a literary form; analysis of its technique from the work of representative authors. Cross-listed as AMS 322. Credit is allowed for only ENG 352 or AMS 322. See ENG Note 1.
General Studies: L/HU

W ENG 353 African American Literature: Beginnings through the Harlem Renaissance. (3)
selected semesters
Focuses on the history of African-American literature through the Harlem Renaissance, as exemplified in selected slave narratives, poems, and fiction. See ENG Note 1.
General Studies: L/HU, C

W ENG 354 African American Literature: Harlem Renaissance to the Present. (3)
selected semesters
Examines the literary productions of African-Americans from the Harlem Renaissance (about 1920) to the present focusing on fiction, poetry, drama, and essays. See ENG Note 1.
General Studies: L/HU, C

W ENG 359 American Indian Literature. (3)
selected semesters
Selected oral traditions of American Indians and their influences on contemporary Native American literary works. See ENG Note 1.
General Studies: L/HU, C

W ENG 360 Western American Literature. (3)
selected semesters
Critical examination of ideas and traditions of the literature of the western United States. See ENG Note 1.
General Studies: L/HU

W ENG 363 Chicano Literature. (3)
selected semesters
Development of Chicano literature; study of genres and themes; attention to literary antecedents. See ENG Note 1.
General Studies: HU, C

W ENG 365 History of Film. (3)
selected semesters
Emphasizes American film, with some study of European film. 3 hours lecture, 4 hours of screening. See ENG Note 1.
General Studies: HU

W ENG 369 Science Fiction and Fantasy. (3)
selected semesters
Development of science fiction and fantasy literature. May be repeated for credit when topics vary. See ENG Note 1.
General Studies: HU

W ENG 386 American Gothic. (3)
selected semesters
The development of modern American Gothic as a literary form from Poe to Oates. Emphasizes the short story. See ENG Note 1.
General Studies: L/HU

W ENG 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- American Culture. (3)
- Comedy Writing. (1)
- Desktop Publishing. (1)
- Magazine Publication. (1)
- Research and Writing. (3)
- Scriptwriting. (1)
- Writing. (3)

See ENG Note 1.

W ENG 400 History of Literary Criticism. (3)
fall and spring
Major critics and critical traditions in the western world. Prerequisite: 6 hours of literature or instructor approval. See ENG Note 1.
General Studies: L/HU, H

W ENG 412 Writing for Publication. (3)
fall and spring
Lectures and conferences concerning techniques of writing for publication. May be repeated for credit when topics vary. See ENG Note 1.

W ENG 415 Medieval Literature. (3)
selected semesters
Medieval English and continental literature in translation, emphasizing cultural and intellectual backgrounds. May be repeated for credit when topics vary. See ENG Note 1.
General Studies: HU

W ENG 418 European Renaissance Literature. (3)
selected semesters
Prose, poetry, and drama of Europe and England from 1492-1660 with an emphasis on cultural history. See ENG Note 1.
General Studies: L/HU

W ENG 420 Multicultural Autobiographies. (3)
fall and spring
Examines the human experience via autobiographies and personal narratives. Multicultural, literary, and psychological perspectives on individual lives. Cross-listed as IAS 420. Credit is allowed for only ENG 420 or IAS 420. See ENG Note 1.
General Studies: L/HU, C

W ENG 425 Romantic Poetry. (3)
selected semesters
Poetry of Wordsworth, Coleridge, Shelley, Keats, and Byron. May be repeated for credit when topics vary. See ENG Note 1.

W ENG 431 Whitman and Dickinson. (3)
selected semesters
Evaluates the 19th-century American Literary Renaissance through the specialized examination of its poetry and authors in their historical context. See ENG Note 1.
General Studies: HU

W ENG 432 The American Renaissance. (3)
selected semesters
Novels, poetry, short fiction, and criticism of the major literary figures of the early to mid-nineteenth century. See ENG Note 1.
General Studies: HU

W ENG 433 Southern Writers. (3)
selected semesters
Analyzes Southern culture through the eyes of the region's novelists, short story writers, poets, filmmakers, photographers, and song writers. See ENG Note 1.

W ENG 437 The American Novel, 1900–1960. (3)
selected semesters
Developments in theory and practice of major novelists. See ENG Note 1.
General Studies: L/HU

W ENG 438 American Novel since 1960. (3)
selected semesters
Major novelists of the period. Developments in theory and practice. See ENG Note 1.
General Studies: L/HU

W ENG 450 The British Novel. (3)
selected semesters
Focuses on the British novel from the 18th century to the present. See ENG Note 1.
General Studies: HU

W ENG 454 Gender and Literature. (3)
once a year
Focuses on the representation of gender in literature. See ENG Note 1.
General Studies: L/HU

W ENG 455 Contemporary Women Writers. (3)
once a year
Critical examination of literature by contemporary women writers. May be repeated for credit when topics vary. See ENG Note 1.
General Studies: HU

W ENG 460 Ethnic Women Writers. (3)
fall
Concentrates on selected women writers of the U.S. who are Native American, African American, Hispanic, and Asian-American. Cross-listed as WST 467. Credit is allowed for only ENG 460 or WST 467. See ENG Note 1.
General Studies: L/HU, C

W ENG 462 Africana Literature. (3)
selected semesters
Focuses on the literature of the African Diaspora, including texts from the Caribbean, the Americas, and Africa. May be repeated for credit when topics vary. See ENG Note 1.
General Studies: HU, G

W ENG 463 African-American Literature. (3)
once a year
Thematic and cultural study of African-American literature. See ENG Note 1.
General Studies: HU, C

W ENG 465 History of Film. (3)
selected semesters
Emphasizes American film, with some study of European film. 3 hours lecture, 4 hours of screening. See ENG Note 1.
General Studies: HU

W ENG 473 Shakespeare. (3)
fall and spring
Selection of comedies, histories, and tragedies. See ENG Note 1.

W ENG 476 Folklore in Everyday Life. (3)
selected semesters
Focuses on the discipline of folklore, the theories and methods related to the oral, material, and cultural practices of society. See ENG Note 1.
General Studies: L/SB/HU, C

W ENG 477 World Literature. (3)
spring
Introduces world literature, mostly outside the United States and England. Cross-listed as IAS 477. Credit is allowed for only ENG 477 or IAS 477. See ENG Note 1.
General Studies: L/HU, G

W ENG 478 Modernist Literature. (3)
selected semesters
Focuses on the international nature of Modernist literature. Authors studied may include Proust, Kafka, Joyce, and Woolf. See ENG Note 1.
General Studies: HU

W ENG 479 International Postmodern Literature. (3)
selected semesters
Focuses on the international nature of Postmodernist literature. Authors studied may include Rushdie, Garcia Marquez, and Toni Morrison. See ENG Note 1.
General Studies: HU, G

W ENG 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- HTML Creating a Web Page. (1)
- Layout and Design. (1)
- Selling Your Writing. (1)
- Writing Practicum. (3)

See ENG Note 1.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

HISTORY (HIS)

W HIS 101 Western Civilization. (3)
fall
Traces origin and development of Western societies and institutions from the Renaissance and Reformation through Age of Enlightenment.
General Studies: SB, H

W HIS 102 Western Civilization. (3)
spring
Traces origin and development of Western societies and institutions from the French Revolution to the present.
General Studies: SB, G, H

W HIS 103 The United States. (3)
fall
Growth of the Republic from colonial times through the Civil War period.
General Studies: SB, H

W HIS 104 The United States. (3)
spring
Growth of the Republic from the Civil War period to the present day.
General Studies: SB, H

W HIS 300 Historical Methods. (3)
fall
Introduces the methodological and theoretical tools of history as a scholarly discipline for History majors. Prerequisite: ENG 102 or 105.
General Studies: L, H

W HIS 301 Writing in History. (3)
once a year
Focuses on methods of writing, reasoning, and arguing in American Studies. Emphasizes the drafting of summaries and short arguments. Prerequisite: ENG 101 or 105.
General Studies: L

W HIS 303 American Cultural History I. (3)
fall
First of a two-part survey of American culture, broadly defined as historically transmitted patterns of meaning expressed in symbolic forms, including ideas, ideals, the arts, and social and economic standards from the nation's colonial background and early national period. Cross-listed as AMS 320. Credit is allowed for only HIS 303 or AMS 320.
General Studies: SB, H

W HIS 304 American Cultural History II. (3)
spring
Second of a two-part survey of American culture, broadly defined as historically transmitted patterns of meaning expressed in symbolic forms, including ideas, ideals, the arts, and social and economic standards from the age of industrialism and modern America. Cross-listed as AMS 321. Credit is allowed for only HIS 304 or AMS 321.
General Studies: SB, H

W HIS 305 History of American Systems to 1865. (3)
fall
First of a two-part survey of political, legal, and economic institutions, placed in the context of the nation's colonial background and early national period. Cross-listed as AMS 310. Credit is allowed for only HIS 305 or AMS 310. Prerequisite: ENG 101 or 105.
General Studies: L, C, H

W HIS 306 History of American Systems Since 1865. (3)
spring
Second in a two-part survey of political, legal, and economic institutions, placed in the context of a dynamic industrialist capitalist society, from the age of industrialism and modern America. Cross-listed as AMS 311. Credit is allowed for only HIS 306 or AMS 311. Prerequisite: ENG 101 or 105.
General Studies: H

W HIS 320 19th Century West. (3)
selected semesters
Social, political, and economic development of trans-Mississippi West beginning with Louisiana Purchase and ending in 1900.
General Studies: SB, H

W HIS 331 American Indians. (3)
fall
History of the American Indian with emphasis on the government's Indian policy and the impact of the white man on tribal culture.

W HIS 340 American Military History. (3)
selected semesters
Studies the role of the military in American life during war and peace from colonial times to the present day.
General Studies: SB, H

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

W HIS 355 World History to 1500. (3)
fall
Studies world history to 1500 with emphasis on the connection between regional history and the growth of world civilization.
General Studies: G, H

W HIS 356 World History Since 1500. (3)
spring
Surveys modern European history (1789-present); emphasizes European relations with the non-European world.
General Studies: G, H

W HIS 363 Reformation. (3)
fall
The Protestant and Catholic Reformations in the 16th century. Prerequisite: ENG 101 or 105.

W HIS 377 Women in Europe, 1700–Present. (3)
selected semesters
Historical survey of European women's lives, emphasizing the impact of gender on social, political, economic, and cultural experience. Prerequisite: ENG 102 or 105.
General Studies: H

W HIS 378 20th Century Europe at War, 1900–1945. (3)
fall
Surveys the history of the World Wars in Europe, emphasizing the relationship among military developments, culture, and society.
General Studies: H

W HIS 394 Special Topics in History. (3)
fall and spring
Full description of topics for any semester is available in the department office. May be repeated for credit.

W HIS 406 Civil War and Reconstruction. (3)
spring
Causes and development of the war; political, constitutional, and social issues of Reconstruction and their effects on postwar America. Prerequisite: ENG 101 or 105.
General Studies: L/SB, H

W HIS 411 Contemporary America. (3)
fall
The United States from 1945 to the present. Prerequisite: ENG 101 or 105.
General Studies: L/SB, H

W HIS 419 Topics in American Historical Periods. (3)
spring
Focuses on specific periods in American history. May be repeated for credit when topics vary.

W HIS 423 Mexico. (3)
selected semesters
Political, economic, social, and cultural developments from 1810 to the present.
General Studies: SB, H

W HIS 424 The Hispanic Southwest. (3)
fall
Development of the Southwest in the Spanish and Mexican periods to 1848.
General Studies: SB

W HIS 429 Topics in American Regional History. (3)
fall
Focuses on the history of specific geographic regions within North America. May be repeated for credit when topics vary.

W HIS 430 20th Century Chicano/a History. (3)
selected semesters
Historical development of the Chicano community in the 20th century.

W HIS 431 Social History of American Women. (3)
fall
Examines women's social position in America. In-depth analysis of specific women's issues in terms of change over time. Prerequisite: ENG 101 or 105.
General Studies: SB, C, H

W HIS 439 Topics in American Race, Class, Gender, and Ethnicity. (3)
fall and spring
Emphasizes the use of race, class, gender, and/or ethnicity as categories of historical analysis. May be repeated when topics vary.

W HIS 443 Constitutional History of the United States. (3)
spring
Origin and development of the American constitutional system, from Reconstruction to the present. Prerequisite: HIS 104 or instructor approval.
General Studies: SB, H

W HIS 444 American Urban History. (3)
spring
The history of the city in American life from the 19th century to the present.
General Studies: SB, H

W HIS 449 Topics in American Themes and Issues. (3)
fall
Focuses on significant themes and issues in American history. May be repeated for credit when topics vary.

W HIS 450 Topics in Comparative History. (3)
selected semesters
Comparative history with reference to one or more themes. May be repeated for credit when topics vary.

W HIS 454 History of Genocide. (3)
spring
Examines the individuals and institutions responsible for the most infamous episodes of state-sanctioned violence in the 20th century.
General Studies: G, H

W HIS 462 The African Diaspora. (3)
spring
Enforced dispersal of Africans during the Slave Trade emphasizing its causes, effects on Africa, and the enslaved in the Americas.
General Studies: G, H

W HIS 465 Origins of Racism. (3)
spring
Studies the history of racial discrimination with emphasis on the connection among race, ideology, and the global economy.
General Studies: G, H

W HIS 469 Modern Germany. (3)
spring
Germany since 1840.
General Studies: SB, G, H

W HIS 475 Topics in European Regional/National History. (3)
selected semesters
Focuses on the history of specific geographic regions or nations in Europe. May be repeated for credit when topics vary.

W HIS 482 Topics in European Gender, Ethnicity, and Class. (3)
selected semesters
Emphasizes the use of gender, ethnicity, and/or class as categories of historical analysis. May be repeated for credit when topics vary.

W HIS 487 Topics in European Themes and Issues. (3)
fall
Focuses on significant themes and issues in European history. May be repeated for credit when topics vary.

W HIS 498 History Pro-Seminar. (3)
fall and spring
Introduces historical research and writing. Writing-intensive course related to the development of research skills and writing tools used by historians. Required course for majors on topic selected by instructor. Prerequisite: ENG 101 or 105.
General Studies: L

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

SPANISH (SPA)

For more SPA courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W SPA 101 Elementary Spanish. (4)
fall and spring
Fundamentals of the language. Emphasizes listening, speaking, reading, and writing. Not open to students with credit in SPA 111. 4 hours lecture, 1 hour lab.

W SPA 102 Elementary Spanish. (4)
fall and spring
See SPA 101. Not open to students with credit in SPA 111. Prerequisite: SPA 101 (or its equivalent).

W SPA 107 Spanish for International Professions I. (8)
selected semesters
Accelerated program alternative to SPA 101 and 102 sequence. Functional approach to needs of international professions.

W SPA 201 Intermediate Spanish. (4)
fall and spring
Continuation of fundamentals. Emphasizes the development of the skills of reading, listening comprehension, speaking, writing, and culture. 4 hours lecture, 1 hour lab. Prerequisite: SPA 102 (or its equivalent).

W SPA 202 Intermediate Spanish. (4)
fall and spring
See SPA 201. Prerequisite: SPA 201 (or its equivalent).

W SPA 207 Spanish for International Professions II. (8)
selected semesters
Continuation of SPA 107, alternative to SPA 201 and 202 sequence. Expansion of communicative proficiency in specific areas of international professions. Prerequisite: SPA 107 or instructor approval.

W SPA 311 Spanish Conversation. (3)
fall
Designed primarily for monitors to promote vocabulary building and communicative expression in Spanish through discussions based on cultural readings. Prerequisite: SPA 202 (or its equivalent).

W SPA 312 Spanish Conversation. (3)
spring
See SPA 311. Prerequisite: SPA 202 (or its equivalent).

W SPA 313 Spanish Conversation and Composition. (3)
fall
Designed to develop skill and accuracy in spoken and written Spanish. Required of majors; SPA 313 and 314 must be taken in sequence. Prerequisite: SPA 202 (or its equivalent).
General Studies: G

W SPA 314 Spanish Conversation and Composition. (3)
spring
See SPA 313. Prerequisite: SPA 202 (or its equivalent).
General Studies: G

W SPA 325 Introduction to Hispanic Literature. (3)
selected semesters
Critical approach to and analysis of literary types, including poetry, drama, short story, and novel. Required of all majors. Prerequisite: SPA 202.

W SPA 412 Advanced Conversation and Composition. (3)
selected semesters
Oral and written Spanish communication skills, with particular attention given to developing fluency and facility. Required of majors. Prerequisite: SPA 314 or instructor approval.
General Studies: G

W SPA 413 Advanced Spanish Grammar. (3)
selected semesters
Intensive analysis of the Spanish language. Required of teaching majors. Prerequisite: SPA 314 or instructor approval.

W SPA 425 Spanish Literature. (3)
selected semesters
Surveys Spanish literature from its beginning to the present. Prerequisite: SPA 325.

W SPA 426 Spanish Literature. (3)
selected semesters
Surveys Spanish literature from 1700 to the present. Prerequisite: SPA 325.
General Studies: HU

W SPA 427 Spanish-American Literature. (3)
selected semesters
Surveys major works, figures, and movements from Colonial period to 1880. Prerequisite: SPA 325.

W SPA 428 Spanish-American Literature. (3)
selected semesters
Surveys major works, figures, and movements from 1880 to the present. Prerequisite: SPA 325.

W SPA 464 Mexican American Literature. (3)
selected semesters
Representative literature in Spanish and English by Mexican Americans, emphasizing sociocultural as well as literary values. Prerequisite: SPA 325.
General Studies: HU, C

W SPA 472 Spanish-American Civilization. (3)
selected semesters
Growth of the institutions and cultures of Spanish-American people. Prerequisite: SPA 314 or instructor approval.
General Studies: HU

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

WRITING ACROSS THE CURRICULUM (WAC)

For more WAC courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W WAC 101 Introduction to Academic Writing. (3)
fall and spring
Combines classroom and supplemental instruction to teach academic genres of writing, including definition, summary, and analysis.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Department of Mathematical Sciences and Applied Computing

www.west.asu.edu/msac
602/543-4223
CLCC 250

Roger Berger, Chair

Professor: Berger

Associate Professors: Borror, Dietrich

Assistant Professors: Wang, Zhang

Lecturers: Inman, Vakilzadeh

The Department of Mathematical Sciences and Applied Computing has responsibility for mathematics, statistics, and the BS in Applied Computing. The department offers a minor in mathematics and the academic specialization in mathematics for Secondary Education majors.

APPLIED COMPUTING—BS

Nature of the Program

The information revolution, which has produced the fastest growing economic sector and related demand for jobs, has created the need for a new kind of professional: someone who is skilled in locating, creating, organizing, filtering,

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

manipulating, presenting, and disseminating information. The mission of the BS in Applied Computing is to educate such knowledge-work professionals.

The program prepares students to understand how to collect and analyze data; allow for efficient, effective, and ethical user interaction with systems; employ management skills to direct the development and deployment of technology systems; engage in creative efforts; and develop and assure the quality of information and its value to those who will use it.

The Applied Computing program has both a technical component, concerned with the design and use of appropriate systems and technologies, and a social sciences component, concerned with understanding how people seek, obtain, evaluate, use, and categorize information. It rests on a solid foundation of work in mathematics, technology, and humanities and social sciences and offers a choice of concentrations in database management, networks, or digital media and design. Technical, communication, and creative skills couple with a significant internship to provide experience in applying technical expertise and creative abilities to information processes, systems, and contexts.

Career Outlook

Students who complete a BS in Applied Computing are prepared to integrate technology with human activities and to respond to global changes, solve problems, and create and manage the technological production of information and creative products. Core information technology industries are among the fastest growing sectors in the U.S. economy. Graduates of the Applied Computing program will find employment opportunities with corporations and businesses, nonprofit and government agencies, digital arts media industries, and in the academic world.

Major Requirements

The Applied Computing major consists of 60 to 61 semester hours with a grade of "C" (2.00) or higher.

Math Foundation/Core

MAT	210	Brief Calculus *MA*	3
MAT	243	Discrete Mathematical Structures	3
STP	300	Introduction to Probability	3
Total			9

Applied Computing Foundation/Core

ACO	101	Introduction to Computer Science *CS*	3
ACO	102	Principles of Computer Science *CS*	3
ACO	201	Data Structures and Algorithms *CS*	3
ACO	210	Introduction to Systems Programming *CS*	3
ACO	220	Introduction to Database Systems *CS*	3
Total			15
Total foundation/core			24

Concentration

Select one of the following concentrations, and prepare a program of study in consultation with a program advisor.

Digital Media and Graphic Design

IAP	361	Digital Editing and Media Literacy *CS*	3
IAP	365	Digital Interactivity	3
IAP	368	Digital Graphic Technologies	3
IAP	466	Digital Interactivity, Advanced	3
IAP	468	Digital Graphic Applications	3
IAP	484	Internship	6
Total			21

Database Systems

ACO	320	Database Systems and Transaction Processing	3
ACO	420	Object Databases	3
ACO	421	Data Mining and Warehousing	3
ACO	422	XML and Databases	3
ACO	484	Internship	6
		or ACO 499 Individualized Instruction (6)	
GCU	373	Introduction to Geographic Information Science *SG*	4
Total			22

Network and Distributed Processing

For more information, contact the department.

Liberal Arts Cluster

Choose four liberal arts courses*			12
Choose one of the following ethics/diversity courses			3
COM	457	New Media (3)	
IAP	464	Media and Diversity (3)	
IAS	406	Moral Dilemmas *L/HU* (3)	
Program total			60–61

* The liberal arts courses must be chosen in consultation with an advisor, and at least nine semester hours must be upper-division courses.

Internship and/or Individualized Instruction. The internship and/or individualized instruction experience is an integral component of the program. Six semester hours of Internship (484) and/or Individualized Instruction (499) is required. At the close of the program, the student must submit a significant paper documenting the experience and make a formal presentation.

MINOR IN MATHEMATICS

Nature of Program

The minor in Mathematics explores the study of higher mathematics. It is designed to enable the student to understand the mathematics most commonly used in business, economics, and science. It is expected that students in the minor will be able to reason, and to find creative solutions to problems that were either presented to them or meaningfully formulated by them. The minor is recommended for students who plan to major in integrative studies, life sciences, and business, as well as those who are preparing for further graduate study.

Requirements

The minor in Mathematics consists of a minimum of 27 semester hours, of which nine semester hours must be taken in the Mathematical Sciences and Applied Computing Department.

Required Courses:

MAT	270	Calculus with Analytic Geometry I *MA*	4
MAT	271	Calculus with Analytic Geometry II *MA*	4
MAT	272	Calculus with Analytic Geometry III *MA*	4
MAT	300	Mathematical Structures	3
MAT	342	Linear Algebra	3
Choose three electives from the following courses*			9
MAT	310	Introduction to Geometry (3)	

MAT 371 Advanced Calculus I (3)
MAT 411 History and Philosophy of Mathematics *HU, H* (3)
MAT 443 Abstract Algebra (3)
MAT 445 Theory of Numbers (3)
STP 420 Introductory Applied Statistics *CS* (3)

Total 27

* Select three of these courses, or other approved course, in consultation with a departmental advisor.

SECONDARY EDUCATION—BAE

Mathematics Specialization

The requirements for the Bachelor of Arts in Secondary Education with a specialization in Mathematics consist of the Professional Teacher Preparation Program for secondary majors (see the "College of Teacher Education and Leadership" section of this catalog) and 36 semester hours in mathematics, of which 21 must be upper division.

Lower-Division Required Courses

Choose one of the following courses 3
ACO 101 Introduction to Computer Science *CS* (3)
CIS 200 Computer Applications and Technology *CS* (3)
M CSE 110 Principles of Programming with Java *CS* (3)
CSE 180 Computer Literacy *CS* (3)
M CSE 181 Applied Problem Solving with Visual BASIC *CS* (3)
MAT 270 Calculus with Analytic Geometry I *MA* 4
MAT 271 Calculus with Analytic Geometry II *MA* 4
MAT 272 Calculus with Analytic Geometry III *MA* 4

Total 15

Upper-Division Required Courses

MAT 300 Mathematical Structures 3
MAT 310 Introduction to Geometry 3
MAT 342 Linear Algebra 3
MAT 371 Advanced Calculus I 3
MAT 411 History and Philosophy of Mathematics *HU, H* 3
MAT 443 Abstract Algebra 3
or MAT 445 Theory of Numbers (3)
STP 420 Introductory Applied Statistics *CS* 3

Total 21

Program total 36

APPLIED COMPUTING (ACO)

W ACO 100 Overview of Applied Computing. (3)
fall and spring
Internet and HTML, XML, databases, networks and distributed processing, digital media and graphic design. Opportunities, professionalism, and ethics.
General Studies: CS

W ACO 101 Introduction to Computer Science. (3)
fall and spring
Concepts of problem solving, structured and object-oriented programming in Java, fundamental algorithms, computer system concepts. Social and ethical responsibilities. Prerequisite: MAT 117.
General Studies: CS

W ACO 102 Principles of Computer Science. (3)
fall and spring
Issues and concepts throughout computer science, including software development, data organization, machine architecture, algorithmic machines, and ethics in computing. Java programming. Fee. Prerequisite: ACO 101.
General Studies: CS

W ACO 201 Data Structures and Algorithms. (3)
fall
Static and dynamic data structures, recursive and iterative sorting and searching, object-oriented design and programming, software design models and implementation/testing strategies, professional responsibilities. Fee. Prerequisites: ACO 102; MAT 210.
General Studies: CS

W ACO 210 Introduction to Systems Programming. (3)
spring
Introduces operating systems as resource managers, processes, threads, memory allocation, file systems, protection, system calls, application program interfaces. Fee. Prerequisite: ACO 201.
General Studies: CS

W ACO 220 Introduction to Database Systems. (3)
spring
Introduces database management systems concepts. Entity-relationship and relational data models. Database design. Relational algebra, calculus, and SQL query languages. Query optimization. Fee. Prerequisites: ACO 201; MAT 243.
General Studies: CS

W ACO 320 Database Systems and Transaction Processing. (3)
fall
Relational database normalization theory, stored procedures, triggers, and call-level interface. Data-centric XML. Transaction processing in centralized and distributed databases. Security. Fee. Prerequisite: ACO 220.

W ACO 420 Object Databases. (3)
spring
Object-oriented conceptual modeling, object-oriented databases, object-relational databases, applications. Fee. Prerequisite: ACO 320.

W ACO 421 Data Mining and Warehousing. (3)
fall
Introduces data mining from a database perspective, including classification, clustering, and association rules. Data warehousing methodologies. Fee. Prerequisite: ACO 320.

W ACO 422 XML and Databases. (3)
spring
XML data model, schema specification and validation, querying, storage, indexing, and current research topics. Fee. Prerequisite: ACO 320.

W ACO 484 Internship. (1–12)
selected semesters

W ACO 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

MATHEMATICS (MAT)

For more MAT courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W MAT 106 Intermediate Algebra. (3)
fall and spring
Topics from basic algebra such as linear equations, polynomials, factoring, exponents, roots, and radicals. Prerequisite: 1 year of high school algebra.

W MAT 117 College Algebra. (3)
fall and spring
Linear and quadratic functions, systems of linear equations, logarithmic and exponential functions, sequences, series, and combinatorics. Prerequisite: MAT 106 or 2 years of high school algebra.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

W MAT 119 Finite Mathematics. (3)
fall and spring
Topics from linear algebra, linear programming, combinatorics, probability, and mathematics of finance. Prerequisite: MAT 117 (or its equivalent).
General Studies: MA

W MAT 142 College Mathematics. (3)
fall and spring
Applies basic college-level mathematics to real-life problems. Appropriate for students whose major does not require MAT 117 or 170. Prerequisite: MAT 106 or 2 years of high school algebra.
General Studies: MA

W MAT 170 Precalculus. (3)
fall and spring
Intensive preparation for calculus (MAT 270). Topics include functions (including trigonometric), matrices, polar coordinates, vectors, complex numbers, and mathematical induction. Prerequisite with a grade of "B" (3.00) or higher: MAT 106. Prerequisite with a grade of "C" (2.00) or higher: MAT 117 or two years of high school algebra.
General Studies: MA

W MAT 210 Brief Calculus. (3)
fall and spring
Differential and integral calculus of elementary functions with applications. Not open to students with credit in MAT 260 or 270 or 290. Prerequisite: MAT 117 (or its equivalent).
General Studies: MA

W MAT 243 Discrete Mathematical Structures. (3)
fall
Logic, sets, functions, elementary number theory and combinatorics, recursive algorithms, and mathematical reasoning, including induction. Emphasizes connections to computer science. Prerequisite: 1 semester of calculus or computer programming.

W MAT 270 Calculus with Analytic Geometry I. (4)
selected semesters
Real numbers, limits and continuity, and differential and integral calculus of functions of 1 variable. Not open to students with credit in MAT 290. Prerequisite with a grade of "C" (2.00) or higher: MAT 170 or satisfactory score on placement examination.
General Studies: MA

W MAT 271 Calculus with Analytic Geometry II. (4)
selected semesters
Methods of integration; applies calculus, elements of analytic geometry, improper integrals, sequences, and series. Not open to students with credit in MAT 291. Prerequisite with a grade of "C" (2.00) or higher: MAT 270 (or its equivalent).
General Studies: MA

W MAT 272 Calculus with Analytic Geometry III. (4)
selected semesters
Vector-valued functions of several variables, multiple integration, and introduction to vector analysis. Prerequisite with a grade of "C" (2.00) or higher: MAT 271 (or its equivalent).
General Studies: MA

W MAT 300 Mathematical Structures. (3)
fall
Introduces rigor and proof in mathematics. Basic logic, set theory, mathematical induction, combinatorics, functions, relations, and problem solving. Prerequisites: both ENG 101 (or 105) and one semester of calculus or only instructor approval.

W MAT 310 Introduction to Geometry. (3)
spring
Congruence, area, parallelism, similarity and volume, and Euclidean and non-Euclidean geometry. Prerequisite: MAT 272 (or its equivalent).

W MAT 342 Linear Algebra. (3)
once a year
Linear equations, matrices, determinants, vector spaces, bases, linear transformations and similarity, inner product spaces, eigenvectors, orthonormal bases, diagonalization, and principal axes. Prerequisite: MAT 272 (or its equivalent).

W MAT 371 Advanced Calculus I. (3)
fall
Continuity, Taylor's theorem, partial differentiation, implicit function theorem, vectors, linear transformations and norms in Rn, multiple integrals, and power series. Prerequisites: MAT 300, 342.

W MAT 411 History and Philosophy of Mathematics. (3)
once a year
Examines nature of mathematics from origins to present, revealed by its history and philosophy. Strong background in mathematics not required. Cross-listed as IAS 411. Credit is allowed for only MAT 411 or IAS 411.
General Studies: HU, H

W MAT 443 Abstract Algebra. (3)
spring
Introduces the most important algebraic structures, including groups, rings, integral domains, and fields. Prerequisites: both MAT 300 and 342 or only instructor approval.

W MAT 445 Theory of Numbers. (3)
spring
Prime numbers, unique factorization theorem, congruences, Diophantine equations, primitive roots, and quadratic reciprocity theorem. Prerequisites: both MAT 300 and 342 or only instructor approval.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

STATISTICS AND PROBABILITY (STP)

For more STP courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W STP 220 Conceptual Statistics. (3)
fall and spring
Concepts and vocabulary needed to evaluate statistical reports on health, technology, and society. Aggressively emphasizes understanding over computation. Lecture, teamwork. Prerequisite: MAT 117 or 142.
General Studies: CS

W STP 226 Elements of Statistics. (3)
fall and spring
Basic concepts and methods of statistics, including descriptive statistics, significance tests, estimation, sampling, and correlation. Prerequisite: MAT 117 or 142.
General Studies: CS

W STP 300 Introduction to Probability. (3)
spring
Probability models and computations, joint and conditional distributions, moments, families of distribution, stochastic processes, simulation. Prerequisite: MAT 210.

W STP 420 Introductory Applied Statistics. (3)
once a year
Introductory probability, descriptive statistics, sampling distributions, parameter estimation, tests of hypotheses, chi-square tests, regression analysis, analysis of variance, and nonparametric tests. Prerequisite: MAT 117 (or its equivalent).
General Studies: CS

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Religious Studies Program

602/543-6003
FAB N281

Linda Stryker, Director

MINOR IN RELIGIOUS STUDIES

The minor in Religious Studies consists of 21 semester hours of religious studies course work, of which 18 must be upper-division hours. Fifteen semester hours of campus resident credit is required. Only courses in which the student earns a minimum grade of "C" (2.00) can be counted toward the minor. Courses are to be selected in consultation with the religious studies director to create a coherent and complete program of study for the minor.

Requirements

Choose one from the following courses.....3
- AMS 417 Religious Traditions of the American Southwest *C* (3)
- REL 320 Religion in America *HU, H* (3)
- REL 321 Religion in America *L/HU, H* (3)
- REL 420 Religion in American Life and Thought (3)

Choose two from the following courses 6
- M ENG 424 Milton *HU* (3)
- HIS 363 Reformation (3)
- REL 305 Ritual, Symbol, and Myth (3)
- REL 390 Women and World Religions *L/SB, G* (3) or WST 390 Women and World Religions *L/SB, G* (3)
- REL 494 ST: Psychology of Religion (3) or AMS 494 ST: Psychology of Religion (3)
- REL 494 ST: Science and Religion (3) or IAS 494 ST: Science and Religion (3)

Choose at least one special topics course[1] 3

Religious Studies Electives

Choose three additional religious studies courses[2].....9

Program total.....21

[1] Select from the following prefixes: AMS, COM, IAS, REL, WST. Examples of topics may include Spiritual Narratives, Communication as Theology, Testimony in a Post-Metaphysical World, The Goddess Religions, and Gender and the Environment.

[2] These courses, or other approved courses, must be chosen in consultation with the director, and may include Internship (484) and/or Individual Instruction (499).

RELIGIOUS STUDIES (REL)

For more REL courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W REL 100 Religions of the World. (3)
fall
Introduces the history of religious traditions of the world, including Buddhism, Christianity, Hinduism, Islam, Judaism, and others. Credit is allowed for only REL 100 or 200.
General Studies: HU, G

W REL 200 The Study of Religious Traditions. (3)
selected semesters
Writing-intensive course introducing analytical skills necessary for understanding religious traditions. Beliefs, practices, and communities of several religious traditions of the world. Credit is allowed for only REL 200 or 100. Prerequisite: ENG 101 or 105.
General Studies: L/HU, G

W REL 201 Religion and the Modern World. (3)
selected semesters
Introduces the nature and role of religious beliefs and practices in shaping the lives of individuals and societies, with particular attention to the modern world. Prerequisite: ENG 101 or 105.
General Studies: L/HU

W REL 202 Religion and Popular Culture. (3)
selected semesters
Explores various intersectors between religion and the popular media, including music, news, advertising, the visual arts, literature, performance, and film. Lecture, discussion.
General Studies: HU, C

W REL 203 Saints and Sinners: Explorations in Sacred Biography. (3)
selected semesters
Compares the role of biography across religions to examine the process of categorizing people as saints or sinners. Lecture, discussion.
General Studies: HU, H

W REL 305 Ritual, Symbol, and Myth. (3)
fall and spring
Ritual, symbol, and myth as types of religious expression, with examples selected from the nonliterate religions of the world. Prerequisite: ENG 101 or 105.

W REL 320 Religion in America. (3)
fall
The emergence of religious ideas and institutions up to the Civil War.
General Studies: HU, H

W REL 321 Religion in America. (3)
spring
The emergence of religious ideas and institutions from the Civil War to the present. Prerequisite: ENG 101 or 105.
General Studies: L/HU, H

W REL 390 Women and Religion. (3)
selected semesters
The role of women in several organized religions and/or religious sects, including a study of myth and symbols as they are used to establish, maintain, and enforce sex roles within specific religions. Prerequisite: ENG 101 or 105.
General Studies: L/SB, G

W REL 420 Religion in American Life and Thought. (3)
fall
The influence of religion on American society, culture, and ideas; the distinctive character of religion in America. Prerequisite: REL 321 recommended.

W REL 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Psychology of Religion. (3)
- Science and Religion. (3)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Department of Social and Behavioral Sciences

www.west.asu.edu/sbs
602/543-6058
FAB N250-1

Barbara Tinsley, Chair

Professors: Keil, Kirby, Mueller, Náñez, Tinsley

Associate Professors: Ávalos, Burleson, Coon, Gutierres, Koptiuch, Miller, Murphy Erfani, Robles, Vaughan

Assistant Professors: Anastasi, Cabrera, Champion, Glavac, Guevarra, Juris, McQuiston-Surrett, Plascencia, Simmons

Senior Lecturer: Wosinska

Lecturer: Ackroyd

The Department of Social and Behavioral Sciences offers students the opportunity to enroll in traditional social and behavioral science courses (anthropology, family studies, geography, political science, psychology, and sociology), as well as interdisciplinary courses. The faculty offers interdisciplinary Bachelor of Arts and Bachelor of Science degree programs in Social and Behavioral Sciences and Bachelor of Arts and Bachelor of Science degree programs in Political Science, Psychology, and Sociology.

SOCIAL AND BEHAVIORAL SCIENCES—BA AND BS

Nature of the Programs

The Bachelor of Arts and Bachelor of Science programs in Social and Behavioral Sciences provide an interdisciplinary foundation in the social and behavioral science disciplines. The objective of the Social and Behavioral Sciences degree program is to

1. provide a basic understanding of the assumptions underlying the social and behavioral sciences;
2. develop the research skills necessary for the analysis of complex social issues;
3. offer a flexible program tailored to the career goals of the individual student; and
4. offer both individual and group experiences in working with faculty on concrete intellectual and policy issues.

The interdisciplinary program is designed to provide students with a substantive understanding of the theoretical assumptions and methodological techniques underlying the latter. Students can choose either a social science (ISS) or a behavioral science (IBS) emphasis. Each contains a number of course clusters: in the ISS emphasis they are titled Identity/Difference, Power/Knowledge and Local/Global; in the IBS emphasis they are titled Biological Foundations, The Individual and the Family, and The Individual and the Group. All courses provide students with knowledge about the biological and/or social principles related to the behavior of individuals across multiple social contexts and institutions (family, community, society, and culture). For more information, contact the department.

Career Outlook

The interdisciplinary degrees are an excellent means of creating a degree program that matches the individual's interests and fulfills many employers' expectations of a baccalaureate degree, namely that it should expose the student to a variety of outlooks and challenges. Such a degree will be competitive in most situations where the disciplinary social and behavioral degrees are accepted and is advantageous when seeking entry to broad professional programs such as regional planning or urban studies.

Major Requirements

The Bachelor of Arts or Bachelor of Science in Social and Behavioral Sciences consists of 45 semester hours of required course work. Students must select one of two emphases: Interdisciplinary Social Sciences or Interdisciplinary Behavioral Sciences. Each emphasis consists of

1. required interdisciplinary core in theory and methodology;
2. cluster requirements; and
3. electives.

Interdisciplinary Social Sciences Emphasis for BA

Core Requirements for BA

SBS	300	Interdisciplinary Approaches to Social and Behavioral Sciences *SB*	3
SBS	301	Cultural Diversity *L/SB, C*	3
SBS	302	Qualitative Methods	3
		SBS 303 Quantitative Methods (3)	
SBS	304	Social Statistics I *CS*	3
Total			12

Cluster Requirements for BA

Required Topics Courses

SBS	410	Topics in Identity/Difference	3
SBS	430	Topics in Power/Knowledge *SB*	3
SBS	450	Topics in Local/Global *SB, G*	3
Choose courses from the following clusters			9
		Identity/Difference	
		Power/Knowledge	
		Local/Global	
Electives*			15
Total			45

* Choose elective courses with these prefixes: ASB, FAS, GCU, POL, PGS, SBS, or SOC.

Interdisciplinary Social Sciences Emphasis for BS

Core Requirements for BS

SBS	300	Interdisciplinary Approaches to Social and Behavioral Sciences *SB*	3
SBS	301	Cultural Diversity *L/SB, C*	3
SBS	302	Qualitative Methods	3
SBS	303	Quantitative Methods	3

SBS 304 Social Statistics I *CS* 3
SBS 404 Social Statistics II: Multivariate Analysis *CS* 3
Total 18

Cluster Requirements for BS

Required Topics Courses
SBS 410 Topics in Identity/Difference 3
SBS 430 Topics in Power/Knowledge *SB* 3
SBS 450 Topics in Local/Global *SB, G* 3
Choose courses from the following clusters 9
Identity/Difference
Power/Knowledge
Local/Global
Electives* 9
Total 45

* Choose elective courses with these prefixes: ASB, FAS, GCU, POL, PGS, SBS, or SOC.

Interdisciplinary Behavioral Sciences Emphasis for BA

Core Requirements for BA
SBS 300 Interdisciplinary Approaches to Social and Behavioral Sciences *SB* 3
SBS 302 Qualitative Methods 3
SBS 303 Quantitative Methods 3
SBS 304 Social Statistics I *CS* 3
C or G awareness course[1] 3

Cluster Requirements for BA

Required Topics Courses
Choose courses from each cluster as indicated 18
Biological foundations (6)
The individual and the family (6)
The individual and the group (6)
Electives[2] 12
Total 45

1 Choose courses from the department.
2 Choose elective courses with these prefixes: ASB, FAS, GCU, POL, PGS, SBS, or SOC.

Interdisciplinary Behavioral Sciences Emphasis for BS

Core Requirements for BS
SBS 300 Interdisciplinary Approaches to Social and Behavioral Sciences *SB* 3
SBS 302 Qualitative Methods 3
SBS 303 Quantitative Methods 3
SBS 304 Social Statistics I *CS* 3
SBS 404 Social Statistics II: Multivariate Analysis *CS* 3
C or G awareness course[1] 3

Cluster Requirements for BS

Required Topics Courses
Choose courses from each cluster as indicated 15
Biological foundations (9)
The individual and the family (3)
The individual and the group (3)
Electives* 12
Total 45

1 Choose courses from the department.
2 Choose elective courses with these prefixes: ASB, FAS, GCU, POL, PGS, SBS, or SOC.

Alternative Options for Electives in Either Emphasis. All course substitutions must be appropriately related to the student's interdisciplinary program of study within the major, as determined in consultation with and approved by a faculty advisor. A grade of "C" (2.00) or higher is required of all substitutions. The student may elect to combine options (1) up to 12 semester hours of lower-division courses in any of the social sciences for the ISS emphasis, or the behavioral sciences for the IBS emphasis; or (2) up to six semester hours of upper-division courses taken in related fields outside the SBS department; or (3) Senior Thesis—a two-course sequence, six semester hours: SBS 490 and 491. Under the supervision of an SBS faculty member, students conduct research and write up the results as the Senior Thesis. The Senior Thesis is optional but strongly encouraged. For students who complete a thesis, the degree is posted on the transcript with the notation "with Senior thesis."

Minor in Social and Behavioral Sciences

The minor offers students an interdisciplinary focus across several fields of the social and behavioral sciences, including sociocultural anthropology, geography, political science, psychology, and sociology.

The minor consists of 18 semester hours, at least 12 semester hours of which must be in upper-division courses. All courses must be completed with a minimum grade of "C" (2.00). Students wishing to pursue a minor must meet with an SBS faculty advisor to construct a minor that reflects a particular area of specialty and interest.

Requirements
SBS 300 Interdisciplinary Approaches to Social and Behavioral Sciences *SB* 3
SBS 302 Qualitative Methods 3
or SBS 303 Quantitative Methods (3)
Electives* 12

* Choose courses from at least two fields of social and behavioral sciences, including SBS and excluding internships or individualized instruction.

POLITICAL SCIENCE—BA AND BS

Nature of the Program

The Political Science degree program is designed to help students gain an understanding of theory, practice and policy underlying political processes locally, nationally and internationally, as well as to train students in research skills necessary for the analysis of complex sociopolitical issues locally and globally. The program strives to meet these goals by offering students learner-centered course work in political theory, American political institutions, and international relations and world affairs. These goals are accomplished by offering a flexible program of course work focusing on international, urban, and race/ethnic sociopolitical areas, internships, and service-learning/action research opportunities. Under the direction of faculty, students throughout the degree program focus on intellectual and

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

concrete policy issues in the greater Phoenix metropolitan area, Arizona, the Arizona-Mexico borderlands, the Americas, and the world.

Career Outlook

The Political Science major provides students with the background and skills necessary to gain employment in a relevant profession or to continue their studies in graduate degree programs in political science, social science disciplines, urban planning, or in professional schools. The baccalaureate degree in Political Science is also a good precursor to staff, manager, or policy analyst positions in local, state, and federal government. Some graduates work in the U.S. Foreign Service; as policy analysts/aides in Congress or in state legislatures; some are elected to those bodies. Alternate careers can be found in linking business interests and legislators. In addition, a Political Science degree is a recognized qualification for many careers in business (for profit and nonprofit) and industry, particularly as firms become more global in scope. Some graduates may work in binational, cross-border positions linking U.S. and Mexican businesses, Arizona-Sonora local government, or local community groups on both sides of the border. Some students view a degree in Political Science as a valuable gateway to law school; many use the degree as a basis for further study in such applied fields as urban affairs/urban and regional planning, public administration, public policy, or community development.

Major Requirements

Bachelor of Arts. The Bachelor of Arts degree in Political Science consists of 42 semester hours, of which 12 are core requirements, 18 are political science electives, and 12 are electives in related fields or in POL internships. For the BA, at least 15 semester hours in political science must be in upper-division courses.

Required Core

POL 101 Political Ideologies *SB* 3
or POL 340 Political Theory *SB*/*HU* (3)
POL 110 Government and Politics *SB* 3
or POL 310 American National Government: Ideas and Institutions *SB, H* (3)
POL 160 Global Politics *SB, G* 3
or POL 360 World Politics Theory *SB, G* (3)
SBS 302 Qualitative Methods 3
or SBS 303 Quantitative Methods (3)
Political science electives[1] 18
Electives in internships and related fields[2] 12

[1] Electives exclude POL internships.

[2] Choices include POL 484 Internship (six semester hours maximum), or courses from anthropology, communication studies, criminal justice and criminology, economics, geography, history, psychology, social and behavioral sciences, sociology, and women's studies, or other courses approved by the departmental advisor.

Bachelor of Science. The Bachelor of Science degree in Political Science consists of 48 semester hours, including all of the core requirements and electives listed for the BA degree. Six additional semester hours are required for the BS degree, including three semester hours in political science and three semester hours in SBS 304 Social Statistics I (CS). For the BS, at least 21 semester hours in political science must be in upper-division courses.

Minor in Political Science

The minor in Political Science consists of 18 semester hours in POL courses, 12 of which must be in upper-division courses.

Minor Requirements

Core Courses (Minimum of Three Upper-Division Hours)

POL 101 Political Ideologies *SB* 3
or POL 340 Political Theory *SB*/*HU* (3)
POL 110 Government and Politics *SB* 3
or POL 310 American National Government: Ideas and Institutions *SB, H* (3)
POL 160 Global Politics *SB, G* 3
or POL 360 World Politics Theory *SB, G* (3)
Political science electives* 9

* A maximum of three semester hours of internship and three semester hours of individualized instruction may be used to fulfill requirements.

PSYCHOLOGY—BA AND BS

Nature of the Program

Psychology is the scientific study of the behavior and mental processes of individuals and groups. The West campus program provides a diverse curriculum of basic and applied courses that cover multiple perspectives within the field, including clinical, cognitive systems/behavioral neuroscience, cross-cultural, developmental, organizational, and social psychology. Courses are presented in the context of cultural, sociohistorical, and transnational issues, enabling the student to understand the relationship between psychology and other social and behavioral sciences.

Students may add practical experiences to enrich their program of study through service learning, internships, and research with individual faculty members. A strong emphasis is placed on developing skills in critical thinking and reasoning, quantitative and qualitative research methods, and writing to round out the student's preparation for a career or graduate studies.

Career Outlook

A baccalaureate degree in psychology is a logical choice for careers in the mental health professions, the social services, education, government, and many areas of business, (e.g., sales and marketing, human services management). It is also an excellent foundation for graduate study in fields such as public administration, law, family studies, communication, and the various programs of psychology such as clinical and counseling, developmental, environmental, experimental, physiological, cognitive neuroscience, and social.

Major Requirements

The Bachelor of Arts and the Bachelor of Science programs in Psychology consist of 31 semester hours in psychology and 18 semester hours of related course work, including at least 15 upper division semester hours. Required course work in the major, or the equivalent, must be passed with a minimum grade of "C" (2.00). Psychology

internships may not be used to fulfill psychology credit requirements; however, a maximum of six semester hours may be applied toward the related course work requirement. No more than a total of three semester hours in PGS 399 Supervised Research or PGS/PSY 499 Individualized Instruction may be used to complete the major requirements.

Required Courses

Lower-Division Required Courses
PGS 101 Introduction to Psychology *SB*.....3
PSY 230 Introduction to Statistics *CS*.....3
PSY 290 Research Methods *SG*.....4

Upper-Division Required Psychology Courses
Choose one from the following courses.....3
PGS 315 Personality Theory and Research *SB* (3)
PGS 341 Developmental Psychology *SB* (3)
PGS 350 Social Psychology *SB* (3)
Choose one from the following courses.....3
PSY 323 Sensation and Perception (3)
PSY 324 Memory and Cognition *SB* (3)
PSY 325 Physiological Psychology (3)

Additional Required Psychology Courses
One additional upper-division PSY course (excluding PSY 394, 494, and 499).....3
Two additional upper-division psychology courses (PGS or PSY).....6
Two additional psychology courses (excluding PGS 270).....6

Related Course Work Requirements

Choose courses related to psychology that are approved by an advisor and include one of the following courses.....18
W CSE 180 Computer Literacy *CS* (3)
M CSE 185 Internet and the World Wide Web (3)

For the Bachelor of Arts in Psychology
MAT 119 Finite Mathematics *MA* (3)
or higher-level math course

For the Bachelor of Science in Psychology*
MAT 210 Brief Calculus *MA* (3)
One life science lab course from biology, life sciences, microbiology, or zoology (3)
One physical science lab course from astronomy, chemistry, geology, or physics (3)

* The lab science courses are taken to satisfy the BA and the BS requirements (including PSY 290) are in addition to the lab science courses used to meet the University General Studies requirement.

Minor in Psychology

The minor consists of 22 semester hours in psychology, including the following:

Lower-Division Required Courses
PGS 101 Introduction to Psychology *SB*.....3
PSY 230 Introduction to Statistics *CS*.....3
PSY 290 Research Methods *SG*.....4

Upper-Division Required Courses
Choose one from the following courses.....3
PGS 315 Personality Theory and Research *SB* (3)
PGS 341 Developmental Psychology *SB* (3)
PGS 350 Social Psychology *SB* (3)
Choose one from the following courses.....3
PSY 323 Sensation and Perception (3)
PSY 324 Memory and Cognition *SB* (3)
PSY 325 Physiological Psychology (3)
PGS or PSY upper-division electives.....6
Total.....22

A maximum of three semester hours of research (PGS 399 Supervised Research and PGS/PSY 499 Individualized Instruction) may be used to meet the minor requirements. Students with an appropriate equivalent course may exclude PSY 230 Introduction to Statistics and PSY 290 Research Methods from the requirements with prior approval of the psychology advisor. PGS 484 Internship may be taken for elective credit only. All courses must be passed with a minimum grade of "C" (2.00) or higher.

SOCIOLOGY—BA AND BS

Nature of the Program

The Sociology program provides students with an understanding of theory, practice, and policy underlying issues of social change and of inequality and diversity from multiple perspectives, including race/ethnicity, gender, economic position, age, geographic location, and position in the global political economy. The student majoring in sociology will learn how it enhances one's understanding of social realities and institutions at local, national, and international levels, and how sociology contributes to the other social sciences and to the humanities. Students gain a basic understanding of the assumptions underlying the discipline of sociology and develop the research skills necessary for analysis of complex social issues. These objectives are met by offering a flexible program and by providing the student with individual and group experiences in working with faculty on concrete intellectual and policy issues.

Career Outlook

Graduates with a baccalaureate degree in sociology apply the sociological perspective to a wide variety of jobs in business, the health professions, the criminal justice system, social services, and government. The discipline also offers valuable preparation for careers in journalism, politics, public relations, or public administration, all fields that involve investigative skills and an ability to work with diverse groups. Graduates with an advanced degree in sociology may become research analysts, survey researchers, gerontologists, statisticians, urban planners, community developers, criminologists, or demographers.

Major Requirements

The Sociology major consists of 45 semester hours, of which 30 to 33 must be in SBS or SOC courses and 12 to 15 in closely related fields approved by the faculty advisor in consultation with the student. At least 18 semester hours must be in upper-division courses. The 30 semester hours must include:

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

BA in Sociology

Required Core for the BA

SBS 302 Qualitative Methods 3
or SBS 303 Quantitative Methods (3)
SBS 304 Social Statistics I *CS* 3
SOC 101 Introductory Sociology *SB* 3
or SOC 301 Principles of Sociology *SB* (3)
SOC 486 Contemporary Theory *SB* 3

Cluster Requirements for the BA

Choose from the following clusters[1] 18
Culture and Power
Social Conflict and Change
Family, Work, and Community
Social Inequality: Race, Class, and Gender
Electives[2] 15

Total 45

[1] Choose one course from three of four clusters for nine semester hours, and three additional courses for nine semester hours from any of the four clusters.

[2] Choose courses in sociology or related fields: anthropology, American studies, criminal justice and criminology, geography, integrative studies, political science, psychology, and women's studies.

BS in Sociology

Required Core for the BS

SBS 302 Qualitative Methods 3
SBS 303 Quantitative Methods 3
SBS 304 Social Statistics I *CS* 3
SOC 101 Introductory Sociology *SB* 3
or SOC 301 Principles of Sociology *SB* (3)
SOC 486 Contemporary Theory *SB* 3

Cluster Requirements for the BS

Choose from the following clusters[1] 18
Culture and Power
Social Conflict and Change
Family, Work, and Community
Social Inequality: Race, Class, and Gender
Electives[2] 12

Total 45

[1] Choose one course from three of four clusters for nine semester hours, and three additional courses for nine semester hours from any of the four clusters.

[2] Choose courses in sociology or related fields: anthropology, American studies, criminal justice and criminology, geography, integrative studies, political science, psychology, and women's studies.

Minor in Sociology

The minor in Sociology requires 18 semester hours in sociology, nine of which must be upper division.

Required Core

SBS 303 Quantitative Methods 3
SBS 304 Social Statistics I *CS* 3
or SOC 486 Contemporary Theory *SB* (3)
SOC 101 Introductory Sociology *SB* 3
or SOC 301 Principles of Sociology *SB* (3)
Sociology Electives* 12

* These courses must be chosen in consultation with the student's advisor.

MINOR IN INTERDISCIPLINARY ORGANIZATIONAL STUDIES

Nature of the Program

The minor in Interdisciplinary Organizational Studies is designed to increase students' understanding of the behavior and the dynamics of individual, group, and organizational processes in the workplace. It incorporates perspectives from the behavioral and social sciences, communication studies, and management. The minor is learner-centered and allows students to select course work that matches their career and educational goals.

For more information, visit FAB N255, call 602/543-3011, or access the Web site at www.west.asu.edu/sbs/aboutSBS/degrees/MIOS.htm.

Career Outlook

The minor is relevant to students who seek employment in corporate and small business, governmental agencies, and nonprofit organizations, such as in the health professions, social services, education, public relations, and community services. The minor is also good preparation for students who intend to pursue graduate studies in organizational psychology, human relations, industrial relations, or related fields in sociology and communication.

Minor Requirements

The minor in Interdisciplinary Organizational Studies is open to all undergraduate majors. However, students should consult with the advisors in the department of their major to determine if the minor is consistent with their educational goals. Students are encouraged to take courses outside their major and college. No more than six credits may be applied from major requirements toward completion of the minor. The minor consists of 21 semester hours, of which 18 must be upper-division course work.

Required Courses

Research methods course[1] 3
ASB 440 Women in the Global Factory *SB, G* 3
or POL 435 Women, Power, Politics *SB, C* (3)
PGS 430 Industrial Psychology 3
or SBS 461 Program Evaluation and Policy Research (3)
PGS 453 Organizational Behavior *SB* 3

Electives[2]

Cluster 1: Courses Focused on Organizations

Choose two from the following courses 6
COM 450 Theory and Research in Organizational Communication *SB*[3] (3)
COM 451 Employee Participation Processes in Organizations[3] (3)
COM 453 Communication Training and Development[3] (3)
GLB 303 Relationship Management (3)
MGT 301 Principles of Management (3)
MGT 412 Managing Human Resources (4)
PGS 430 Industrial Psychology[4] (3)
PGS 482 Social Influence and Consumer Behavior *SB* (3)
PHI 360 Business and Professional Ethics *HU* (3)
RTM 301 Leadership in Recreation and Tourism (3)
SBS 461 Program Evaluation and Policy Research[4] (3)
SOC 324 Work and the Workplace *SB*, *H* (3)
SOC 419 Organizations and Technological Change *G* (3)
Internship in Organizations[5, 6] (3)

Cluster 2: Courses Focused on Diversity Within Organizations
Choose one from the following courses.....3
- COM 463 Cultural and Intercultural Communication Theory and Research *SB, G*[3] (3)
- PGS 480 Cross-Cultural Social Psychology *SB, G* (3)
- POL 435 Women, Power, and Politics *SB, C* (3)
- SOC 370 Racial and Ethnic Minorities *SB, C* (3)
- SOC 400 Perspectives on Aging *SB* (3)
- SOC 426 Social Inequality *SB* (3)
- WST 350 Race, Class, and Gender *SB, C* (3)
- WST 487 Gender and International Development *SB, G* (3)

[1] SBS advisor's approval is required.
[2] Other approved courses may be used to secure credit.
[3] Prerequisites COM 308 and 309 may be waived for students not majoring in Communication Studies.
[4] Course may be selected if not used to fulfill core requirements.
[5] Intern course examples are PGS 494, COM 494, or SOC 494.
[6] The internship site must be approved by the SBS advisor.

Minor in Sociocultural Anthropology

The Sociocultural Anthropology minor focuses on sociocultural anthropology with an interdisciplinary social science component. The minor requires 18 semester hours, at least 12 of which must be in upper-division courses. Two courses, ASB 311 and SBS 302, are required. The remaining 12 semester hours may be drawn from ASB courses and from several key SBS courses in the interdisciplinary social science degree. All courses must be passed with a minimum grade of "C" (2.00) or higher.

Upper division ASB courses offered at the Tempe campus may be applied toward the minor in Sociocultural Anthropology. Up to six semester hours of lower-division ASB credit and three semester hours of ASB 499 Individualized Instruction may also be applied toward the minor.

Upper-Division Required Courses
ASB 311 Principles of Social Anthropology *SB, G, H*.....3
SBS 302 Qualitative Methods.....3
Choose four from the following courses* 12
- ASB 319 Indigenous Peoples of North America (3)
- ASB 340 Migration and Culture *SB, G* (3)
- ASB 346 Marriage and Family Diversity *SB, C* (3)
- ASB 350 Anthropology and Art *HU* (3)
- ASB 353 Death and Dying in Cross-Cultural Perspective *HU/SB, G* (3)
- ASB 394 Special Topics (3)
- ASB 440 Women and the Global Factory *SB, G* (3)
- ASB 441 Sexuality and Culture *SB, G* (3)
- ASB 442 Urban Anthropology *SB* (3)
- ASB 494 Special Topics (3)
- ASB 499 Individualized Instruction (3 hours maximum)
- SBS 301 Cultural Diversity *L/SB, C* (3)
- SBS 410 Topics in Identity/Difference (3)
- SBS 430 Topics in Power/Knowledge *SB* (3)
- SBS 440 Family Studies *SB* (3)
- SBS 450 Topics in Local/Global *SB, G* (3)
- SBS 460 Urban Studies *SB* (3)

* Other approved courses may be selected.

SECONDARY EDUCATION—BAE

Social Studies Specialization

The requirements for the Bachelor of Arts in Secondary Education with a specialization in social studies consist of the Professional Teacher Preparation Programs for Secondary Education majors (see "College of Teacher Education and Leadership," page 745) and 39 semester hours in social and behavioral sciences course work.

Required Courses

Economics
ECN 111 Macroeconomic Principles *SB*.....3
ECN 112 Microeconomic Principles *SB*.....3

History
HIS 300 Historical Methods *L, H*.....3
HIS 443 Constitutional History of the United States *SB, H*.....3
Choose one combination from the following*.....6
- HIS 103 The United States *SB, H* (3)
- HIS 104 The United States *SB, H* (3)

——— *or* ———

- HIS 303 American Cultural History I *SB, H* (3)
- HIS 304 American Cultural History II *SB, H* (3)

——— *or* ———

- HIS 305 History of American Systems to 1865 *L, C, H* (3)
- HIS 306 History of American Systems since 1865 *H* (3)

Choose two courses from the following* 6
- HIS 101 Western Civilization *SB, H* (3)
- HIS 102 Western Civilization *SB, G, H* (3)
- HIS 355 World History to 1500 *G, H* (3)
- HIS 356 World History since 1500 *G, H* (3)

Political Science
Choose one course from the following 3
- POL 101 Political Ideologies *SB* (3)
- POL 340 Political Theory *SB/HU* (3)
- POL 446 Democracy HU (3)

POL 160 Global Politics *SB, G* 3
or POL 360 World Politics Theory *SB, G* (3)
POL 460 Politics of Globalization *SB, G* 3
or POL 486 Global Political Economy *SB, G* (3)

Anthropology, Geography, Sociology
Choose two courses from the following 6
- ASB 311 Principles of Anthropology*SB, G, H* (3)
- ASB 340 Migration and Culture *SB, G* (3)
- GCU 357 Social Geography *SB* (3)
- SOC 352 Social Change *SB, G, H* (3)
- SOC 456 Political Sociology (3)

Total 39

* A maximum of nine semester hours of history courses may be from the lower division.

ANTHROPOLOGY (SOCIAL AND BEHAVIORAL) (ASB)

For more ASB courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

(Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W ASB 102 Introduction to Cultural and Social Anthropology. (3)
selected semesters
Principles of cultural and social anthropology, with illustrative materials from a variety of cultures. The nature of culture. Social, political, and economic systems; religion, aesthetics, and language.
General Studies: SB, G

W ASB 211 Women in Other Cultures. (3)
selected semesters
Cross-cultural analysis of the economic, social, political, and religious factors that affect women's status in traditional and modern societies.
General Studies: HU/SB, G

W ASB 311 Principles of Social Anthropology. (3)
fall
Comparative analysis of domestic groups and economic and political organizations in primitive and peasant societies. Prerequisite: ENG 101 or 105.
General Studies: SB, G, H

W ASB 319 Indigenous Peoples of North America. (3)
selected semesters
Ethnology of the range of Native North American Indian cultural history. Comparative analysis of historical and contemporary issues.

W ASB 340 Migration and Culture. (3)
spring
Examines migration and culture embedded in a transnational field of social, economic, and political processes.
General Studies: SB, G

W ASB 342 Mexico-U.S. Borderlands. (3)
selected semesters
Contemporary examination of socioeconomic and political dimensions of border communities, and formation of Mexican-origin communities within and outside the Southwest. Integrated lecture/seminar. Cross-listed as SBS 342/SOC 342. Credit is allowed for only ASB 342 or SBS 342 or SOC 342.
General Studies: SB, C

W ASB 346 Marriage and Family Diversity. (3)
fall and spring
Social, economic, and cultural factors that shape family diversity in relation to generational and gender dynamics within the family.
General Studies: SB, C

W ASB 350 Anthropology and Art. (3)
selected semesters
Art forms of people in relationship to their social and cultural setting.
General Studies: HU

W ASB 353 Death and Dying in Cross-Cultural Perspective. (3)
fall and spring
Humanistic and scientific study of aging, sickness, dying, death, funerals, and grief and their philosophy and ecology in non-Western and Western cultures. Cross-listed as SOC 353. Credit is allowed for only ASB 353 or SOC 353.
General Studies: HU/SB, G

W ASB 389 Ethnographic Field Lab. (1–6)
selected semesters
Hands-on, guided ethnographic qualitative research and interpretative analysis. May be repeated for credit when topics vary. Fieldwork practicum. Integrated seminar/field lab. Cross-listed as SBS 389/SOC 389. Credit is allowed for only ASB 389 or SBS 389 or SOC 389.

W ASB 394 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Anthropology of Gender. (3)
- Cross-Cultural Perspectives on Art. (3)

May be repeated for credit when topics vary.

W ASB 440 Women in the Global Factory. (3)
selected semesters
Examines the impact of Third World women's incorporation into the new global division of labor in the late 20th century.
General Studies: SB, G

W ASB 441 Sexuality and Culture. (3)
selected semesters
Uses a global, comparative approach to examine the cultural and historical construction of sexualities.
General Studies: SB, G

W ASB 442 Urban Anthropology. (3)
spring
Issues in understanding urban culture and social space from interdisciplinary anthropological perspective. May involve fieldwork. May be repeated for credit when topics vary.
General Studies: SB

W ASB 445 Globalization, Development, and Resistance. (3)
fall
Explores the interconnections among globalization, development, and grassroots movements for social change in Africa, Asia, and Latin America. Lecture, seminar. Prerequisite: social science course recommended.
General Studies: SB, G

W ASB 447 Citizenship, Nationalism, and Identity. (3)
selected semesters
Historical and contemporary examination of citizenship as a form of belonging and fidelity, and the creation of "good citizens" within the U.S. Integrated lecture/seminar. Cross-listed as POL 447/SBS 447. Credit is allowed for only ASB 447 or SBS 447 or POL 447.
General Studies: SB, C

W ASB 494 Special Topics. (1–4)
selected semesters

W ASB 499 Individualized Instruction. (1–3)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

FAMILY STUDIES (FAS)

For more FAS courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W FAS 301 Introduction to Parenting. (3)
summer
Integrated approach to understanding parenting and parent-child interactions. Prerequisites: ENG 101 (or 105); PGS 101, SOC 101 (or its equivalent).
General Studies: SB

W FAS 330 Personal Growth in Human Relationships. (3)
fall, spring, summer
Personal development and behavior as related to competency in interpersonal relationships with the family. Processes of family interaction. Prerequisites: PGS 101, SOC 101 (or its equivalent).
General Studies: SB

W FAS 331 Marriage and Family Relationships. (3)
fall and spring
Issues, challenges, and opportunities relating to present-day marriage and family living. Factors influencing interrelations within the family. Prerequisite: course in psychology or sociology.

W FAS 332 Human Sexuality. (3)
selected semesters
Relationship of sexuality to family life and to major societal issues. Emphasizes developing healthy, positive, responsive ways of integrating sexual and other aspects of human living. Prerequisite: PGS 101.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

CULTURAL GEOGRAPHY (GCU)

For more GCU courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—E

(Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W GCU 102 Introduction to Human Geography. (3)
selected semesters
Systematic study of human use of the earth. Spatial organization of economic, social, political, and perceptual environments.
General Studies: SB

W GCU 121 World Geography. (4)
selected semesters
Description and analysis of areal variations in social, economic, and political phenomena in major world regions.
General Studies: SB, G

W GCU 253 Introduction to Cultural and Historical Geography. (3)
spring
Cultural patterns, including such phenomena as language, religion, and various aspects of material culture. Origins and diffusion and division of the world into cultural areas.
General Studies: SB, G

W GCU 351 Population Geography. (3)
spring
Demographic patterns. Spatial, temporal, and structural investigation of the relationship of demographic variables to cultural, economic, and environmental favors. Cross-listed as SBS 351. Credit is allowed for only GCU 351 or SBS 351. Prerequisite: MAT 117 or higher.
General Studies: SB, G

W GCU 357 Social Geography. (3)
selected semesters
Environmental perception of individuals and groups. Stresses the spatial aspect of social and physical environments.
General Studies: SB

W GCU 361 Urban Geography. (3)
selected semesters
External spatial relations of cities, internal city structure, and spatial aspects of urban problems in various parts of the world, particularly in the United States.
General Studies: SB

W GCU 373 Introduction to Geographic Information Science. (4)
fall
Introduces theoretical and computer-based aspects of Geographic Information Systems, involving data analysis and map generation. Fee. Prerequisite: PSY 230 or SBS 304.
General Studies: SG

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

PSYCHOLOGY (SOCIAL AND BEHAVIORAL) (PGS)

For more PGS courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W PGS 101 Introduction to Psychology. (3)
fall, spring, summer
Major areas of theory and research in psychology. Requires participation in department-sponsored research or an educationally equivalent alternative activity.
General Studies: SB

W PGS 250 Psychology and Society. (3)
fall
Addresses how social and behavioral science theory and research are used to understand behavior related to various social issues.
General Studies: SB

W PGS 304 Effective Thinking. (3)
spring and summer
Understanding and improving intellectual and behavioral skills; information analysis, inference, logic, problem solving, and decision making. Prerequisites: ENG 101 (or 105) and either MAT 119 or PSY 230 (or its equivalent).
General Studies: L

W PGS 306 Environmental Psychology. (3)
fall and summer
Concepts and research strategies in the study of behavior in interaction with physical environment. Prerequisite: PGS 101.
General Studies: SB

W PGS 315 Personality Theory and Research. (3)
fall and summer
Definition and description of personality in terms of theoretical and methodological approaches. Prerequisites: PGS 101; PSY 290.
General Studies: SB

W PGS 341 Developmental Psychology. (3)
fall
Analyzes behavior development in terms of psychological principles. Current research in human development. Prerequisites: PGS 101; PSY 290.
General Studies: SB

W PGS 344 Directed Child Study. (3)
spring
Theories and methods of intervention with preschool children and supervised practicum in the Child Study Laboratory. 1 hour lecture, 6-8 hours practicum. Prerequisites: ENG 101 (or 105); PGS 101.
General Studies: L/SB

W PGS 350 Social Psychology. (3)
fall, spring, summer
Human social behavior, including such concepts as aggression, attraction, attribution, conformity, groups, helping, person perception, and persuasion. Prerequisite: PGS 101.
General Studies: SB

W PGS 370 Interpersonal Relationships. (3)
fall and spring
Development of personal skills for competent functioning in interpersonal relationships across multiple social contexts. Principles of mental health adjustment. Prerequisite: PGS 101 (or its equivalent).
General Studies: SB

W PGS 385 Psychology of Gender. (3)
fall
Examines, from a psychological perspective, the similarities and differences in beliefs, attitudes, and behaviors of women and men. Cross-listed as WST 385. Credit is allowed for only PGS 385 or WST 385.
General Studies: SB

W PGS 399 Supervised Research. (1–3)
fall, spring, summer
Experience within the context of current faculty research projects. Student is assigned responsibility depending on qualifications. "Y" grade only. May be repeated for a total of 6 hours. Prerequisites: approval of faculty member before registration; "B" (3.00) GPA average in major. Pre- or corequisite: PSY 230 (or its equivalent).

W PGS 427 Psychology of Aging. (3)
fall
Behavioral, experiential, and emotional phenomena associated with aging. Analysis of retained abilities and resources as well as losses and stresses. Prerequisite: PGS 101.
General Studies: SB

W PGS 430 Industrial Psychology. (3)
selected semesters
Organizations and management systems: motivation and work performance; human factors in systems design and evaluation; personnel selection and testing. Prerequisite: MGT 301 or PGS 350.

W PGS 442 Life Span Development. (3)
spring
Methods and findings of recent studies of the development, growth, and problems of adolescents and adults, with implications for education. Prerequisite: PGS 341.
General Studies: SB

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

W PGS 443 Abnormal Child Psychology. (3)
spring
Covers the major disorders of childhood and adolescence (e.g., autism, hyperactivity, phobias, and delinquency), including cause, diagnosis, treatment, and prevention. Prerequisites: ENG 101 (or 105); PGS 101; one course from among PGS 315, 341, 350 or instructor approval.
General Studies: L/SB

W PGS 444 Adolescent Psychology and Psychopathology. (3)
fall
Advanced-level survey of normal adolescent psychological development and psychological disorders of this age period. Lecture, discussion. Prerequisites: PGS 101, 341; PSY 290.

W PGS 446 Social Development. (3)
selected semesters
Discusses theory, research, and issues regarding social development. Topics may include formation of attachments, prosocial development, and gender-role development. Lecture, seminar. Prerequisite: PGS 341.
General Studies: L/SB

W PGS 453 Organizational Behavior. (3)
spring
Surveys psychological theory and research as applied to the behavior of individuals in organizational settings. Lecture, discussion. Prerequisites: both PGS 101 and 350 or only instructor approval.
General Studies: SB

W PGS 462 Health Psychology. (3)
selected semesters
Contributions of psychology to health promotion and illness prevention, adaptation to acute and chronic illness, and to the health care system. Prerequisites: PSY 230, 290.

W PGS 465 Psychology of Stress and Coping. (3)
fall
Readings in theory and research in the area of stress and coping. Lecture, discussion, class presentations. Prerequisites: PGS 315 (or 350); PSY 290.
General Studies: SB

W PGS 466 Abnormal Psychology. (3)
fall and summer
Historical and current definitions, theory, and research concerning abnormal behavior. Major categories of psychopathology, including related treatment approaches. Prerequisites: PGS 101; PSY 290.
General Studies: SB

W PGS 468 Psychology and Law. (3)
selected semesters
Theories, research, and practice in psychology as related to law, including criminal, civil, domestic relations, and professional issues. Prerequisite: PGS 101.

W PGS 472 Clinical Psychology. (3)
selected semesters
Clinical psychology as a science and profession. Historical development, methods of interviewing, assessment, and therapeutic intervention. Prerequisite: PGS 466.

W PGS 473 Psychology and Politics of Child Maltreatment. (3)
spring
Examines psychological literature on child maltreatment in the context of development. Explores interactions between professionals responding to maltreatment. Prerequisites: PGS 101, 341; PSY 290.
General Studies: SB

W PGS 480 Cross-Cultural Social Psychology. (3)
spring
Focuses on patterns of social behavior in individualistic and collectivistic cultures. Includes multidisciplinary research using qualitative and quantitative methodologies. Prerequisites: PGS 101, 350.
General Studies: SB, G

W PGS 482 Social Influence and Consumer Behavior. (3)
spring
Discusses social influence principles, emphasizing strategies employed by professionals that affect consumer behavior. Analyzes consumer defenses against manipulations. Prerequisite: PGS 350.
General Studies: SB

W PGS 494 Special Topics. (3)
fall, spring, summer
Topics may include theoretical and applied areas of psychology (e.g., infant development).

W PGS 499 Individualized Instruction. (1–3)
selected semesters
Advanced individual scholarship with faculty member. Prerequisite: PGS 399.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

POLITICAL SCIENCE (POL)

W POL 101 Political Ideologies. (3)
fall and spring
Leading political ideas and belief systems, e.g., Marxism, liberalism, conservatism, theories of democracy, and alternative futures. Credit is allowed for only POL 101 or 340.
General Studies: SB

W POL 110 Government and Politics. (3)
spring
Major institutions of modern government and processes of individual and group political activity, with emphasis on the American experience. Meets the federal government requirement for teacher certification. Credit is allowed for only POL 110 or 310.
General Studies: SB

W POL 160 Global Politics. (3)
fall
The nature of contemporary world politics through the study of both general theoretical topics and specific geographical areas. Credit is allowed for only POL 160 or 360.
General Studies: SB, G

W POL 247 Introduction to Latin American Politics. (3)
selected semesters
General introduction to the politics and socioeconomic structures of Latin America.
General Studies: SB, G

W POL 260 Current Issues in International Politics. (3)
fall
Analyzes major current problems in world politics.
General Studies: SB, G

W POL 310 American National Government: Ideas and Institutions. (3)
fall and summer
Historical, analytic context of constitutionalism and citizenship vis-à-vis social, economic, and political institutions. Meets the federal government requirement for teacher certification. Credit is allowed for only POL 310 or 110.
General Studies: SB, H

W POL 313 The Congress. (3)
spring
The modern American Congress: its role, power and interrelationship in the American political system.
General Studies: SB

W POL 314 The American Presidency. (3)
fall
Office, role, and power of the American presidency in the American political system.
General Studies: SB

W POL 320 Latino Politics. (3)
fall
Examines contemporary political issues in the diverse Latino community.
General Studies: SB, C

W POL 331 Public Opinion. (3)
selected semesters
Examines U.S. public opinion, the diversity of its cultural sources, and political influence.
General Studies: SB

W POL 336 Electoral Behavior. (3)
selected semesters
Voting behavior and the attitudes, perceptions, and activities of the citizenry in the political process.
General Studies: SB

W POL 340 Political Theory. (3)
fall and summer
Surveys ancient, modern, and contemporary political theorists and ideas in European and American contexts. Prerequisite: ENG 101 or 105.
General Studies: HU/SB

W POL 350 Comparative Politics. (3)
spring and summer
Theoretical approaches and political institutions, such as parties, pressure groups, legislatures, and executives, from a cross-national perspective.
General Studies: SB, G

W POL 360 World Politics Theory. (3)
spring
Theoretical examination of one or more aspects of international politics, e.g., foreign policy, negotiations, alliances, crises, wars, and international systems. Credit is allowed for only POL 360 or 160.
General Studies: SB, G

W POL 361 American Foreign Policy. (3)
fall
United States in world affairs; foreign policy since World War I. Techniques in formulating American foreign policies.
General Studies: SB

W POL 417 The Arizona Political System. (3)
selected semesters
Contemporary political problems within the context of Arizona's political, social, and constitutional frameworks. Meets the Arizona Constitution requirement for teacher certification.

W POL 430 Race and Politics in the Americas. (3)
selected semesters
Studies racial politics in North, Central, and South America with a focus on the United States.
General Studies: SB, C

W POL 434 Media and Politics. (3)
selected semesters
Studies mass media and politics in the United States, e.g., media and elections, media and government.
General Studies: SB

W POL 435 Women, Power, and Politics. (3)
spring
The roles and treatment of women within various political contexts. Specific focus may vary with instructor.
General Studies: SB, C

W POL 436 Gender, Sexuality, Nation-States. (3)
selected semesters
Issues and problems related to the interface of gender, sexualities, nationalisms, and states in various world contexts.
General Studies: SB, G

W POL 440 Political Futures through Science Fiction. (3)
selected semesters
Examines the relationship between politics and science fiction literature and film. Prerequisite: ENG 101 or 105.
General Studies: L/HU

W POL 446 Democracy. (3)
spring
Issues and problems in democratic theory, e.g., the nature of democracy, majority rule, representation, equality, and the value of political participation.
General Studies: HU

W POL 447 Citizenship, Nationalism, and Identity. (3)
selected semesters
Historical and contemporary examination of citizenship as a form of belonging and fidelity, and the creation of "good citizens" within the U.S. Integrated lecture/seminar. Cross-listed as ASB 447/SBS 447. Credit is allowed for only ASB 447 or SBS 447 or POL 447.
General Studies: SB, C

W POL 453 Latin American Cities. (3)
spring
Urban studies of Latin American world cities, e.g., Mexico City, Santiago, emphasizing integration with U.S. cities, including Los Angeles, Phoenix.
General Studies: SB, G

W POL 454 Mexico: Politics, Economy, Cultures. (3)
fall and spring
Politics, economy, and cultures in Mexico in historical and contemporary perspective.
General Studies: SB, G

W POL 460 Politics of Globalization. (3)
fall
Theories and analysis of the politics of economic and technological globalization in the contemporary world.
General Studies: SB, G

W POL 464 Border Cities: Action Research on Globalization. (3)
spring
Examines the effects of globalization on U.S.-Mexico border cities and towns with particular emphasis on Mexican border cities. Lecture, computer-mediated research labs, field trip, online discussions.
General Studies: SB, G

W POL 470 Law and the Political Order. (3)
spring and summer
Investigates concepts of justice, political rights, adjudication and legislation, legal ordering, constitutional law, law as an instrument of change.
General Studies: SB

W POL 480 Global Justice. (3)
fall
Explores questions of justice that cross national borders, including delivery of foreign aid, immigration, and military intervention. Cross-listed as SBS 480. Credit is allowed for only POL 480 or SBS 480.
General Studies: G

W POL 484 Internship. (1-6)
fall, spring, summer
Structured practical experience supervised in the field by practitioners and overseen by the departmental internship coordinator.
Prerequisite: internship coordinator and department chair approvals.

W POL 486 Global Political Economy. (3)
fall
Contending approaches to historical and contemporary issues of international political economy, including global welfare, equality, ecology, and peace.
General Studies: SB, G

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

PSYCHOLOGY (SCIENCE AND MATHEMATICS) (PSY)

For more PSY courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W PSY 230 Introduction to Statistics. (3)
fall, spring, summer
Basic concepts in descriptive and inferential statistics, emphasizing applications to psychology. Prerequisites: MAT 117; PGS 101.
General Studies: CS

W PSY 290 Research Methods. (4)
fall, spring, summer
Planning, execution, analysis, and reporting of experiments. Literature, procedures, and instruments in representative areas of psychological research. 3 hours lecture, 3 hours lab. Prerequisites: ENG 101 (or 105); PSY 230.
General Studies: SG

W PSY 323 Sensation and Perception. (3)
fall, spring, summer
Underlying processes of vision, audition, and the other senses. Applies current research and theory in a lab environment. Prerequisite: PSY 290 or instructor approval.

W PSY 324 Memory and Cognition. (3)
fall, spring, summer
Processes underlying information storage and retrieval, including different kinds of memory, forgetting, depth of processing, and control processes. Prerequisite: PSY 290.
General Studies: SB

W PSY 325 Physiological Psychology. (3)
fall
Relationships of physiological processes to behavior. Emphasizes nervous system functioning. Prerequisites: PSY 290 (or two courses in biological science); instructor approval.

W PSY 330 Statistical Methods. (3)
spring
Advanced application of statistics to psychology. Highly recommended for students interested in attending graduate school. 3 hours lecture, 1 hour lab. Prerequisites: PSY 230, 290.
General Studies: CS

W PSY 394 Special Topics. (1–4)
selected semesters

W PSY 425 Biological Bases of Behavior. (3)
spring
Critical study of physiological psychology, e.g., brain mechanisms underlying motivation, learning. Prerequisites: ENG 101 (or 105); PSY 325.
General Studies: L

W PSY 494 Special Topics. (1–4)
selected semesters

W PSY 499 Individualized Instruction. (1–3)
selected semesters
Advanced individual scholarship with faculty member. Prerequisite: PGS 399.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

SOCIAL AND BEHAVIORAL SCIENCES (SBS)

W SBS 200 Introduction to Social and Behavioral Sciences. (3)
once a year
Overview of the social and behavioral sciences, indicating their contributions to society and emphasizing interdisciplinary integration Lecture, discussion.
General Studies: SB

W SBS 205 Cybercultures. (3)
spring
Explores culture, identity, and politics within and around the Internet, including cyberpunks, virtual communities, MUDs, free software, blogs, and hacktivism. Lecture, collaborative learning.
General Studies: SB

W SBS 300 Interdisciplinary Approaches to Social and Behavioral Sciences. (3)
fall and spring
Interdisciplinary approach to the study of social life.
General Studies: SB

W SBS 301 Cultural Diversity. (3)
fall and spring
Socially structured differences in historical and cross-cultural perspective. Prerequisite: ENG 101 or 105.
General Studies: L/SB, C

W SBS 302 Qualitative Methods. (3)
spring
Basic methodological issues in the systematic application of qualitative analysis of human social life. Surveys range of qualitative methods used by social and behavioral scientists.

W SBS 303 Quantitative Methods. (3)
fall
Concepts underlying design and implementation of quantitative research methods.

W SBS 304 Social Statistics I. (3)
fall and spring
Statistical techniques of the social and behavioral sciences.
General Studies: CS

W SBS 342 Mexico-U.S. Borderlands. (3)
selected semesters
Contemporary examination of socioeconomic and political dimensions of border communities, and formation of Mexican-origin communities within and outside the Southwest. Integrated lecture/seminar. Cross-listed as ASB 342/SOC 342. Credit is allowed for only ASB 342 or SBS 342 or SOC 342.
General Studies: SB, C

W SBS 351 Population Geography. (3)
spring
Demographic patterns. Spatial, temporal, and structural investigation of the relationship of demographic variables to cultural, economic, and environmental favors. Cross-listed as GCU 351. Credit is allowed for only GCU 351 or SBS 351. Prerequisite: MAT 117 or higher.
General Studies: SB, G

W SBS 389 Ethnographic Field Lab. (1–6)
selected semesters
Hands-on, guided ethnographic qualitative research and interpretative analysis. May be repeated for credit when topics vary. Fieldwork practicum. Integrated seminar/field lab. Cross-listed as ASB 389/SOC 389. Credit is allowed for only ASB 389 or SBS 389 or SOC 389.

W SBS 404 Social Statistics II: Multivariate Analysis. (3)
selected semesters
Analysis of variance, multiple regression, dummy variable regression, path analysis, and related topics. Computer application to problem solving. Prerequisites: both SBS 303 and 304 or only instructor approval.
General Studies: CS

W SBS 410 Topics in Identity/Difference. (3)
fall and spring
Topics which focus on race/ethnic, gender, sexual or cultural identity/difference. May be repeated for credit when topics vary. Topics may include the following:
- Introduction to Asian American Experiences

W SBS 430 Topics in Power/Knowledge. (3)
fall and spring
Selected topics concerning the effects of political and social institutions on perceptions of politics and political culture. May be repeated for credit when topics vary.
General Studies: SB

W SBS 440 Family Studies. (3)
fall and spring
Theoretical frameworks for analyzing the development of family systems. Impact of social and economic conditions on family forms. May be repeated for credit when topics vary.
General Studies: SB

W SBS 447 Citizenship, Nationalism, and Identity. (3)
selected semesters
Historical and contemporary examination of citizenship as a form of belonging and fidelity, and the creation of "good citizens" within the U.S. Integrated lecture/seminar. Cross-listed as ASB 447/POL 447. Credit is allowed for only ASB 447 or SBS 447 or POL 447.
General Studies: SB, C

W SBS 450 Topics in Local/Global. (3)
fall and spring
Examines links among social, political, economic changes at local, national, global levels. May be repeated for credit when topics vary.
General Studies: SB, G

W SBS 460 Urban Studies. (3)
fall and spring
Studies local and global urban issues such as social geography, political economy, culture and social space, urban social diversity. May be repeated for credit when topics vary.
General Studies: SB

W SBS 461 Program Evaluation and Policy Research. (3)
spring
Examines design, data collection/analysis, and political/ethical issues in planning and evaluating social programs and policies in community organizations. Prerequisite: research course in social or behavioral sciences or instructor approval.

Las Casas, an apartment-style, living- and learning-based housing facility, opened on the West campus in 2003. Tim Trumble photo

W SBS 480 Global Justice. (3)
fall
Explores questions of justice that cross national borders, including delivery of foreign aid, immigration, and military intervention. Cross-listed as POL 480. Credit is allowed for only POL 480 or SBS 480.
General Studies: G

W SBS 484 Internship. (1–6)
fall, spring, summer
Structured practical experience supervised in the field by practitioners and overseen by the departmental internship coordinator. Prerequisites: internship coordinator and department chair approvals.

W SBS 490 Senior Thesis I. (3)
fall, spring, summer
Supervised, independent, interdisciplinary research and writing on an intellectual issue or social problem chosen by the student. First part of a six-semester-hour sequence, followed by SBS 491. Prerequisites: departmental advisor and department chair approvals.

W SBS 491 Senior Thesis II. (3)
fall, spring, summer
Supervised, independent, interdisciplinary research and writing on an intellectual issue or social problem chosen by the student. Second part of a six-semester-hour sequence. Prerequisites: SBS 490; departmental advisor and department chair approvals.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

SOCIOLOGY (SOC)

For more SOC courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W SOC 101 Introductory Sociology. (3)
fall, spring, summer
Fundamentals of sociology, organization of human groups and society, processes of interaction, and social change. Credit is allowed for only SOC 101 or 301. 2 hours lecture, 1 hour discussion.
General Studies: SB

W SOC 210 Sociology of Murder. (3)
fall
Sociological perspectives on various forms of murder and types of murderers. Also considers forms of punishment for murder.
General Studies: SB

W SOC 301 Principles of Sociology. (3)
spring
Intensive and critical analysis of the concepts of sociology. Credit is allowed for only SOC 301 or 101.
General Studies: SB

W SOC 315 Courtship and Marriage. (3)
fall and spring
Overview of courtship, marriage, and related processes, focusing on problematical aspects of these institutions from the sociological perspective. Prerequisite: SOC 101 (or 301) or instructor approval.
General Studies: SB

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

W SOC 324 Work and the Workplace. (3)
selected semesters
Historical and comparative examination of changes in the structure and meaning of work and current shifts in people's work lives.
General Studies: SB, H

W SOC 328 Migration. (3)
spring
Introduces the definition and analysis of migration in all forms.
General Studies: SB, G

W SOC 332 The Modern City. (3)
spring
Growth, characteristics, and problems of the modern city. Prerequisite: SOC 101 or 301.

W SOC 340 Sociology of Deviant Behavior. (3)
spring
Sociological analysis of stigmatized behaviors and conditions, including the causes, effects, and management of stigma. Prerequisite: SOC 101 (or 301) or instructor approval.
General Studies: SB

W SOC 341 Modern Social Problems. (3)
once a year
Race relations, poverty, unemployment, and other current issues. Prerequisite: ENG 101 or 105.
General Studies: L/SB

W SOC 342 Mexico-U.S. Borderlands. (3)
selected semesters
Contemporary examination of socioeconomic and political dimensions of border communities, and formation of Mexican-origin communities within and outside the Southwest. Integrated lecture/seminar. Cross-listed as ASB 342/SBS 342. Credit is allowed for only ASB 342 or SBS 342 or SOC 342.
General Studies: SB, C

W SOC 352 Social Change. (3)
fall and spring
Patterns of social change, resistance to change, and change-producing agencies and processes. Prerequisite: SOC 101 or 301.
General Studies: SB, G, H

W SOC 353 Death and Dying in Cross-Cultural Perspective. (3)
fall and spring
Humanistic and scientific study of aging, sickness, dying, death, funerals, and grief and their philosophy and ecology in non-Western and Western cultures. Cross-listed as ASB 353. Credit is allowed for only SOC 353 or ASB 353.
General Studies: HU/SB, G

W SOC 354 Popular Music and Society. (3)
summer
Places contemporary music in its social, economic, and political context; usually offered with MUS 354.
General Studies: HU

W SOC 360 Sociological Psychology. (3)
selected semesters
Interaction patterns between the sociocultural order and individuals; socialization process; norms, roles, and statuses; collective behavior. Prerequisite: SOC 101 or 301.
General Studies: SB

W SOC 364 Popular Culture. (3)
fall and spring
Studies the social approaches to popular culture, focusing on the function of various forms (literature, film, theatre, and music).
General Studies: SB

W SOC 365 Sociology of Mass Communication. (3)
selected semesters
Sociological exploration of the major mass media as a communicative process in American society.
General Studies: SB

W SOC 366 Film and Society. (3)
fall and spring
Studies the social approaches to film as an art form, mass medium, and ideological construct.
General Studies: SB

W SOC 370 Racial and Ethnic Minorities. (3)
spring
Problems of minorities in the United States and in other racially and ethnically heterogeneous societies. Evaluates theories of prejudice and of research dealing with discrimination, desegregation, and assimilation. Prerequisite: SOC 101 or 301.
General Studies: SB, C

W SOC 389 Ethnographic Field Lab. (1–6)
selected semesters
Hands-on, guided ethnographic qualitative research and interpretative analysis. May be repeated for credit when topics vary. Fieldwork practicum. Integrated seminar/field lab. Cross-listed as ASB 389/SBS 389. Credit is allowed for only ASB 389 or SBS 389 or SOC 389.

W SOC 394 Special Topics. (1–4)
fall, spring, summer
Topics may include the following:
- Film and Society. (3)
- Sports and Society. (3)
- Women and Religion. (3)
- Women. (3)
- Work and the Border Economy. (3)

W SOC 400 Perspectives on Aging. (3)
fall and spring
Broad overview of gerontological issues; e.g., physical aging, retirement, living options, caregiving, theoretical background, death. Cross-listed as GRN 400. Credit is allowed for only SOC 400 or GRN 400.
General Studies: SB

W SOC 418 Aging and the Life Course. (3)
selected semesters
Examines aging as a process of change and adaptation over the lifespan, patterned by social, cultural, and historical forces. Prerequisite: SOC 101 or 301.
General Studies: SB, H

W SOC 419 Organizations and Technological Change. (3)
spring
Explores the increasing impact of information technology on corporate, governmental, and private organizations. May involve fieldwork.
General Studies: G

W SOC 426 Social Inequality. (3)
fall
Examines stability and change in social inequality based on age, class, ethnicity, gender, and race.
General Studies: SB

W SOC 443 Sociology of Corporations. (3)
spring
Examines corporations as social institutions and the implications of their status as a legal "person" on politics, culture, and economy.
General Studies: SB, G

W SOC 456 Political Sociology. (3)
fall
Social factors associated with voting; nature and structure of the electorate and political parties and the nature of national and international power structure. Prerequisite: SOC 101 (or 301) or instructor approval.

W SOC 457 Social Movements and Social Change. (3)
spring
The processes by which groups mobilize and collectively pursue social goals such as equality, justice, peace, and salvation. Prerequisite: ENG 101 or 105.
General Studies: SB, G

W SOC 484 Internship. (1–6)
fall, spring, summer
Structured practical experience supervised in the field by practitioners and overseen by the departmental internship coordinator. Prerequisite: internship coordinator and department chair approvals.

W SOC 486 Contemporary Theory. (3)
fall and spring
Contemporary issues and crises in social theory with major focus on particular theorists. Ideological factors in theory, philosophical issues, the nature of theory, and its relationship with methodology. Prerequisite: SOC 101 (or 301) or instructor approval.
General Studies: SB

W SOC 494 Special Topics. (1–4)
selected semesters

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Women's Studies Program

www.west.asu.edu/ws
602/543-3300
FAB N291

Astair Gebre Mariam Mengesha, Chair

Professor: Stage

Associate Professors: Elenes, Mengesha

Assistant Professor: Tellez

Lecturer: Share

Nature of the Program

Women's Studies is an interdisciplinary program with strong cross-cultural, national, and global perspectives at the center of the curriculum. Both curriculum transformation and social change are central to the program. The curriculum includes courses offered by the Women's Studies Program and by other academic programs and departments throughout the university. Women's Studies courses can be used to fulfill the requirements of the Bachelor of Arts, Bachelor of Science, minor, and certificate in Women's Studies. The courses also fulfill General Studies requirements and serve as electives. The goals of the Women's Studies Program are to

1. provide the university and the community with academic programs of study and research that place women at the center of the university curriculum;
2. provide a model for interdisciplinary teaching and research with cross-cultural, national, and global perspectives on women;
3. generate and facilitate research on women's experience and the social construction of gender; and
4. stand as a visible example of the university's commitment to improve the status of women.

The Women's Studies Program offers the BA and BS in Women's Studies, the Certificate in Women's Studies, and the Women's Studies Resource Center. As a multicomponent program of Women's Studies, the Women's Studies Resource Center supports research pertaining to local, national and global issues in Women's Studies.

Career Outlook

A student majoring in Women's Studies receives a valuable educational background that provides the knowledge and critical thinking skills needed to deal with changing gender roles in our society. A major, minor, or certificate in Women's Studies prepares students for opportunities in many settings: business and professional schools, education and training, health care services, human resources development, public and business administration, social services, and graduate study in the humanities and social sciences.

WOMEN'S STUDIES—BA OR BS

Major Requirements

The major consists of 45 semester hours, 30 in Women's Studies and 15 in a coherent set of related courses. At least 30 of the 45 semester hours required for the major must be completed in upper-division courses. In addition, for the BS degree, students must complete six semester hours of statistics, computer science, or quantitative research methods. This sequence must be approved by the Women's Studies advisor.

Students must complete all course work in the major with a grade of "C" (2.00) or higher. No pass/fail credit may be used for major requirements.

Core Requirements[1]

WST 100 Women and Society *SB, C* 3
or WST 300 Women in Contemporary Society *SB, C* (3)
WST 350 Race, Class, and Gender *SB, C* 3
WST 457 Women, Cultures, and Societies *SB, G* 3
WST 498 PS: Theory and Method in Women's Studies *L* 3
Choose one global perspective course from the following[2].....3
- WST 390 Women and World Religions *L/SB, G* (3)
- WST 475 Women of the Diaspora Across Cultures *HU, G* (3)
- WST 483 Contemporary Women Writers *HU, G* (3)
- WST 487 Gender and International Development *SB, G* (3)

Choose one representation course form the following[2].....3
- WST 370 Chronicling Women's Lives *HU, C* (3)
- WST 376 Feminist Theory *L, C* (3)
- WST 467 Ethnic Women Writers *L/HU, C* (3)
- WST 473 Latina/Chicana Representation *SB, C* (3)

Choose one culture studies course from the following[2] 3
- WST 320 Women in Popular Culture *HU, C* (3)
- WST 431 Women and Film *L, G* (3)

Related course work[3] 15
WST electives 9

Program total.....45

[1] No course may be used to satisfy more than one of these seven core requirements.
[2] Other approved course may be used to meet this requirement.
[3] The plan for completing the related courses requirement must be worked out with and approved in writing by the Women's Studies advisor.

Internships. Women's Studies offers internships with business and nonprofit organizations that are designed to enable students to balance theory with practice, to gain valuable training, and to serve as potential placement opportunities. Women's Studies students at their own initiative have the opportunity to work with organizations as varied as Planned Parenthood, the Women's Studies Resource Center at the West campus, the Center for New Directions, Motorola, Viad, and others.

Certificate in Women's Studies

A certificate in Women's Studies is awarded for the successful completion of all 21 semester hours of core requirements. The certificate program is recommended for

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

graduate students, nondegree students, and students with majors in professional programs.

Minor in Women's Studies

The Women's Studies minor consists of 18 semester hours. Required courses consist of WST 100 (or WST 300), WST 350, WST 457, WST 498, and one course each in two of the following three areas: global, representation, and culture studies.

WOMEN'S STUDIES (WST)

For more WST courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

WST Note 1. Completion of the First-Year Composition requirement (ENG 101 and 102 or ENG 105 or ENG 107 and 108 [available at Tempe campus] with a grade of "C" [2.00] or higher) is a prerequisite for all English courses above the 100 level.

W WST 100 Women and Society. (3)
spring
Interdisciplinary introduction examining critical issues in women's studies. Credit is allowed for only WST 100 or 300.
General Studies: SB, C

W WST 276 Feminist Foundations: Going to the Sources. (3)
spring in odd years
Historical survey of sources influential in the development of the feminist movement in the United States. Lecture, discussion.
General Studies: H

W WST 300 Women in Contemporary Society. (3)
fall and spring
Interdisciplinary examination of such topics as gender roles, work, education, sexuality, politics, health, and law. Credit is allowed for only WST 300 or 100. Prerequisite: ENG 101 or 105.
General Studies: SB, C

W WST 320 Women in Popular Culture. (3)
fall
Analyzes from a historical perspective the images of women in magazines, films, advertising, toys, and other popular culture forms.
General Studies: HU, C

W WST 350 Race, Class, and Gender. (3)
fall and spring
Explores the intersections of race, class, and gender in the U.S. and world, as forces of social control, oppression, and liberation.
General Studies: SB, C

W WST 370 Chronicling Women's Lives. (3)
spring in even years
Explores the lives of a selected group of American women as a point of departure for the chronicling of contemporary women's lives.
General Studies: HU, C

W WST 376 Feminist Theory. (3)
once a year
Explores feminist theories and the intersection of gender, race, ethnicity, and class through critical analyses. Prerequisite: ENG 101 or 105.
General Studies: L, C

W WST 378 Global Feminist Theory. (3)
spring
Global feminist theories and exploration of the intersections of gender, race, ethnicity, class, and nation through critical analysis. Prerequisite: WST 100 or 300.
General Studies: L, C, G

W WST 385 Psychology of Gender. (3)
fall
Examines, from a psychological perspective, the similarities and differences in beliefs, attitudes, and behaviors of women and men. Cross-listed as PGS 385. Credit is allowed for only WST 385 or PGS 385.
General Studies: SB

W WST 390 Women and World Religions. (3)
once a year
Comparative examination of vital issues about women and religions in different places of the world and different historical periods. Prerequisite: ENG 101 or 105.
General Studies: L/SB, G

W WST 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Cultural Diversity. (3)
  fall and spring
- Gender and Sexuality. (3)
  fall and spring

W WST 431 Women and Film. (3)
once a year
Comparative international course explores ways feminist directors have broken the Hollywood mold in films focusing on women. Prerequisite: ENG 101 or 105.
General Studies: L, G

W WST 457 Women, Cultures, and Societies. (3)
fall
Examines issues such as poverty, dependency, interdependency, race, class, and gender in different societies of the world.
General Studies: SB, G

W WST 467 Ethnic Women Writers. (3)
fall
Concentrates on selected women writers of the U.S. who are Native American, African American, Latina, and Asian-American. Cross-listed as ENG 460. Credit is allowed for only WST 467 or ENG 460. See WST Note 1.
General Studies: L/HU, C

W WST 473 Latina/Chicana Representation. (3)
fall
Examines from an interdisciplinary perspective contemporary issues experienced by Chicana/Latina women in the U.S.
General Studies: SB, C

W WST 475 Women of the Diaspora Across Cultures. (3)
selected semesters
Examines the socioeconomic condition, political formation, and identities of contemporary indigenous, ethnic minority, immigrant, and migrant women globally.
General Studies: HU, G

W WST 483 Contemporary Women Writers. (3)
once a year
Comparative approach to contemporary writings by women from around the world.
General Studies: HU, G

W WST 487 Gender and International Development. (3)
fall, spring, summer
Addresses conceptual, methodological, and theoretical issues concerning gender, development, and internationalism; evaluates theories and models for change.
General Studies: SB, G

W WST 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Aging: Women/Minority Issues. (3)
  fall and spring
- Social History of American Women. (3)
  fall and spring
- Women, Power, and Politics. (3)
  fall and spring

W WST 498 Pro-Seminar: Theory and Method in Women's Studies. (3)
spring
Reading and research on important theoretical and methodological issues in women's studies. Prerequisites: both ENG 101 (or 105) and WST 100 (or 300) or only instructor approval.
General Studies: L

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

College of Teacher Education and Leadership

www.west.asu.edu/ctel

Joseph M. Ryan, PhD, Interim Dean

PURPOSE

The college prepares tomorrow's educators to teach in ever-changing settings through commitment to high standards of innovative teaching, broad-based scholarship, and quality service to the university and the community.

The College of Teacher Education and Leadership balances academic concepts with current research and practices, accompanied by prompt exposure to the classroom environment. This integration of theory with practical experience strengthens future teachers' abilities to refine their instruction skills continually.

Programs in the College of Teacher Education and Leadership offer flexible scheduling and small classes. The college prepares students to be leaders in the field of education.

ORGANIZATION

The college houses the following academic units:

Department of Elementary Education
Department of Graduate Studies and Professional Development
Department of Secondary Education
Department of Special Education

DEGREE PROGRAMS

See the "College of Teacher Education and Leadership Baccalaureate Degrees and Majors" table, page 746, and the "College of Teacher Education and Leadership Graduate Degrees and Majors" table, page 756.

CERTIFICATION PROGRAMS

Education programs are approved by the Arizona Department of Education for the preparation of elementary, secondary, and special education teachers. Other programs of study offered by the faculty of the College of Teacher Education and Leadership include

1. concentrations in bilingual education and English as a second language required for endorsement of teachers specifically responsible for providing bilingual or English as a second language instruction to students in elementary grades;
2. an early childhood concentration that allows students to specialize in teaching kindergarten through grade three;
3. a middle school endorsement for elementary and secondary education students; and
4. at the graduate level, educational administration and supervision courses that meet the state certification requirements for supervision, principalship, and superintendency.

UNDERGRADUATE PROFESSIONAL TEACHER PREPARATION

Nature of Program

The College of Teacher Education and Leadership faculty is dedicated to developing and continually improving high quality teacher education programs that support and improve education for all children.

Career Outlook

The career outlook for the teaching profession is promising in Arizona and the nation. Students seeking endorsements in bilingual and English as a second language, as well as those seeking certification in special education, will find that demand is great in these areas. Demand for elementary and early childhood educators will continue to be strong. In secondary education, demand in the sciences and mathematics will be substantial. There will be more competition for teaching positions in English, history, and social studies at the secondary level. Our education graduates are highly sought after by area school districts.

GENERAL INFORMATION

Admission

To be considered for admission as undergraduate education majors, students must

1. be admitted to West campus as a degree-seeking student;
2. complete required postsecondary course work as specified for each major with a grade of "C" (2.00) or higher and attain a cumulative GPA of 2.50 or higher; and
3. submit a completed application form for the desired professional education program to the college Academic Advising Office by the appropriate deadline date.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

College of Teacher Education and Leadership Baccalaureate Degrees and Majors

Major	Degree	Concentration*	Administered By
Elementary Education	BAE	Optional: bilingual education/English as a second language or early childhood education*	Department of Elementary Education
Secondary Education	BAE	Academic specializations: English, history, mathematics, or social studies	Department of Secondary Education
Special Education	BAE	—	Department of Special Education

* If a major offers concentrations, one must be selected unless noted as *optional*.

Students are considered for admission to undergraduate education programs in the spring of each year for the following fall semester and in the fall of each year for the following spring semester. Applicants should contact the college Academic Advising Office for specific deadlines, which are determined annually.

Admission to undergraduate education programs is selective. Meeting minimum requirements does not ensure admission to any program.

Transfer

To be considered for admission to an undergraduate education major, prospective students must meet all admission requirements to ASU as well as those for undergraduate education programs. Students must complete the first two years of specified course work at an accredited community college or four-year institution.

Prospective students are discouraged from taking courses on a pass/fail basis. Pass/fail courses may be transferred to the College of Teacher Education and Leadership for only elective credit. For assistance in planning a program of study for transfer to the Bachelor of Arts in Education (BAE) degree program, call the college Academic Advising Office at 602/543-6354.

Degree Requirements

Students seeking a BAE must satisfactorily complete a minimum of 120 semester hours and attain a cumulative GPA of 2.50 or higher. Specific requirements for majors in Elementary Education, Secondary Education, and Special Education are provided in this catalog.

Education students must file a Declaration of Graduation during the first semester by consulting a college academic advisor. The four semesters of the program are sequential.

The College of Teacher Education and Leadership grades some courses, field experiences, and student teaching on a satisfactory/fail basis. Students who successfully complete these courses receive a grade of "Y" (satisfactory). Such grades are acceptable for meeting program requirements, but these grades are not included in computing the student's GPA.

Any exceptions to these requirements must be approved by a college academic advisor.

Field-Experience Requirements

In addition to course work, students admitted to all undergraduate education programs are required to participate in structured field experiences during each of the semesters of the program.

The field experiences progress from observation and short-term participation to long-term supervised student teaching. Students should expect these field experiences to be above and beyond the class times listed in the *Schedule of Classes* for each semester. Such field experiences typically take place in public schools throughout the greater Phoenix area. The Elementary Education degree program includes at least one semester of field experiences at a local public school campus taken concurrently with university course work. Students should plan extra travel time and expect to confer with mentor teachers and student teacher supervisors before or after scheduled field experiences. Regular attendance is required during all field experiences. To meet field experience requirements, students must plan to have their own transportation and be available during regular school hours.

Student Teaching

The major field experience, called student teaching, occurs in the last semester and is a full-day, full-semester obligation. Student teaching is possible during only fall and spring semesters.

Applications for student teaching must be completed early in the semester before the student teaching semester and turned in to the Office of Field Experiences. To be accepted for student teaching, students must

1. have a cumulative ASU GPA of 2.50 or higher;
2. have a GPA of 2.50 or higher in professional teacher preparation course work;
3. complete all required professional teacher preparation course work;
4. successfully complete the CTEL Writing Assessment or, for Special Education majors only, successfully complete writing requirements established in a Professional Improvement Plan;
5. remove all academic deficiencies, such as grades of "D" (1.00), "E" (0.00), or "I" before placement;
6. demonstrate appropriate professional conduct; and
7. complete the application procedure and secure approval to teach from the Offices of Field Experiences and Academic Advising before the deadline.

Student teachers must adhere to the calendar, regulations, and philosophy of the schools in which the student teachers are placed. Beginning and ending dates for student teaching are determined by the Office of Field Experiences in cooperation with the placement schools. Because student teaching is on a full-day schedule, 8 A.M. to 4 P.M. Monday

through Friday for 15 consecutive weeks, student teachers are strongly encouraged to avoid extra activities and course work that would interfere with the heavy demands placed upon them while student teaching.

ACADEMIC POLICIES

Students enrolled in undergraduate education programs are expected to maintain academic standards and demonstrate qualifications for the teaching profession, including mental health, interpersonal skills, basic communication skills, a positive attitude, appropriate professional conduct, and satisfactory performance in field experiences.

To be in good standing, students must maintain an overall cumulative GPA of 2.50 or higher with at least a grade of "C" (2.00) in each undergraduate education course. Any undergraduate education student whose cumulative GPA falls below 2.50 may be placed on academic probation or suspended from enrollment in professional courses for the next semester. Students on academic probation or suspension from the university and/or the College of Teacher Education and Leadership must seek advising from a college academic advisor before registering for additional course work. Probation and/or suspension status for academic reasons begins on the first day of classes of the semester after the probation or suspension action. Students placed on probation or suspension for any reason are subject to disqualification by the College of Teacher Education and Leadership at the end of the following semester if the conditions imposed for reinstatement are not met. Students placed on probation or suspension for any reason are reviewed at the end of the following semester.

Students demonstrating behaviors or characteristics that make it questionable whether they can succeed in the teaching profession may be disqualified or prescribed specific conditions under which continued participation is permitted, that is, probation or suspension.

Students who wish to appeal decisions of the College of Teacher Education and Leadership's Student Issues Committee may do so in writing to the dean of the college. Any exceptions to the above retention and disqualification policies and procedures must be approved by the College of Teacher Education and Leadership's Student Issues Committee and the dean of the college.

Department of Elementary Education

www.west.asu.edu/ctel/elem
602/543-6315
FAB S218

Michael F. Kelley, Chair

Professor: Wetzel

Associate Professors: De La Cruz, Hess, Irwin, Kelley, Ridley, R. Zambo

Assistant Professors: Beardsley, Coulter, Foulger, Hansen, Herold, Hinde, Jimenez-Silva, Kochanoff, Mitchell-Kay, Olson, Osborn-Popp, Perry, D. Zambo

Lecturers: Buscher, Califano, Carter, George, Hurwitz, Larson, Lewallen, Messner, Rojas, Williams

ELEMENTARY EDUCATION—BAE

Admission Requirements

To be considered for admission to the Elementary Education major, applicants must

1. complete a minimum of 56 semester hours of course work as outlined at West campus or equivalent courses at another accredited college or university, with a grade of "C" (2.00) or higher and an overall GPA of 2.50 or higher;
2. applicants in bilingual education only must show proficiency in Spanish by
   a. a grade of "C" (2.00) or higher in SPA 202 Intermediate Spanish, or
   b. a CLEP score of 62 or higher on College Spanish General Examination, or
   c. passing scores on all four areas of the Arizona Spanish Proficiency Examination; and
3. submit a completed application form for the Elementary Education degree program to the college Academic Advising Office by the appropriate deadline.

Required Courses

Choose one of the following combinations 3–6
ENG 101 First-Year Composition (3)
ENG 102 First-Year Composition (3)
——— *or* ———
ENG 105 Advanced First-Year Composition (3)
CSE 180 Computer Literacy *CS*.....3
or EDT 321 Computer Literacy *CS* (3)
HIS 103 The United States *SB, H*.....3
or HIS 104 The United States *SB, H* (3)
MAT 142 College Mathematics *MA*.....3
or higher level math course (3)

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

MTE 180 Theory of Elementary Mathematics.....3
MTE 181 Theory of Elementary Mathematics.....3
SPE 222 Orientation to Education of Exceptional Children *SB* ...3
TEL 111 Exploration of Education *SB*.....3
TEL 212 Understanding the Culturally Diverse Child *C* 3

Selected Courses
G course 3
HU courses.....6
L course.....3
SQ course 4
SQ/SG course.....4
Electives 6–9
Minimum total 56

Some General Studies courses may be used to satisfy a General Studies core area requirement and one or two awareness area requirements at the same time, leaving the student more electives. Selected courses and General Studies courses should be chosen in consultation with a college academic advisor. Credit for SPA 101, 102, 201, 202 may also be counted as elective credit toward the 56-semester-hour requirement.

Program Requirements

Candidates for the BAE degree in Elementary Education are required to complete an approved program of 120 semester hours. These hours include

1. 56 semester hours of specified lower-division courses for admission;
2. 35 semester hours of General Studies courses;
3. 51 semester hours of specified upper-division course work in professional education; and
4. six semester hours of upper-division content course work selected in consultation with a college academic advisor, including
   a. one course from AMS, ENG, GCU, HIS, POL, or SPA (bilingual education majors only);
   b. one course from LSC or PHS; and
   c. three semester hours of upper-division elective course work.

The bilingual education concentration requires proficiency in Spanish; the English as a second language concentration requires six semester hours in a single foreign language or its equivalent.

For efficient progress toward the baccalaureate degree, much of this course work must be taken at the lower division and selected so that courses count toward more than one requirement simultaneously. Prospective students are encouraged to contact the college Advising Office to plan their program of study beyond the required course work noted for admission above.

Upper-division, professional education courses include College of Teacher Education and Leadership core curriculum courses, elementary education courses, field experience courses, and student teaching. This course work prepares individuals with abilities and attitudes to work in elementary schools. The combination of course work and field experience is aligned with the Arizona Professional Teaching Standards. Specified courses in elementary education are listed in this section.

Middle School Endorsement

Students in Elementary Education and bilingual/ESL education may elect to pursue the Middle School endorsement. Those who seek this endorsement must take 24 semester hours of course work in a content area (e.g., English, mathematics, science, social studies). A decision to pursue the Middle School endorsement should be made very early in the pursuit of a degree, certainly before admission to the program. Content course work should be selected in consultation with a college academic advisor. Students electing this option must also take EED 464 Middle School Curriculum and Organization and perform their student teaching at the middle school level.

Elementary Education students should review general information, field experience requirements, student teaching, and academic policies.

Elementary Education (K–8) Major

Semester 1
BLE 312 ESL, Diversity, and Culture in Education *L*.....3
TEL 311 Instruction and Management in the Inclusive Classroom 3
TEL 313 Educational Technology in the K–12 Curriculum 3
TEL 314 Classroom Assessment.....3
TEL 315 Child and Adolescent Development *SB* 3
TEL 396 Field Experience 1 0
Total 15

Semester 2
BLE 321 ESL Methods for Diverse Language Classrooms 3
EDP 323 Professional Development, Learning, and Motivation...3
EED 324 Social Studies in Elementary Schools.....3
EED 397 Field Experience in Elementary Schools 2 0
RDG 322 Language Literacy 1 in Elementary Schools 3
Total 12

Semester 3
EED 411 Science in Elementary Schools.....3
EED 412 Mathematics in Elementary Schools.....3
EED 414 Elementary Curriculum and Organization 3
or EED 464 Middle School Curriculum and Organization (3)
EED 496 Field Experience 3 0
RDG 413 Language Literacy 2 in Elementary Schools 3
Total 12

Semester 4
EED 478 Student Teaching in the Elementary School 9
or EED 578 Student Teaching in the Elementary School (9)
EED 479 Capstone Seminar in Elementary Education.....3
Total 12

Major total.....51

Elementary Education (K–8) Major with a Concentration in Bilingual Education or English as a Second Language Education

Semester 1
BLE 312 ESL, Diversity, and Culture in Education *L*.....3
TEL 311 Instruction and Management in the Inclusive Classroom 3
TEL 313 Educational Technology in the K–12 Curriculum 3
TEL 314 Classroom Assessment.....3
TEL 315 Child and Adolescent Development *SB* 3

TEL 396 Field Experience 1 0

Total 15

Semester 2

BLE 321 ESL Methods for Diverse Language Classrooms 3
BLE 322 Second-Language Literacy 1 in Elementary Schools 3
BLE 324 Social Studies for Diverse Language Classrooms 3
EDP 323 Professional Development, Learning, and Motivation...3
EED 397 Field Experience in Elementary Schools 2 0

Total 12

Semester 3

BLE 413 Second-Language Literacy 2 in Elementary Schools 3
BLE 414 Bilingual/ESL Curriculum and Organization 3
EED 411 Science in Elementary Schools.....3
EED 412 Mathematics in Elementary Schools.....3
EED 496 Field Experience 3 0

Total 12

Semester 4

BLE 478 Student Teaching in Diverse Language Classrooms 9
or BLE 578 Student Teaching in Diverse Language Classrooms (9)
BLE 479 Capstone Seminar in Bilingual/ESL Education 3

Total 12

Major total.....51

Elementary Education (K–8) Major with a Concentration in Early Childhood Education

Semester 1

BLE 312 ESL, Diversity, and Culture in Education *L*.....3
TEL 311 Instruction and Management in the Inclusive Classroom 3
TEL 313 Educational Technology in the K–12 Curriculum 3
TEL 314 Classroom Assessment.....3
TEL 315 Child and Adolescent Development *SB* 3
TEL 396 Field Experience 1 0

Total 15

Semester 2

BLE 321 ESL Methods for Diverse Language Classrooms 3
ECD 324 Social Studies and Creative Arts for Primary Level Children.....3
EDP 323 Professional Development, Learning, and Motivation...3
EED 397 Field Experience in Elementary Schools 2 0
RDG 322 Language Literacy 1 in Elementary Schools 3

Total 12

Semester 3

ECD 414 Early Childhood Curriculum and Organization 3
EED 411 Science in Elementary Schools.....3
EED 412 Mathematics in Elementary Schools.....3
EED 496 Field Experience 3 0
RDG 413 Language Literacy 2 in Elementary Schools 3

Total 12

Semester 4

ECD 479 Capstone Seminar in Early Childhood Education 3
EED 478 Student Teaching in the Elementary School 9
or EED 578 Student Teaching in the Elementary School (9)

Total 12

Major total.....51

BILINGUAL/BICULTURAL EDUCATION (BLE)

For more BLE courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W BLE 312 ESL, Diversity, and Culture in Education. (3)
fall and spring
Examines social, historical, philosophical, and legal issues affecting racially, linguistically, culturally, and exceptionally diverse students in US schools. Prerequisites: ENG 101 (or 105); admission to PTPP or postbaccalaureate programs.
General Studies: L

W BLE 321 ESL Methods for Diverse Language Classrooms. (3)
fall and spring
Strategies and materials for second-language learning, including research on language acquisition/learning, practical applications of ESL methodologies, phonics. Prerequisite: completion of core curriculum courses. Corequisite: EED 397.

W BLE 322 Second-Language Literacy 1 in Elementary Schools. (3)
fall and spring
Instructional/assessment strategies, including systematic, research-based phonics, vocabulary, comprehension, spelling, writing, phonemic writing in Spanish/English. Prerequisite: completion of core curriculum courses. Corequisite: EED 397.

W BLE 324 Social Studies for Diverse Language Classrooms. (3)
fall and spring
Social studies education standards, curriculum, and instructional strategies for English language learners. Prerequisite: completion of core curriculum courses. Corequisite: EED 397.

W BLE 413 Second-Language Literacy 2 in Elementary Schools. (3)
fall and spring
Literacy and language arts instruction; assessment of reading and writing; transition literacy skills, particularly critical reading of content. Prerequisites: BLE 321, 322, 324; EDP 323; EED 397. Corequisite: EED 496.

W BLE 414 Bilingual/ESL Curriculum and Organization. (3)
fall and spring
ESL curriculum content and organization, including program model effectiveness, language assessment and language usage, special needs and parent involvement. Prerequisites: BLE 321, 322, 324; EDP 323; EED 397. Corequisite: EED 496.

W BLE 478 Student Teaching in Diverse Language Classrooms. (9)
fall and spring
Student teaching in diverse language classrooms. Focuses on use of English language learning and bilingual strategies; integrates all previous course work. Fee. Prerequisites: BLE 413, 414; EED 411, 412, 496. Corequisite: BLE 479.

W BLE 479 Capstone Seminar in Bilingual/ESL Education. (3)
fall and spring
Reflective, experience-based integration of theory and practice; professional development for bilingual/ESL teachers. Prerequisites: BLE 413, 414; EED 411, 412, 496. Corequisite: BLE 478 or 578.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

COMPUTER SCIENCE AND ENGINEERING (CSE)

For more CSE courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W CSE 180 Computer Literacy. (3)
fall and spring
Introduces personal computer operations and their place in society. Problem-solving approaches using databases, spreadsheets, and word processing. Lecture, lab, demonstration.
General Studies: CS

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

EARLY CHILDHOOD EDUCATION (ECD)

For more ECD courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W ECD 324 Social Studies and Creative Arts for Primary Level Children. (3)
fall and spring
Social studies and creative arts standards, curriculum, and instructional and assessment strategies for all primary-level children; developmentally appropriate methods and strategies for effective instruction. Prerequisite: completion of core curriculum courses. Corequisite: EED 397.

W ECD 414 Early Childhood Curriculum and Organization. (3)
fall and spring
Historical and legal influences on early childhood education; advanced preparation for curriculum designs and developmentally appropriate practices; school organization topics. Prerequisites: BLE 321; ECD 324; EDP 323; EED 397; RDG 322. Corequisite: EED 496.

W ECD 479 Capstone Seminar in Early Childhood Education. (3)
fall and spring
Reflective, experienced-based integration of theory and practice; professional development for early childhood teachers. Prerequisites: ECD 414; EED 411, 412, 496; RDG 413. Corequisite: EED 478 or 578.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

EDUCATIONAL PSYCHOLOGY (EDP)

For more EDP courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W EDP 310 Educational Psychology. (3)
selected semesters
Human behavior in educational situations. Individual differences, factors affecting learning, behavioral and cognitive learning, motivation, testing, and assessment.
General Studies: SB

W EDP 323 Professional Development, Learning, and Motivation. (3)
fall and spring
Applies educational psychology principles in classrooms; strategies for building classroom community; learner-centered and intentional teaching; and proactive professional development. Prerequisite: completion of core curriculum courses. Corequisite: EED 397.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

ELEMENTARY EDUCATION (EED)

For more EED courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W EED 324 Social Studies in Elementary Schools. (3)
fall and spring
Social studies education standards, curriculum, and instructional and assessment strategies for all children. Prerequisite: completion of core curriculum courses. Corequisite: EED 397.

W EED 397 Field Experience in Elementary Schools 2. (0)
fall and spring
Observation, instruction, and management of small groups and the whole class. Fee. Prerequisite: completion of core curriculum courses.

W EED 411 Science in Elementary Schools. (3)
fall and spring
Science education standards, curriculum, instructional and assessment strategies for all children. Fee. Prerequisites: BLE 321; EDP 323; EED 397. Corequisite: EED 496.

W EED 412 Mathematics in Elementary Schools. (3)
fall and spring
Methods of teaching mathematics to all students at the K-8 level, instructional planning and assessment. Prerequisites: BLE 321; EDP 323; EED 397. Corequisite: EED 496.

W EED 414 Elementary School Curriculum and Organization. (3)
fall and spring
Rationales for instructional curricula; alternative curriculum designs and broad-based content; selected topics in school governance, finance, and law. Prerequisites: BLE 321; EDP 323; EED 324; RDG 322. Corequisite: EED 496.

W EED 464 Middle-School Curriculum and Organization. (3)
fall and summer
Educational implications of the characteristics of a diverse adolescent population on middle-level organization and components, curriculum, instructional strategies, assessment. Cross-listed as SED 464. Credit is allowed for only EED 464 or SED 464. Prerequisite: semester 2 of the PTPP.

W EED 478 Student Teaching in the Elementary School. (9)
fall and spring
Student teaching in elementary school classrooms; integration of all previous course work. Fee. Prerequisites: EED 411, 412, 496; RDG 413. Corequisite: ECD 479 or EED 479.

W EED 479 Capstone Seminar in Elementary Education. (3)
fall and spring
Reflective, experienced-based integration of theory and practice; professional development for K–8 teachers. Prerequisites: EED 411, 412, 496; RDG 413. Corequisite: EED 478.

W EED 496 Field Experience 3. (0)
fall and spring
Instruction and management of small groups and substantial work with the whole class. Fee. Prerequisites: BLE 321; EDP 323; EED 397.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

MATHEMATICS EDUCATION (MTE)

For more MTE courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W MTE 180 Theory of Elementary Mathematics. (3)
fall and spring
Numbers, number systems, operations on numbers, algebraic reasoning, and problem solving. For prospective elementary and special education majors. Prerequisite: MAT 117 (or 142).

W MTE 181 Mathematics for Elementary Teachers 2. (3)
fall and spring
Data analysis, probability, geometry, and measurement. For prospective Elementary Education and Special Education majors. Prerequisite: MTE 180.

W MTE 380 Arithmetic in the Elementary School. (3)
selected semesters
Historical numeration systems, overview of elementary number theory, including primes, factorization, divisibility, bases, modular systems, linear congruence, and continued fractions. Prerequisite: MTE 180 or instructor approval.

W MTE 482 Methods of Teaching Mathematics in Secondary School. (3)
summer
Examines secondary school curricular material and analyzes instructional devices. Teaching strategies, evaluative techniques, diagnosis, and remediation and problem solving. Prerequisite: instructor approval.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

MUSIC EDUCATION (MUE)

For more MUE courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W MUE 310 Music in Early Childhood Education. (3)
selected semesters
Identifies and understands musical needs of young children. Methods and materials for program development for classroom teachers.

W MUE 311 Music for the Classroom Teacher. (3)
selected semesters
Develops the classroom music program in the elementary school. No previous music experience or course work required. Not for music majors or minors.

W MUE 464 Music of World Cultures in the Classroom. (3)
selected semesters
Studies contemporary music of representative cultures within the context of a people's total way of life.
General Studies: HU, G

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

READING EDUCATION (RDG)

For more RDG courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W RDG 322 Language Literacy 1 in Elementary Schools. (3)
fall and spring
Instructional strategies for teaching reading using systematic research-based phonics to aid decoding; vocabulary; and comprehension development; writing, speaking, and listening skills. Prerequisite: completion of core curriculum courses. Corequisite: EED 397.

W RDG 323 Literacy Processes in Content Areas. (3)
fall and spring
Principles and practices for planning subject matter units of instruction that explicitly address learning with texts across academic disciplines. Prerequisite: completion of core curriculum. Corequisite: SED 397.

W RDG 413 Language Literacy 2 in Elementary Schools. (3)
fall and spring
Applies literacy strategies, including instruction and diagnostic assessment, literacy lessons with adaptations for diverse learners, extended classroom experiences. Prerequisites: BLE 321; EDP 323; EED 397; RDG 322. Corequisite: EED 496.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

TEACHER EDUCATION AND LEADERSHIP (TEL)

Department of Elementary Education

For more TEL courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W TEL 111 Exploration of Education. (3)
fall and spring
Education as an instrument in the development of the individual and society and its significance as an American Institution.
General Studies: SB

W TEL 212 Understanding the Culturally Diverse Child. (3)
fall, spring, summer
Surveys cultural and linguistic diversity in American education, including education equity, pluralism, learning styles, and roles of schools in a multiethnic society. Prerequisite: TEL 111.
General Studies: C

W TEL 311 Instruction and Management in the Inclusive Classroom. (3)
fall and spring
Planning and delivering instruction, organizing and managing classrooms, and making adaptations for English language learners and students with special needs. Prerequisite: admission to PTPP or postbaccalaureate programs. Corequisite: TEL 396.

W TEL 313 Educational Technology in the K–12 Curriculum. (3)
fall and spring
Applies and integrates educational technologies in all curricular areas; examines theoretical and practical issues for diverse learners. Fee. Prerequisite: admission to PTPP or postbaccalaureate programs. Corequisite: TEL 396.

W TEL 314 Classroom Assessment. (3)
fall and spring
Assessment and evaluation of student leaning; emphasizes integration and adaptation of curriculum, instruction, and evaluation of all students. Prerequisite: admission to PTPP or postbaccalaureate programs. Corequisite: TEL 396.

W TEL 315 Child and Adolescent Development. (3)
fall and spring
Physical, cognitive, social, and emotional development during childhood and adolescence; developmentally appropriate principles and practices to facilitate development for all students. Prerequisite: admission to PTPP or postbaccalaureate programs. Corequisite: TEL 396.
General Studies: SB

W TEL 396 Field Experience I. (0)
fall and spring
Observation in classrooms and individual and small group instruction. Fee. Prerequisite: admission to PTPP or postbaccalaureate programs.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Department of Secondary Education

www.west.asu.edu/ctel/sed
602/543-6445
FAB S5251A

Peter Rillero, Interim Chair

Professor: Moore

Associate Professor: Rillero

Assistant Professors: Amobi, Onofrey, Wilhelm

SECONDARY EDUCATION—BAE

Admission Requirements

To be considered for admission to the Secondary Education major, applicants must complete a minimum of 56 semester hours of course work as outlined below at West campus or equivalent courses at another accredited college or university, with a grade of "C" (2.00) or higher and an overall GPA of 2.50 or higher:

Required Courses

Choose one of the following combinations 3–6
ENG 101 First-Year Composition (3)
ENG 102 First-Year Composition (3)
——— *or* ———
ENG 105 Advanced First-Year Composition (3)
MAT 142 College Mathematics *MA* 3
or higher level math course (3)
SPE 222 Orientation to Education of Exceptional Children *SB* ...3

Selected Courses

C course 3
CS course 3
G course 3
H course 3
HU courses 6
L course 3
SB course 3
SQ course 4
SQ/SG course 4
Electives 12–15

Minimum total 56

Program Requirements

Candidates for the BAE degree in Secondary Education are required to complete an approved program of 120 semester hours. These hours include

1. 56 semester hours of specified lower division courses for admission;
2. 35 semester hours of General Studies courses;
3. 37 to 39 semester hours of specified upper-division course work in professional education; and
4. 36 to 39 semester hours of course work in an academic specialization.

Some General Studies courses may be used to satisfy a General Studies core area requirement and one or two awareness area requirements at the same time, leaving the student more electives. Academic specialization courses may be used to fulfill General Studies or elective requirements. Selected courses and General Studies courses should be chosen in consultation with a college Academic Advisor.

Students majoring in Secondary Education should also review general information, field experience requirements, student teaching, and academic policies.

Secondary Education (7–12) Major

Semester 1

BLE 312 ESL, Diversity, and Culture in Education *L* 3
TEL 311 Instruction and Management in the Inclusive Classroom 3
TEL 313 Educational Technology in the K–12 Curriculum 3
TEL 314 Classroom Assessment 3
TEL 315 Child and Adolescent Development *SB* 3
TEL 396 Field Experience 1 0

Total 15

Semester 2

RDG 323 Literacy Processes in Content Areas 3
SED 321 Critical Issues in Secondary Education 3
SED 322 Classroom Leadership in Secondary Schools 3
SED 397 Field Experience 2 0
Major methods course 3

Total 12

Semester 3

SED 478 Student Teaching in the Secondary School 10–12

Major total 37–39

Additional Requirements

Additional course work, taken outside the College of Teacher Education and Leadership, is required for the academic specialization in secondary education. The New College of Interdisciplinary Arts and Sciences offers courses that are required for secondary education certification in four areas: English, history, social studies, and mathematics. Since these four secondary specializations are well supported at the West campus, preference in admissions is given to students applying to these areas. Students majoring in Secondary Education who elect a specialization other than the four offered at West campus must complete a substantial portion of their specialization course work and the major methods course at the Tempe campus. Refer to the pages shown below for descriptions of the academic specializations available at West campus.

Academic Specialization

Course	Page
English	715
History	717
Mathematics	726
Social studies	730

SECONDARY EDUCATION (SED)

For more SED courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W SED 321 Critical Issues in Secondary Education. (3)
fall and spring
Examines perspectives of critical issues in contemporary education and encourages students to think critically and to develop their own viewpoints. Prerequisite: completion of core curriculum. Corequisite: SED 397.

W SED 322 Classroom Leadership in Secondary Schools. (3)
fall and spring
Theories and practices for managing and maintaining secondary classrooms for learning; strategies for home/school communication; and leadership roles for teachers. Prerequisite: completion of core curriculum. Corequisite: SED 397.

W SED 397 Field Experience 2. (0)
fall and spring
Applies course content in a secondary school setting. Emphasizes observation, pupil management, planning and delivering instruction, and assessment. Fee. Prerequisite: completion of core curriculum courses.

W SED 464 Middle-School Curriculum and Organization. (3)
fall and summer
Educational implications of the characteristics of a diverse adolescent population on middle-level organization and components, curriculum, instructional strategies, assessment. Cross-listed as EED 464. Credit is allowed for only SED 464 or EED 464. Prerequisite: semester 2 of the PTPP.

W SED 478 Student Teaching in the Secondary School. (3–12)
fall and spring
The practice of teaching; relationship of theory and practice in teaching. Fee. Prerequisites: 2.50 GPA; completion of all professional course work; approval of Offices of Field Experiences and Academic Advising.

W SED 480 Special Methods of Teaching Social Studies. (3)
fall and spring
Interdisciplinary approaches; production and collection of materials.

W SED 481 English Teaching Methods for Secondary Schools. (3)
fall and spring
Instructional, organizational, and presentation methods for English in secondary schools. Prerequisite: ENG 312 or 314 or instructor approval.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

Department of Special Education

www.west.asu.edu/ctel/spe
602/543-6380
FAB S252A

Ida Malian, Chair

Professor: Malian

Associate Professor: Puckett

Assistant Professors: Bradshaw, Brady, Renne

SPECIAL EDUCATION—BAE

Career Outlook

The career outlook for this teaching profession is promising. Special educators are in high demand in Arizona as well as many other states. Demand is expected to remain strong. Special educators are highly regarded by school districts. There are also many opportunities for special education program graduates to take positions in K–8 classrooms as graduates may be eligible for elementary education certification. Increasing proportions of school districts practice full inclusion of students with disabilities into general education classes, which increases the demand for qualified special educators.

Admission Requirements

To be considered for admission to the Special Education major, applicants must complete a minimum of 56 semester hours of course work as outlined at West campus or equivalent courses at another accredited college or university, with a grade of "C" (2.00) or higher and an overall GPA of 2.50 or higher.

Required Courses

Choose one of the following combinations 3–6
ENG 101 First-Year Composition (3)
ENG 102 First-Year Composition (3)
——— *or* ———
ENG 105 Advanced First-Year Composition (3)
CSE 180 Computer Literacy *CS*.....3
or EDT 321 Computer Literacy *CS* (3)
HIS 103 The United States *SB*, *H*.....3
or HIS 104 The United States *SB*, *H* (3)
MAT 142 College Mathematics *MA* or higher level math course ..3
MTE 180 Theory of Elementary Mathematics.....3
MTE 181 Theory of Elementary Mathematics.....3
SPE 222 Orientation to Education of Exceptional Children *SB* ...3
TEL 111 Exploration of Education *SB*.....3
TEL 212 Understanding the Culturally Diverse Child *C* 3

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Selected Courses

G course	3
HU courses	6
L course	3
SQ course	4
SQ/SG course	4
Electives	6–9
Minimum total	56

Some General Studies courses may be used to satisfy a General Studies core area requirement and one or two awareness area requirements at the same time, leaving the student more electives. Selected courses and General Studies courses should be chosen in consultation with a college Academic Advisor.

Program Requirements

Candidates for the BAE degree in Special Education are required to complete an approved program of 120 semester hours. These hours include

1. 56 semester hours of specified lower-division courses for admission;
2. 35 semester hours of General Studies courses; and
3. 60 semester hours of specified upper-division course work in professional education.

Upper-division, professional education courses include College of Teacher Education and Leadership core curriculum courses, special education courses, field experience courses, and student teaching. This course work prepares individuals with abilities and attitudes to work in special education classrooms. The combination of course work and field experience is aligned with the Arizona Professional Teaching Standards. Special education students should review general information, field experience requirements, student teaching, and academic policies within this catalog.

Special Education (K–12) Major

Semester 1

BLE	312	ESL, Diversity, and Culture in Education *L*	3
TEL	311	Instruction and Management in the Inclusive Classroom	3
TEL	313	Educational Technology in the K–12 Curriculum	3
TEL	314	Classroom Assessment	3
TEL	315	Child and Adolescent Development *SB*	3
TEL	396	Field Experience I	0
Total			15

Semester 2

RDG	322	Language Literacy 1 in Elementary Schools	3
SPE	310	Professional Practices in Special Education	3
SPE	317	Special Education for Culturally and Linguistically Diverse Children and Youth	3
SPE	320	Assessment and Evaluation in Special Education *L*	3
SPE	322	Behavior Management and Consultation	3
SPE	397	Field Experience II	0
Total			15

Semester 3

EED	412	Mathematics in Elementary Schools	3
SPE	318	Family-School Collaboration: An Integrated Approach for Children and Adolescents with Special Needs	3
SPE	423	Technology and Instructional Methods in Language, Reading, and Mathematics for Students with Mild/Moderate Disabilities	3
SPE	424	Methods in Cross-Categorical Special Education	3
SPE	431	Collaborative Teaching Methods for General Education Classroom Environments	3
SPE	496	Field Experience III	0
Total			15

Semester 4

SPE	478	Student Teaching in Special Education	12
SPE	440	Professional Seminar in Special Education	3
Total			15

Major total 60

SPECIAL EDUCATION (SPE)

For more SPE courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W SPE 222 Orientation to Education of Exceptional Children. (3)
fall, spring, summer
Includes gifted, mildly handicapped, severely handicapped, and the bilingual/multicultural exceptional child.
General Studies: SB

W SPE 310 Professional Practices in Special Education. (3)
fall and spring
Emphasizes the roles and professional responsibilities of special educators in all service delivery models. Prerequisite: completion of core curriculum courses. Corequisites: SPE 317, 320, 322, 397.
General Studies: L

W SPE 317 Special Education for Culturally and Linguistically Diverse Children and Youth. (3)
fall and spring
General issues and practical applications regarding the education of culturally and linguistically diverse students with disabilities. Prerequisite: completion of core curriculum courses. Corequisites: SPE 310, 320, 322, 397.

W SPE 318 Family-School Collaboration: An Integrated Approach for Children and Adolescents with Special Needs. (3)
fall and spring
Explores relationships between families of children with special needs and professionals in educational institutions and community agencies. Prerequisite: completion of core curriculum courses. Corequisites: SPE 423, 424, 431, 496.

W SPE 320 Assessment and Evaluation in Special Education. (3)
fall and spring
Norm-referenced, criterion-referenced, and authentic strategies to determine eligibility, plan individualized programs, and monitor progress of students with disabilities. Prerequisites: ENG 101 (or 105); completion of core curriculum courses. Corequisites: SPE 310, 317, 322, 397.
General Studies: L

W SPE 322 Behavior Management and Consultation. (3)
fall and spring
Develops and implements analysis, intervention, and consultation strategies for effective management of classroom behavior for students with disabilities. Prerequisite: completion of core curriculum. Corequisites: SPE 310, 317, 320, 397.

W SPE 397 Field Experience II. (0)
fall and spring
Applies course content in a special education setting. Emphasizes observation, pupil management, planning and delivering instruction, and assessment. Fee. Prerequisite: completion of core curriculum. Corequisites: SPE 310, 317, 320, 322.

View of the West campus from Fletcher Library

Arthur Holeman photo

W SPE 423 Technology and Instructional Methods in Language, Reading, and Mathematics for Students with Mild/Moderate Disabilities. (3)
fall and spring
Effective use of technology; instruction and assessment of performance in language, reading, and mathematics for students with mild/moderate disabilities. Prerequisites: SPE 310, 317, 320, 322, 397. Corequisites: SPE 318, 424, 431, 496.

W SPE 424 Methods of Cross-Categorical Special Education. (3)
Assessment and instructional methods for students with mild to moderate retardation, learning disability, emotional disabilities, and physical/health impairment. Prerequisites: SPE 310, 317, 320, 322, 397. Corequisites: SPE 318, 423, 431, 496.

W SPE 431 Collaborative Teaching Methods for General Education Classroom Environments. (3)
fall and spring
Methods and issues in cooperative teaching for special education students in general education classrooms. Prerequisites: SPE 310, 317, 320, 322, 397. Corequisites: SPE 318, 423, 424, 496.

W SPE 440 Professional Seminar in Special Education. (3)
fall and spring
Examines critical issues in the delivery of special education services. Emphasizes self reflection and professional development. Prerequisites: SPE 318, 423, 424, 431. Corequisite: 478.

W SPE 478 Student Teaching in Special Education. (12)
fall and spring
Student teaching in special education setting. Fee. Prerequisites: a 2.50 GPA; completion of all professional course work; approval of Offices of Field Experiences and Academic Advising.

W SPE 496 Field Experience III. (0)
fall and spring
Applies course content in a special education setting. Emphasizes observation pupil management, planning and delivering instruction, and assessment. Fee. Prerequisites: SPE 310, 317, 320, 322, 397. Corequisites: SPE 318, 423, 424, 431.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

College of Teacher Education and Leadership Graduate Degrees and Majors

Major	Degree	Concentration*	Administered By
Educational Administration and Supervision	MEd	—	Department of Graduate Studies and Professional Development
Elementary Education	MEd	Optional: bilingual education, educational technology, ESL education, or reading*	Department of Graduate Studies and Professional Development
Leadership and Innovation	EdD	Leadership in policy and administration or leadership of teaching innovation	Department of Graduate Studies and Professional Development
Secondary Education	MEd	Optional: educational technology*	Department of Graduate Studies and Professional Development
Special Education	MEd	Infants and young children	Department of Graduate Studies and Professional Development

* If a major offers concentrations, one must be selected unless noted as *optional*.

Department of Graduate Studies and Professional Development

www.west.asu.edu/ctel/graduate

602/543-3634

FAB S220

Stephen B. Lawton, Chair

See the "College of Teacher Education and Leadership Graduate Degrees and Majors" table, on this page, for programs available at the West campus.

In addition the Department of Graduate Studies and Professional Development offers Master's Programs with Teacher Certification in Elementary, Secondary, and Special Education. Consult the *Graduate Catalog* for information regarding Master's degree programs and requirements.

EDUCATIONAL ADMINISTRATION AND SUPERVISION (EDA)

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

EDUCATIONAL TECHNOLOGY (EDT)

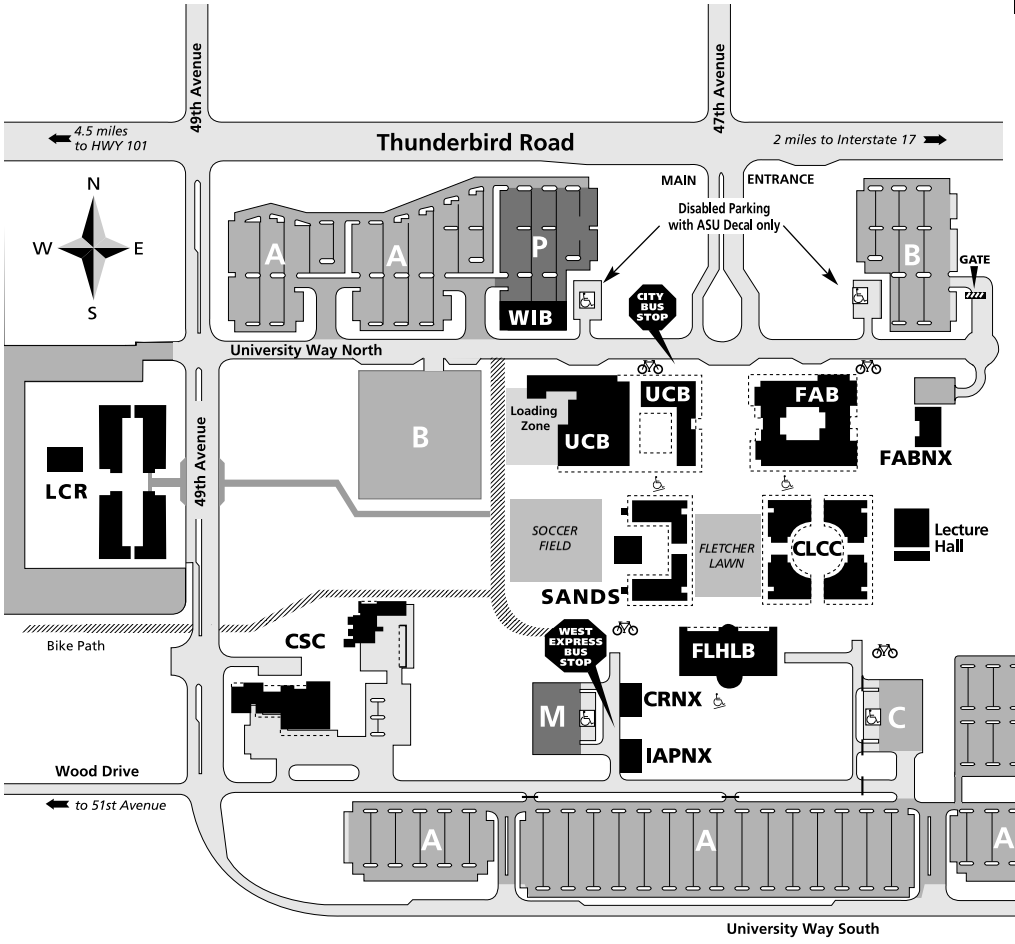
Department of Elementary Education

For more EDT courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

W EDT 321 Computer Literacy. (3)
fall and spring
Computer software applications. Problem-solving approaches using databases, spreadsheets, word processing, Web publishing, and other current applications. Lecture, lab, demonstration.
General Studies: CS

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog,* or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.



BUILDING LEGEND

Welcome & Information Building (WIB)
- Arizona State Savings & Credit Union
- Campus Information Center
- Parking Services Office
- Testing Services

Las Casas Student Housing (LCR)

University Center Building (UCB)
- Admission Services
- Bank of America ATM
- Barrett Honors College
- Bookstore
- Cafeteria
- Career Services/Personal Counseling Center
- Cashier's Office
- Child Care Center
- Devils' Den game room
- Disability Resource Center
- Financial Aid/Student Employment
- GCC- ASU Partnership
- Information Desk
- La Sala A,B,C
- Multicultural Student Services
- Registration Services
- Second Stage West Theatre
- Student Affairs Administration
- Student Health Services
- Student Life
- Student Support Services Program
- University College at the West campus
- Veteran Student Services
- Wellness/Fitness Center
- Women's Studies Resource Center

Faculty/Administration Building (FAB)
- Academic Affairs
- Basement classrooms
- College of Human Services
- College of Teacher Education & Leadership
- Copy Center
- Information Desk
- Institutional Planning & Research
- Instructional Technology Lab
- New College of Interdisciplinary Arts & Sciences
- Office of Administrative Affairs/Planning & Budget
- Office of the Provost
- Public Affairs
- School of Global Management & Leadership

FAB Annex (FABNX)
- Human Resources

Classroom Lab/Computer Classroom Building (CLCC)
- Information Technology
- Lecture Hall
- Life Sciences

Fletcher Library (FLHLB)
- Technopolis
- Learning Enhancement Center

Interdisciplinary Arts Annex (IAPNX)

Classroom Annex (CRNX)

Sands Classroom Building (SANDS)
- Kiva Lecture Hall
- Sand Trap snack bar

Central Services Complex (CSC)
- Central Plant
- DPS/University Police
- Facilities Development & Management
- Mail Services

SYMBOLS LEGEND

- Disabled Permit Parking
- A — Permit Parking *(Students, faculty & staff only)*
- M — Metered Parking *(25¢ per 15 minutes)*
- B — Faculty/Staff Permit Parking *7 am to 5:30 pm - Student permit parking allowed after 5:30 pm)*
- P — Visitor Parking *Fee lot - 24 hours/day*
- C — Faculty/Staff Permit Parking *(24 hours/day)*
- Accessible Ramp
- Bicycle Racks

Parking regulations are enforced at all times. Parking permits are required on campus from 7am through 10pm. Meters are enforced from 7am until 10pm. Parking regulations are enforced 24 hours a day, 7 days a week.

ASU ARIZONA STATE UNIVERSITY

West campus

(602) 543-5500 • www.west.asu.edu
Street Address: 4701 West Thunderbird Road • Glendale, AZ 85306-4908
Mailing Address: PO Box 37100, Phoenix, AZ 85069-7100

President's and Regents' Professors

President's Professors

The title "president's professor" is bestowed upon tenured faculty who have made substantial contributions to undergraduate education at ASU through their demonstrated commitment to teaching, creative scholarship, and student success.

RANDALL S. CERVENY
Geography

ALICE A. CHRISTIE
Graduate Studies and Professional Development

IAN R. GOULD
Chemistry and Biochemistry

Regents' Professors

The title "regents' professor" is conferred on selected members of the ASU tenured faculty who have achieved and are sustaining the highest level of distinction by their exceptional contributions to the mission of the university in research or other creative activity and in teaching or professional service.

JOHN ALCOCK
Life Sciences

DAVID L. ALTHEIDE
Justice and Social Inquiry

C. AUSTEN ANGELL
Chemistry and Biochemistry

CHARLES J. ARNTZEN
Life Sciences

CONSTANTINE A. BALANIS
Electrical Engineering

DAVID C. BERLINER
Educational Leadership and Policy Studies and Psychology in Education

PETER R. BUSECK
Chemistry and Biochemistry and Geological Sciences

CORDELIA CHAVEZ CANDELARIA
Chicana and Chicano Studies and English

RON CARLSON
English

CARLOS CASTILLO-CHAVEZ
Mathematics and Statistics

PHILLIP R. CHRISTENSEN
Geological Sciences

ROBERT B. CIALDINI
Psychology

GEOFFREY A. CLARK
Anthropology

NORMAN DUBIE
English

NANCY H. EISENBERG
Psychology

DAVID K. FERRY
Electrical Engineering

DAVID WILLIAM FOSTER
Languages and Literatures

GENE V GLASS
Educational Leadership and Policy Studies and Psychology in Education

LUIS R. GOMEZ-MEJIA
Management

WILLIAM L. GRAF
Geography, Emeritus

RONALD GREELEY
Geological Sciences

GERALD THOMAS HEYDT
Electrical Engineering

DAVID R. HICKMAN
Music

PETER IVERSON
History

DAVID H. KAYE
Law

GARY D. KELLER
Languages and Literatures

MARK C. KLETT
Art

DANIEL M. LANDERS
Kinesiology

SHENG H. LIN
Chemistry and Biochemistry, Emeritus

JANE MAIENSCHEIN
Biology and Society

JAMES W. MAYER
Chemical and Materials Engineering and Solid State Science

DOUGLAS C. MONTGOMERY
Industrial Engineering

CARLETON B. MOORE
Chemistry and Biochemistry and Geological Sciences, Emeritus

JEFFRIE G. MURPHY
Law and Philosophy

MICHAEL O'KEEFFE
Chemistry and Biochemistry, Emeritus

CAIO PAGANO
Music

DENNIS J. PALUMBO
Justice and Social Inquiry, Emeritus

G. ROBERT PETTIT
Chemistry and Biochemistry

GEORGE H. POSTE
Biology

EDWARD C. PRESCOTT
Economics

STEPHEN J. PYNE
Life Sciences

ALBERTO ALVARO RÍOS
English

NANCY FELIPE RUSSO
Psychology

IRWIN N. SANDLER
Psychology

DAVID J. SMITH
Physics and Astronomy and Solid State Science

MARY LEE SMITH
Educational Leadership and Policy Studies and Psychology in Education

JOHN C. H. SPENCE
Physics and Astronomy

SUMNER G. STARRFIELD
Physics and Astronomy

MARY BETH STEARNS
Physics and Astronomy, Emerita

CHRISTY G. TURNER II
Anthropology, Emeritus

J. BRUCE WAGNER JR.
Chemistry and Biochemistry and Solid State Science, Emeritus

KURT WEISER
Art

ROGIER A. WINDHORST
Physics and Astronomy

Faculty and Academic Professionals

The faculty and academic professionals listed are involved in undergraduate and graduate instruction and research. The year of first appointment follows the name. Emeritae and emeriti are included.

Downtown Phoenix Campus

A

Adams, Donna (1983), Professor Emerita of Nursing; BSN, University of Missouri, Columbia; MS, Arizona State University; DNSc, University of San Diego

Adams, Sue (2001), Clinical Associate Professor of Nursing; BSN, University of Arizona; MS, Arizona State University

Aerni, Wayne (1991), Faculty Associate of Public Affairs; BA, University of Oregon; MPA, PhD, Arizona State University

Allison, Maria T. (1984), Professor of Community Resources and Development; Vice Provost and Dean of Graduate Studies; BS, MS, University of New Mexico; PhD, University of Illinois

Alpers, Rojann R. (1995), Associate Professor of Nursing; Curator, American Museum of Nursing; BSN, MS, Arizona State University; PhD, University of Iowa

Alvarado, Ronald H. (1974), Professor Emeritus of Life Sciences; Dean Emeritus, School of Extended Education; BA, University of California, Riverside; MS, PhD, Washington State University

Al-Yahya, Khalid (2005), Assistant Professor of Public Affairs; BA, Imam University (Saudi Arabia); MBA, MPA, University of Hartford; PhD, University of Connecticut, Storrs

Anderson, Jonna (2004), Clinical Assistant Professor of Nursing; BSN, Lewis-Clark State College; MSN, Idaho State University

Armbruster, Charlotte (1997), Clinical Associate Professor of Nursing; BSN, MS, Arizona State University

Ashcraft, Robert F. (1995), Associate Professor of Community Resources and Development; Director, Center for Nonprofit Leadership and Management; BA, University of Arizona; MA, Northern Arizona University; PhD, Arizona State University

Ashford, Jose B. (1984), Professor of Social Work; BA, Loyola University, New Orleans; MSW, Ohio State University; PhD, Bowling Green State University

Augsburg, Tanya (1997), Senior Lecturer of Interdisciplinary Studies; BA, New York University; MA, PhD, Emory University

B

Bacchus, Denise N.A. (2003), Assistant Professor of Social Work; BA., Ithaca College; MA, PhD, State University of New York, Albany

Backer, Linda R. (1997), Assistant Instructional Professional, School of Extended Education; Manager, Interdisciplinary Programs, Academic and Professional Programs, School of Extended Education; BA, University of Colorado; MS, Colorado State University

Bagwell, Marilyn (1972), Professor Emerita of Nursing; BSN, University of California, Los Angeles; MA, Arizona State University; PhD, Texas Woman's University

Baldwin, Carol (2004), Associate Professor of Nursing; BSN, MSN, University of Phoenix; PhD, University of Arizona

Bardewyck, Loretta A. (1957), Professor Emerita of Nursing; Dean Emerita, College of Nursing; PHN, BS, University of Minnesota, Twin Cities; MS, Cornell University

Barry, Rebecca E. (2002), Lecturer of Community Resources and Development; BA, University of Utah; MA, Middlebury College; PhD, University of Utah

Beck, Lasca (1984), Professor Emerita of Nursing; BSN, Texas Woman's University; MS, Texas A&M University, Commerce

Bell, Shirley (1988), Clinical Professor of Nursing; BSN, University of Cincinnati; MSN, Wayne State University; EdD, West Virginia University

Belyea, Michael (2005), Research Professor of Nursing; BA, MA, University of North Dakota; PhD, North Carolina State University, Chapel Hill

Benesh, Susan (1999), Clinical Assistant Professor of Nursing; BSN, MS, Arizona State University

Blessing, Linda (1995), Professor of Practice in Public Affairs; BS, California State Polytechnic University, Pomona; MBA, California State University, San Bernardino; PhD, Arizona State University

Bley, Patricia (2002), Faculty Associate of Nursing; BSN, Arizona State University; MSN, University of Phoenix

Boylan, Amy Cooper (1986), Academic Associate, University College; Academic Advisor; BSW, MC, Arizona State University

Bozzette, Maryann (2005), Associate Professor of Nursing; BSN, D'Youville College; MN, PhD, University of Washington

Bradley, Eula D. (1979), Academic Specialist Coordinator of Nursing; BMEd, Southwest Baptist University

Bragg, Chris (2006), Assistant Director, Special Programs, American English and Culture Program, School of Extended Education; BA, MTESL, Arizona State University; MA, University of Chicago

Branstetter, Ellamae (1967), Professor Emerita of Nursing; BS, St. Louis University; MPH, University of Minnesota, Twin Cities; PhD, University of Chicago

Brillhart, Barbara (1996), Associate Professor of Nursing; BSN, MSN, California State University, Los Angeles; PhD, Texas Woman's University

Brooks, Ruth (2000), Manager, Learning Resource Center; BS, University of Wyoming; MS, University of Colorado at Denver and Health Sciences Center

Brown, Brent W. (1972), Professor Emeritus of Public Affairs; BA, Brigham Young University; MA, Arizona State University; PhD, University of Illinois

Brown, Theresa (2000), Faculty Associate of Nursing; BSN, Arizona State University

Brown, William A. (1999), Assistant Professor of Community Resources and Development; BS, Northeastern University; MA, PhD, Claremont Graduate University

Bruner, May I. (1961), Professor Emerita of Nursing; BS, University of Hawaii, Honolulu; MS, University of Colorado

Brzuzy, Stephanie (1995), Associate Professor of Social Work; BSW, Indiana University, Bloomington; MSW, University of Illinois, Urbana-Champaign; PhD, Ohio State University

Budruk, Megha (2004), Assistant Professor of Community Resources and Development; BS, University of Poona (India); MS, Arizona State University; PhD, University of Vermont

C

Campbell, Heather E. (1991), Associate Professor of Public Affairs; Director, Public Administration Master's Program; BA, University of California, San Diego; MPhil, PhD, Carnegie Mellon University

Campesino, Maureen (2005), Assistant Professor of Nursing; BSN, Rutgers, The State University of New Jersey; MS, Arizona State University; PhD, University of Arizona

Catlaw, Thomas J. (2004), Assistant Professor of Public Affairs; BA, Trinity College; MPA, PhD, George Washington University

Cayer, N. Joseph (1980), Professor of Public Affairs; BA, MPA, University of Colorado; PhD, University of Massachusetts, Amherst

Cesarotti, Evelyn (1992), Associate Professor of Nursing; Site Coordinator, West Campus; BSN, University of West Florida; MS, PhD, University of Arizona

Chang, Mary (2006), Assistant Director, American English and Culture Program, School of Extended Education; BA, Arizona State Unviersity; MA, Monterey Institute of International Studies

Chapman, Jeffrey (1999), Professor of Public Affairs; AB, Occidental College; MA, PhD, University of California, Berkeley

Chen, Angela Chia-Chen (2005), Assistant Professor of Nursing; BSN, National Taiwan University, Medical College (Taiwan); MS, PhD, University of Washington

Chilton, Leslie Anne (1998), Academic Associate, University College; Coordinator, Writing Center; BA, MA, PhD, Arizona State University

Cole, Tom (1981), Lecturer, School of Extended Education; Associate Director, American English and Culture Program, School of Extended Education; BS, Northern Arizona University; MA, Arizona State University

Cook, Sue (2004), Assistant Professor of Nursing; BSN, University of Phoenix; MS, Arizona State University; MEd, Northern Arizona University; PhD, University of Arizona

Cooke, Cheryl L. (2004), Assistant Professor of Nursing; BSN, University of Washington, Bothell; MSN, PhD, University of Washington

Cooper, Janet (2005), Faculty Associate of Nursing; BSN; California State University, Dominguez Hills; MSN, California State University, Long Beach

Coor, Lattie F. (1990), Professor of Public Affairs; President Emeritus, Arizona State University; AB, Northern Arizona University; MA, PhD, Washington University

Corey, Frederick C. (1987), Associate Professor of Communication; Associate Dean, University College; Interim Director, School of Interdisciplinary Studies; BS, Central Michigan University; MS, Southern Illinois University, Carbondale; PhD, University of Arizona

Corley, Elizabeth A. (2003), Assistant Professor of Public Affairs; BSCE, MS, MSCE, PhD, Georgia Institute of Technology

Coudroglou, Aliki (1971), Professor Emerita of Social Work; BA, College of Saint Benedict; MSW, University of Minnesota, Twin Cities; DSW, Columbia University

Coughlin, John Kevin (1994), Academic Associate, University College; BA (History), BA (Religious Studies), MC, Arizona State University

Crocker, Nancy (1996), Academic Associate, University College; Associate Director, Academic Community Engagement Services; BA, MA, PhD, Michigan State University

Crow, Michael M. (2002), Professor of Public Affairs; President, Arizona State University; BA, Iowa State University; PhD, Syracuse University

D

Dahl, Jeannine (1989), Professor Emerita of Nursing; BS, University of Kansas; MA, EdD, University of Northern Colorado

Daley, J. Michael (1978), Professor Emeritus of Social Work; BS, Spring Hill College; MSW, Saint Louis University; MS, University of Pittsburgh; PhD, Tulane University

Davidson, Sandra J. (2005), Clinical Associate Professor of Nursing; BN, University of Lethbridge (Canada); MS, Gonzaga University

DeGraw, Bette F. (1986), Administrative Professional Emerita of Public Affairs; Dean Emerita, School of Extended Education; BA, Thiel College; MSW, Rutgers, The State University of New Jersey; PhD, Arizona State University

Dehghanpisheh, Elaine (1983), Lecturer, American English and Culture Program, School of Extended Education; BA, MA, Pahlavi University (Iran)

DeLusé, Stephanie R. (1993), Lecturer of Interdisciplinary Studies; BS, MA, PhD, Arizona State University

Denhardt, Janet Vinzant (1995), Professor of Public Affairs; BA, Washington State University; MPA, DPA, University of Southern California

Denhardt, Robert (1999), Professor of Public Affairs; Director, School of Public Affairs; BA, Western Kentucky University; MA, PhD, University of Kentucky

Di Adamo, Barbara A. (1999), Academic Associate, University College; BA, William Paterson University; MA, Sonoma State University

Dirksen, Shannon Ruff (1996), Associate Professor of Nursing; BSN, Arizona State University; MS, PhD, University of Arizona

Doser, Douglas A. (2000), Academic Associate, University College; Academic Advisor; BA, MS, Eastern Illinois University

Durand, Barbara A. (1992), Professor Emerita of Nursing; BS, College of Saint Teresa; MS, University of California, San Francisco; EdD, University of San Francisco

E

Edwards, Andrew (1994), Academic Associate, University College; BA, Northwestern University; MSE, Indiana University, Bloomington

Ellsworth, Kevin H. (1995), Lecturer of Interdisciplinary Studies; Director, Bachelor of Interdisciplinary Studies; BA, MA, Brigham Young University; PhD, Arizona State University

Evans, Bronwynne C. (2004), Associate Professor of Nursing; BSN, Washington State University; MA, PhD, University of Washington

F

Fargotstein, Barbara P. (1988), Clinical Associate Professor of Nursing; BS, BSN, Arizona State University; MN, University of California, Los Angeles

Faulkner, Melissa Spezia (2006), Professor of Nursing; Associate Dean, Research; BSN, Southern Illinois University, Edwardsville; MSN, University of Evansville; DSN, University of Alabama, Birmingham

Fausel, Donald F. (1969), Professor Emeritus of Social Work; AB, STB, STL, Saint Mary's University; MSW, Fordham University; DSW, Columbia University

Feldman, Patricia A. (1990), Associate Administrative Professional, School of Extended Education; Executive Director, Academic and Professional Programs, School of Extended Education; BS, MEd, Colorado State University; EdD, Arizona State University

Fiery, Cecelia (2001), Academic Specialist Coordinator of Nursing; BS, Greenville College; MA, Eastern Michigan University

Figueira-McDonough, Josephina (1990), Professor Emerita of Justice and Social Inquiry and Social Work; BS, University of Lisbon (Portugal); MSW, PhD, University of Michigan

Finch, A. Joyce (1965), Professor Emerita of Nursing; BSN, Augustana College; MS, University of Colorado; PhD, University of Texas, Austin

Fineout-Overholt, Ellen (2004), Clinical Associate Professor of Nursing; Director, Center for the Advancement of Evidence-Based Practice; BSN, University of Texas Medical Branch; MSN, University of Alabama, Birmingham; PhD, University of Rochester

Fleury, Julie (2001), Hanner Professor of Nursing; Director of DNS Program; BSN, Northern Arizona University; MS, PhD, University of Arizona

Fountaine, Steven (1990), Lecturer, American English and Culture Program, School of Extended Education; BA, Shepherd College; MA, Temple University; PhD, Arizona State University

Freeman, Sandee (1990), Academic Associate, University College; Academic Advisor; BS, MFA, Arizona State University

Friedman, Debra (2005), Professor of Public Affairs; Dean, College of Public Programs; BA, Adelphi University; MA, PhD, University of Washington

G

Gale, Betty J. (1982), Professor Emerita of Nursing; BSN, MS, Arizona State University; DNSc, University of San Diego

Garcia-Wiggen, Grace C. (2005), Faculty Associate of Nursing; BSN, BSW, University of North Dakota; MSW, Augsburg College

Garrison, Eleanor (1973), Professor Emerita of Nursing; BSN, MSN, Wayne State University

Garrity, Marjorie L. (1975), Professor Emerita of Nursing; BS, University of Bridgeport; MS, Case Western Reserve University

Gerdes, Karen E. (1995), Associate Professor of Social Work; BS, Florida State University; MSW, Brigham Young University; PhD, Florida State University

Gonzalez-Santin, Edwin (1979), Senior Instructional Professional of Social Work; BA, Cameron State College; MSW, Arizona State University

Greenberg, Edward A. (1996), Associate Research Scientist for Nursing; Director, Data Management and Information Systems; BA, University of California, Los Angeles; PhD, Arizona State University

Guo, Chao (2002), Assistant Professor of Community Resources and Development; BA, MA, Renmin University of China; PhD, University of Southern California

Gustavsson, Nora S. (1994), Associate Professor of Social Work; AB, MSW, City University of New York; PhD, University of Southern California

Gutierrez, Carol (2005), Faculty Associate of Nursing; BSN, University of Wisconsin; MS, De Paul University

H

Hackett, Gail (1988), Professor of Counseling Psychology and Counselor Education; Vice Provost; Dean, University College; BA, MEd, PhD, Pennsylvania State University

Hagler, Debra (1996), Clinical Associate Professor of Nursing; BSN, New Mexico State University; MS, University of Arizona; PhD, Arizona State University

Haley, Arthur J. (1976), Professor Emeritus of Community Resources and Development; BA, Stonehill College; MEd, Springfield College; PhD, Texas A&M University

Hall, John S. (1973), Professor of Public Affairs; BA, MA, San Diego State University; PhD, University of Oregon

Hanisch, Tyke Cheryllynn (2003), Faculty Associate of Nursing; BSN, University of Wisconsin; MS, Arizona State University

Hauser, Sue Marie (1994), Faculty Associate of Nursing; BSN, MS, Arizona State University

Hepworth, Dean H. (1990), Professor Emeritus of Social Work; BS, MSW, PhD, University of Utah

Hermann, Ria (1986), Academic Associate, University College; Academic Advisor; BA, BS, MS, PhD, Arizona State University

Herrera, Cheryl L. (1989, 2005), Director, Student Services for Nursing; BA, MPA, California State University, Stanislaus

Hill, Vanessa (2002), Faculty Associate of Nursing; BSN, MS, Arizona State University

Hirshorn, Jessica (2004), Lecturer of Interdisciplinary Studies; BA, Coe College; MIIM, The School for International Training; EdD, University of Houston

Hiryak, Christopher D. (2000), Faculty Associate of Public Affairs; BSE, Lock Haven University; MPA, Arizona State University

Holley, Lynn C. (2000), Assistant Professor of Social Work; BA, MSSW, University of Tennessee, Knoxville; PhD, University of Washington

Hollingsworth, Eleanor L. (2005), Faculty Associate of Nursing; BSN, Northern Arizona University; MS, Arizona State University

Honker, Andrew M. (2001), Academic Advisor, Bachelor of Interdisciplinary Studies, School of Extended Education; BA, Dartmouth College; MA, Utah State University; PhD, Arizona State University

Hrabe, David P., (1991), Director, Academy for Continuing Education, College of Nursing; BSN, Fort Hays State University; MS, Arizona State University; PhD, University of Arizona

Hull, Deborah Renner (1994), Academic Specialist Coordinator; BS, MEd, EdD, Arizona State University

I

Ilchak, Debra Lorraine (2004), Faculty Associate of Nursing; BSN, Arizona State University; MSN, Emory University

Ismeurt, Robert L. (1989), Associate Professor of Nursing; BSN, Florida State University; MS, Arizona State University; PhD, University of Texas, Austin

J

Jackson Hall, Cheryl (2002), Lecturer of Interdisciplinary Studies; BA, University of Massachusetts; MA, University of Montana; PhD, University of California, San Francisco

Jarrell, Kay (2002), Clinical Assistant Professor of Nursing; BSN, West Virginia University; MS, Arizona State University

Jasper, Marcia A. (1976–86; 1993), Clinical Associate Professor of Nursing; BSN, St. Olaf College; MS, Arizona State University

Johnson, Penelope M. (1995), Professor Emerita of Nursing; BS, University of Colorado; MS, Arizona State University

Johnson, Wendee (1990), Clinical Associate Professor of Nursing; BSN, Gustavus Adolphus College; MSN, University of Pennsylvania

Johnson, William S. (1990), Executive Director Emeritus, Division of Undergraduate Academic Services; BA, Washington State University; MS, Iowa State University; PhD, University of Southern California

Johnson-Becker, Gayle (1994), Lecturer, American English and Culture Program, School of Extended Education; BA, University of Colorado; MA, University of California, Los Angeles

Johnston, Hubert (1986), Clinical Associate Professional of Social Work; BS, Cheyney State College; MA, Central Michigan University; PhD, Cornell University

Jones, Christopher D. (2005), Assistant Professor of Community Resources and Development; BA, University of Tennessee; MS, Clemson University; PhD, West Virginia University

K

Kang, Suk-Young (2003), Assistant Professor of Social Work; BA, Seoul National University College of Social Work (South Korea); MA, PhD, Columbia University

Kastenbaum, Beatrice (1982), Clinical Associate Professor of Nursing; BSN, University of Michigan; MSN, Wayne State University

Katzman, Elaine Menter (1983), Professor Emerita of Nursing; BS, MS, PhD, Syracuse University

Keegan, Nicole (2005), Faculty Associate of Nursing; BSN, New York University

Kegelman, Jan (1978), Lecturer, School of Extended Education; Coordinator, International Teaching Assistants Program, American English and Culture Program; BS, University of Massachusetts; MA, Arizona State University

Keller, Colleen (2005), Professor of Nursing; Director, Center for Healthy Outcomes in Aging; BSN, Arizona State University; MS, Ohio State University; PhD, University of New Mexico

Kelly, Janice M. (1982), Academic Associate, University College; Director, Academic Community Engagement Services; BA, MFA, Arizona State University

Kettner, Peter M. (1979), Professor Emeritus of Social Work; BA, Valparaiso University; MSW, Washington University; DSW, University of Southern California

Killeen, Mary (1982–84; 1986), Associate Professor of Nursing; Associate Dean for Academic Affairs, College of Nursing; BSN, MS, Arizona State University; PhD, University of Texas, Austin

King, Tracy (1998), Faculty Associate of Nursing; BSN, MS, Arizona State University

Knudsen, Frances S. (1964), Professor Emerita of Nursing; BS, University of Arizona; MS, University of Colorado; PhD, Arizona State University

Knutson-Woods, Teri (1997), Assistant Administrative Professional of Social Work; BA, Grand Canyon University; MSW, Arizona State University

Komnenich, Pauline (1984), Professor of Nursing; Director, Center for Evaluation and Research; BS, Stanford University; MN, University of Washington; MA, PhD, University of Arizona

Krinsky, Charles (2004), Lecturer of Interdisciplinary Studies; BA, Wesleyan University; MA, New York University; PhD, University of California, Irvine

Krueger, Janelle (1984), Professor Emerita of Nursing; Dean Emerita, College of Nursing; BS, MS, PhD, University of Colorado

Krysik, Judy (2005), Associate Professor of Social Work; BSW, MSW, University of Calgary (Canada); PhD, Arizona State University

Kyselka, Christine K. (1990), Associate Administrative Professional, School of Extended Education; Associate Director, Community Outreach Programs, School of Extended Education; BS, MPA, Arizona State University

L

Lan, Zhiyong (1991), Professor of Public Affairs; BA, Nanjing University (China); MPA, North Carolina State University, Raleigh; PhD, Syracuse University

Larson, Nancy C. (1999), Assistant Professor of Social Work; BA, Western Washington University; MSW, PhD, University of Washington

Lattouf, Mirna (1998), Lecturer of Interdisciplinary Studies; BA, Rutgers, The State University of New Jersey; MA, New York University; PhD, University of Arizona

LeCroy, Craig (1984), Professor of Social Work; BSW, San Jose State University; MSW, Western Michigan University; PhD, University of Wisconsin

Leighninger, Leslie (2000), Professor of Social Work; Director, School of Social Work; BA, Oberlin College; MSW, Syracuse University; DSW, University of California, Berkeley

Lersch, Judy (1999), Clinical Assistant Professor of Nursing; BSN, University of Arizona; MEd, Northern Arizona University; MS, Arizona State University

Lewenstein, Suzanne (1997), Academic Associate of Interdisciplinary Studies, University College; BA, University of Wisconsin, Madison; MA, Case Western Reserve University; PhD, Arizona State University

Leyba, Raul L. (1970), Professor Emeritus of Social Work; BA, Western New Mexico University; MSW, University of Denver

Lindeman, Mary (1988), Lecturer, American English and Culture Program, School of Extended Education; BA, St. Mary's University; MA, University of Houston

Lindquist, Barbara (2001), Lecturer of Interdisciplinary Studies; BSW, MSW, MA, PhD, University of Wisconsin, Milwaukee

Link, Denise (2002), Clinical Associate Professor of Nursing; BSN, Gwynedd-Mercy College; MSN, University of Pennsylvania; DNSc, Widener University

Livingston, Mary (1978), Lecturer, American English and Culture Program, School of Extended Education; BA, MA, Arizona State University

Ludemann, Ruth S. (1984), Professor Emerita of Nursing; BSN, Columbia University; MSN, Wayne State University; PhD, Arizona State University

Ludlow, Elizabeth A. (1972), Professor Emerita of Nursing; BSN, University of New Mexico; MS, Arizona State University

Lupone, Kathleen A. (2004), Clinical Assistant Professor of Nursing; BSN, MS, Arizona State University

M

MacEachron, Ann (1984), Professor of Social Work; BA, Cornell University; MSW, University of Pittsburgh; PhD, Cornell University

Mankin, Lawrence D. (1973), Professor Emeritus of Public Affairs; BBA, City College; MA, PhD, University of Illinois

Marsiglia, Flavio F. (1994), Professor of Social Work; Director, Southwest Interdisciplinary Research Center; BLaw, SS, MSW, University of the Republic (Uruguay); PhD, Case Western Reserve University

Martinez-Brawley, Emilia E. (1992), Professor of Social Work; BA, National University of Tucumán (Argentina); MSS, Bryn Mawr College; EdD, Temple University

Mattson, Susan (1993), Professor of Nursing; Director, Second Degree Programs of Nursing; BS, MA, MS, California State University, Los Angeles; PhD, Claremont Graduate University

Maxwell, Katherine Davis (1996), Clinical Assistant Professor of Nursing; BS, University of Utah; MS, Arizona State University

Mays, Mary F. (2005), Associate Professor of Nursing; BA, Trinity University; MS, PhD, University of Oklahoma

McCabe, Barbara (1997), Associate Professor of Public Affairs; BA, MPA, Florida Atlantic University; PhD, Florida State University

McCarthy, Marianne (1994), Associate Professor of Nursing; BSN, Mount Saint Mary College; MSN, Seton Hall University; PhD, University of California, San Francisco

McCormack, Brian (2000), Senior Lecturer of Interdisciplinary Studies; BA, BS, University of Nebraska, Omaha; BA, Australian National University (Australia); MA, PhD, Arizona State University

McGaw, Dickinson L. (1968), Professor Emeritus of Public Affairs; BA, MA, PhD, Indiana University, Bloomington

McGrath, Jacqueline (1999), Assistant Professor of Nursing; BSN, University of Akron; MSN, Kent State University; PhD, University of Pennsylvania

McMillen, Phyllis (2000), Faculty Associate of Nursing; BSN, Union College, Lincoln; MSN, University of Nebraska Medical Center

Melnick, Robert (1987), Senior Research Scientist for Public Affairs; Associate Vice President, Economic Affairs; Director, Morrison Institute for Public Policy; BA, Dartmouth College; MA, PhD, Arizona State University

Melnyk, Bernadette M. (2005), Professor of Nursing; Dean, College of Nursing; BS, West Virginia University; MS, University of Pittsburgh; PhD, University of Rochester

Miller, Barbara K. (1976), Professor Emerita of Nursing; BSN, MSEd, University of Akron; PhD, University of Texas, Austin

Mitchell, Linda C. (2005), Clinical Assistant Professor of Nursing; BSN, Immaculata University; MSN, University of Phoenix

Mitchell, Marie (1980), Lecturer, American English and Culture Program, School of Extended Education; BA, Fort Hays State University; MA, School for International Training

Montero, Darrel (1979), Associate Professor of Social Work; BA, California State University, Sacramento; MA, PhD, University of California, Los Angeles

Moore, Patricia (1984), Professor Emerita of Nursing; BSN, Loyola University, Chicago; MS, Catholic University of America; MPH, DrPH, Johns Hopkins University

Moroney, Robert M. (1981), Professor of Social Work; AB, MSW, Boston College; MPH, Harvard University; PhD, Brandeis University

Morris, Brenda C. (1994), Clinical Associate Professor of Nursing; Director, Baccalaureate Program; BSN, MS, University of Arizona; EdD, Arizona State University

Murphy, Juanita F. (1971), Professor Emerita of Nursing; Dean Emerita, College of Nursing; BA, Oklahoma Baptist University; MS, PhD, Case Western Reserve University

Murray, Kimberly Ann (2005), Clinical Assistant Professor of Nursing; BSN, Boston University; MS, Arizona State University

Muzyka, Diann M. (2005), Clinical Associate Professor of Nursing; BSN, Youngstown State University; MSN, Capital University; PhD, Ohio University

N

Nagy, Sandra Griffiths (1984), Academic Associate, University College; Assistant Director, Academic Success Programs; BEd, MA, PhD, Arizona State University

Napoli, Maria (1996), Associate Professor of Social Work; BA, H.H. Lehman College; MSW, PhD, New York University

Navarrete, Carol (1994), Lecturer, American English and Culture Program, School of Extended Education; BA, MA, University of Colorado

Nelson, Kelly (1999), Senior Lecturer of Interdisciplinary Studies; BA, Michigan State University; MS, University of Southern Maine; PhD, Brandeis University

Nichols, Ann W. (1970), Associate Professor of Social Work; AB, Stanford University; MSW, DSW, Columbia University

Niesel, Barbara (2005), Clinical Assistant Professor of Nursing; BSN, Loyola University; MN, University of Phoenix

Niles, Michael (1994), Assistant Professor of Social Work; BA, University of Missouri, Columbia; MSW, Arizona State University; PhD, University of Wisconsin, Madison

Nuñez, Diane E. (1995), Clinical Associate Professor of Nursing; BSN, MS, Arizona State University

Nyaupane, Gyan P. (2005), Assistant Professor of Community Resources and Development; BS, Tribhuvan University, (Nepal); MA, Lincoln University; PhD, Pennsylvania State University

O

O'Haver, Judy (1999), Faculty Associate of Nursing; BSN, Niagara University; MS, Arizona State University

O'Sullivan, Peggy (1998), Director, Advanced Public Executive Program; BS, Northern Arizona University; MPA, Arizona State University

P

Patterson, Shirley L. (1994), Professor Emerita of Social Work; BA, North Texas State University; MA, McCormick Theological Seminary; MSW, University of Kansas; PhD, University of Wisconsin, Madison

Paz, Juan J. Jr. (1988), Associate Professor of Social Work; BA, University of Texas, El Paso; MS, University of Houston; DSW, Howard University

Peck, Laura (2002), Assistant Professor of Public Affairs; BA, Arizona State University; MPA, MPhil, PhD, New York University

Peinhardt, Rebecca D. (2005), Clinical Associate Professor of Nursing; BSN, Emory University; MSN, University of Alabama, Birmingham

Peluso, Christopher (2005), Clinical Assistant Professor of Nursing; BSN, Pennsylvania State University; MSN, University of Phoenix

Perry, Patsy (1985), Professor Emerita of Nursing; BS, Columbia Union College; MS, University of Colorado; PhD, University of Michigan

Perry, Ronald W. (1983), Professor of Public Affairs; BSc, MA, Arizona State University; PhD, University of Washington

Petrides, Maureen A. (2005), Faculty Associate of Nursing; BSN, MSN, Molloy College

Pfister, A.J. (1991), Distinguished Research Fellow Emeritus of Public Affairs; BS, JD, University of Arizona

Pickens, Judith M. (1987–99; 2000), Assistant Professor of Nursing; BSN, Marymount College; MS, University of Missouri; PhD, Arizona State University

Piersol, Bonnie L. (1999), Academic Associate, University College; Academic Advisor; BS, Golden Gate University; MA, John F. Kennedy University

Pierson, Ruth E. (1990), Academic Associate, University College; BA, MEd, Miami University

Pokora, Syndee (1995), Academic Associate, University College; Academic Advisor; BFA, University of Wisconsin, Milwaukee; MFA, University of Arizona

Polenz, G. Donald (1967), Professor Emeritus of Social Work; BA, Wartburg College; MA, University of Iowa; DSW, University of Southern California

Poole, Karen F. (2004), Assistant Instructional Professional; Manager, Professional Programs, Academic and Professional Programs, School of Extended Education; BA, Buena Vista College; MS, PhD, Iowa State University

Priest, Janice (2001), Faculty Associate of Nursing; BSN, Weber State University; MSN, University of Utah

Primas, Phyllis J. Krause (1987), Professor Emerita of Nursing; BSN, University of Pennsylvania; MPH, PhD, University of Pittsburgh

Pritchard, Mark P. (1998), Assistant Professor of Community Resources and Development; BS, MS, PhD, University of Oregon

R

Ramella, Kelly J. (2004), Lecturer of Community Resources and Development; BS, Webster University; MA, University of Connecticut

Records, Kathie (2005), Associate Professor of Nursing; BS, University of Colorado at Denver and Health Science Center; MS, PhD, University of Arizona

Rentz, Mark D. (1984), Lecturer, American English and Culture Program; Director, American English and Culture Program, School of Extended Education; BA, Bethel College; MA, William Carey International University

Rippon, Stephen (1989), Academic Associate, University College; Director, Academic Success Programs; BA, MA, Arizona State University

Risley-Curtiss, Christina (1992), Associate Professor of Social Work; BA, University of Connecticut; MSSW, University of Tennessee; PhD, University of Maryland, Baltimore

Roberts, Carolyn (1982), Professor Emerita of Nursing; BSN, University of Western Ontario (Canada); MEd, Columbia University; PhD, Wayne State University

Robles, Barbara (2005), Associate Professor of Social Work; BA, University of Texas at Austin; PhD, University of Maryland, College Park

Roe, Sue (2000), Faculty Associate of Nursing; BSN, MS, University of Arizona; DPA, Arizona State University

Roe-Sepowitz, Dominique (2005), Assistant Professor of Social Work; BS, Springfield College; MSW, Arizona State University; ABD, Florida State University

Rosdahl, Dana (1994), Assistant Professor of Nursing; BSN, Montana State University; MS, Arizona State University; PhD, University of Arizona

Ruiz, Ester (1986), Associate Professor of Nursing; BSN, MS, PhD, Arizona State University

S

Sackton, Frank J. (1976), Professor Emeritus of Public Affairs; BS, University of Maryland, College Park; MPA, Doctor of Humane Letters, Arizona State University

Saewert, Karen J. (1998), Director, RN Baccalaureate Programs; BSN, MS, Arizona State University; PhD, University of Arizona

Santorico, Ann (2003), Academic Associate, University College; Academic Advisor; BA, University of Phoenix; MEd, Arizona State University

Sayles, Judy (1997), Clinical Assistant Professor of Nursing; BSN, University of Michigan; MS, Arizona State University

Schlather, Erica (1993), Instructional Specialist, School of Extended Education; Marketing Coordinator, American English and Culture Program, School of Extended Education; BA, MA, Northern Arizona University

Schultz, Alyce A. (2005), Clinical Professor of Nursing; Associate Director, Center for the Advancement of Evidence-Based Practice; BSN, MSN, University of New Mexico; PhD, Oregon Health Sciences University

Schwartz, Anna L. (2005), Professor of Nursing; BS, University of Florida; MS, Arizona State University; PhD, University of Utah

Scoggin, Janet (1989), Professor Emerita of Nursing; BSN, University of Portland; MS, PhD, Arizona State University

Segal, Elizabeth A. (1995), Professor of Social Work; Associate Dean, College of Public Programs; BA, Brandeis University; MSW, Boston University; PhD, University of Illinois, Chicago

Sehested, Colene R. (1967), Professor Emerita of Nursing; BSN, University of Arkansas, Fayetteville; MSN, University of Maryland, Baltimore

Shearer, Nelma B.C. (1993), Assistant Professor of Nursing; BS, South Dakota State University; MEd, University of Missouri, St. Louis; MS, Southern Illinois University, Edwardsville; PhD, University of Arizona

Shearman, Harriett Joy (1995), Professor Emerita of Nursing; BSN, University of Iowa; MS, Boston University

Small, Leigh (2004), Assistant Professor of Nursing; BS, Keuka College; MS, PhD, University of Rochester

Sousa, Karen H. (1998), Associate Professor of Nursing; Associate Dean for Graduate Programs and Research, College of Nursing; BS, MS, PhD, University of California, San Francisco

Speer, Therese (1997), Faculty Associate of Nursing; BSN, Salve Regina University; MS, University of Arizona

Squires, Rose L. (1981), Professor Emerita of Nursing; BS, Duquesne University; MA, EdD, Columbia University

Stage, Christina W. (1992), Senior Lecturer of Interdisciplinary Studies; 401 Coordinator, Bachelor of Interdisciplinary Studies; BJ, University of Nebraska, Lincoln; MA, Ohio University; PhD, Arizona State University

Steffl, Bernita M. (1961), Professor Emerita of Nursing; BSN, MPH, University of Minnesota, Twin Cities

Steiner, Sue (1996), Associate Professor of Social Work; BA, Brandeis University; MSW, San Francisco State University; PhD, University of Washington

Stewert, Karen (2004), Clinical Assistant Professor of Nursing; BSN, D'Youville College; MSN University of Phoenix

Stillwell, Susan B. (1997), Clinical Associate Professor of Nursing; BS, College of Saint Teresa; MSN, University of Florida

Strickland, Patricia L. (1999), Academic Associate, University College; Academic Advisor; BA, Cornell College; MS, Iowa State University

Stromwall, Layne (1996), Associate Professor of Social Work; BA, MSSW, University of Wisconsin, Madison; PhD, Case Western Reserve University

Stumpf, Angela M. (1959), Professor Emerita of Nursing; BSN, Marquette University; MA, University of Chicago

Sutter, Kimberlee Ann (2005), Clinical Assistant Professor of Nursing; BSN, Arizona State University; MS, Texas Women's University; PhD, University of Arizona

T

Taylor, Jacqueline (1984), Professor Emerita of Nursing; BSN, University of Washington; MS, University of North Carolina at Chapel Hill; PhD, University of Arizona

Teye, Victor B. (1984), Associate Professor of Community Resources and Development; Graduate Coordinator, School of Community Resources and Development; BA, University of Ghana; MA, PhD, University of Manitoba (Canada)

Theobald, Clarabelle (1962), Professor Emerita of Nursing; BSN, Arizona State University; MS, University of California, Los Angeles; PhD, Arizona State University

Thomas, David A. (1999), Senior Lecturer of Interdisciplinary Studies; BS, California State Polytechnic University; MBA, PhD, University of Southern California

Thorne, Anita (1984), Professor Emerita of Nursing; Diploma, Allegheny General Hospital; BSNEd, MA, University of Pittsburgh

Thorpe, Scott P. (1999), Academic Associate, University College; Assistant Director, University College; BS, Kennesaw State College; MA, University of Colorado, Denver

Thurber, Frances (1991), Professor Emerita of Nursing; BSN, Saint Anselm College; MSN, University of Pennsylvania; PhD, University of Michigan

Timothy, Dallen J. (2000), Associate Professor of Community Resources and Development; BS, Brigham Young University; MA, University of Western Ontario (Canada); PhD, University of Waterloo (Canada)

Tobiason, Sarah J. (1963–67; 1974), Professor Emerita of Nursing; BSN, Vanderbilt University; MA, Columbia University

Tyrrell, Timothy J. (2005), Professor of Community Resources and Development; BA, University of Florida; MA, University of Tennessee; PhD, Cornell University

V

Valdés, Gailynn A. (2004), Assistant Instructional Professional; Interim Director and Director of Student Services and Operations, Academic and Professional Programs, School of Extended Education

Vana, Kimberly (2000), Faculty Associate of Nursing; BSN, Arizona State University; MSN, University of Arizona

Vanacour, Martin (1987), Professor of Practice of Public Affairs; BA, State University of New York, Buffalo; MPA, New York University; PhD, Arizona State University

Van Dromme, Laurel (2005), Director of Development, College of Nursing; BA, Ohio State University; MA, University of California, Los Angeles

Vicens, Wendy (1977), Senior Lecturer, American English and Culture Program, School of Extended Education; BA, MA, Northern Arizona University

Virden, Randy J. (1984), Associate Professor of Community Resources and Development; Director, School of Community Resources and Development; BS, MS, Arizona State University; PhD, Utah State University

Voller, Sandra L. (1999), Academic Associate, University College; Assistant Director, University College; BA, Saint John Fisher College; MA, State University of New York, Albany

Voorhees, William R. (2002), Assistant Professor of Public Affairs; BA, University of South Florida; MPA, Georgia State University; PhD, Indiana University, Bloomington

W

Wagy, Scott (2001), Instructional Specialist, School of Extended Education; Coordinator for Cultural Activities and Programs, American English and Culture Program, School of Extended Education; BA, MA, West Virginia University

Waller, Margaret Ann (1997), Associate Professor of Social Work; BM, DePaul University; MSW, University of Illinois; PhD, University of Chicago

Warne, Beverly (2002), Faculty Associate of Nursing; Project Director American Indian Students United for Nursing (ASUN); BS, MS, Arizona State University

Wells, David (1998), Senior Lecturer of Interdisciplinary Studies; Assistant Director, Bachelor of Interdisciplinary Studies Program; BA, Bucknell University; PhD, University of Southern California

Weschler, Louis (1980), Professor Emeritus of Public Affairs; BA, California State University, Long Beach; MA, PhD, University of California, Los Angeles

White, Barbara G. (1990), Clinical Associate Professor of Nursing; BS, MS, Virginia Commonwealth University

White, Dave D. (2001), Assistant Professor of Community Resources and Development; BA, George Mason University; MA, University of Idaho; PhD, Virginia Polytechnic Institute and State University

Williams, Carol E. (1984), Academic Associate, University College; Assistant Director, Academic Success Programs; BA, Trinity University, San Antonio; MA, Arizona State University

Wilson, Barbara L. (2005), Clinical Associate Professor of Nursing; BSN, University of Utah; MSN, Brigham Young University

Wintergalen, Barbara A. (1992), Professor Emerita of Nursing; BSN, Loretto Heights College; MS, Arizona State University

Wojner-Alexandrov, Anne W. (2005), Professor of Clinical Nursing; Assistant Director, Outcomes Management, CAEP; BSN, MSN, University of Texas Health Science Center at Houston; PhD, Texas Woman's University

Woodman, Natalie J. (1969), Professor Emerita of Social Work; BA, New York University; MSS, Smith College

Wotring, Roxena A. (1994), Faculty Associate of Nursing; BSN, MS, Arizona State University

Wurzell, Carol A. (1965), Professor Emerita of Nursing; BS, California State College, Chico; MS, University of Maryland, College Park

Wysoki, Ken (1984–1986, 2001), Faculty Associate of Nursing; BSN, University of Wisconsin, Milwaukee; MS, Arizona State University; PhD, University of Arizona

Y

Yancy, Margaret Lee (1997), Faculty Associate of Nursing; BSN, MS, Arizona State University

Yepez, Eleanor (1984), Associate Administrative Professional Emerita of Social Work; BA, Michigan State University; MA, Western Michigan University; MSW, University of Michigan

Yoshioka, Carlton F. (1988), Professor of Community Resources and Development; Director of Research and Academic Affairs, Center for Nonprofit Leadership and Management; BA, University of California, Santa Barbara; MA, California State University, Chico; PhD, University of Oregon

Z

Zottola, Adelina (1997), Academic Associate, University College; Program Coordinator, Science and Math Service Learning; BS, State University of New York, Binghamton

Zygmond, Linda (2004), Academic Associate, University College; Academic Advisor; BA, Montana State University, Billings; MSW, Western Michigan University; MEd, Montana State University

Polytechnic Campus

A

Adams, Troy B. (2002), Assistant Professor of Exercise and Wellness; BS, MS, Brigham Young University; PhD, University of Texas, Austin

Alozie, Nicholas O. (1991), Professor of Social and Behavioral Sciences; BA, MPA, Texas Southern University; MA, PhD, University of Texas, Dallas

Autore, Donald D. (1959), Professor Emeritus of Technology; BSE, University of Michigan; MSE, Arizona State University

B

Backus, Charles E. (1968), Professor Emeritus of Electrical Engineering; BSME, Ohio University; MS, PhD, University of Arizona

Barrett, Thomas W. (1950), Professor Emeritus of Agribusiness and Resource Management; BS, Brigham Young University; MS, PhD, Cornell University

Baxter, Harry R. (1982), Professor Emeritus of Electronics Engineering Technology; BA, New York University; MBA, Fairleigh Dickinson University; MTech, Arizona State University

Becker, David Vaughn (2005), Assistant Professor of Applied Psychology; BA, MA, PhD, Arizona State University

Bergeron, Bette S. (2000), Professor of Education; Head, Faculty of Education; BSEd, University of Maine, Orono; MSEd, PhD, Purdue University

Biekert, Russell G. (2001), Associate Professor of Mechanical and Manufacturing Engineering Technology; BS, MS, Southern Illinois University; EdD, Arizona State University

Brady, Lenore (2005), Senior Lecturer of Humanities and Arts; BA, MA, PhD, Arizona State University

Brady, Ward W. (1973), Professor of Applied Biological Sciences; Chair, Department of Applied Biological Sciences; BS, MS, PhD, Colorado State University

Brock, John H. (1977), Professor of Applied Biological Sciences; Coordinator, Sustainable Technologies, Agribusiness, and Resources Center; BS, MS, Fort Hayes State University; PhD, Texas A&M University

Brown, Walter C. (1966), Professor Emeritus of Technology; BS, Northwest Missouri State University; MEd, EdD, University of Missouri, Columbia

Brownson, Charles W. (1980), Librarian Emeritus, Polytechnic Campus Library Services; Director, Polytechnic Campus Library Services; BA, South Dakota State University; MFA, University of Oregon; MLS, University of California, Berkeley

Burdette, Walter E. (1956), Professor Emeritus of Technology; BS, MS, Kansas State College of Pittsburg; EdD, University of Missouri, Columbia

Burk, Karl W. (1949), Professor of Technology; BA, MA, Arizona State University; EdD, Bradley University

Burkett, Lee N. (1974), Professor Emeritus of Exercise and Wellness; BA, MA, San Diego State University; PhD, Washington State University

Busch, Jay S. (2001), Lecturer of General Studies; BA, Michigan State University; MA, Arizona State University

Butler, Jay Q. (1972), Associate Professor of Real Estate; Director, Arizona Real Estate Center; BBA, MBA, University of New Mexico; PhD, University of Washington

C

Carlock, Danielle (2004), Assistant Librarian, Polytechnic Campus Library Services; MS, University of Arizona

Carlsen, Paul A. (1978), Professor Emeritus of Technology; BAE, MNS, EdD, Arizona State University

Cavalliere, William A. (1946), Professor Emeritus of Technology; BA, MA, Arizona State University

Chalquest, Richard R. (1971), Professor Emeritus of Agribusiness and Resource Management; BS, DVM, Washington State University; MS, PhD, Cornell University

Collins, Donald W. (1989), Professor Emeritus of Mechanical and Manufacturing Engineering Technology; BArch, Virginia Polytechnic Institute and State University; MS, PhD, University of Illinois, Chicago

Cooke, Nancy J. (2003), Professor of Applied Psychology; BA, George Mason University; MA, PhD, New Mexico State University

Corbin, Charles B. (1982), Professor Emeritus of Exercise and Wellness; BS, University of New Mexico; MS, University of Illinois; PhD, University of New Mexico

Cox, Frank E. (1972), Professor Emeritus of Technology; BSME, Purdue University; MSE, Arizona State University

D

D'Angelo, Barbara J. (2001), Lecturer of Multimedia Writing and Technical Communication; BA, Emmanuel College; MS, University of Illinois, Urbana-Champaign

Daneke, Gregory A. (1982), Professor of Agribusiness and Resource Management; BA, MA, Brigham Young University; PhD, University of California, Santa Barbara

Danielson, Scott G. (1999), Associate Professor of Mechanical and Manufacturing Engineering Technology; Chair, Department of Mechanical and Manufacturing Engineering Technology; BS, MS, University of Wyoming; PhD, North Dakota State University

Darst, Paul W. (1976), Professor of Physical Education; BS, MS, University of Akron; PhD, Ohio State University

Darveaux, Robert (2004), Associate Professor of Electronics and Computer Engineering Technology; PhD, North Carolina State University

Dixon, Kathleen S. (2000), Lecturer of Nutrition; BS, University of Arizona; MEd, Northern Arizona University

Dolin, Penny Ann (1998), Lecturer of Technology Management; BA, Bard College; MS, Arizona State University

Duff, Jon M. (1997), Professor of Technology Management; BS, MS, Purdue University; PhD, Ohio State University

E

Edwards, Mark R. (1978), Professor of Agribusiness and Resource Management; BSME, United States Naval Academy; MBA, DBA, Arizona State University

Edwards, Marvin J. (1959), Professor Emeritus of Technology; BS, MA, Arizona State University

F

Foley, Dawn (2003), Lecturer of Education; BA, MA, Arizona State University

Fordemwalt, James N. (1987), Professor Emeritus of Electronics and Computer Engineering Technology; BS, MS, University of Arizona; PhD, Iowa State University of Science and Technology

G

Gannod, Barbara D. (1998), Assistant Professor of Computing Studies; BSc, Calvin College; MSc, PhD, Michigan State University

Gannod, Gerald (1998), Assistant Professor of Computing Studies; BS, MS, PhD, Michigan State University

Gary, Kevin (2004), Assistant Professor of Computing Studies; MS, PhD, Arizona State University

Gesell, Laurence E. (1984), Professor of Aeronautical Management Technology; BA, Upper Iowa University; MPA, University of San Francisco; PhD, Arizona State University

Gintz, Jerry (2004), Senior Lecturer of Mechanical and Manufacturing Engineering Technology; MS, Arizona State University

Gomez, Conrado L. (2003), Assistant Clinical Professor of Education; BA, MEd, University of Arizona; EdD, Northern Arizona University

Gordon, Richard S. (1980), Professor Emeritus of Agribusiness and Resource Management; BA, University of Rochester; MA, Harvard University; PhD, Massachusetts Institute of Technology

Gray, Robert D. (2001), Assistant Professor of Applied Psychology; BA, Queen's University (Canada); MA, PhD, York University (Canada)

Green, Douglas M. (1990), Associate Professor of Applied Biological Sciences; BS, Humbolt State University; MS, North Dakota State University; PhD, Oregon State University

Grondin, Robert O. (1983), Associate Professor of Electrical Engineering; BS, MS, PhD, University of Michigan

Grossman, Gary M. (1994), Associate Professor of Technology Management; Project Director, International Projects Unit; BA, University of the Pacific; MS, PhD, Purdue University

H

Hall, Richard E. II (2002), Lecturer of Nutrition; BS, Northern Arizona University; MS, Arizona State University

Hampl, Jeffrey (1998), Associate Professor of Nutrition; BS, Liberty University; MS, University of Massachusetts, Lowell; PhD, University of Nebraska

Harris, La Verne Abe (1999), Assistant Professor of Technology Management; BA, MTech, Arizona State University; PhD, University of Arizona

Hefner, Stephen P. (1973), Instructional Professional of Agribusiness and Resource Management; BS, Illinois State University; MS, Arizona State University

Henderson, Mark (1984), Professor of Engineering; BSME, MSME, PhD, Purdue University

Hild, Nicholas R. (1983), Professor of Technology Management; BSME, MSEnve, University of Iowa; PhD, Union Graduate School

Hinks, Robert W. (1981), Associate Professor of Engineering; BSc, University of Wales (United Kingdom); MA, MSE, PhD, Princeton University

Horowitz, Renee B. (1986), Professor Emerita of Technology Management; BA, Brooklyn College; MA, PhD, University of Colorado

Hu, Quaing (1998), Assistant Professor of Applied Biological Sciences; BS, Hubei University (China); MS, Institute of Hydrobiology, Chinese Academy of Sciences (China); PhD, Ben-Gurion University of the Negev (Israel)

Hudek, Curt (2001), Senior Lecturer of Agribusiness and Resource Management; BS, University of South Dakota

Huffman, Holly Ann (2004), Lecturer of Applied Biological Sciences; BS, National University; MS, California State Polytechnic University, Pomona; PhD, University of California, Riverside

Hughner, Renee D. (2002), Assistant Professor of Agribusiness and Resource Management; BS, MBA, University of Massachusetts, Amherst; PhD, Arizona State University

Humble, Jane E. (1989), Associate Professor of Technology Management; BSE, MSE, PhD, Arizona State University

Hutchins, Andrea M. (2001), Assistant Professor of Nutrition; BS, Kansas State University; MS, PhD, University of Minnesota

Hutt, Roger W. (1975), Associate Professor of Business Administration; Head, Faculty of Business Administration; BS, MBA, Ohio State University; PhD, Michigan State University

I

Irvin, Glenn W. (1997), Professor of English; Dean, East College; BA, MA, PhD, Arizona State University

J

Jakubowski, Gerald S. (2004), Professor of Engineering; Vice President, ASU; Provost, Polytechnic Campus; BA, MA, PhD, University of Toledo

Johnston, Carol S. (1986), Professor of Nutrition; BS, University of Michigan; MA, PhD, University of Texas, Austin

K

Kagan, Albert (1992), Professor of Agribusiness and Resource Management; BS, MS, PhD, Iowa State University of Science and Technology

Karp, Merrill R. (1994), Professor of Practice, Aeronautical Management Technology; BS, Arizona State University; MA, Central Michigan University; PhD, Walden University

Keith, Marlow F. (1946), Professor Emeritus of Technology; BA, MA, Arizona State University

Kelley, Donald G. (1980), Professor Emeritus of Manufacturing and Aeronautical Engineering Technology; BS, MS, Arizona State University

Kigin, Denis J. (1958–65; 1967), Professor Emeritus of Technology; Dean Emeritus, Continuing Education and Summer Sessions; BS, Mankato State University; MS, University of Wisconsin, Stout; EdD, University of Missouri

Kime, Charles Henry (2000), Professor of Practice, Technology Management; BS, Arizona State University; MBA, University of Phoenix; PhD, Arizona State University

Kisielewski, Robert V. (1978), Professor Emeritus of Technology; BSME, MSME, University of Wisconsin, Madison

Kleemann, Gary L. (1979), Administrative Professional, Academic Programs; Director, E-Learning; BA, MS, San Jose State University; PhD, Arizona State University

Koehnemann, Harry E. (2001), Associate Professor of Computing Studies; BS, Northern Arizona University; MS, PhD, Arizona State University

Kulinna, Pamela Hodges (2003), Assistant Professor of Physical Education; BS, MS, University of Oregon; PhD, University of Illinois, Urbana-Champaign

Kuo, Chen-Yuan (1984), Associate Professor of Computing Studies; BS, National Taiwan University (Taiwan); MS, Northwestern University; PhD, University of California, Berkeley

L

Lawler, Eugene D. (1967), Professor Emeritus of Technology; BS, Northern State College; MA, Arizona State University

Lestar, Dot J. (1995), Lecturer of Technology Management; BS, MTech, Arizona State University

Lindley, James (2001), Senior Lecturer of Preveterinary Medicine; BS, DVM, University of Missouri, Kansas City

Lindquist, Timothy E. (1985), Professor of Computing Studies; Associate Dean and Director, Computing Studies; BS, Purdue University; MS, PhD, Iowa State University

Lytle, Robert G. (1972), Professor Emeritus of Agribusiness and Resource Management; BS, Western Kentucky University; MS, Arizona State University

M

Macia, Narciso F. (1990), Associate Professor of Electronics and Computer Engineering Technology; BS, MS, University of Texas, Arlington; PhD, Arizona State University

Madakannan, Arunachalanadar (2005), Associate Professor of Electronics and Computer Engineering Technology; MBA, Madras University (India); PhD, Indian Institute of Science, Bangalore (India)

Maddy, Kenneth H. (1980), Professor Emeritus of Agribusiness and Resource Management; BS, Pennsylvania State University; MS, University of Wisconsin, Madison; PhD, Pennsylvania State University

Maid, Barry M. (2000), Professor of Multimedia Writing and Technical Communication; Head, Faculty of Multimedia Writing and Technical Communication; BA, University of Wisconsin, Madison; MA, University of Texas, Austin; PhD, University of Massachusetts, Amherst

Maisel, James E. (1985), Professor Emeritus of Electronics and Computer Engineering Technology; BEngSci, BEE, Fenn College; MSEE, Ohio State University

Manfredo, Mark R. (1999), Associate Professor of Agribusiness and Resource Management; BS, California State University, Fresno; MS, New Mexico State University; PhD, University of Illinois, Urbana

Manore, Melinda M. (1984), Professor Emerita of Nutrition; BS, Seattle Pacific University; MS, University of Oregon; PhD, Oregon State University

Marble, Cindy S. (2004), Assistant Professor of Education; BS, Western Michigan University; MA, PhD, Michigan State University

Marcum, Kenneth (2003), Assistant Professor of Applied Biological Sciences; BS, Ohio State University; MS, New Mexico State University; PhD, University of Hawaii, Manoa

Marquardt, Raymond A. (1997), Professor of Agribusiness and Resource Management; Dean, Morrison School of Agribusiness and Resource Management; BS, MS, Colorado State University; PhD, Michigan State University

Martin, Chris A. (1990), Associate Professor of Applied Biological Sciences; BS, California Polytechnic State University and University of Southern California; MS, Auburn University; PhD, University of Florida

Matson, John H. (1978), Associate Professor of Technology Management; BS, MS, Illinois State University

Matthews, James B. (1989), Professor Emeritus of Aeronautical Management Technology; BS, Rose-Hulman Institute of Technology; MS, Massachusetts Institute of Technology; PhD, University of Arizona

McBrien, Edward F. (1986), Professor Emeritus of Electronic and Computer Engineering Technology; BSE, Fenn College; MSEE, Cleveland State University

McCurry, William K. (1995), Professor of Aeronautical Management Technology; Chair, Department of Aeronautical Management Technology; BS, Purdue University; MS, Troy State University; PhD, University of Kansas

McHenry, Albert L. (1978), Professor of Electronics and Computer Engineering Technology; Dean, College of Technology and Applied Sciences; BS, Southern University and A&M College; MS, PhD, Arizona State University

Mermis, William L. (1995), Professor of Human Health Studies; Head, Faculty of Human Health Studies; BS, MS, Saint Louis University; PhD, Arizona State University

Millard, Bruce R. (1988), Associate Professor of Computing Studies; BA, MS, Washington State University; PhD, Arizona State University

Miller, Victor J. (1958), Professor Emeritus of Agribusiness and Resource Management; BS, MS, PhD, University of Illinois

Miller, William H. (1984), Associate Professor of Applied Biological Sciences; Director, Executive Committee, Geographic Information Science; BS, MS, PhD, Washington State University

Minter, Marshall R. Jr. (1965), Professor Emeritus of Technology; BSME, Purdue University; MSME, University of Arizona

Molina-Walters, Debi (2004), Assistant Clinical Professor of Education; BA, California State University, Sonoma; MS, California State University, Hayward; EdD, University of the Pacific

Monte, Woodrow (1979), Professor Emeritus of Nutrition; BS, New Mexico Institute of Mining and Technology; MS, PhD, Colorado State University

Moody, E. Grant (1951), Professor Emeritus of Agribusiness and Resource Management; BS, University of Arizona; MS, Kansas State University; PhD, Purdue University

Morgan, Owen W. (1968), Professor Emeritus of Nutrition; BA, Grinnell College; MA, University of Nebraska, Omaha; PhD, University of Nebraska, Lincoln

Morrell, Darryl R. (1988), Associate Professor of Computing Studies; BS, MS, PhD, Brigham Young University

Moulton, Ian (2005), Professor of Humanities and Arts; BA, University of Manitoba (Canada); MA, University of Western Ontario (Canada); PhD, Columbia University

Munukutla, Lakshmi V. (1987), Professor of Electronics and Computer Engineering Technology; Chair, Department of Electronics and Computer Engineering Technology; BS, MS, Andhra University (India); PhD, Ohio University

Mushkatel, Alvin H. (1980), Professor of Applied Biological Sciences; BA, Ohio State University; MS, PhD, University of Oregon

N

Nam, Changho (1998), Associate Professor of Mechanical and Manufacturing Engineering Technology; BS, MS, Seoul National University (South Korea); PhD, Purdue University

Nelson, Howard (2004), Assistant Clinical Professor of Technology Management; PhD, Minnesota State University

Newman, Richard L. (2001), Assistant Administrative Professional; Director, Training Services, College of Technology and Applied Sciences; BS, MS, Arizona State University

Niemczyk, Mary C. (2003), Assistant Professor of Aeronautical Management Technology; BA, Benedictine College; MBA, Embry-Riddle Aeronautical University; PhD, Arizona State University

O

O'Brien, Marc H. (1997), Lecturer of Aeronautical Management Technology; BA, Boston University; MS, Indiana State University

O'Grady, E. Pearse (1991), Associate Professor of Computing Studies; BSEE, St. Louis University, Parks; MS, PhD, University of Arizona

Oliver, Jill (2005), Lecturer of Education; MS, Purdue University; PhD, Arizona State University

Olson, Larry W. (1995), Associate Professor of Technology Management; BS, Baylor University; PhD, University of Pennsylvania

Orlowicz, Connie J. (2002), Lecturer of Physical Education; BA, MEd, Arizona State University

P

Palmgren, Dale E. (1984), Associate Professor of Mechanical and Manufacturing Engineering Technology; Associate Dean, College of Technology and Applied Sciences; BS, MS, PhD, University of Wisconsin, Madison

Pangrazi-Orlowicz, Connie (2002), Lecturer of Education; BA, MEd, Arizona State University

Pardini, Louis J. (1967), Professor Emeritus of Technology; BA, AM, Idaho State University; EdD, University of Northern Colorado

Parmentier, Mary Jane (1999), Lecturer of Technology Management; BA, Southern Connecticut State University; MA, San Francisco State University; PhD, University of Colorado, Denver

Patterson, Paul M. (1995), Associate Professor of Agribusiness and Resource Management; BS, Auburn University; MS, PhD, Purdue University

Pearce, Martha V. (1977), Professor Emerita of Technology; BS, Columbia University; MS, Boston University; EdD, Arizona State University

Pearson, Michael W. (1998), Associate Clinical Professor of Aeronautical Management Technology; BA, University of Houston; MBA, JD, Arizona State University

Peterson, Danny M. (1999), Professor of Practice, Technology Management; BS, University of Idaho; MBA, California State University, Sacramento; MS, PhD, Arizona State University

Peterson, Edward R. (1977), Professor Emeritus of Electronics and Computer Engineering Technology; BSEE, Fairleigh Dickinson University; MSEE, Arizona State University

Petrovic, Slobodan (2005), Associate Professor of Electronics and Computer Engineering Technology; PhD, Technical University of Dresden (Germany)

Post, Alvin (2000), Assistant Professor of Mechanical and Manufacturing Engineering Technology; BS, University of Arizona; MS, Stanford University; PhD, University of Hawaii

Prest, Alison (2002), Lecturer of Education; BA, Arizona State University; MSEd, Northern Arizona University

Prust, Zenas A. (1959), Professor Emeritus of Technology; BS, University of Wisconsin, Stout; MA, University of Minnesota, Twin Cities; EdD, University of Northern Colorado

R

Raccach, Moshe (1980), Associate Professor of Agribusiness and Resource Management; BSc, MSc, The Hebrew University (Israel); PhD, Cornell University

Rajadas, John N. (1996), Associate Professor of Mechanical and Manufacturing Engineering Technology; BTech, Indian Institute of Technology (India); MS, PhD, Georgia Institute of Technology

Reed, William H. (1968), Professor Emeritus of Aeronautical Management Technology; BS, University of Oklahoma; MS, Arizona State University

Richards, Timothy J. (1994), Professor of Agribusiness and Resource Management; Power Chair Distinguished Professor of Agribusiness; BA, University of British Columbia (Canada); MA, PhD, Stanford University

Richardson, Grant L. (1953), Professor Emeritus of Agribusiness and Resource Management; BS, MS, University of Arizona; PhD, Oregon State University

Rinkol, Sheryl (2005), Lecturer of Education; BA, Nebraska Wesleyan University; MA, Northern Arizona University

Roberts, Chell (2003), Associate Professor of Engineering; Chair, Department of Engineering; BA, MS, University of Utah; PhD, Virginia Polytechnic Institute and State University

Robertson, John M. (2001), Professor of Electronics and Computer Engineering Technology; BS, University of St. Andrews (United Kingdom); MS, University of Dundee (United Kingdom); PhD, University of Edinburgh (United Kingdom)

Robinson, Daniel O. (1950), Professor Emeritus of Agribusiness and Resource Management; AB, Brigham Young University; MS, University of Arizona; PhD, Ohio State University

Roe, Keith B. (1979), Professor Emeritus of Technology; BS, Wisconsin State College; MA, University of Michigan

Roen, Duane (1995), Professor of English; Head, Faculty of Humanities and Arts; BS, MS, University of Wisconsin, River Falls; PhD, University of Minnesota, Minneapolis

Rogers, Bradley B. (1984), Associate Professor of Mechanical and Manufacturing Engineering Technology; BS, MS, Montana State University; PhD, Arizona State University

Rome, Jacqueline (2005), Lecturer of Education; BA, University of Illinois; MS, Northern Arizona University

Roper, Devon J. (1966), Professor Emeritus of Aeronautical Management Technology; BS, Utah State University; MS, Arizona State University

S

Salmirs, Seymour (1981), Professor Emeritus of Technology; BAE, MSAE, Georgia Institute of Technology

Schildgen, Thomas E. (1981), Professor of Technology Management; Chair, Department of Technology Management; BS, MS, Illinois State University; EdD, Northern Arizona University

Schmidt, Peter A. (1978), Professor Emeritus of Manufacturing and Aeronautical Engineering Technology; BS, Northern Illinois University; MA, EdD, Arizona State University

Schmitz, Troy G. (1998), Associate Professor of Agribusiness and Resource Management; BS, University of Saskatchewan (Canada); MS, PhD, University of California, Berkeley

Schoen, Robert A. (1966), Professor Emeritus of Technology; BS, MS, Arizona State University

Schvaneveldt, Roger W. (2000), Professor of Applied Psychology; Head, Faculty of Applied Psychology; BA, University of Utah; MS, PhD, University of Wisconsin, Madison

Schwalm, David E. (1986), Associate Professor of English; Vice Provost, Academic Programs, Polytechnic Campus; BA, Carlton College; MS, PhD, University of Chicago

Sebren, Ann (2004), Lecturer of Exercise and Wellness; BS, MS, University of Southern Mississippi; EdD, University of North Carolina at Greensboro

Seperich, George J. (1976), Professor of Agribusiness and Resource Management; Associate Dean, Morrison School of Agribusiness and Resource Management; BS, Loyola University, Chicago; MS, PhD, Michigan State University

Shepard, Christina W. (1999), Lecturer of Nutrition; BS, University of Arizona; MS, Arizona State University

Shultz, Clifford J. (1992), Professor of Agribusiness and Resource Management; Marley Foundation Chair in Consumer Food Marketing; BA, DePauw University; MA, PhD, Columbia University

Skilton, Paul F. (2003), Assistant Professor of Business Administration; BA, University of California; MBA, Boston College; PhD, Arizona State University

Smith, Bryan (2004), Assistant Professor of Education; BA, MA, University of Delaware; PhD, University of Arizona

Sommerfeld, Milton R. (1968), Professor of Life Sciences; BS, Southwest Texas State College; PhD, Washington University

Steele, Kelly P. (2002), Associate Professor of Applied Biological Sciences; BA, PhD, University of California

Stever, Gayle S. (2003), Senior Lecturer of Education; BM, MA, PhD, Arizona State University

Stiles, Philip G. (1969), Professor Emeritus of Agribusiness and Resource Management; BS, University of Arkansas; MS, University of Kentucky; PhD, Michigan State University

Stone, Marian G. (1989), Associate Professor of Multimedia Writing and Technical Communication; BA, State University of New York, Binghamton; MS, Northeastern University

Stone, William J. (1967), Professor of Exercise and Wellness; Chair, Department of Exercise and Wellness; BS, Boston University; MS, Florida State University; EdD, University of California, Berkeley

Strawn, Roland S. (1967), Professor Emeritus of Technology; BSEE, MSEE, University of Illinois; PhD, Arizona State University

Stutz, Jean C. (1981), Professor of Applied Biological Sciences; BS, Ursinus College; MS, University of Delaware; PhD, Pennsylvania State University

Sugar, Thomas G. (1999), Assistant Professor of Engineering; BSE, MSE, PhD, University of Pennsylvania

Summitt, April (2005), Assistant Professor of Humanities and Arts; MA, Andrews University; PhD, Western Michigan University

Sundararajan, Rajeswari (1996), Associate Professor of Electronics and Computer Engineering Technology; BS, University of Madras (India); MS, Indian Institute of Science (India); PhD, Arizona State University

Swan, Pamela (1994), Associate Professor of Exercise and Wellness; BA, University of California, Santa Barbara; MS, University of North Carolina at Greensboro; PhD, University of Tennessee

T

Taysom, Elvin D. (1953), Professor Emeritus of Agribusiness and Resource Management; BS, University of Idaho; MS, Utah State University; PhD, Washington State University

Thomas, Jeffrey (2005), Associate Clinical Professor of Technology Management; MA, PhD, University of Northern Colorado

Thomason, Leslie L. (1969), Professor Emeritus of Technology; AB, MA, EdD, University of Oklahoma

Thor, Eric P. (1990), Professor of Agribusiness and Resource Management; BS, MS, PhD, University of California, Berkeley

Tudor-Locke, Catrine (2001), Associate Professor of Exercise and Wellness; BA, University of Lethbridge (Canada); MS, Dalhousie University (Canada); PhD, University of Waterloo (Canada)

Turney, Mary Ann (1999), Professor Emerita of Aeronautical Management Technology; BA, LeMoyne College; MA, Hofstra University; EdD, Nova Southeastern University

V

Vaughan, Linda A. (1982), Professor of Nutrition; Chair, Department of Nutrition; BS, University of California, Davis; MNS, Cornell University; PhD, University of Arizona

W

Watkins, Thomas B. (1972), Professor Emeritus of Technology; BS, University of Wyoming; MS, Arizona State University

Watson, Emma J. (1999), Lecturer of Business Administration; BA, Sonoma State University; MEd, Western Washington University

Welty, Ellen L. (1996), Associate Librarian, Polytechnic Campus Library Services; BA, University of Wyoming; MSLS, University of Illinois, Urbana-Champaign

Wenhart, James C. (1996), Senior Lecturer of Education; BA, MEd, Arizona State University

White-Taylor, Janel D. (2003), Assistant Clinical Professor of Education; BA, Loyola Marymount University; MEd, PhD, Arizona State University

Whitehouse, Richard O. (1997), Senior Lecturer of Computing Studies; BS, Worcester State College; MS, University of Tennessee

Whysong, Gary L. (1974), Associate Professor of Applied Biological Sciences; BS, MS, Montana State University; PhD, University of Wyoming

Wilson, Daniel (1978), Senior Lecturer of Technology Management; BS, Drexel University; MSE, PhD, Arizona State University

Winham, Donna M. (2002), Assistant Professor of Nutrition; BS, Keene State College; MA, University of Arizona; PhD, University of California, Los Angeles

Wood, Billy G. (1977), Professor Emeritus of Electronics and Computer Engineering Technology; AB, University of California, Berkeley; BS, Eastern Illinois University; MS, University of Arizona

Woodruff, Larry (1998), Senior Lecturer of Exercise and Wellness; BS, University of Oregon; MS, Western Oregon University

Woolf, Kathleen (2002), Assistant Professor of Nutrition; BS, Arizona State University; MS, University of California, Los Angeles; PhD, Arizona State University

Z

Zeng, Guoliang (1991), Associate Professor of Electronics and Computer Engineering Technology; BS, Chengdu Telecommunication Institute (China); MS, University of California, San Diego; MNS, PhD, Arizona State University

Tempe Campus

A

Aannestad, Per (1975), Professor Emeritus of Physics and Astronomy; BS, University of Oslo (Norway); PhD, University of California, Berkeley

Abbas, James J. (2002), Associate Professor of Bioengineering; ScB, Brown University; MS, PhD, Case Western Reserve University

Abbaspour-Tamijani, Abbas (2004), Assistant Professor of Electrical Engineering; BS, MS, University of Tehran (Iran); PhD, University of Michigan

Abbaszadegan, Morteza (1999), Associate Professor of Civil and Environmental Engineering and Adjunct Professor of Life Sciences; BS, University of Montana; MS, Northern Arizona University; PhD, University of Arizona

Abbott, David (2004), Associate Professor of Anthropology; BA, Adelphi University; MS, University of Arizona; MA, PhD, Arizona State University

Abbott, Kenneth (2005), Professor of Global Studies and Law; Willard H. Pedrick Distinguished Research Scholar; AB, Cornell University; JD, Harvard Law School

Abele, Deborah (1990), Faculty Associate of Planning; BA, Vassar College

Aberle, James T. (1989), Associate Professor of Electrical Engineering; BS, MS, Polytechnic Institute of New York; PhD, University of Massachusetts, Boston

Abramson, Jay (1999), Senior Lecturer of Mathematics and Statistics; BS, University of New Mexico; MS, University of New Hampshire

Abston, Deborah (1990), Associate Librarian, Hayden Reference Services; BS, MSLS, Wayne State University

Acereda, Alberto (1998), Associate Professor of Latin American Literature; Licenciado, University of Barcelona (Spain); MA, PhD, University of Georgia

Acevedo, Roberto M. (1964), Professor Emeritus of Spanish; BA, University of California, Berkeley; MA, PhD, University of Arizona

Acharya, Raghunath (1976), Professor Emeritus of Physics and Astronomy; BSc, MSc, University of Delhi (India); PhD, University of Rochester

Acker, Barbara (1991), Associate Professor of Theatre; BFA, University of Texas at Austin; MA, Case Western Reserve University; PhD, Wayne State University

Acker, William J. (1970), Professor Emeritus of Geography; BS, Purdue University; MS, University of Kansas; MA, PhD, Syracuse University

Adams, Donald, Sergeant First Class (2005), Instructor of Military Science

Adams, James B. (1996), Professor of Chemical and Materials Engineering; Codirector, Science and Engineering of Materials; BS, Duke University; MS, PhD, University of Wisconsin, Madison

Adams, Karen L. (1984), Professor of English; BA, MA, PhD, University of Michigan

Adelman, Madelaine (1998), Associate Professor of Justice and Social Inquiry; AB, PhD, Duke University

Adelson, Roger D. (1974), Professor of History; BA, George Washington University; BLitt, University of Oxford (United Kingdom); MA, PhD, Washington University

Adhikari, Ambika P. (2004), Faculty Associate of Planning; BAArch, University of Baroda (India); MArch, University of Hawaii, Honolulu; DDes, Harvard University

Adrian, Ronald (2005), Ira A. Fulton Professor of Mechanical and Aerospace Engineering; BME, ME, University of Minnesota; PhD, University of Cambridge (United Kingdom)

Agadjanian, Victor (1995), Associate Professor of Sociology; BA, Moscow State University (Russia); MS, PhD, University of Southern California

Aguilar, John L. (1976), Professor Emeritus of Anthropology; BA, University of California, Los Angeles; MA, California State University, Los Angeles; PhD, University of California, San Diego

Aguilera, Miguel (2004), Assistant Professor of Religious Studies; BS, University of California, Riverside; MA, PhD, State University of New York, Albany

Ahn, Seung C. (1990), Associate Professor of Economics; BA, Sogang University (South Korea); MA, PhD, Michigan State University

Aiken, Leona S. (1985), Professor of Psychology; BS, Virginia Commonwealth University; MS, PhD, Purdue University

Akay, Metin (2005), Professor of Bioengineering; BSEE, MSEE, Bogazici University (Turkey); PhD, Rutgers, The State University of New Jersey

Akins, William H. (1975), Professor Emeritus of Theatre; BA, Duke University; MA, PhD, University of Denver

Alarcon, Ricardo O. (1989), Professor of Physics and Astronomy; BS, MS, University of Chile; PhD, Ohio University

Alberts, Jess K. (1989), Professor of Communication; BSEd, MA, Abilene Christian University; PhD, University of Texas at Austin

Alcock, John
(1972)
Regents' Professor of Life Sciences; BA, Amherst College; PhD, Harvard University

Alcorn, Marianne (1981), Law Librarian, Reference; BA, University of Washington; MLS, University of Southern California

Aldrich, Frank T. (1969), Professor Emeritus of Geography; BA, University of Texas at Austin; MS, PhD, Oregon State University

Alexander, Gene (2003), Associate Professor of Psychology; BA, Pomona College; MA, PhD, Loyola University Chicago

Alexander, Robert J. (1975), Professor of German; BA, Macalester College; MA, PhD, University of Wisconsin, Madison

Alford, Terry L. (1993), Professor of Materials Engineering; BS, MS, North Carolina State University, Raleigh; PhD, Cornell University

Ali, Souad T. (2004), Assistant Professor of Arabic and Middle Eastern Studies; BA, University of Khartoum (Sudan); MA, Brigham Young University; PhD, University of Utah

Alisky, Marvin (1957), Professor Emeritus of Political Science; BA, MA, PhD, University of Texas at Austin

Allee, David R. (1991), Associate Professor of Electrical Engineering; BS, University of Cincinnati; MS, PhD, Stanford University

Allen, Craig M. (1991), Associate Professor of Journalism and Mass Communication; BA, Linfield College; MS, University of Oregon; PhD, Ohio University

Allen, James P. (1989), Professor of Chemistry and Biochemistry; BS, Saint Joseph's University; MS, PhD, University of Illinois

Allen, Jonathan (2001), Assistant Professor of Chemical Engineering and Civil and Environmental Engineering; BS, University of Pennsylvania; MS, ScD, Massachusetts Institute of Technology

Allenby, Braden (2004), Professor of Civil and Environmental Engineering; BA, Yale University; MA, JD, University of Virginia; MS, PhD, Rutgers, The State University of New Jersey

Altheide, David L.
(1973)
Regents' Professor of Justice and Social Inquiry; BA, Central Washington State College; MA, University of Washington; PhD, University of California, San Diego

Alum, Absar (2001), Faculty Research Associate of Civil and Environmental Engineering; BS, MS, University of Agriculture (Pakistan); PhD, University of Arizona

Alvarado, Ronald H. (1974), Professor Emeritus of Life Sciences; Dean Emeritus, School of Extended Education; BA, University of California, Riverside; MS, PhD, Washington State University

Amazeen, Eric P. (1999), Assistant Professor of Psychology; BA, Franklin and Marshall College; MA, PhD, University of Connecticut

Amazeen, Polemnia G. (1999), Assistant Professor of Psychology; BA, Franklin and Marshall College; MA, PhD, University of Connecticut

Amdam, Gro V. (2005), Assistant Professor of Life Sciences; BS, MS, DSc, Agricultural University of Norway (Norway)

Ames, James G. (1985), Senior Research Associate, Institute for Manufacturing Enterprise Systems; BS, San Diego State University

Ammons, Sandra (2005), Lecturer of Speech and Hearing Science; BA, Gallaudet University; MS, McDaniel College

Anand, Julie (2005), Assistant Professor of Art; BS, University of Arizona; MFA, University of New Mexico

Anbar, Ariel (2003), Associate Professor of Chemistry and Biochemistry, and Geological Sciences; AB, Harvard University; MS, PhD, California Institute of Technology

Anderies, J. Marty (2002), Assistant Professor of Ecological Modeling; BS, Colorado School of Mines; MS, PhD, University of British Columbia (Canada)

Anderson, Gary (1975), Professor Emeritus of Curriculum and Instruction; BS, MEd, Edinboro State College; PhD, University of Pittsburgh

Anderson, James R. (1984), Senior Research Scientist, Mechanical and Aerospace Engineering; BA, Williams College; PhD, California Institute of Technology

Anderson, Lisa M. (2000), Assistant Professor of Women and Gender Studies and Theatre; AB, Mount Holyoke College; MA, Smith College; PhD, University of Washington

Anderson, Marcia L. (1986), Librarian, Hayden Reference Services; BA, University of Michigan; MLS, Wayne State University

Anderson, Melvin S. (1967), Professor Emeritus of Finance; BS, MS, Oklahoma State University; EdD, University of Arkansas

Anderson-Rowland, Mary R. (1974), Associate Professor of Industrial Engineering; BA, Hope College; MS, PhD, University of Iowa

Andress, Barbara L. (1972), Professor Emerita of Music; BA, MA, Arizona State University

Angell, C. Austen
(1989)
Regents' Professor of Chemistry and Biochemistry; BS, MS, Melbourne University (Australia); PhD, University of London (United Kingdom)

Anijar, Karen Z. (1998), Associate Professor of Curriculum and Instruction; BA, Florida State University; MA, PhD, University of North Carolina at Greensboro

Appleton, Nicholas R. (1972), Professor of Educational Leadership and Policy Studies and Curriculum and Instruction; Academic Program Coordinator, Social and Philosophical Foundations of Education; BA, San Francisco State University; MA, California State University, Northridge; EdD, University of Massachusetts, Amherst

Aragon, George O. (2005), Assistant Professor of Finance; BS, Boston College; MS, London School of Economics (United Kingdom); PhD, Boston College

Aranda, Luis (1975), Professor Emeritus of Legal and Ethical Studies; BM, MEd, University of Arizona; JD, Arizona State University

Arce, Leslie (2001), Lecturer of Mathematics and Statistics; BS, Kansas State University; MA, Arizona State University

Arciniega, G. Miguel (1979), Associate Professor of Psychology in Education; BS, MA, New Mexico State University; PhD, University of Arizona

Ariaratnam, Samuel (2001), Associate Professor of Construction; BASc, University of Waterloo (Canada); MS, PhD, University of Illinois, Urbana-Champaign

Arias, M. Beatriz (1989), Associate Professor of Curriculum and Instruction; BA, MA, Occidental College; PhD, Stanford University

Armbruster, Dieter (1989), Professor of Mathematics and Statistics; Interim Chair, Department of Mathematics and Statistics; Abitur, Zeppelin, Gymnasium (Germany); Diplom, PhD, University of Tübingen (Germany)

Armendt, Brad (1989), Associate Professor of Life Sciences and Philosophy; BA, Rice University; PhD, University of Illinois, Chicago

Arner, Douglas G. (1959), Professor Emeritus of Philosophy; BS, Creighton University; MA, PhD, University of Michigan

Arnold, William E. (1973), Professor Emeritus of Communication; BS, MA, Northern Illinois University; PhD, Pennsylvania State University

Arntzen, Charles J.
(2000)
Regents' Professor of Life Sciences; Florence Ely Nelson Presidential Chair; Director, Center for Infectious Diseases and Vaccinology, Arizona Biodesign Institute at Arizona State University; BS, MS, University of Minnesota; PhD, Purdue University

Aronson, Jerome M. (1966), Professor Emeritus of Life Sciences; BA, PhD, University of California, Berkeley

Arredondo, Patricia (1999), Professor of Psychology in Education; Associate Vice President and Senior Advisor, Academic Initiatives, University Undergraduate Initiatives; BS, Kent State University; EdM, Boston College; EdD, Boston University

Arreola, Daniel (1990), Professor of Geography; BA, University of California, Los Angeles; MA, California State University, Hayward; PhD, University of California, Los Angeles

Arrowsmith, J. Ramon (1995), Associate Professor of Geological Sciences; BA, Whittier College; PhD, Stanford University

Arterian, Hannah (1978), Professor Emerita of Law; BA, Elmira College; JD, University of Iowa

Artibise, Alan (2004), Professor of Political Science; Divisional Dean of Social Sciences, College of Liberal Arts and Sciences; Executive Director, Institute for Social Science Research; BA, University of Manitoba (Canada); PhD, University of British Columbia (Canada)

Artiles, Alfredo (2004), Professor of Curriculum and Instruction; Licenciatura in Education, Rafael Landivar University (Guatemala); MEd, PhD, University of Virginia

Arzubiaga, Angela (2004), Assistant Professor of Psychology in Education; BA, Hamline University; PhD, University of California, Los Angeles

Ashbrook, Mark (2000), Lecturer of Mathematics and Statistics; BS, MS, University of Illinois; MA, University of Kansas

Ashforth, Blake (1996), Jerry and Mary Ann Chapman Professor in Business; Professor of Management; BComm, PhD, University of Toronto (Canada)

Ashley, Richard (1981), Associate Professor of Political Science; BA, University of California, Santa Barbara; MA, PhD, Massachusetts Institute of Technology

Askland, Andrew (1999), Director, Center for the Study of Law, Science, and Technology; AB, Holy Cross College; BS, University of Maryland; MA, University of Colorado; JD, University of Maryland; PhD, University of Colorado

Aspinall, Richard (2004), Professor of Geography; Chair, Department of Geography; BSc, University of Birmingham (United Kingdom); PhD, University of Hull (United Kingdom)

Atkinson, Laura (2002), Lecturer of Curriculum and Instruction; BA, Saint Edward's University; MS, University of Wisconsin, Madison

Atkinson, Robert K. (2002), Assistant Professor of Psychology in Education; BA, California State University, Chico; MS, PhD, University of Wisconsin, Madison

Atsumi, Takayori P. (1968), Professor Emeritus of Music; BFA, Kunitachi Music College (Japan); MM, New England Conservatory of Music

Aulerich, Christopher E. (1989), Faculty Associate, Del E. Webb School of Construction

Axelrod, Morris (1972), Professor Emeritus of Sociology; BA, PhD, University of Michigan

Ayyanar, Raja (2000), Assistant Professor of Electrical Engineering; BE, PSG College of Technology (India); MS, Indian Institute of Science (India); PhD, University of Minnesota

Azuma, Tamiko (1998), Associate Professor of Speech and Hearing Science; BA, University of California, Santa Cruz; MA, PhD, Arizona State University

B

Backus, Charles E. (1968), Professor Emeritus of Electrical Engineering; BSME, Ohio University; MS, PhD, University of Arizona

Bacon, Catherine K. (1990), Clinical Associate Professor of Speech and Hearing Science; BA, University of California, Santa Barbara; MA, University of Minnesota

Bacon, Sid P. (1988), Professor of Speech and Hearing Science; Chair, Department of Speech and Hearing Science; BGS, MA, University of Kansas; PhD, University of Minnesota, Twin Cities

Bacon, Thomas (1993), Professor Emeritus of Music; BS, Oakland University

Badger, William W. (1985), Professor of Construction; BSME, Auburn University; MSCE, Oklahoma State University; PhD, Iowa State University

Baek, Jae-Meen (2001), Assistant Professor of Curriculum and Instruction; BS, Ewha Women's University (South Korea); MS, PhD, University of Wisconsin, Madison

Baer, Steven M. (1988), Associate Professor of Mathematics and Statistics; BS, MS, PhD, University of Illinois

Bahr, Donald M. (1967), Professor Emeritus of Anthropology; AB, MA, PhD, Harvard University

Bai, Yan (2005), Assistant Professor of Economics; BA, Shanghai University of Finance and Economics (China); MA, Peking University (China); MA, PhD, University of Minnesota

Baier, Leslie (1994), Adjunct Professor of Life Sciences; BA, Lawrence University; PhD, University of Michigan

Bailey, James E. (1974), Professor Emeritus of Industrial Engineering; BSIE, MSIE, PhD, Wayne State University

Bailey, Wayne A. (2000), Professor of Music; BME, Iowa State University; MM, University of Michigan; DMA, University of Colorado

Baker, Aaron (1992), Associate Professor of English; BA, Hobart College; MA, PhD, Indiana University

Baker, Brenda J. (1998), Associate Professor of Anthropology; BA, Northwestern University; MA, PhD, University of Massachusetts, Amherst

Baker, Dale R. (1989), Professor of Curriculum and Instruction; BA, University of Oklahoma; MAT, Trenton State College; EdD, Rutgers, The State University of New Jersey

Baker, Marc A. (1988), Adjunct Professor of Life Sciences; BA, San Jose State University; MA, Humboldt State University; PhD, Arizona State University

Baker, Virgil R. (1966), Professor Emeritus of Geography; BS, MS, University of Nebraska; PhD, University of Utah

Bakkaloglu, Bertan (2004), Associate Professor of Electrical Engineering; BSEE, Bogazici University (Turkey); MSc, University of Houston; PhD, Oregon State University

Balanis, Constantine A.
(1983)
Regents' Professor of Electrical Engineering; BSEE, Virginia Polytechnic Institute and State University; MEE, University of Virginia; PhD, Ohio State University

Balasubramanian, Krishnan (1980), Professor Emeritus of Chemistry; MSc, Birla Institute of Technology Science (India); MA, PhD, Johns Hopkins University

Baldini, Cajsa (2005), Lecturer of English; BA, University of Stockholm (Sweden); MA, PhD, Arizona State University

Baldini, Pier Raimondo (1978), Professor of Italian; BA, San Francisco State University; MA, University of British Columbia (Canada); PhD, University of California, Los Angeles

Baldwin, Marjorie L. (2002), Professor of Health Management and Policy; BS, State University College, Oswego; MA, PhD, Syracuse University

Ball, Terence (1998), Professor of Political Science; BA, University of California, Santa Cruz; MA, PhD, University of California, Berkeley

Balling, Robert C. (1987), Professor of Geography; Director, Climatology Laboratory; AB, Wittenberg University; MA, Bowling Green State University; PhD, University of Oklahoma

Ballon-Aguirre, Enrique (1992), Professor of Spanish; Bachiller en Letras, Bachiller en Derecho, University of Arequipa (Peru); Doctor en Literatura, National University of San Marcos (Peru); Doctorat en Études Iberiques, University of Paris III (France)

Balsas, Carlos (2004), Assistant Professor of Planning; LURP, University of Aveiro (Portugal); MRP, PhD, University of Massachusetts, Amherst

Baniszewski, Christopher (2001), Faculty Associate of Construction; BS, Northern Arizona University; JD, Arizona State University

Baral, Chitta (1999), Professor of Computer Science and Engineering; BTech, Indian Institute of Technology (India); MS, PhD, University of Maryland, College Park

Barcelo, Héléne (1990), Professor of Mathematics and Statistics; MsC, University of Quebec (Canada); PhD, University of California, San Diego

Barclay, Ray James, Major (Ret.) (2005), Assistant Professor of Military Science; BA, University of Florida; MA, Indiana University

Bardrick, Richard A. (1956), Professor Emeritus of Psychology; AB, PhD, University of California, Los Angeles

Barefield, Robert (2003), Assistant Professor of Music; BA, Washington University, St. Louis; MBA, University of Maryland, College Park; MM, DMA, University of Cincinnati

Barker, David (1983), Professor of Theatre; BSE, Duquesne University; MFA, Rutgers, The State University of New Jersey

Barkley, Margaret V. (1963), Professor Emerita of Family and Human Development; BS, Millikin University; MS, EdD, University of Illinois

Barkson, Joseph A. (1958), Professor Emeritus of Engineering; BSEE, University of Michigan; MS, PhD, University of Illinois

Barlow, Richard B. (1964), Professor Emeritus of History; BA, MA, PhD, University of Pennsylvania

Barnaby, Hugh J. (2004), Assistant Professor of Electrical Engineering; BA, University of California, Berkeley; MSEE, PhD, Vanderbilt University

Barnard, John P. (1991), Learning Resources Specialist Emeritus; BS, State University of New York; MEd, PhD, Arizona State University

Barnes, Andrew (1996), Associate Professor of History; BA, Wesleyan University; MA, PhD, Princeton University

Barnes, Jennifer (2004), Visiting Professor of Law; Director, Clinical Programs, College of Law; BS, University of Wisconsin; JD, Arizona State University

Barona, Andrés (1986), Professor Emeritus of Psychology in Education; BS, MEd, Texas A&M University; PhD, University of Texas at Austin

Barone, Thomas E. (1990), Professor of Curriculum and Instruction and Educational Leadership and Policy Studies; BA, MA, Loyola University, New Orleans; EdD, Stanford University

Barratt, Mark (2002), Assistant Professor of Supply Chain Management; BA, University of Greenwich (United Kingdom); PhD, Cranfield School of Management (United Kingdom)

Barrera, Manuel (1977), Professor of Psychology; BS, University of Wisconsin, Eau Claire; MA, PhD, University of Oregon

Barrett, Marianne (1994), Associate Professor of Journalism and Mass Communication; BS, Kutztown University; MPS, Syracuse University; PhD, Michigan State University

Barroll-Aschaffenburg, Rayna (1980), Professor Emerita of Music; BM, University of Texas; DMA, University of Maryland, College Park

Bartels, Robert D. (1981), Professor of Law; BA, University of Michigan; JD, Stanford University

Barton, C. Michael (1987), Professor of Anthropology; Collections Administrator; BA, University of Kansas; MA, PhD, University of Arizona

Barton, John L. (1994), Senior Lecturer of Psychology; BA, University of Nebraska, Lincoln; MA, PhD, Arizona State University

Bartz, Donna (1968), Professor Emerita of Theatre; BFA, MA, University of Colorado

Bashford, Howard H. (1997), Associate Professor of Construction; BS, MS, University of Wyoming; PhD, Brigham Young University

Batalden, Stephen K. (1976), Professor of History; Coordinator of Russian, East European Studies Consortium; BA, Augsburg College; MA, PhD, University of Minnesota

Bates, Dawn W. (1989), Associate Professor of English; BA, PhD, University of Washington

Battey, Daniel (2005), Assistant Professor of Curriculum and Instruction; BS, PhD, University of California, Los Angeles

Baty, Wayne M. (1962), Professor Emeritus of Supply Chain Management; BS, Southwest Missouri State College; MA, Northwestern University; PhD, University of Southern California

Bauer, Ernst (1990), Distinguished Research Professor of Physics and Astronomy; Diplom., Dr. rer. nat., University of Munich (Germany)

Bauer, Richard (2000), Senior Lecturer of Chemistry and Biochemistry; BS, Saginaw Valley State University; MS, PhD, Purdue University

Bazzi, Rida (1996), Associate Professor of Computer Science and Engineering; BE, American University of Beirut (Lebanon); MS, PhD, Georgia Institute of Technology

Beals, Stephen P. (1996), Adjunct Professor of Speech and Hearing Science; BS, Calvin College; MD, Wayne State University College of Medicine

Béarat, Hamdallah (2003), Affiliate Professor of Anthropology; BS, Birzeit University (Palestine); DEA, PhD, Caen University (France)

Beaulieu, David (2004), Professor of Educational Leadership and Policy Studies; Director, Center for Indian Education; BA, MA, PhD, University of Minnesota

Beckman, James R. (1980), Associate Professor of Chemical Engineering; Associate Chair, Department of Chemical and Materials Engineering; BS, MS, University of Wisconsin; PhD, University of Arizona

Bedard, Roger L. (1990), Evelyn Smith Family Endowed Professor of Theatre; BA, University of Northern Iowa; MFA, University of Oregon; PhD, University of Kansas

Bedient, Jack D. (1963), Professor Emeritus of Mathematics and Statistics; AB, Albion College; MBS, EdD, University of Colorado

Bedworth, David D. (1963), Professor Emeritus of Industrial Engineering; BSIE, Lamar College of Technology; MSIE, PhD, Purdue University

Beer, Lawrence (1994), Senior Lecturer of Management; BS, Boston University; JD, St. John's University

Begaye, Timothy (2003), Assistant Professor of Educational Leadership and Policy Studies; BS, Northeastern University; MEd, EdD, Harvard University

Beggs, Donald (1999), Honors Faculty Fellow; AB, University of California, Berkeley; PhD, University of California, Santa Cruz

Belitsky, Andrei V. (2003), Assistant Professor of Physics and Astronomy; MS, Yaroslavl State University (Russia); PhD, Bogoliubov Laboratory of Theoretical Physics (Russia)

Bell, George H. (1976–82; 1989), Librarian Emeritus, Noble Science Reference Services; BA, William Paterson College; MLS, Pratt Institute

Bell, James W. (1966), Professor Emeritus of Curriculum and Instruction; BA, Washburn University of Topeka; MEd, EdD, University of Kansas

Bell, John E. (1965), Professor Emeritus of Curriculum and Instruction; BS, University of Nebraska, Lincoln; MA, EdD, University of Wyoming

Bell, Mary E. (1970), Professor Emerita of Education; BS, Indiana State Teachers College; MS, Butler University; EdD, Indiana University, Bloomington

Bellamy, Lynn (1976), Professor Emeritus of Chemical Engineering; BS, Texas A&M University; MS, PhD, Tulane University

Belok, Michael V. (1959), Professor Emeritus of Education; BS, Indiana University, Bloomington; MA, Arizona State University; PhD, University of Southern California

Bender, Bert A. (1971), Professor Emeritus of English; BA, University of Washington; PhD, University of California, Irvine

Bender, Diane (2002), Assistant Professor of Interior Design; BA, MA, PhD, Michigan State University

Bender, Gordon L. (1953), Professor Emeritus of Life Sciences; BS, Iowa State College; MS, University of Wisconsin; PhD, University of Illinois

Bender, Paul (1984), Professor Emeritus of Law; Dean Emeritus, College of Law; AB, LLB, Harvard University

Benin, David B. (1970), Professor Emeritus of Physics and Astronomy; AB, Cornell University; MA, PhD, University of Rochester

Benin, Mary B. (1979), Associate Professor of Sociology; BA, Vanderbilt University; MA, PhD, University of Nebraska, Lincoln

Bennett, Peter A. (1984), Professor of Physics and Astronomy; BA, University of Minnesota, Duluth; PhD, University of Wisconsin, Madison

Benzinger, Robert P. (1970), Professor Emeritus of Industrial Design; BSME, University of Wisconsin, Madison; MAE, Chrysler Institute of Engineering

Berch, Michael A. (1969), Professor of Law; BA, JD, Columbia University

Berens, Michael E. (1995), Adjunct Professor of Life Sciences; BS, Arizona State University; PhD, University of Arizona

Berliner, David C.
(1987)
Regents' Professor of Educational Leadership and Policy Studies and Psychology in Education; BA, University of California, Los Angeles; MA, California State University, Los Angeles; PhD, Stanford University

Berman, David R. (1966), Professor Emeritus of Political Science; BA, Rockford College; MA, PhD, American University

Berman, Neil S. (1964), Professor Emeritus of Chemical Engineering; BS, University of Wisconsin; MS, MA, PhD, University of Texas

Bernardi, Daniel (2004), Associate Professor of Chicana and Chicano Studies; BA, MA, University of Arizona; PhD, University of California, Los Angeles

Bernardi, Jose (1995), Associate Professor of Interior Design; BArch, National University of Cordoba (Spain); MS, University of Cincinnati

Bernick, Philip A. (2004), Assistant Professor of English; BS, New Mexico Institute of Mining and Technology; MA, PhD, New Mexico State University

Bernstein, Bianca L. (1987), Professor of Psychology in Education and Educational Leadership and Policy Studies; BA, University of California, Berkeley; MEd, PhD, University of California, Santa Barbara

Bertelsen, Wendle R. (1964), Professor Emeritus of Architecture and Landscape Architecture; BArch, University of Michigan; MArch, University of Arizona

Bertram, Susan M. (1998), Assistant Research Professor of Life Sciences; HBSc, MSc, Trent University (Canada); PhD, Arizona State University

Bess, Vicki (1994), Adjunct Professor of Life Sciences; MS, Arizona State University

Betz, M. Austin (1974), Professor Emeritus of Education; BS, Lock Haven State College; MEd, Pennsylvania State University; MAT, Brown University; MA, PhD, University of Illinois

Betz, Mathew J. III (1961), Professor Emeritus of Civil Engineering; BS, MS, PhD, Northwestern University

Bian, Lin (2005), Assistant Professor of Speech and Hearing Science; MD, Peking University School of Medicine; PhD, University of Kansas

Biblarz, Dora (1980), Librarian Emerita; BA, MLS, University of California, Los Angeles; MA, University of California, Davis

Bickford, William B. (1966), Professor Emeritus of Engineering; BS, MS, Kansas State University; PhD, University of Illinois

Bieber, Allen L. (1963), Professor Emeritus of Chemistry and Biochemistry; Director, Interdisciplinary Committee on Molecular and Cellular Biology; BS, MS, North Dakota State University; PhD, Oregon State University

Bimonte-Nelson, Heather (2005), Assistant Professor of Psychology; PhD, University of Connecticut

Bingham, Scott (1989), Senior Research Scientist of Life Sciences; BS, Brown University; PhD, Brandeis University

Binkley, Roberta A. (2001), Lecturer of English; BA, Colorado State University; MA, PhD, University of Arizona

Birchfield, David (2003), Assistant Professor of Arts, Media, and Engineering; BM, University of Cincinnati; MA, DMA, Columbia University

Birge, Edward A. (1972), Professor Emeritus of Life Sciences; BA, PhD, University of Wisconsin, Madison

Birk, James P. (1973), Professor Emeritus of Chemistry and Biochemistry; BA, Saint John's University; PhD, Iowa State University

Birney, Rick (1990), Senior Lecturer of Computer Information Systems; BA, Arizona State University; MS, University of Maryland

Birtcher, Craig R. (1987), Associate Research Professional, Electrical Engineering; BSE, MS, Arizona State University

Bitner, Mary Jo (1987), Professor of Marketing; PETsMART Chair of Services Leadership; BA, MBA, PhD, University of Washington

Bitter, Gary G. (1970), Professor of Curriculum and Instruction and Psychology in Education; BS, Kansas State University; MA, Kansas State Teachers College; PhD, University of Denver

Bivona, Daniel (1996), Associate Professor of English; Divisional Dean of Undergraduate Programs, College of Liberal Arts and Sciences; BA, University of Connecticut; MA, Northeastern University; PhD, Brown University

Bjork, Robert E. (1983), Professor of English; Director, Arizona Center for Medieval and Renaissance Studies; BA, Pomona College; MA, PhD, University of California, Los Angeles

Blackham, Garth J. (1962), Professor Emeritus of Psychology in Education; BS, MS, Utah State University; PhD, Cornell University

Blackledge, Vernon O. (1969), Professor Emeritus of Computer Science and Engineering; BSEE, University of Illinois; MSEE, University of Santa Clara; PhD, Arizona State University

Blackman, William C. (1988), Research Professional Emeritus, Global Institute of Sustainability; BS, MS, University of Missouri; MPA, University of Southern California; DPA, University of Colorado

Blackson, Thomas (1995), Associate Professor of Philosophy; BA, DePauw University; PhD, University of Massachusetts

Blakemore, Arthur E. (1979), Professor of Economics; Chair, Department of Economics; BS, MA, University of Detroit; PhD, Southern Illinois University, Carbondale

Blanchard, Jay S. (1988), Professor of Psychology in Education; BA, Drake University; MST, Drake University; PhD, University of Georgia

Blankenship, Robert E. (1985), Professor of Chemistry and Biochemistry; Chair, Department of Chemistry and Biochemistry; BS, Nebraska Wesleyan College; PhD, University of California, Berkeley

Blasingame, James B. Jr. (2000), Assistant Professor of English; BA, University of Northern Iowa; MEd, Drake University; PhD, University of Kansas, Lawrence

Blasko, Vincent J. (1980), Associate Professor of Marketing; BS, MBA, Arizona State University; PhD, University of Texas at Austin

Bletzer, Keith (2004), Adjunct Professor of Anthropology; BA, University of South Florida; MA, New York University; MPH, University of Arizona; PhD, Michigan State University

Bloom, Irene (1997), Assistant Research Professional, Center for Research on Education in Science, Mathematics, Engineering, and Technology; BA, MS, University of Miami

Blouin, Deborah K. (1971), Librarian Emerita, Hayden Reference Services; BA, Cedar Crest College; MLS, State University of New York, Albany

Blount, Douglas J. (1990), Associate Professor of Mathematics and Statistics; BS, MS, PhD, University of Wisconsin, Madison

Blumenfeld-Jones, Donald (1990), Associate Professor of Curriculum and Instruction; BA, Rutgers, The State University of New Jersey; MFA, EdD, University of North Carolina at Greensboro

Boatsman, James R. (1986), KPMG Professor of Accountancy; BS, MS, Oklahoma State University; PhD, University of Texas at Austin

Boatsman, Joyce L. (1996), Lecturer of Accountancy; BS, Oklahoma State University; MTax, Arizona State University

Bodman, Denise (1996), Senior Lecturer of Family and Human Development; BS, MS, Arizona State University

Bogardus, Clifton (1992), Adjunct Professor of Life Sciences; MD, University of Rochester

Bogart, Quentin J. (1970), Professor Emeritus of Educational Leadership and Policy Studies; BA, MS, Fort Hayes State College; PhD, University of Texas at Austin

Boggs, Lohnie J. (1959–65; 1966), Professor Emeritus of Supply Chain Management; BS, MS, PhD, Ohio State University

Bohlander, George W. (1977), Professor Emeritus of Management; BA, San Francisco State College; MBA, University of Southern California; PhD, University of California, Los Angeles

Bohlman, Herbert M. (1964), Professor Emeritus of Supply Chain Management; BA, BS, Drake University; MBA, JD, Indiana University

Bolin, Robert (1997), Professor of Sociology; BA, PhD, University of Colorado

Bolton, Cynthia J. (1997), Senior Lecturer of Philosophy; BGS, University of Michigan; MA, PhD, Michigan State University

Bolton, Ruth N. (2004), Professor of Marketing; BComm, Queen's University; MSc, PhD, Carnegie-Mellon University

Bonanni, Domenico (1997), Associate Librarian, Hayden Reference Services; BA, University of Alberta (Canada); BA, Arizona State University; MLIS, Dalhousie University (Canada)

Bond-Robinson, Janet (2005), Associate Professor of Chemistry and Biochemistry; BS, Texas Lutheran College; MA, University of Texas; PhD, University of Iowa

Bontemps, Arna Alexander (2001), Associate Professor of African and African American Studies; BA, Fisk University; MA, Atlanta University; PhD, University of Illinois

Booksh, Karl S. (1996), Associate Professor of Chemistry and Biochemistry; BS, University of Alaska; PhD, University of Washington

Boone, Christopher G. (2006), Associate Professor of Anthropology; BA, Queen's University (Canada); MA, PhD, University of Toronto (Canada)

Booth, James R. (1980), Professor of Finance; BS, MA, PhD, University of Alabama

Boozer, James L. (1996), Faculty Associate of Planning

Boradkar, Prasad (2000), Assistant Professor of Industrial Design; BE, Maharaja Sayajirao University, Baroda (India); MDes, Industrial Design Centre, Bombay (India); MA, Ohio State University, Columbus

Borgo, Philip E. (1967), Professor Emeritus of Civil Engineering; BSCE, University of Cincinnati; MS, Ohio State University

Borovansky, Vladimir R. (1968), Librarian Emeritus, Collection Development; MLS, PhD, Charles University, Prague (Czechoslovakia)

Bortner, Peg (1979), Associate Professor of Justice and Social Inquiry; Director, Center for Urban Inquiry; BA, Edinboro State College; MA, Ohio University; PhD, Washington University

Borushko, Mark (1996), Faculty Associate of Planning; BS, Michigan State University; MBA, Arizona State University

Bossone, Michael (2004), Assistant Dean, Student Life and Development, College of Law; BA, University of Notre Dame; JD, New York University

Boswell, Jacquelyn (1982), Professor Emerita of Music; BME, Murray State University; MME, Louisiana State University; EdD, University of Illinois

Boulin Johnson, Leanor (1987), Professor of African and African American Studies; BS, East Tennessee State University; MS, PhD, Purdue University

Bowen, Benjamin (2003), Assistant Research Scientist of Bioengineering; BS, University of Arkansas; PhD, Arizona State University

Bowers, Charles O. (1948), Professor Emeritus of Music; BS, Southeast Missouri State College; MM, DMA, University of Rochester

Boyd, Brian (1996), Associate Professor of Management; BS, Suffolk University; MA, University of Connecticut; PhD, University of Southern California

Boyd, James H. (1976), Professor Emeritus of Accountancy; BBA, Texas Christian University; MS, Northeastern University; PhD, University of Texas at Austin; CPA, Texas

Boyd, Thomas A. (2002), Lecturer of Computer Science and Engineering; BA, Illinois State University; MS, PhD, Arizona State University

Boyer, Don L. (1988), Professor of Mechanical and Aerospace Engineering; BS, Rensselaer Polytechnic Institute; PhD, Johns Hopkins University

Boyer, Jay M. (1976), Professor of English; BA, Saint Louis University; MA, PhD, State University of New York, Buffalo

Boyes, William J. (1974), Professor of Economics; BS, Idaho State University; PhD, Claremont Graduate School

Boyle, Bernard M. (1969), Professor Emeritus of Architecture and Landscape Architecture; BArch, University of Sydney (Australia); MArch, MA, PhD, Yale University

Brack, O M Jr. (1973), Professor of English; BA, MA, Baylor University; PhD, University of Texas at Austin

Brada, Josef C. (1978), Professor of Economics; Director, International Business Studies; BS, MA, Tufts University; PhD, University of Minnesota, Twin Cities

Bramlett-Solomon, Sharon (1986), Associate Professor of Journalism and Mass Communication; BA, MA, Memphis State University; PhD, Indiana University, Bloomington

Brandon, Tedd A. (1981), Senior Research Professional of Bioengineering; Director, Animal Care Facility; BS, University of California, Davis

Brandt, Beverly K. (1987), Professor of Interior Design; BFA, University of Michigan; MA, Michigan State University; PhD, Boston University

Brandt, Elizabeth A. (1974), Professor of Anthropology; BA, Florida State University; MA, PhD, Southern Methodist University

Braun, J. Jay (1973), Professor Emeritus of Psychology; BA, University of Oregon; MA, PhD, Ohio State University

Brauner, Yariv (2004), Associate Professor of Law; JSD, LLM, New York University; LLB, Hebrew University (Israel)

Braunstein, Ethan (2004), Adjunct Professor of Anthropology; BS, MD, Northwestern University

Braver, Sanford L. (1970), Professor of Psychology; BA, Wayne State University; PhD, University of Michigan

Bray, Sandra (1987), Librarian Emerita, Technical Services Department; BA, Ottawa University; MLS, Indiana University, Bloomington

Brazel, Anthony J. (1974), Professor of Geography; Codirector, Executive Committee, Atmospheric Science; BA, MA, Rutgers, The State University of New Jersey; PhD, University of Michigan

Breckenridge, Jack D. (1962), Professor Emeritus of Art; BS, University of Wisconsin, Milwaukee; MFA, University of Iowa

Brem, Sarah Kate (1999), Associate Professor of Psychology in Education; AB, University of Chicago; MS, PhD, Northwestern University

Bremner, Andrew (1984), Professor of Mathematics and Statistics; BA, MA, University of Oxford (United Kingdom); PhD, University of Cambridge (United Kingdom)

Brenenstuhl, Daniel C. (1978), Professor Emeritus of Management; BS, MBA, Ohio University; MS, St. Bonaventure University; DBA, Indiana University

Brennan, Dean (2002), Faculty Associate of Planning; BS, Iowa State University; MPA, Arizona State University

Brewer, Naala (2004), Lecturer of Mathematics and Statistics; BS, College of Charleston; MS, Georgia Institute of Technology; PhD, University of Kansas

Brewis, Alexandra A. (2006), Professor of Anthropology; BA, MA, University of Auckland (New Zealand); PhD, University of Arizona

Briggs, John M. (1999), Professor of Life Sciences; Director, Executive Committee, Geographic Information Science; BS, MSc, Pittsburg State University; PhD, University of Arkansas

Briggs, Ron D. (2004), Lecturer of Chemistry and Biochemistry; BS, University of California, San Diego; MA, San Diego State University; PhD, University of California, San Diego, and San Diego State University

Briley, Lane D. (1970), Associate Research Professional of Chemistry and Biochemistry; BA, Arizona State University

Brink, Jean R. (1974), Professor Emerita of English; BA, Northwestern University; MA, Harvard University; PhD, University of Wisconsin, Madison

Britton, Daniel R. (1976), Professor of Art; BFA, MFA, University of Colorado

Britton, David (1987), Professor of Music; BM, North Texas State University

Broadley, Hugh T. (1969), Professor Emeritus of Art; AB, Park College; MA, Yale University; PhD, New York University

Broman, Tannah (2003), Lecturer of Kinesiology; BA, New Mexico State University; MS, Arizona State University

Brooks, Daniel G. (1981), Associate Professor of Supply Chain Management; Director, Executive MBA Program; BS, MS, Colorado School of Mines; MBA, PhD, Indiana University, Bloomington

Brooks, Kenneth R. (2004), Professor of Landscape Architecture; Associate Dean for Academic Affairs, College of Design; BS, Colorado State University; MLA, Utah State University

Brooks, Talbot (2001), Assistant Research Professional of Geography; Network Administrator; BS, Rochester Institute of Technology; MS, Arizona State University

Broome, Benjamin J. (1999), Professor of Communication; BA, University of Georgia; MA, PhD, University of Kansas

Brophy, Colleen (2000), Research Professor of Bioengineering; BS, MD, University of Utah

Brouwer, Daniel C. (2000), Assistant Professor of Communication; BSc, Ohio University; MA, PhD, Northwestern University

Brown, Alan R. (1968), Associate Professor of Education; BA, MA, California State University, Los Angeles; PhD, University of Texas at Austin

Brown, Claudia (1998), Associate Professor of Art and History; Director, Center for Asian Studies; BA, MA, MPhil, PhD, University of Kansas

Brown, David E. (1993), Adjunct Professor of Life Sciences; BA, San Jose State College

Brown, Duane (1950), Professor Emeritus of Chemistry and Biochemistry; BS, Brigham Young University; PhD, Cornell University

Brown, Eddie F. (2004), Professor of American Indian Studies; Director, American Indian Studies Program; BS, Brigham Young University; MSW, DSW, University of Utah

Brown, Jean C. (1991), Clinical Associate Professor of Speech and Hearing Science; BS, University of Montevallo; MA, University of Tennessee; MSW, PhD, Arizona State University

Brown, Stephen W. (1974), Professor of Marketing; Edward M. Carson Chair of Services Marketing; Executive Director, Center for Services Leadership; BS, MBA, PhD, Arizona State University

Brown, Steven (2003), Senior Lecturer of Supply Chain Management; BS, Trinity University; MBA, Abilene Christian University

Brown, Theodore M. (1963), Professor Emeritus of Chemistry and Biochemistry; BS, MS, University of Toledo; PhD, Iowa State University

Bruhn, Karen (1998), Honors Faculty Fellow; BA, City University of New York; MA, PhD, University of North Carolina at Chapel Hill

Brune, Daniel C. (1986), Senior Research Professional of Chemistry and Biochemistry; BA, University of Kansas; PhD, Indiana University, Bloomington

Brungart, Jennifer (2002), Assistant Professor of Visual Communication Design; BS, University of Cincinnati; MGD, North Carolina State University

Brunning, Dennis R. (1984), Librarian, Collection Development; BA, University of Iowa; MA, MLS, University of Illinois

Bryan, Harvey (1999), Professor of Architecture and Landscape Architecture; BArch, Arizona State University; MArch, MSc, PhD, University of California, Berkeley

Bryan, Karen M. (1997), Assistant Professor of Music; Associate Director, Undergraduate Studies, School of Music; BM, Georgia State University, Atlanta; MA, University of Georgia, Atlanta; PhD, Indiana University, Bloomington

Bryan, Tanis (1992), Adjunct Professor of Speech and Hearing Science; BS, MA, PhD, Northwestern University

Bryant, Edwin H. (2000), Adjunct Professor of Life Sciences; AB, California State University; PhD, University of Kansas

Bryant, Fred O. (1950), Professor Emeritus of Kinesiology; BS, Springfield College; MS, University of Illinois; EdD, Arizona State University

Buck, Elizabeth (2000), Associate Professor of Flute; BA, MM, The Juilliard School; DMA, Rice University

Buck, Nancy (2002), Associate Professor of Music; BM, Oberlin College; MM, The Cleveland Institute of Music

Buckingham, Willis J. (1969), Professor Emeritus of English; AB, Harvard University; MS, University of Wisconsin, Madison; PhD, Indiana University

Buikstra, Jane E. (2005), Professor of Anthropology; BA, Depauw University; MA, PhD, University of Chicago

Buley, Jerry L. (1973), Professor Emeritus of Communication; BA, University of Colorado; MA, Michigan State University; PhD, Florida State University

Buneo, Christopher A. (2005), Assistant Professor of Bioengineering; BS, MS, Long Island University; PhD, University of Minnesota

Burdick, Richard K. (1976), Professor Emeritus of Economics; BS, University of Wyoming; MS, PhD, Texas A&M University

Burg, B. Richard (1967), Professor of History; BA, University of Colorado; MA, Western State College of Colorado; PhD, University of Colorado

Burgess, Paul L. (1969), Professor of Economics; BA, PhD, University of Colorado

Burgoyne, Edward E. (1951), Professor Emeritus of Chemistry and Biochemistry; BS, Utah State University; MS, PhD, University of Wisconsin, Madison

Burke, Janet M. (1996), Assistant Administrative Professional, Barrett Honors College; Associate Dean, National Scholarship Advisement and Student Internships, Barrett Honors College; BA, Wells College; MA, Syracuse University; PhD, Arizona State University

Burke, Rebecca J. (1981), Librarian Emerita; BA, San Jose State University; MLS, University of Arizona

Burke, William F. Jr. (1977), Professor of Life Sciences; BA, University of Dallas; MS, North Texas State University; PhD, Arizona State University

Burnette, Wendell (2000), Assistant Professor of Architecture and Landscape Architecture

Burns, Elizabeth K. (1983), Professor Emerita of Geography; BA, Smith College; MA, PhD, University of California, Berkeley

Burrows, Veronica (1986), Associate Professor of Chemical Engineering; BS, Drexel University; PhD, Princeton University

Burstein, David (1982), Professor of Physics and Astronomy; BA, Wesleyan University; PhD, University of California, Santa Cruz

Burt, Donald M. (1974), Professor of Geological Sciences; AB, Princeton University; AM, PhD, Harvard University

Burton, Dora (1976), Professor Emerita of Russian; MD, First Leningrad and Kazan Medical Institute (Russia); MA, PhD, University of Washington

Burton, Foster M. (1969), Professor Emeritus of Construction; BSCE, BS, Carnegie Institute of Technology; MBA, New York University; PhD, University of Pittsburgh

Buseck, Peter R.
(1963)
Regents' Professor of Chemistry and Biochemistry and Geological Sciences; BA, Antioch College; MA, PhD, Columbia University

Bush, Jeffrey E. (1997), Associate Professor of Music Education; BM, MM, Northern Illinois University, De Kalb; PhD, University of Arizona

Butterworth, Charles A. (2005), Adjunct Professor of Life Sciences; BS, Reading University (United Kingdom); PhD, Iowa State University

C

Cabana, Graciela S. (2003), Adjunct Professor of Anthropology; BA, University of California, Berkeley; MA, PhD, University of Michigan

Cabianca, William A. (1967), Professor Emeritus of Psychology in Education; BEd, Gonzaga University; MEd, PhD, Washington State University

Cady, Linell E. (1983), Professor of Religious Studies; Director, Center for the Study of Religion and Conflict; BA, Newton College; MTS, ThD, Harvard University

Calhoun, Ronald J. (2001), Assistant Professor of Mechanical and Aerospace Engineering; BS, MS, PhD, Stanford University

Calkins, Jerry M. (1992), Adjunct Professor of Bioengineering; BSChE, MSChE, University of Wyoming; PhD, University of Maryland, College Park; MD, University of Arizona

Callahan, Christopher (2005), Professor of Journalism and Mass Communication; Dean, Walter Cronkite School of Journalism and Mass Communication; BS, Boston University; MPA, Harvard University

Callarman, Thomas E. (1980), Associate Professor of Supply Chain Management; BBA, West Texas State University; MBA, Arizona State University; PhD, Purdue University

Calleros, Charles R. (1980), Professor of Law; BA, University of California, Santa Cruz; JD, University of California, Davis

Calliss, Debra (2004), Lecturer of Computer Science and Engineering; BS, MS, PhD, Arizona State University

Cam, Hasan (2001), Assistant Professor of Computer Science and Engineering; BS, MS, Istanbul Technical University (Turkey); PhD, Purdue University

Cameron, Theresa (1997), Associate Professor of Planning; BA, State University of New York, Buffalo; MUP, University of Michigan; DDes, Harvard University

Campbell, Andrew (2002), Assistant Professor of Music; BA, BM, Oberlin College; MM, Indiana University; DMA, University of Michigan

Canary, Daniel J. (1999), Professor of Communication; BA, MA, California State University, Fullerton; MA, PhD, University of Southern California

Candan, Kasim Selcuk (1997), Associate Professor of Computer Science and Engineering; BS, Bilkent University (Turkey); PhD, University of Maryland, College Park

Candela, Giuseppe (1995), Associate Professor of Italian; MA, PhD, University of Wisconsin

Candelaria, Cordelia Chavez
(1992)
Regents' Professor of Chicana and Chicano Studies and English; BA, Fort Lewis College; MA, PhD, University of Notre Dame

Cannella, Albert (2004), The Hahnco Companies Professor of Management; Chair, Department of Management; BS, Tennessee Technological University; MBA, University of Northern Iowa; PhD, Columbia University

Cannella, Gaile (2004), Professor of Curriculum and Instruction; BS, MA, Tennessee Technological University; EdD, University of Georgia

Canovas, Frédéric (1999), Associate Professor of French; Diplôme d'Études Universitaires Générales de Lettres Modernes, Maîtrise de Lettres Modernes, Diplôme d'Études Approfondies de Lettres Modernes, Lyon University (France); PhD, University of Oregon

Canright, James E. (1964), Professor Emeritus of Life Sciences; BA, Miami University; AM, PhD, Harvard University

Cao, Yu (Kevin) (2004), Assistant Professor of Electrical Engineering; BS, Peking University (China); MA, PhD, University of California, Berkeley

Capco, David G. (1984), Professor of Life Sciences; BS, Edinboro State College; MS, University of Houston; PhD, University of Texas at Austin

Caplan, Michael R. (2002), Assistant Professor of Bioengineering; BA, BS, University of Texas at Austin; PhD, Massachusetts Institute of Technology

Cardineau, Guy A. (2003), Research Professor of Life Sciences and Faculty Fellow, Center for the Study of Law, Science, and Technology; BS, Auburn University; PhD, University of Alabama, Birmingham

Cardy, Robert L. (1988), Professor of Management; BS, Central Michigan University; PhD, Virginia Polytechnic Institute and State University

Carlson, A. Cheree (1988), Professor of Communication; BA, MA, Colorado State University; PhD, University of Southern California

Carlson, Ingeborg L. (1964), Professor Emerita of German; Abitur, Hölderlin School (Germany); Vorsemester and cand.phil., University of Heidelberg (Germany); Dr. phil., University of Erlangen-Nuremberg (Germany)

Carlson, John (2005), Assistant Professor of Religious Studies; BA, Vanderbilt University; AM, PhD, University of Chicago

Carlson, Marilyn P. (1995), Professor of Mathematics and Statistics; Interim Director, Center for Research on Education in Science, Mathematics, Engineering, and Technology; BS, Central Missouri State University; MS, PhD, University of Kansas

Carlson, Ron
(1986)
Regents' Professor of English; BA, MA, University of Utah

Carney, James D. (1967), Professor Emeritus of Philosophy; BA equivalent, Northern Baptist Theological Seminary; MA, Roosevelt University; PhD, University of Nebraska, Lincoln

Carpenter, Ellon D. (1988), Associate Professor of Music; BA, Denison University; MA, Kent State University; PhD, University of Pennsylvania

Carpenter, Ray W. (1981), Professor of Solid State Science; BS, MS, PhD, University of California, Berkeley

Carr, Christopher (1985), Professor of Anthropology; BA, University of Illinois; MA, PhD, University of Michigan

Carroll, Steven (1985), Professor Emeritus of Life Sciences; BS, Tulane University; MS, Oregon State University; PhD, University of Oregon

Carter, Joseph R. (1991), Avnet Professor of Supply Chain Management; Chair, Department of Supply Chain Management; BS, MBA, Northeastern University; PhD, Boston University

Carter, Phillip L. (1995), Professor of Supply Chain Management; Harold E. Fearon Chair, Purchasing Management; Director, Center for Advanced Purchasing Studies; BSEE, Rose-Hulman Institute of Technology; MBA, DBA, Indiana University

Carver, George L. (1965), Professor Emeritus of Classical Languages; BA, MA, University of Texas at Austin; STB, Saint Mary's Seminary; PhD, Saint Louis University

Caryl, James (2003), Assistant Professor of Military Science; Business Manager, Department of Military Science; BS, Arizona State University

Casanova, Ursula (1987), Professor Emerita of Educational Leadership and Policy Studies; BA, Hunter College; MS, State University of New York, Brockport; PhD, Arizona State University

Casavantes, Michael D. (1990), Lecturer of Journalism and Mass Communication; BA, University of Texas, El Paso; MA, New Mexico State University

Case, James L. (1969), Professor Emeritus of Speech and Hearing Science; BS, Weber State College; MS, PhD, University of Utah

Cashman, Holly (2001), Assistant Professor of Spanish; BA, Hood College; MA, PhD, University of Michigan, Ann Arbor

Cassidy, Virginia L. (1988), Librarian Emerita; AB, Oberlin College; MLS, Pratt Institute

Castaneda, Eddie (1990), Associate Professor of Psychology; BS, MA, University of Texas, El Paso; PhD, University of Michigan

Castillo-Chavez, Carlos
(2004)
Regents' Professor of Mathematics and Statistics; BS, University of Wisconsin, Stevens Point; MS, University of Wisconsin, Milwaukee; PhD, University of Wisconsin, Madison

Castle, Gregory (1992), Associate Professor of English; BA, California State University, Fresno; MA, PhD, University of California, Los Angeles

Castro, Felipe G. (1991), Professor of Psychology; BA, University of California, Santa Barbara; MSW, University of California, Los Angeles; PhD, University of Washington

Cate, Heather E. (1995), Academic Associate; BA, University of New Hampshire, Durham; MA, Arizona State University

Caterino, Linda C. (2005), Clinical Associate Professor of Psychology in Education; Interim Training Director, School Psychology Program; BA, Fordham University; MA, PhD, Arizona State University

Cavanaugh, Carolyn J. (1996), Academic Associate of Psychology; AB, Duke University; PhD, Arizona State University

Cavender, Gray (1977), Professor of Justice and Social Inquiry; BS, University of Tennessee; MS, Middle Tennessee State University; PhD, Florida State University; JD, University of Tennessee, Knoxville

Cerveny, Randall S.
(1986)
President's Professor of Geography; BS, MA, PhD, University of Nebraska, Lincoln

Cesta, John R. (1975), Associate Professor of Finance; BS, Capital University; MBA, PhD, Florida State University

Cevette, Michael J. (1989), Adjunct Professor of Speech and Hearing Science; BA, University of Nevada, Las Vegas; MS, Utah State University; PhD, University of Utah

Chade, Hector (1997), Associate Professor of Economics; Licenciado en Economia, National University of Cuyo (Argentina); MS, PhD, University of Illinois, Urbana-Champaign

Chae, Junseok (2005), Assistant Professor of Electrical Engineering; BS, Korea University (South Korea); MS, PhD, University of Michigan

Chakrabarti, Chaitali (1990), Professor of Electrical Engineering; BTech, Indian Institute of Technology (India); MS, PhD, University of Maryland, College Park

Chamberland, Bertrand L. (1995), Adjunct Professor of Chemistry and Biochemistry; BA, St. Anselm's College; PhD, University of Pennsylvania

Chamberlin, Ralph V. (1986), Professor of Physics and Astronomy; BS, University of Utah; MS, PhD, University of California, Los Angeles

Chambers, Anthony (1998), Professor of Japanese; BA, Pomona College; MA, Stanford University; PhD, University of Michigan

Chance, John K. (1987), Professor of Anthropology; AB, University of Pennsylvania; AM, PhD, University of Illinois

Chandler, Douglas E. (1980), Professor of Life Sciences; BS, University of Rochester; MA, Johns Hopkins University; PhD, University of California, San Francisco

Chang, Yung (1996), Associate Professor of Life Sciences; MD, Beijing Medical College (China); PhD, University of Iowa

Chapuis, Jean-Charles (1991), Senior Research Professional, Cancer Research Institute; BS, PhD, University of Lausanne (Switzerland)

Chaput, John (2004), Assistant Professor of Chemistry and Biochemistry; BS, Creighton University; MS, PhD, University of California, Riverside

Chartier, George M. (1971), Professor Emeritus of Psychology; BS, University of Illinois; MA, PhD, University of Oregon

Chasey, Allan D. (1995), Associate Professor of Construction; BS, Arizona State University; MS, Air Force Institute of Technology; PhD, Virginia Polytechnic Institute and State University

Chasey, Eugene F. (1965), Professor Emeritus of Education; BS, Northwestern State College; MA, Colorado State College; EdD, University of Wyoming

Chassin, Laurie (1979), Professor of Psychology; BA, Brown University; MS, PhD, Columbia University

Chatha, Karamvir (2001), Assistant Professor of Computer Science and Engineering; BSE, University of Bombay (India); MS, PhD, University of Cincinnati

Chattin, Linda L. (2005), Lecturer of Industrial Engineering; BS, State University of New York, Buffalo; MS, University of Southern California; PhD, State University of New York, Buffalo

Chattopadhyay, Aditi (1990), Professor of Mechanical and Aerospace Engineering; MS, PhD, Georgia Institute of Technology

Chaudhuri, Joyotpaul (1985), Professor Emeritus of Political Science; BA, Central State University, Oklahoma; MA, PhD, University of Oklahoma

Chawla, Nikhilesh (2000), Associate Professor of Materials Engineering; BS, New Mexico Institute of Mining and Technology; MS, University of Tennessee, Knoxville; PhD, University of Michigan, Ann Arbor

Chen, Jiunn-Liang (2004), Assistant Professor of Chemistry and Biochemistry and Life Sciences; BS, National Cheng-Kung University (China); PhD, Indiana University, Bloomington

Chen, Kang Ping (1991), Associate Professor of Engineering; BS, Peking University (China); PhD, University of Minnesota, Twin Cities

Chen, Sandy (2003), Assistant Librarian, Technical Services Department; BA, Fu Jen Catholic University (Taiwan); MA, University of Missouri; MLS, Emporia State University

Chen, Shu-Chuan (2004), Assistant Professor of Mathematics and Statistics; BS, National Chung-Hsing University (Taiwan); MS, National Donghwa University (Taiwan); PhD, Pennsylvania State University

Chen, Stanley S. (1967), Professor Emeritus of Engineering; Diploma, Taipei Institute of Technology (Taiwan); MS, Ohio University; PhD, University of Wisconsin, Madison

Chen, Yi (2005), Assistant Professor of Computer Science and Engineering; BS, Central South University (China); MS, PhD, University of Pennsylvania

Chen, Ying (2005), Assistant Professor of Economics; BA, Beijing University (China); MA, PhD, Yale University

Chen, Yinong (2001), Senior Research Scientist of Computer Science and Engineering; BS, MS, Chongqing University (China); PhD, University of Karlsruhe (Germany)

Chen, Yongsheng (2003), Associate Research Professor of Civil and Environmental Engineering; BSE, Northern China Institute of Technology (China); MS, PhD, Nankai University (China)

Childress, Nancy (1991), Associate Professor of Mathematics and Statistics; BS, BSEd, MS, PhD, Ohio State University

Chin, Michelle (2001), Assistant Professor of Political Science; BS, Andrews University; MA, PhD, Texas A&M University

Chizmeshya, Andrew V.G. (1994), Associate Research Scientist, Center for Solid State Science; BS, University of Toronto (Canada); MSc, PhD, Queen's University, Kingston (Canada)

Chlistowa, Xenia (1980), Professor Emerita of Dance

Chodorow, Adam (2004), Associate Professor of Law; BA, Yale College; MA, JD, University of Virginia; LLM, New York University

Choi, Hyaeweol (1998), Associate Professor of Korean; BA, MA, Yonsei University (South Korea); PhD, State University of New York, Buffalo

Choi, Thomas (1998), Professor of Supply Chain Management; AB, University of California, Berkeley; PhD, University of Michigan

Chou, Ju-Hsi (1975), Professor Emeritus of Art; BA, University of Kentucky; MA, PhD, Princeton University

Chowdhury, Uttiya (2004), Assistant Research Professor of Chemical and Materials Engineering; BS, Bangladesh University of Engineering and Technology (India); MS, PhD, University of Texas at Austin

Christensen, Philip R.
(1987)
Regents' Professor of Geological Sciences; Edgar and Helen Korrick Presidential Professor; BS, MS, PhD, University of California, Los Angeles

Christian, Charles W. (1985), Professor of Accountancy; Director, School of Accountancy; BBA, University of Georgia; JD, University of Virginia; PhD, University of Georgia

Christie, James F. (1988), Professor of Curriculum and Instruction; BA, University of California, Berkeley; MA, Syracuse University; PhD, Claremont Graduate School

Christine, Carol J. (1998), Clinical Assistant Professor of Curriculum and Instruction; Associate Division Director, Initial Teacher Certification; BA, MA, Arizona State University; PhD, University of Arizona

Christopher, F. Scott (1986), Professor of Family and Human Development; BS, MS, University of Nebraska; PhD, Oregon State University

Chubrich, Robert E. (1971), Professor Emeritus of Speech and Hearing Science; BA, Grinnell College; MA, Indiana University, Bloomington; PhD, State University of New York, Buffalo

Church, Kathleen K. (1969), Professor of Life Sciences; Vice Provost; BS, MA, University of Utah; PhD, University of California, Berkeley

Cialdini, Robert B.
(1971)
Regents' Professor of Psychology; BS, University of Wisconsin, Milwaukee; MA, PhD, University of North Carolina at Chapel Hill

Cichacz, Zbigniew A. (1989), Associate Research Professor, Cancer Research Institute; MSc, PhD, Institute of Organic and Physical Chemistry (Poland)

Claiborn, Charles D. (1990), Professor of Psychology in Education; AB, University of Missouri; MA, Ohio State University; PhD, University of Missouri

Clark, Caroline (1999), Faculty Associate of Visual Communication Design; BFA, Arizona State University

Clark, Doug (2002), Assistant Professor of Curriculum and Instruction; BA, University of North Carolina at Chapel Hill; MA, Stanford University; PhD, University of California, Berkeley

Clark, Geoffrey A.
(1971)
Regents' Professor of Anthropology; BA, MA, University of Arizona; PhD, University of Chicago

Clark, Lawrence T. (2004), Associate Professor of Electrical Engineering; BS, Northern Arizona University; MS, PhD, Arizona State University

Clark, Robert C. (1981), Professor Emeritus of Music; BMus, Central Methodist College; SMM, Union Theological Seminary

Clark, William Dennis (1976), Associate Professor of Life Sciences; BA, Sacramento State College; PhD, University of Texas at Austin

Clark-Curtiss, Josephine (2004), Professor of Life Sciences; BS, St. Mary's College; PhD, Medical College of Georgia

Clarke, Amanda B. (2003), Assistant Professor of Geological Sciences; BS, BA, University of Notre Dame; PhD, The Pennsylvania State University

Clay, J. Eugene (1993), Associate Professor of Religious Studies; AB, AM, PhD, University of Chicago

Clemens, Katherine (2004), Assistant Librarian; BS, Nazareth College of Rochester; MLS, Florida State University

Clinton, Robert N. (2001), Professor of Law; BA, University of Michigan; JD, University of Chicago

Clothier, Ronald R. (1955), Professor Emeritus of Life Sciences; AB, Fresno State College; MA, Montana State University; PhD, University of New Mexico

Cobas, José A. (1975), Professor of Sociology; BA, Maryville College; MA, University of Tennessee, Knoxville; PhD, University of Texas at Austin

Cocchiarella, Martha (1998), Lecturer of Curriculum and Instruction; BA, MEd, PhD, Arizona State University

Cochran, Douglas (1989), Associate Professor of Electrical Engineering; MA, University of California, San Diego; PhD, Harvard University

Cochran, Jeffery K. (1984), Professor of Industrial Engineering; BSE, MSNE, MSIE, PhD, Purdue University

Cocke, Robert D. (1983), Professor Emeritus of Art; BFA, University of Arizona; MFA, University of Iowa

Codell, Julie F. (1991), Professor of Art; AB, Vassar College; MA, University of Michigan; MA, PhD, Indiana University

Coffman, David (2005), Clinical Assistant Professor of Theatre; Production Manager, School of Theatre and Film; BA, University of Arizona; MFA, University of Iowa

Coghlan, William A. (1990), Adjunct Professor of Chemical Engineering; BS, Montana College of Mineral Science and Technology; MS, PhD, Stanford University

Cohen, Stewart M. (1989), Professor of Philosophy; Chair, Department of Philosophy; BA, Wayne State University; MA, University of California, Santa Barbara; PhD, University of Arizona

Cohn, Sanford J. (1979), Associate Professor of Curriculum and Instruction; BA, MEd, PhD, Johns Hopkins University

Colbert, Charles R. (1998), Academic Associate of American Indian Studies; BS, Northeastern Oklahoma State University; MA, EdD, Arizona State University

Colbourn, Charles (2001), Professor of Computer Science and Engineering; BSc, University of Toronto (Canada); MMath, University of Waterloo (Canada); PhD, University of Toronto (Canada)

Colby, Arthur L. (1965), Professor Emeritus of English; BA, University of Massachusetts, Amherst; MA, PhD, University of North Carolina at Chapel Hill

Colby, Barbara F. (1973), Academic Associate; BA, University of Massachusetts, Amherst; MA, Arizona State University

Coleman, Vicki (2004), Librarian; Associate Dean, Library Services; BS, North Carolina Agricultural and Technical State University; MILS, University of Michigan

Coles, Jeffrey L. (1994), Professor of Finance; Chair, Department of Finance; BA, Pomona College; PhD, Stanford University

Colina, Sonia (1997), Associate Professor of Spanish; BA, University of Compostela (Spain); MA, Southern Illinois University, Carbondale; MA, State University of New York, Binghamton; PhD, University of Illinois, Urbana-Champaign

Collins, Daniel L. (1989), Professor of Art; BA, University of California, Davis; MA, Stanford University; MFA, University of California, Los Angeles

Collins, James P. (1975), Virginia M. Ullman Professor of Natural History and the Environment; Professor of Life Sciences; BS, Manhattan College; MS, PhD, University of Michigan

Collins, Scott L. (2001), Adjunct Professor of Life Sciences; BA, Wittenberg University; MS, Miami University; PhD, University of Oklahoma

Collofello, James S. (1979), Professor of Computer Science and Engineering; Associate Chair for Undergraduate Programs, Department of Computer Science and Engineering; BS, MS, Northern Illinois University; PhD, Northwestern University

Comeaux, Malcolm L. (1969), Professor Emeritus of Geography; BA, University of Southwestern Louisiana; MA, Southern Illinois University, Carbondale; PhD, Louisiana State University, Baton Rouge

Comfort, Joseph R. (1981), Professor of Physics and Astronomy; AB, Ripon College; MS, PhD, Yale University

Comprix, Joseph (2000), Assistant Professor of Accountancy; BS, Ohio State University; PhD, University of Illinois, Urbana-Champaign

Congdon, Justin D. (2000), Adjunct Professor of Life Sciences; BS, MS, California State Polytechnic University; PhD, Arizona State University

Conrad, Cheryl D. (1997), Associate Professor of Psychology; BS, University of California, Irvine; PhD, University of Illinois, Urbana-Champaign

Conrow, Jane A. (1968), Associate Dean Emerita, Library Services; BA, MLS, Indiana University, Bloomington

Cook, Edward A. (1985), Associate Professor of Architecture and Landscape Architecture; BSLA, Washington State University; MLA, Utah State University; PhD, Wageningen University (Netherlands)

Cook, Paul (1987), Senior Lecturer of English; BA, Northern Arizona University; MA, Arizona State University; PhD, University of Utah

Cook, Phil A. (1963), Professor Emeritus of Education; BA, Southwestern Oklahoma State College; MA, Colorado State College; EdD, University of Kansas

Cook, Suzanne M. (1974), Professor Emerita of Management; BBA, MBA, DBA, Texas Tech University

Coombs, Toni (2002), Lecturer of Mathematics and Statistics; BS, MS, Arizona State University

Corder, Brice W. (1971), Professor Emeritus of Kinesiology; BA, Lynchburg College; MEd, EdD, Temple University

Corey, Constance H. (1973), Librarian Emerita; BA, Denison University; MLS, University of Arizona; MBA, Arizona State University

Corley, Kevin G. (2005), Assistant Professor of Management; BS, Miami University; PhD, Pennsylvania State University

Corman, Steven R. (1987), Professor of Communication; BS, Illinois State University; MA, PhD, University of Illinois

Corral, Karen (1996), Assistant Professor of Computer Information Systems; BA, University of Michigan; MS, PhD, Arizona State University

Corse, Taylor (1989), Associate Professor of English; BA, Florida State University; MA, University of Michigan; PhD, University of Florida

Cosand, Walter A. (1976), Professor of Music; BM, MM, University of Rochester

Cota-Cárdenas, Margarita (1981), Professor Emerita of Spanish; BA, California State University, Turlock; MA, University of California, Davis; PhD, University of Arizona

Couch, Sanford C. (1962), Professor Emeritus of Russian; BA, MA, PhD, University of Wisconsin, Madison

Coudart, Anick (2004), Adjunct Professor of Anthropology; BA, University of Paris, Sorbonne (France); MA, PhD, University of Paris I, Panthéon-Sorbonne (France)

Coursen, Jerry (1987), Senior Lecturer of Bioengineering; BS, MS, Arizona State University; PhD, University of Arizona

Cowgill, George L. (1990), Professor Emeritus of Anthropology; AM, University of Chicago; PhD, Harvard University

Cowley, Anne P. (1983), Professor of Physics and Astronomy; BA, Wellesley College; MS, PhD, University of Michigan

Cox, Ronnie R. (1987), Clinical Associate Professor of African and African American Studies; BS, Fayetteville University; MS, University of North Carolina; PhD, University of Tennessee

Craft, Emalee (2004), Assistant Librarian, Noble Science Reference Service; BA, MLS, University of Alabama

Craft, John E. (1973), Professor of Journalism and Mass Communication; BFA, MA, PhD, Ohio University

Crafts-Brandner, Steven (1996), Adjunct Professor of Life Sciences; BS, Western Kentucky University; MS, PhD, University of Illinois

Crawford, John E. (1980), Professor Emeritus of Communication; BA, Nebraska Wesleyan University; MA, Sacramento State College; PhD, University of Southern California

Crawford, Neil (1997), Adjunct Professor of Bioengineering; BS, University of California, Berkeley; MS, PhD, Arizona State University

Creath, J. Richard (1974), Professor of Life Sciences and Philosophy; BA, Knox College; MA (Philosophy), MA (History and Philosophy of Science), PhD, University of Pittsburgh

Creighton, Judith M. (1967), Professor Emerita of Family and Human Development; BS, University of Arizona; MS, MC, Arizona State University; PhD, University of Arizona

Crewe, Katherine (1998), Associate Professor of Planning; BA, Rhodes University (South Africa); MLA, University of California, Berkeley; PhD, University of Massachusetts, Amherst

Crimm, Nina (2004), Visiting Professor of Law; AB, Washington University; MBA, JD, Tulane University; LLM, Georgetown University

Crittenden, John C. (2004), Richard Snell Presidential Chair Professor of Civil and Environmental Engineering; BSE, MSE, PhD, University of Michigan, Ann Arbor

Crittenden, W. Jackson (1988), Associate Professor of Political Science; BA, Tufts University; MEd, Harvard University; DPhil, University of Oxford (United Kingdom)

Crnic, Keith A. (2004), Foundation Professor of Psychology; Chair, Department of Psychology; BA, University of Southern California; PhD, University of Washington

Croft, Lee B. (1973), Professor of Russian; BS, Arizona State University; MA, University of Arizona; PhD, Cornell University

Cromarty, Ross (1998), Faculty Associate of Planning; BA, C.W. Post College of Long Island University; MEP, PhD, Arizona State University

Cronin, John R. (1966), Professor Emeritus of Chemistry and Biochemistry; BA, College of Wooster; PhD, University of Colorado

Cronkite, Walter (1986), Professor of Journalism and Mass Communication

Crook, Sharon (2004), Assistant Professor of Life Sciences and Mathematics and Statistics; BS, University of Southern Mississippi; MA, PhD, University of Maryland, College Park

Cross, James (1986), Adjunct Professor of Art; BA, University of California, Los Angeles

Crotty, Mike (2004), Senior Lecturer of Music; BM, Berklee College of Music

Crouch, Peter E. (1985), Professor of Electrical Engineering; Dean, Ira A. Fulton School of Engineering; BS, MS, University of Warwick (United Kingdom); PhD, Harvard University

Crowder, Troy F. (1970), Professor Emeritus of Journalism and Mass Communication; BA, University of South Dakota; MA, University of Iowa

Crowe, Barbara J. (1981), Professor of Music; Director, Music Therapy; BM, MM, Michigan State University

Crowley, Sharon (1998), Professor of English; BA, MA, University of Nebraska, Lincoln; PhD, University of Northern Colorado

Crozier, Peter A. (1987), Senior Research Scientist, Center for Solid State Science; BSc, PhD, University of Glasgow (United Kingdom)

Cruse, Markus (2005), Assistant Professor of French; BA, Amherst College; MA, PhD, New York University

Cruz, Evelyn (2005), Associate Clinical Professor of Law; Director, Immigration Clinic; BA, University of California, Santa Cruz; JD, Santa Clara University School of Law

Cruz-Torres, Maria L. (2005), Associate Professor of Global Studies and Women and Gender Studies; BS, University of Puerto Rico, Humacao (Puerto Rico); MA, PhD, Rutgers, The State University of New Jersey

Cuciurean, John Daniel (2003), Assistant Professor of Music Theory; BEng, McMaster University, Ontario (Canada); BM, Royal Conservatory of Music, Toronto (Canada); PhD, State University of New York

Culbertson, Robert J. (1991), Associate Professor of Physics and Astronomy; BS, Kent State University; PhD, Pennsylvania State University, University Park

Curran, Mark (1968), Professor Emeritus of Spanish and Portuguese; BS, Rockhurst College; PhD, Saint Louis University

Curtiss, Roy III (2004), Professor of Life Sciences; BS, Cornell University; PhD, University of Chicago

Cutler, Lorraine M. (1991), Associate Professor of Interior Design; Chair, School of Interior Design; BA, BFA, Arizona State University; MA, University of Phoenix

Cutrara, Dan (2005), Lecturer of English; BA, University of Florida; MFA, University of Southern California

Cutter, Robert Joe (2005), Professor of Chinese Studies; Chair, Department of Languages and Literatures; BA, MA, University of Arizona; PhD, University of Washington

Cvorovic, Jelena (2002), Adjunct Professor of Anthropology; BA, MA, Belgrade University of Philosophy (Serbia); PhD, Arizona State University

Czygrinow, Andrzej M. (1999), Assistant Professor of Mathematics and Statistics; MS, Adam Mickiewicz University (Poland); MS, PhD, Emory University

D

D'Alesandro, Anthony J. (2004), Lecturer of Mathematics and Statistics; BA, MS, Rutgers, The State University of New Jersey; MS, University of Cincinnati

D'Andrea, Frank L. (1972), Professor Emeritus of Music; BA, MA, EdD, Columbia University

D'Angelo, Frank J. (1970), Professor Emeritus of English; BS, Loyola University, New Orleans; MA, Tulane University; PhD, University of Nebraska, Lincoln

Daane, Calvin J. (1963), Professor Emeritus of Psychology in Education; BS, University of Wisconsin, Madison; MA, Columbia University; EdD, Indiana University, Bloomington

Dagger, Richard K. (1976), Professor of Political Science; BA, University of Missouri, St. Louis; PhD, University of Minnesota, Twin Cities

Dahl, Richard C. (1966), Professor Emeritus of Law; BA, BLS, University of California, Berkeley; JD, Catholic University of America

Daley, Timothy (2005), Adjunct Professor of Life Sciences; BS, MD, University of Nebraska Medical Center

Dalgleish, Donald D. (1962), Professor Emeritus of Military Science; BA, Carleton College; MA, Columbia University; PhD, University of Colorado

Dallyn, Selwyn L. (1983), Clinical Professor of Law; BA, Graceland College; JD, University of Iowa

Dalton, Kevin Andrew (1994), Honors Faculty Fellow; BA, Columbia University; MPhil, University of Oxford (United Kingdom); PhD, University of Virginia

Damgaard, Anni (1995), Instructor of Sociology; BS, California State University, Long Beach; MA, PhD, Arizona State University

Damrel, David W. (2000), Assistant Professor of Religious Studies; BA, BJ, MA, University of Texas at Austin; PhD, Duke University

Dandekar, Hemalata (2002), Professor of Planning; Director, School of Planning; BArch, University of Bombay (India); MArch, University of Michigan; PhD, University of California, Los Angeles

Daniel, Norman E. (1970), Professor Emeritus of Supply Chain Management; BS, MS, University of Tennessee, Knoxville; PhD, Indiana University

Danielson, Marivel (2004), Assistant Professor of Chicana and Chicano Studies; BA, Minnesota State University; MA, PhD, University of Michigan

Dantico, Marilyn (1981), Associate Professor of Political Science; BA, University of Illinois; MA, PhD, Florida State University

Danzig, Arnold B. (2001), Associate Professor of Educational Leadership and Policy Studies; BA, State University of New York; MA, PhD, University of Maryland

Darling, J. Andrew (2001), Adjunct Professor of Anthropology; BA, Swarthmore College; MA, PhD, University of Michigan

Darst, Paul W. (1976), Professor of Kinesiology; BS, MS, University of Akron; PhD, Ohio State University

Dasgupta, Partha (1991), Associate Professor of Computer Science and Engineering; BTech, MTech, Indian Institute of Technology (India); PhD, State University of New York, Stony Brook

Datta, Manjira (1995), Associate Professor of Economics; BA, MA, Jadavpur University (India); PhD, Cornell University

Dauber, M. Robert (1990), Clinical Professor of Law; BA, University of California, Berkeley; JD, Arizona State University

Dauten, Joel J. (1960), Professor Emeritus of Finance; BS, MS, Washington University; PhD, University of Iowa

Davey, William G. (1976), Associate Professor of Communication; Director, International Programs; BA, Pennsylvania State University; MA, Columbia University; PhD, Indiana University, Bloomington

David, Julie Smith (1995), Associate Professor of Computer Information Systems; BA, MBA, PhD, Michigan State University

Davidson, Elizabeth T. (1986), Research Professor of Life Sciences; BS, Mount Union College; MS, PhD, Ohio State University

Davidson, Joseph K. (1973), Professor of Engineering; BME, MSc, PhD, Ohio State University

Davila, Eduardo (1995), Senior Lecturer of Management; BS, University of Illinois, Urbana-Champaign; MBA, Arizona State University

Davis, Frank S. (1978), Senior Research Professional of Chemistry and Biochemistry; BSE, Arizona State University

Davis, George R. (1980), Professor Emeritus of Electrical Engineering; BSEE, MS, University of Illinois; PhD, University of Arizona

Davis, Joseph M. (1975), Associate Professor of Finance; BS, University of South Carolina; MBA, Texas A&M University; PhD, University of Georgia

Davis, Kirsten (2001), Legal Writing Instructor; BA, JD, Ohio State University

Davis, Mary C. (1994), Associate Professor of Psychology; BS, University of Idaho; MS, PhD, University of Pittsburgh

Davis, Olga Idriss (1998), Associate Professor of Communication; BS, University of Redlands; MA, PhD, University of Nebraska, Lincoln

Davis, Robert E. (1959), Professor Emeritus of Communication; BA, MA, PhD, University of Illinois

Davis, Thomas J. (1996), Professor of History and Law; AB, Fordham University; MA, Ball State University; MA, PhD, Columbia University; JD, State University of New York, Buffalo

Davulcu, Hasan (2002), Assistant Professor of Computer Science and Engineering; BS, Middle East Technical University (Turkey); MS, PhD, State University of New York, Stony Brook

Day, Thomas (1995), Professor of Life Sciences; BS, Colorado State University; MS, University of Idaho; PhD, Colorado State University

De la Garza, Sarah Amira (2002), Associate Professor of Communication; BS, North Texas State University; MA, State University of New York, Buffalo; PhD, University of Texas at Austin

de los Santos, Alfredo (1999), Research Professor, Division of Educational Leadership and Policy Studies; BA, MLS, PhD, University of Texas at Austin

de Marneffe, Peter (1989), Associate Professor of Philosophy; BA, University of Massachusetts, Amherst; PhD, Harvard University

Deal, Clarice (1996), Lecturer of Portuguese; BA, Saint Marense Organization of Education and Culture, São Paulo (Brazil); MEd, Arizona State University

Dean, Arthur G. (1971), Professor Emeritus of Industrial Engineering; BA, MS, Texas Tech University; PhD, Texas A&M University

Debenport, Sylvia (1978), Professor Emerita of Music; BME, BM, MM, Indiana University, Bloomington

Decker, Lance (2005), Faculty Associate of Planning; BS, MPA, The Ohio State University

DeFato, Rosalinda (1970), Librarian, Hayden Reference Services; BA, Saint John's University; MLS, University of California, Los Angeles

Deli, Daniel N. (2001), Assistant Professor of Finance; BA, MS, University of Illinois; PhD, Arizona State University

DeLibero, Joseph (1996), Senior Lecturer of Computer Science and Engineering; BS, Iona College; MS, Purdue University

Dellheim, Charles J. (1980), Professor Emeritus of History; BA, Harpur College; MA, PhD, Yale University

Demaine, Linda (2004), Associate Professor of Law; BA, Arizona State University; JD, University of Arizona; PhD, Arizona State University

DeMars, James R. (1981), Professor of Music; BA, Macalester College; MA, PhD, University of Minnesota, Twin Cities

Demirkan, Haluk (2002), Assistant Professor of Computer Information Systems; BS, Istanbul Technical University (Turkey); MS, PhD, University of Florida

DeNardo, Dale (1998), Assistant Professor of Life Sciences; BS, DVM, University of California, Davis; PhD, University of California, Berkeley

Dengi, E. Aykut (2005), Associate Professor of Electrical Engineering; BS, Bilkent University (Turkey); MS, PhD, Carnegie Mellon University

Desch, Steven (2003), Assistant Professor of Physics and Astronomy; BS, MS, Rensselaer Polytechnic Institute; MS, University of Chicago; PhD, University of Illinois, Urbana-Champaign

DeSerpa, Allan C. (1975), Professor of Economics; BA, University of Santa Clara; PhD, University of California, Santa Barbara

Detrie, Thomas (1984), Professor Emeritus of Visual Communication Design; BFA, MFA, Louisiana Tech University

Deviche, Pierre (1999), Professor of Life Sciences; BS, PhD, University of Liege (Belgium)

Devitt, Daniel (2005), Lecturer of Languages and Literatures; BA, MA, PhD, State University of New York, Buffalo

Dey, Sandwip (1987), Professor of Materials Engineering; BTech, Banares Hindu University (India); MS, PhD, Alfred University

Dezelsky, Thomas L. (1968), Professor Emeritus of Kinesiology; BS, Central Michigan University; MA, University of Michigan; HSD, Indiana University, Bloomington

Diaz, Rodolfo E. (2001), Associate Professor of Electrical Engineering; BS, Yale University; MS, PhD, University of California, Los Angeles

Dieckmann, Stephan (2004), Assistant Professor of Finance; Diplom Betriebswirt, Business School of Finance and Management (Germany); MS, PhD, Carnegie Mellon University

Dierig, David A. (1996), Adjunct Professor of Life Sciences; BS, MS, Arizona State University; PhD, University of Arizona

Di Felíce, Beth (2000), Associate Law Librarian; Assistant Director, Ross-Blakley Law Library; BA, Centenary College; MLS, JD, University of Washington

Di Gangi, Samuel (1990), Associate Professor of Curriculum and Instruction; Assistant Vice Provost for Information Technology; BA, University of Pittsburgh; MEd, PhD, Arizona State University

Dillner, Ann (2001), Assistant Research Professor of Chemical and Materials Engineering; BS, Southern Methodist University; MS, Stanford University; PhD, University of Illinois, Urbana-Champaign

Ditsworth, Richard L. (1959), Professor Emeritus of Engineering; BS, MS, Iowa State College; PhD, Michigan State University

Dittert, Alfred E. Jr. (1967), Professor Emeritus of Anthropology; BA, MA, University of New Mexico; PhD, University of Arizona

Doak, R. Bruce (1991), Professor of Physics and Astronomy; BS, Cornell University; MS, PhD, Massachusetts Institute of Technology

Doan, Jerry (1979), Professor of Music; BME, MM, North Texas State University; DMA, University of Michigan

Doane, Winifred W. (1977), Professor Emerita of Life Sciences; BS, Hunter College; MS, University of Wisconsin; PhD, Yale University

Doebler, Bettie Anne (1971), Professor Emerita of English; BA, MA, Duke University; PhD, University of Wisconsin, Madison

Doherty, Brian (2002), Librarian; Head, Music Library; BA, Westminster Choir College; MA, MLS, Rutgers, The State University of New Jersey, New Brunswick; PhD, University of Kansas

Doig, Stephen K. (1996), Professor of Journalism and Mass Communication; BA, Dartmouth

Dollin, Michael (1989), Faculty Associate of Planning; Coordinator, Community Design Studio; BLA, University of Arizona

Donelson, Kenneth L. (1965), Professor Emeritus of English; BA, MA, PhD, University of Iowa

Dooley, Kevin (1997), Professor of Supply Chain Management; BS, MS, PhD, University of Illinois, Urbana-Champaign

Dorman, Michael F. (1976), Professor of Speech and Hearing Science; BS, University of Washington; MA, Hollins College; PhD, University of Connecticut

Dorn, Ronald I. (1988), Professor of Geography; AB, MA, University of California, Berkeley; PhD, University of California, Los Angeles

Doty, Roxanne L. (1990), Associate Professor of Political Science; BS, MA, Arizona State University; PhD, University of Minnesota, Twin Cities

Doubek, Dennis L. (1976), Senior Research Professional, Cancer Research Institute; BS, University of Arizona; PhD, University of Illinois

Dounskaia, Natalia (2005), Assistant Professor of Kinesiology; Diploma, Moscow Institute of Electronic Engineering (Russia); Candidate of Science, Russian Academy of Sciences (Russia)

Dow, John (1990), Professor of Physics and Astronomy; BS, University of Notre Dame; PhD, University of Rochester

Dowling, Thomas E. (1988), Professor of Life Sciences; BS, University of Michigan; PhD, Wayne State University

Downs, Catherine A. (1983), Clinical Professor of Life Sciences; BS, Arizona State University; MA, Central Michigan University

Downs, Floyd L. (1988), Lecturer of Mathematics and Statistics; AB, Harvard University; MA, Columbia University

Doyel, David E. (1985), Adjunct Professor of Anthropology; BA, University of Arizona; MA, PhD, California State University, Chico

Doyle, Donald P. (1962), Professor Emeritus of Theatre; BA, Arizona State University; MA, Northwestern University; PhD, University of Minnesota, Twin Cities

Drake, Jackson M. (1974), Professor Emeritus of Education; BS, MS, Southern Illinois University, Carbondale; EdD, Columbia University

Dreyfoos, Dale (1994), Professor of Music; BM, Florida State University; MM, University of Texas at Austin

Driscoll, Michael F. (1971), Professor Emeritus of Mathematics and Statistics; BA, Saint John's University; MS, PhD, University of Arizona

Drucker, Jeffery S. (2000), Associate Professor of Physics and Astronomy; BA, University of California, Irvine; PhD, University of California, Santa Barbara

Duane, Drake D. (1987), Adjunct Professor of Speech and Hearing Science; AB, University of Michigan; MD, Wayne State University

Dubie, Norman
(1978)
Regents' Professor of English; BA, Goddard College; MFA, University of Iowa

Duckworth, William C. (1999), Adjunct Professor of Life Sciences; BS, University of Tennessee, Knoxville; MD, University of Tennessee, Memphis

Dudek, Leona M. (1960), Professor Emerita of Education; BEd, National College of Education; MA, Arizona State University

Duerden, Sarah J. (1998), Senior Lecturer of English; BA, University of Sheffield (United Kingdom); MA, PhD, Arizona State University

Duffy, Dennis M. (1977), Professor Emeritus of Construction; BS, MS, PhD, University of Arizona

Dugan, Jeanne (1994), Senior Lecturer of English; BA, University of Michigan; MA, PhD, Arizona State University

Duman, Tolga (1998), Associate Professor of Electrical Engineering; BS, Bilkent University (Turkey); MS, PhD, Northeastern University

Dumka, Larry E. (1991), Associate Professor of Family and Human Development; BA, University of Manitoba (Canada); MA, Simon Fraser University (Canada); PhD, Purdue University

Duncan, Anne (2001), Assistant Professor of Languages and Literatures; BA, Swarthmore College; MA, PhD, University of Pennsylvania

Duncan, Christopher (2005), Assistant Professor of Global Studies and Religious Studies; BA, Vanderbilt University; MPhil, PhD, Yale University

Duncan, Kate C. (1991), Professor of Art; BA, MA, University of New Mexico; PhD, University of Washington

Dundas, Mary Jane (1975), Professor Emerita of Legal and Ethical Studies; BA, California State University, Long Beach; JD, Loyola Marymount University

Durfee, Alesha (2005), Assistant Professor of Women and Gender Studies; BA, Seattle Pacific University; BA, University of Oregon; MA, PhD, University of Washington;

Durrenberger, Robert W. (1971), Professor Emeritus of Geography; BS, Moorhead State College; BS, California Institute of Technology; MS, University of Wisconsin, Madison; PhD, University of California, Los Angeles

Duttagupta, Chitralekha (2001), Lecturer of English; BA, Calcutta University (India); MA, Jadavpur University (India); MTESL, Arizona State University; PhD, Jadavpur University (India); PhD, Arizona State University

Duvernay, Jennifer (2000), Assistant Librarian, Noble Science Reference Services; BS, Carroll College; MLS, University of North Carolina at Chapel Hill

Dworkin, Judith (2003), Faculty Associate of Planning; MA, PhD, Clark University; JD, Arizona State University

Dwyer, Karen (1994), Senior Lecturer of English; BA, Lamar University; MA, PhD, Purdue University

Dyer, Becky (2004), Assistant Professor of Dance; BA, Brigham Young University; MS, University of Oregon; MFA, PhD, Texas Woman's University

E

Eck, Roger (1970), Professor Emeritus of Computer Information Systems; BSChE, Clarkson College of Technology; MBA, University of New Mexico; PhD, Tulane University

Eckard, Bonnie (1996), Professor of Theatre; BFA, University of Illinois; MA, University of Arizona; PhD, University of Denver

Eckert, Thomas W. (1971), Professor of Art; BA, MFA, Arizona State University

Edelsky, Carol (1976), Professor of Curriculum and Instruction; BS, University of Cincinnati; PhD, University of New Mexico

Eder, James F. Jr. (1975), Professor of Anthropology; Director, Program for Southeast Asian Studies; BS, California Institute of Technology; MA, PhD, University of California, Santa Barbara

Edsall, Robert M. (2000), Assistant Professor of Geography; BA, Kenyon College; MS, PhD, Pennsylvania State University

Edwards, Gus (1988), Professor of Theatre

Edwards, John L. (1964), Professor Emeritus of Curriculum and Instruction; BA, Ball State University; MA, EdD, Arizona State University

Edwin, Mark (2005), Adjunct Professor of Life Sciences; BA, Carroll College; MDCM, McGill University (Canada)

Eeds, Maryann H. (1975), Professor Emerita of Curriculum and Instruction; BA, California State University, Sacramento; PhD, University of Oregon

Eggink, Laura (2005), Assistant Research Professor of Life Sciences; BS, PhD, Arizona State University

Ehteshami, Gholam (2000), Research Scientist of Bioengineering; BS, University of Tehran (Iran); MS, Oregon State University; PhD, University of Arizona

Eisenberg, Nancy H.
(1976)
Regents' Professor of Psychology; BA, University of Michigan; MA, PhD, University of California, Berkeley

Ekmanis, Rolfs (1963), Professor Emeritus of Russian; BA, MA, University of Wisconsin, Madison; PhD, Indiana University, Bloomington

El-Basyouny, Mohammed (1996), Faculty Research Assistant of Civil and Environmental Engineering; BS, Cairo University (Egypt); MS, PhD, Arizona State University

El Hamel, Chouki (2002), Associate Professor of History; BA, University of Muhammad I of Oujda (Morocco); MA, PhD, University of Paris Pantheon-Sorbonne (France)

Ellin, Nan (1998), Associate Professor of Architecture and Landscape Architecture; BA, Bryn Mawr College; MA, PhD, Columbia University

Elliott, Charles S. (1989), Professor Emeritus of Industrial Engineering; BME, General Motors Institute; MS, Indiana University, Bloomington; PhD, Michigan State University

Ellis, Andrew W. (1998), Associate Professor of Geography; BA, MS, PhD, University of Delaware

Ellis, Larry (2005), Lecturer of English; BA, MA, PhD, Arizona State University

Ellis, Robert H. (1962), Professor Emeritus of Journalism and Mass Communication; BA, Arizona State University; MA, Case Western Reserve University

Ellman, Ira Mark (1978), Professor of Law; BA, Reed College; MA, University of Illinois; JD, University of California, Berkeley

Ellram, Lisa M. (1990), Bebbling Professor of Business; BSB, MBA, University of Minnesota, Twin Cities; PhD, Ohio State University

Ellsworth, Angela (2005), Assistant Professor of Art; BA, Hampshire College; MFA, Rutgers, The State University of New Jersey

Ellsworth, Lola M. (1938), Professor Emerita of Family and Human Development; BS, Brigham Young University; MA, Columbia University

Elman, Colin (1998), Assistant Professor of Political Science; BA, Nottingham University (United Kingdom); MA, PhD, Columbia University

Elman, Miriam Fendius (1995), Associate Professor of Political Science; BA, MA, Hebrew University (Israel); PhD, Columbia University

Elmore, James W. (1949), Professor Emeritus of Planning; AB, University of Nebraska; MS, Columbia University

Elser, James J. (1990), Professor of Life Sciences; Associate Director, Research and Training Initiation; BS, University of Notre Dame; MS, University of Tennessee, Knoxville; PhD, University of California, Davis

Elser, Monica M. (1996), Academic Associate, Educational Liaison, Global Institute of Sustainability; BS, University of Notre Dame; MS, University of Tennessee, Knoxville; MEd, Arizona State University

Elsharawy, Elbadawy (1989), Professor Emeritus of Electrical Engineering; BSE, MSE, Mansoura University (Egypt); PhD, University of Massachusetts, Amherst

Enders, Craig (2005), Assistant Professor of Psychology; BA, PhD, University of Nebraska

Enz, Billie J. (1990), Administrative Professional of Curriculum and Instruction; Associate Director for Professional Development and Induction, Division of Curriculum and Instruction; BA, MA, PhD, Arizona State University

Erber, Joachim (2005), Adjunct Professor of Life Sciences; DSC, Technical University Darmstadt (Germany)

Erickson, Mary L. (1990), Professor of Art; BFA, University of Illinois; MA, PhD, Ohio State University

Ericson, John Q. (2001), Assistant Professor of Music; BM, Emporia State University; MM, Eastman School of Music; DMA, Indiana University

Ernzen, James J. (1996), Associate Professor of Construction; Interim Director, Del E. Webb School of Construction; BS, MS, University of Notre Dame; PhD, University of Texas at Austin

Escalante, Ananias (2005), Associate Professor of Life Sciences; Licenciado, MSc, Simón Bolívar University (Venezuela); PhD, University of California, Irvine

Esch, Mark (2003), Lecturer of Curriculum and Instruction; BA, Goshen College; MA, University of Phoenix

Escobar, Edward J. (1993), Associate Professor of Chicana and Chicano Studies and History; BA, California State University, Dominguez Hills; MA, PhD, University of California, Riverside

Espino, Rodolfo (2004), Assistant Professor of Political Science; BA, Luther College; MA, PhD, University of Wisconsin-Madison

Espinosa, Aurelio (2005), Assistant Professor of Religious Studies; BA, MA, PhD, University of Arizona

Espinosa, Paul D. (2004), Professor of Chicana and Chicano Studies; BA, Brown University; MA, PhD, Stanford University

Essig, Linda (2004), Professor of Theatre; Chair, School of Theatre and Film; BFA, MFA, New York University

Etter, Patricia A. (1988), Archivist, Archives and Special Collections; BA, California State University, Long Beach; MLS, University of Arizona

Eubank, Randall L. (2005), Professor of Mathematics and Statistics; BS, MS, New Mexico State University; MS, PhD, Texas A&M University

Evans, Donovan L. (1966), Professor Emeritus of Engineering; Director, Center for Research on Education in Science, Mathematics, Engineering, and Technology; BSME, University of Cincinnati; PhD, Northwestern University

Evans, John X. (1964), Professor Emeritus of English; BA, Holy Cross College; MA, PhD, Yale University

Eveland, Charles (1974), Professor Emeritus of Health Management and Policy; BS, University of Maryland; MS, Baylor University; PhD, University of Michigan

Ewan, Joseph (1994), Associate Professor of Architecture and Landscape Architecture; BSD, Arizona State University; MLA, University of California, Berkeley

Ewing, Alison (1993), Law Librarian, Circulation/Reference; BA, MLS, University of Michigan

F

Faas, Larry A. (1967), Professor Emeritus of Curriculum and Instruction; BS, Iowa State University; MA, Colorado State College; EdD, Utah State University

Fabes, Richard A. (1983), Professor of Family and Human Development; Chair, Department of Family and Human Development; BA, University of Colorado; MS, PhD, Oklahoma State University

Fabricius, William (1990), Associate Professor of Psychology; BA, Boston College; MS, Wheelock College; PhD, University of Michigan

Facinelli, Diane A. (1993), Honors Faculty Fellow; BA, MA, PhD, Arizona State University

Faeth, Stanley H. (1980), Professor of Life Sciences; BS, MS, University of Cincinnati; PhD, Florida State University

Fafitis, Apostolos (1984), Associate Professor of Civil and Environmental Engineering; BSE, Aristotelion University of Thessaloniki (Greece); MEng, South Dakota School of Mines and Technology; PhD, Northwestern University

Fahlman, Betsy (1988), Professor of Art; BA, Mount Holyoke College; MA, PhD, University of Delaware

Fain, Jeanne (2004), Lecturer of Curriculum and Instruction; BS, Grand Canyon University; MEd, Arizona State University; PhD, University of Arizona

Falconer, Steven E. (1989), Professor of Anthropology; BA, Washington State University; MA, PhD, University of Arizona

Fall, Patricia L. (1989), Associate Professor of Geography; BA, Prescott College; MS, PhD, University of Arizona

Faltis, Christian J. (1991), Professor of Curriculum and Instruction; BA, San Francisco State University; MA, San Jose State University; MA, PhD, Stanford University

Faltz, Leonard M. (1979), Professor Emeritus of Computer Science and Engineering; BS, City University of New York; MS, Harvard University; PhD, University of California, Berkeley

Farin, Gerald (1987), Professor of Computer Science and Engineering; BA, MA, PhD, University of Braunschweig (Germany)

Farmer, Frank D. (1970), Associate Professor of Mathematics and Statistics; BA, MA, University of California, Riverside; PhD, University of Washington

Farmer, Jack D. (1998), Professor of Geological Sciences; BA, California State University, Chico; MS, University of Kansas; PhD, University of California, Davis

Fearon, Harold E. (1961), Professor Emeritus of Supply Chain Management; BS, MBA, Indiana University; PhD, Michigan State University

Fehr, Fred S. (1971), Professor Emeritus of Psychology; BS, University of Wisconsin, Madison; MA, PhD, Washington University

Feigal, Ellen (2005), Adjunct Professor of Life Sciences; BS, MS, University of California, Irvine; MD, University of California, Davis

Feisst, Sabine (2002), Assistant Professor of Music; MM, Conservatory of Music, Frankfurt (Germany); PhD, Free University of Berlin (Germany)

Felder, Mark (2002), Faculty Associate of Construction; BA, Dartmouth College; MEd, Northern Arizona University

Feldhaus, Anne (1981), Professor of Religious Studies; BA, Manhattanville College; PhD, University of Pennsylvania

Feldstein, Alan (1970), Professor Emeritus of Mathematics and Statistics; BA, Arizona State University; PhD, University of California, Los Angeles

Feller, Joseph M. (1987), Professor of Law; BA, Harvard University; PhD, University of California, Berkeley; JD, Harvard University

Fellmeth, Aaron (2004), Associate Professor of Law; AB, University of California, Berkeley; MA, JD, Yale University

Fenske, Robert H. (1974), Professor of Educational Leadership and Policy Studies; BS, MS, PhD, University of Wisconsin, Madison

Fernando, Harindra (1984), Professor of Mechanical and Aerospace Engineering; Director, Center for Environmental Fluid Dynamics; BSc, University of Sri Lanka; MA, PhD, Johns Hopkins University

Ferrall, J. Eleanor (1969), Librarian Emerita, Reference Service; AB, Heidelberg College; MA, Arizona State University

Ferris, Jean (1985), Professor Emerita of Music; BM, University of Michigan; MA, Arizona State University

Ferry, David K.
(1983)
Regents' Professor of Electrical Engineering; BSEE, MSEE, Texas Technological College; PhD, University of Texas at Austin

Fessenden, Tracy (1994), Associate Professor of Religious Studies; BA, Yale University; PhD, University of Virginia

Fewell, Jennifer H. (1993), Associate Professor of Life Sciences; BA, Cornell University; MA, PhD, University of Colorado

Fey, Richard (2005), Lecturer of Sociology; BS, MS, Portland State University; PhD, Arizona State University

Fidel, Noel (2002), Professor of Law; Associate Dean for Graduate Studies and Program Development, College of Law; AB, Dartmouth College; JD, Harvard University; LLM, University of Virginia

Findler, Nicholas V. (1982), Professor Emeritus of Computer Science and Engineering; BEng, PhD, Budapest University for Technical Sciences (Hungary)

Fine, Robert (1997), Senior Lecturer of Sociology; BA, Boston University; MA, University of Chicago; PhD, New York University

Finer, Neal (1977), Professor Emeritus of Curriculum and Instruction; BA, University of Houston; MA, University of the Americas (Mexico); PhD, University of Texas at Austin

Fink, Jonathan (1982), Professor of Geological Sciences; Vice President for Research and Economic Affairs; BA, Colby College; PhD, Stanford University

Fiori, Christine (2001), Assistant Professor of Construction; BS, MS, PhD, Drexel University

Firestone, Melvin M. (1968), Professor Emeritus of Anthropology; BA, University of New Mexico; MA, PhD, University of Washington

Firozzaman, M. (2002), Lecturer of Mathematics and Statistics; BS, MS, Jahangirnagar University (Bangladesh); MS, University of Kaiserslautern (Germany)

Fischman, Gustavo E. (1999), Assistant Professor of Curriculum and Instruction; BA, University of Buenos Aires (Argentina); MA, PhD, University of California, Los Angeles

Fish Ewan, Rebecca (1994), Associate Professor of Architecture and Landscape Architecture; BA, MLA, University of California, Berkeley

Fisher, Jill (2005), Assistant Professor of Women and Gender Studies; BA, Connecticut College; MS, PhD, Rensselaer Polytechnic Institute

Fisher, Marvin M. (1958), Professor Emeritus of English; AB, AM, Wayne University; PhD, University of Minnesota, Twin Cities

Fisher, Stuart G. (1976), Professor of Life Sciences; BS, MA, Wake Forest College; PhD, Dartmouth College

Fisk, R. Leighton (1979), Adjunct Professor of Bioengineering; BS, MS, PhD, University of Alberta (Canada)

Fitch, Frank W. (1997), Adjunct Professor of Life Sciences; MS, MD, PhD, University of Chicago

Fitch, Gregory W. (1974), Professor of Philosophy; BA, Western Washington State College; MA, PhD, University of Massachusetts, Amherst

Fitzgerald, Mary (1998), Assistant Professor of Dance; BA, University of Maine; MFA, Arizona State University

FitzPatrick, Carole (2005), Assistant Professor of Music; BM, University of Texas at Austin; MM, MMA, Yale University

Fixico, Donald (2004), Distinguished Foundation Professor of History; BA, MA, PhD, University of Oklahoma

Flaherty, Richard E. (1978), Professor Emeritus of Accountancy; BS, MS, PhD, University of Kansas; CPA, Kansas

Fleming, Robert C. (1974), Professor Emeritus of Music; Director Emeritus, Sun Devil Marching Band; BS, Indiana University of Pennsylvania; MFA, Carnegie Mellon University; PhD, Southern Illinois University, Carbondale

Flores, Alfinio (1992), Professor of Curriculum and Instruction; BS, MS, National University of Mexico; PhD, Ohio State University

Florschuetz, Leon W. (1964), Professor Emeritus of Engineering; BS, MS, PhD, University of Illinois

Floyd, Kory (2000), Associate Professor of Communication; BA, Western Washington University; MA, University of Washington; PhD, University of Arizona

Flys, Michael (1975), Professor Emeritus of Spanish; Licenciado en Filosofía y Letras, Doctor en Filosofía y Letras, University of Madrid (Spain)

Foard, Fumiko (1990), Senior Lecturer of Japanese; BA, Keio Gijuku University (Japan); MA, Arizona State University

Foard, James (1977), Professor of Religious Studies; BA, College of Wooster; MA, PhD, Stanford University

Fonow, Mary Margaret (2004), Professor of Women and Gender Studies; Director, Women and Gender Studies Program; BA, Ohio University; MA, PhD, Ohio State University

Forestal, Lawrence H. (2004), Senior Lecturer of Speech and Hearing Science; BA, MS, Gallaudet University; PhD, New York University

Forsyth, Ben R. (1992), Professor Emeritus of Health Management and Policy; MD, New York University

Foster, David William
(1964)
Regents' Professor of Languages and Literatures; BA, MA, PhD, University of Washington

Foster, Joyce (1972), Professor Emerita of Life Sciences; BA, MA, DePauw University; PhD, Arizona State University

Foster, Michael S. (2001), Adjunct Professor of Anthropology; BA, Colorado State University; MA, PhD, University of Colorado, Boulder

Fouch, Matthew (2001), Assistant Professor of Geological Sciences; BA, Pomona College; ScM, PhD, Brown University

Fouquette, Martin J. Jr. (1965), Professor Emeritus of Life Sciences; BA, MA, PhD, University of Texas at Austin

Fowler, John W. (1995), Professor of Industrial Engineering; Associate Chair, Graduate Programs, Department of Industrial Engineering; BS, MS, PhD, Texas A&M University

Fox, Cora V. (2001), Assistant Professor of English; BA, Grinnell College; MA, PhD, University of Wisconsin, Madison

Fox, Peter (1990), Professor of Civil and Environmental Engineering; BS, MS, PhD, University of Illinois

Francini, Geraldine (2004), Lecturer of Speech and Hearing Science; BA, MA, Gallaudet University

Francisco, Wilson A. (1999), Associate Professor of Chemistry and Biochemistry; BS, University of Puerto Rico; PhD, Texas A&M University

Frasch, Wayne D. (1989), Professor of Life Sciences; BA, Hope College; PhD, University of Kentucky

Freeman, Donald J. (1989), Professor Emeritus of Education; BA, Grinnell College; MA, PhD, Michigan State University

French, Peter A. (2000), Professor of Philosophy; Director, Lincoln Center for Applied Ethics; BA, Gettysburg College; MA, University of Southern California, Los Angeles; PhD, University of Miami, Coral Gables

Freund, John E. (1957), Professor Emeritus of Mathematics and Statistics; BA, MA, University of California, Los Angeles; PhD, University of Pittsburgh

Fridkin, Kim (1989), Professor of Political Science; Director, Graduate Studies, Department of Political Science; AB, MA, PhD, University of Michigan

Friesen, Cody (2004), Assistant Professor of Materials and Mechanical Engineering; BS, Arizona State University; PhD, Massachusetts Institute of Technology

Fritzemeyer, Joseph R. (1973), Professor Emeritus of Accountancy; BBA, Baylor University; MBA, DBA, Indiana University; CPA, Texas

Fromme, Petra (2002), Professor of Chemistry and Biochemistry; Assistant Chair for Graduate Studies, Department of Chemistry and Biochemistry; MS, Free University of Berlin (Germany); PhD, Technical University of Berlin (Germany)

Fronske, Jeanne (1975), Professor Emerita of Art; BA, BFA, DePauw University; MFA, Ohio State University, Newark

Frost, Melvin Jesse (1965), Professor Emeritus of Geography; BS, Arizona State University; MS, Brigham Young University; PhD, University of Florida

Frost, Michael D. (1995), Faculty Associate of Construction; BS, MS, Arizona State University

Fry, Harold (1958), Professor Emeritus of Engineering; BS, Colorado State University; ME, University of Wyoming; MS, University of Colorado

Fry, Warren D. (1974), Learning Resources Specialist Emeritus; BA, University of Northern Iowa; MA, Arizona State University

Fuchs, Jacob (1951), Professor of Chemistry and Biochemistry; BA, New York University; MS, PhD, University of Illinois

Fuchs, Rachel G. (1983), Professor of History; BA, MA, Boston University; PhD, Indiana University

Fulginiti, Laura C. (1998), Adjunct Professor of Anthropology; BA, Colorado College; MA, PhD, University of Arizona

Fullerton, Bill J. (1958), Professor Emeritus of Education; BS, Northwestern Oklahoma State College; MA, EdD, University of Oklahoma

Fullinwider, S. Pendleton (1967), Professor Emeritus of History; BS, United States Naval Academy; MS, PhD, University of Wisconsin, Madison

Fulman, Igor (2004), Lecturer of Mathematics and Statistics; MS, Kazan State University (Russia); PhD, Technion (Israel)

Fulton, DoVeanna (2005), Associate Professor of English; BA, Wayne State University; PhD, University of Minnesota

Furnish, Dale Beck (1970), Professor Emeritus of Law; AB, Grinnell College; JD, University of Iowa; LLM, University of Michigan

Furnish, Elizabeth (2004), Assistant Research Professor of Bioengineering; BS, University of Iowa; PhD, University of Texas at Austin

Furr-Soloman, Connie (2001), Associate Professor of Theatre; BA, University of North Carolina at Charlotte; MFA, University of Tennessee, Knoxville

Furukawa, Michael F. (2004), Assistant Professor of Health Management and Policy; BS, MS, Georgia Institute of Technology; PhD, University of Pennsylvania

Fuse, Montye (1997), Lecturer of English; BA, California State University, Long Beach; MA, PhD, University of California, Berkeley

G

Gadau, Juergen (2004), Assistant Professor of Life Sciences; Diplom Biologie, Doktorarbeit, Würzburg University (Germany)

Gaffney, Philip D. (1957), Professor Emeritus of Education; BS, Northern Illinois State University; MA, PhD, State University of Iowa

Gager, Constance T. (2003), Assistant Professor of Family and Human Development; BA, Clark University; MA, University of Vermont; PhD, University of Pennsylvania

Gaines, Sylvia W. (1972), Professor Emerita of Anthropology; BA, MA, PhD, Arizona State University

Galician, Mary-Lou (1983), Associate Professor of Journalism and Mass Communication; BA, Long Island University, Brooklyn; MS, Syracuse University; EdD, Memphis State University

Gallinger, George W. (1977), Associate Professor of Finance; BA, Waterloo Lutheran University (Canada); MBA, York University (Canada); PhD, Purdue University

Gammage, Grady Jr. (1990), Faculty Associate of Planning; BA, Occidental College; JD, Stanford University

Garcia, Antonio A. (1989), Professor of Bioengineering; BS, Rutgers, The State University of New Jersey; PhD, University of California, Berkeley

Garcia, David R. (2004), Assistant Professor of Educational and Leadership and Policy Studies; BA, Arizona State University; MA, PhD, University of Chicago

García, Eugene E. (2002), Professor of Curriculum and Instruction; Vice President for University-School Partnerships and Dean, College of Education; BS, University of Utah; MA, PhD, University of Kansas

Garcia, Heidi (2000), Lecturer of Spanish; BA, University of Puerto Rico; MA, Arizona State University

García, Peter J. (2001), Assistant Professor of Chicana and Chicano Studies; BME, University of New Mexico; MM, PhD, University of Texas at Austin

Garcia, Phyllis M. (1992), Clinical Associate Professor of Curriculum and Instruction; BA, University of Southern Colorado; MA, Adams State College; EdD, University of Northern Colorado

Garcia-Fernández, Carlos (1990), Professor of Spanish; MA, University Pontifica of Salamanca (Spain); MA, PhD, University of California, Davis

Garcia-Fernández, Carmen (2001), Associate Professor of Spanish; BA, Teacher's Training College for Women (Peru); MA, University of Kansas; PhD, Georgetown University

Garcia-Pichel, Ferran (1999), Associate Professor of Life Sciences; BS, MS, Autonomous University of Barcelona, Bellaterra (Spain); PhD, University of Oregon

Gardner, Carl L. (1994), Professor of Mathematics and Statistics; BA, Duke University; PhD, Massachusetts Institute of Technology

Garnero, Edward (1999), Associate Professor of Geological Sciences; AB, University of California, Berkeley; PhD, California Institute of Technology

Gasowski, Ronald Edward (1971), Professor Emeritus of Art; BSD, University of Michigan; MFA, University of Washington

Gavrilos, Dina (2003), Assistant Professor of Journalism and Mass Communication; BA, University of Illinois, Chicago; MA, University of Kentucky; PhD, University of Iowa

Geiger, Karen (1996), Senior Lecturer of Accountancy; BS, University of Nevada; MS, Arizona State University

Gel, Esma S. (2000), Assistant Professor of Industrial Engineering; BS, Orta Dogu Technical University (Turkey); MS, PhD, Northwestern University

Gelb, Anne (1998), Associate Professor of Mathematics and Statistics; BS, University of California, Los Angeles; ScM, PhD, Brown University

Gentrup, William F. (1991), Associate Research Administrator, Arizona Center for Medieval and Renaissance Studies; BA, MA, PhD, Arizona State University

Gentry, Gregory (2004), Assistant Professor of Music; Associate Director, Choral Activities; BME, University of Denver; MM, DMA, University of Missouri-Kansas City Conservatory of Music

George, Lisa (1999), Assistant Professor of Classics; BA, Vassar College; MA, Bryn Mawr College; MA, San Francisco State University; PhD, Bryn Mawr College

Gerber, Leah R. (2001), Assistant Professor of Life Sciences; BS, Mills College; MMA, PhD, University of Washington

Gereboff, Joel D. (1978), Associate Professor of Religious Studies; Chair, Department of Religious Studies; BA, New York University; PhD, Brown University

Gerlach, Vernon S. (1963), Professor Emeritus of Education; BA, Wayne State University; MA, University of Minnesota, Twin Cities; EdD, Arizona State University

Gerson, Marysia Johnson (1997), Associate Professor of English; BA, St. Francis College, Brooklyn; MA, Monterey Institute of International Studies; PhD, Georgetown University

Gharavi, Lance (2001), Assistant Professor of Theatre; BFA, Drake University; MA, PhD, University of Kansas, Lawrence

Ghirlanda, Giovanna (2002), Assistant Professor of Chemistry and Biochemistry; Laurea, PhD, University of Padua (Italy)

Giard, Jacques (1998), Professor of Industrial Design; Director, Department of Design Studies; Dip.Des., IAA, Montreal (Canada); H.Dip.Des., Birmingham Polytechnic (United Kingdom); PhD, Concordia University (Canada)

Gibney, John (1992), Adjunct Professor of Bioengineering; BS, St. Peter's College; MD, New Jersey College of Medicine

Gieschen, Donald W. (1959), Professor Emeritus of Philosophy; BS, Northwestern University; MA, PhD, University of Minnesota, Twin Cities

Giffin, Frederick C. (1967), Professor Emeritus of History; BA, Denison University; MA, PhD, Emory University

Gilberg, Mark (2004), Adjunct Professor of Anthropology; BSc, Stanford University; PhD, University of London (United Kingdom)

Gilfillan, Daniel D. (2002), Assistant Professor of German; BA, MA, University of Vermont; PhD, University of Oregon

Gill, Anthony (2003), Assistant Museum Curator, School of Life Sciences; BS, PhD, University of New England (Australia)

Gill, George A. (1966), Professor Emeritus of Education; BS, MA, Arizona State University

Gillingwater, Denis (1973), Professor of Art; BFA, MFA, University of Cincinnati

Gillis, Georganne Scheiner (1983), Associate Professor of Women and Gender Studies; BA, Ithaca College; MA, University of Western Ontario (Canada); PhD, Arizona State University

Giner, Oscar (1998), Professor of Theatre; BA, MFA, DFA, Yale University

Ginsburg, Shai (2001), Assistant Professor of Hebrew; BA, MA, Hebrew University (Israel); PhD, University of Michigan

Gisolo, Margaret (1954), Professor Emerita of Dance; BS, Indiana State University, Terre Haute; MA, New York University

Glass, Gene V
(1986)
Regents' Professor of Educational Leadership and Policy Studies and Psychology in Education; Academic Program Coordinator, Educational Leadership and Policy Studies; BA, University of Nebraska; MS, PhD, University of Wisconsin

Glau, Gregory R. (1994), Associate Instructional Professional of English; Director, Writing Programs; BA, University of Arizona; MA, Northern Arizona University; PhD, University of Arizona

Glaunsinger, William S. (1972), Professor Emeritus of Chemistry and Biochemistry; BS, Miami University; PhD, Cornell University

Glessner-Calkins, Beth A. (1995), Academic Associate of Languages and Literatures; Undergraduate Academic Advisor; BA, Grove City College; MA, PhD, Pennsylvania State University

Glick, Jennifer E. (2000), Associate Professor of Sociology; BA, Pennsylvania State University; MA, PhD, University of Texas at Austin

Glick, Milton D. (1991), Professor of Chemistry and Biochemistry; Executive Vice President and Provost of the University; AB, Augusta College; PhD, University of Wisconsin, Madison

Glick, Paul C. (1982), Adjunct Professor of Sociology; BA, DePauw University; MA, PhD, University of Wisconsin, Madison

Glick, William H. (1995), Professor Emeritus of Management; AB, University of Michigan; PhD, University of California, Berkeley

Glidden-Tracey, Cynthia (1999), Clinical Associate Professor of Psychology in Education; AB, AM, PhD, University of Illinois

Gober, Patricia A. (1975), Professor of Geography; BS, University of Wisconsin, Whitewater; MA, PhD, Ohio State University

Godfrey, Donald G. (1988), Professor of Journalism and Mass Communication; BS, Weber State College; MS, University of Oregon; PhD, University of Washington

Goggin, Maureen Daly (1994), Associate Professor of English; Associate Chair, Department of English; BS, MA, Northeastern University; PhD, Carnegie Mellon University

Goggin, Peter N. (2000), Assistant Professor of English; BS, MA, Northeastern University; PhD, Indiana University of Pennsylvania

Goldberg, Beckian Fritz (1990), Professor of English; BA, MA, Arizona State University; MFA, Vermont College

Goldinger, Stephen D. (1992), Associate Professor of Psychology; BA, PhD, Indiana University, Bloomington

Goldman, Donald (2001), Senior Lecturer of Accountancy; BS, Arizona State University; BA, University of Illinois

Goldstein, Elliott S. (1974), Associate Professor of Life Sciences; BS, University of Hartford; MS, PhD, University of Minnesota, Twin Cities

Golen, Steven P. (1984), Associate Professor of Accountancy; BS, MA, Western Kentucky University; PhD, Arizona State University

Gomez, Reynaldo A. (1980), Associate Professor of Curriculum and Instruction; BA, Southwest Texas State University; MEd, Stephen F. Austin State University; PhD, Pennsylvania State University

Gomez-Mejia, Luis R.
(1989)
Regents' Professor of Management; BA, MA, PhD, University of Minnesota, Twin Cities

González, Josué M. (1998), Professor of Educational Leadership and Policy Studies; Director, Southwest Center for Education Equity and Language Diversity; BA, MA, Texas A&I University, Kingsville; EdD, University of Massachusetts, Amherst

Gonzales, Nancy A. (1992), Professor of Psychology; BS, Arizona State University; MS, PhD, University of Washington

Gonzales, Vanna (2005), Instructor of Justice and Social Inquiry; PhD, University of California, Berkeley

Goo, Benjamin (1955), Professor Emeritus of Art; BFA, University of Iowa; MFA, Cranbrook Academy of Art

Goodall, H.L. "Bud" Jr. (2004), Professor of Communication; Director, Hugh Downs School of Human Communication; BA, Shepherd College; MA, University of North Carolina at Chapel Hill; PhD, Pennsylvania State University

Gooding, Elmer R. (1967), Professor Emeritus of Economics; BS, McPherson College; MA, PhD, University of Kansas

Goodnick, Stephen M. (1996), Professor of Electrical Engineering; BS, Trinity University; MS, PhD, Colorado State University

Gopolan, Sandeep (2004), Associate Professor of Law; Faculty Fellow, Center for the Study of Law, Science, and Technology; BA, LLB, National Law School of India; BCL, Oxford University (United Kingdom)

Gordon, Leonard (1967), Professor Emeritus of Sociology; BA, Wayne State University; MA, University of Michigan; PhD, Wayne State University

Gordon, Rena J. (1983), Adjunct Professor of Geography; BS, Wayne State University; MA, PhD, Arizona State University

Goren, Paul (2001), Assistant Professor of Political Science; BS, Carnegie Mellon University; MA, PhD, University of Pittsburgh

Gorin, Joanna S. (2002), Assistant Professor of Psychology in Education; BA, University of California, Los Angeles; MA, University of Texas at Austin; PhD, University of Kansas

Gorman, Robert (2001), Professor of Law; AB, LLB, Harvard University

Gorur, Ravi S. (1987), Professor of Electrical Engineering; Director, Undergraduate Studies, Department of Electrical Engineering; BS, Bangalore University (India); MS, Indian Institute of Science (India); PhD, University of Windsor (Canada)

Goul, Kenneth Michael (1985), Professor of Computer Information Systems; BS, MBA, PhD, Oregon State University

Gould, Ian R.
(1998)
President's Professor of Chemistry and Biochemistry; BSc, MSc, PhD, University of Manchester (United Kingdom)

Gourley, David R. (1967), Professor Emeritus of Marketing; BS, Miami University; MBA, University of Toledo; DBA, Indiana University

Gover, Kevin (2003), Professor of Law; AB, Princeton University; JD, University of New Mexico

Goyer, Robert S. (1981), Professor Emeritus of Communication; BA, DePauw University; MA, Miami University; PhD, Ohio State University

Grace, Edward E. (1963), Professor Emeritus of Mathematics and Statistics; BS, PhD, University of North Carolina

Graf, William L.
(1978)
Regents' Professor Emeritus of Geography; BA, MSc, PhD, University of Wisconsin, Madison

Gratton, Brian J. (1983), Professor of History; BA, University of New Mexico; PhD, Boston University

Gray, Shelley (2001), Assistant Professor of Speech and Hearing Science; BS, MS, PhD, University of Arizona

Gray, Susan E. (1991), Associate Professor of History; AB, Earlham College; MA, PhD, University of Chicago

Greathouse, Betty M. (1997), Professor Emerita of Curriculum and Instruction; BA, MA, PhD, Arizona State University

Greeley, Ronald
(1977)
Regents' Professor of Geological Sciences; BS, MS, Mississippi State University; PhD, University of Missouri, Rolla

Green, James L. (1967), Professor Emeritus of English; BA, MA, University of Kansas; PhD, University of Nevada, Reno

Green, Jennifer L. (1991), Adjunct Professor of Chemistry and Biochemistry; BSc, PhD, University of Sydney (Australia)

Green, Mary E. (1967), Professor Emerita of English; BA, Queens College; MA, Saint John's University; PhD, University of Chicago

Green, Monica (2002), Professor of History; BA, Barnard College; MA, PhD, Princeton University

Green, Samuel B. (2000), Professor of Psychology in Education; Academic Program Leader, Educational Psychology; BA, West Virginia University; MS, Marquette University; PhD, University of Georgia

Greeneich, Edwin W. (1982), Professor Emeritus of Electrical Engineering; BSEE, MSEE, PhD, University of California, Berkeley

Greensfelder, Kirk B. (2001), Assistant Professor of Aerospace Studies; Assistant Department Head, Department of Aerospace Studies; BS, Miami University; MBA, University of South Dakota; MS, Golden Gate University

Greenspan, Ruth L. (1997), Adjunct Professor of Anthropology; BA, Carleton College; MA, PhD, University of Oregon

Greenwood, Priscilla (2005), Research Professor of Mathematics and Statistics and Women and Gender Studies; BA, Duke University; MA, PhD, University of Wisconsin, Madison

Greives, Thomas L. (1997), Associate Librarian, Hayden Reference Services; BA, Purdue University; MA, University of Southern California; MLS, Indiana University; ABD, University of Chicago

Grey, Betsy J. (1987), Professor of Law; BA, Barnard College; JD, Georgetown University

Grier, Marvin (1957), Professor Emeritus of Kinesiology; BA, Wisconsin State College, La Crosse; MA, New York University

Gries, Corinna (1998), Academic Associate, CAP LTER Ecological Data Coordinator, Global Institute of Sustainability; MS, PhD, Christian Albrechts University (Germany)

Griffin, William A. (1988), Professor of Family and Human Development; BA, Auburn University; MS, Virginia Polytechnic and State University; PhD, Texas Tech University

Griffith, LeRoy H. (1958), Professor Emeritus of Education; BS, MS, Drake University; PhD, University of Iowa

Grigsby, J. Eugene (1966), Professor Emeritus of Art; AB, Morehouse College; MA, Ohio State University; PhD, New York University

Grimm, Nancy B. (1990), Professor of Life Sciences; BA, Hampshire College; MS, PhD, Arizona State University

Grinder, Robert E. (1973), Professor Emeritus of Education; BS, University of California, Berkeley; EdD, Harvard University

Grobe, Edwin P. (1957), Professor Emeritus of French; AB, William Jewell College; MA, PhD, Indiana University, Bloomington

Gross, Douglas R. (1968), Professor Emeritus of Psychology in Education; BA, MA, Western Michigan University; PhD, University of Wisconsin, Madison

Grossman, Louis H. (1966), Professor Emeritus of Management; BA, University of Michigan; MBA, PhD, Michigan State University

Groy, Thomas L. (1983), Associate Research Professional of Chemistry and Biochemistry; BS, Adams State College; PhD, Arizona State University

Gruzinska, Aleksandra (1973), Assistant Professor of French; BA, MA, State University of New York, Buffalo; PhD, Pennsylvania State University

Gryder, Robert (1959–63; 1964), Professor of Curriculum and Instruction; BA, Northwestern State University; MEd, Louisiana State University; EdD, University of North Dakota

Guerin, Sanford M. (1984), Professor of Law; BS, Boston University; JD, University of San Francisco; LLM, New York University

Guerrero, Laura (1996), Professor of Communication; BA, MA, San Diego State University; PhD, University of Arizona

Guhathakurta, Subhrajit (1994), Associate Professor of Planning; BArch, Jadavpur University (India); MCRP, Iowa State University; PhD, University of California, Berkeley

Guilbeau, Eric J. (1977), Olin Endowed Professor of Bioengineering; Chair, Harrington Department of Bioengineering; BS, MS, PhD, Louisiana Tech University

Guinouard, Donald E. (1966), Professor Emeritus of Psychology in Education; BS, MS, Montana State College; EdD, Washington State University

Guleserian, Theodore (1971), Associate Professor of Philosophy; BA, University of California, Riverside; PhD, Yale University

Gullett, Gayle (1993), Associate Professor of History; BA, MA, Loma Linda University; PhD, University of California, Riverside

Gully, Anthony Lacy (1972), Associate Professor of Art; BA, University of California, Riverside; MA, University of California, Berkeley; PhD, Stanford University

Guntermann, Gail (1977), Professor Emerita of Spanish; BS, University of Montana; MA, University of New Mexico; PhD, Ohio State University

Guntermann, Karl L. (1982), Professor of Finance; AB, Knox College; MBA, DBA, Indiana University

Gupta, Sandeep Kumar (2001), Associate Professor of Computer Science and Engineering; BTech, Banaras Hindu University (India); MTech, Indian Institute of Technology (India); MS, PhD, Ohio State University

Gupta, Sanjay (1990), Professor of Accountancy; BCom, Bombay University (India); BLaws, Calcutta University (India); MSA, Bowling Green State University; PhD, Michigan State University; CPA, Ohio

Gust, J. Devens (1975), Professor of Chemistry and Biochemistry; BS, Stanford University; MS, PhD, Princeton University

Guston, David (2005), Professor of Political Science; AB, Yale University; PhD, Massachusetts Institute of Technology

Guthrie, David W. Col. (2003), Professor of Aerospace Studies; Chair, Department of Aerospace Studies; BS, Bemidji State University; MS, Troy State University

Guzzetti, Barbara J. (1988), Professor of Curriculum and Instruction; BS, MS, Northern Illinois University; PhD, University of Colorado

Gwinner, Robert F. (1970), Professor Emeritus of Marketing; BS, University of Southern Mississippi; MBA, PhD, University of Arkansas

H

Haberman, Donald C. (1967), Professor Emeritus of English; BA, Rutgers, The State University of New Jersey; MA, PhD, Yale University

Haberman, Lidia W. (1967), Assistant Professor of Latin; BA, Bryn Mawr College; MA, Yale University

Hackbarth, Glenn A. (1976), Professor of Music; BM, University of Wisconsin, Madison; MM, DMA, University of Illinois

Hackett, Edward J. (1999), Professor of Sociology; BA, Colgate University; MA, PhD, Cornell University

Hadley, Neil F. (1966), Professor Emeritus of Life Sciences; BA, Eastern Michigan University; PhD, University of Colorado

Haefer, J. Richard (1976), Associate Professor of Music; BM, Ohio State University; MM, University of Arizona; PhD, University of Illinois

Haenn, Nora M. (1999), Associate Professor of Anthropology; BA, Fordham University; MA, PhD, Indiana University, Bloomington

Haeussler, Alice M. (1997), Adjunct Professor of Anthropology; BA, University of Pennsylvania; MA, PhD, Arizona State University

Haggerson, Nelson L. (1961–63; 1964), Professor Emeritus of Curriculum and Instruction; BA, Vanderbilt University; MS, New Mexico Western College, Silver City; PhD, Claremont Graduate School

Haglund, LaDawn (2005), Assistant Professor of Justice and Social Inquiry; PhD, New York University

Hajicek, James (1976), Professor of Art; BFA, Kansas City Art Institute; MFA, University of New Mexico

Hakac, John (1966), Professor Emeritus of English; AB, Centre College; MA, PhD, University of Texas at Austin

Halverson, Roy K. (1988), Professor Emeritus of Journalism and Mass Communication; BS, MS, University of Wisconsin, Madison; PhD, University of Illinois

Hamilton, Robert (1980), Professor of Music; BM, Indiana University, Bloomington; MM, Catholic University of America

Hammond, Philip C. (1996), Adjunct Professor of Anthropology; BA, Drew University; MA, PhD, Yale University

Hanish, Laura (1997), Associate Professor of Family and Human Development; BS, Arizona State University; MA, PhD, University of Illinois, Chicago

Hanna, Albert Lyle (1967), Professor Emeritus of Music; BM, University of Cincinnati; PhD, Indiana University, Bloomington

Hanna, Michelle M. (2001), Adjunct Professor of Life Sciences; BS, Arizona State University; PhD, University of California, Davis

Hansen-Kaucheck, Marian, Lieutenant Colonel (Ret.) (2004), Assistant Professor of Military Science; BS, University of Wisconsin, Madison; MA, Webster University

Hanson, Randel D. (1999), Assistant Professor of Justice and Social Inquiry; BA, PhD, University of Minnesota

Happel, Stephen K. (1975), Professor of Economics; BA, University of Missouri; MA, PhD, Duke University

Hardert, Ronald A. (1966), Professor Emeritus of Sociology; AB, MA, University of Cincinnati; PhD, Indiana University, Bloomington

Hardt, Annanelle (1968), Professor Emerita of Curriculum and Instruction; BA, Southwestern University; MA, Cornell University; PhD, University of Texas at Austin

Haried, Andrew A. (1969), Professor Emeritus of Accountancy; BA, Hastings College; MAS, PhD, University of Illinois; CPA, Arizona, Illinois, North Carolina

Harlan, Sharon L. (1998), Associate Professor of Sociology; BA, Northeastern University; MA, PhD, Cornell University

Harrington, Rodney E. (1992), Professor Emeritus of Life Sciences; AB, University of South Dakota; PhD, University of Washington

Harris, Jerry D. (1972), Professor Emeritus of Psychology in Education; BS, Illinois State University; PhD, University of Minnesota, Twin Cities

Harris, Joseph (1963), Professor Emeritus of Chemistry and Biochemistry; BS, University of Maryland; MA, PhD, Johns Hopkins University

Harris, Kathryn M. (1965), Professor Emerita of English; BA, MA, Arizona State University

Harris, Mark (1980), Professor Emeritus of English; BA, MA, University of Denver; PhD, University of Minnesota, Twin Cities

Harris, Walter Jr. (1980), Professor Emeritus of Music; BS, Knoxville College; MM, PhD, University of Minnesota, Twin Cities

Harrison, Jon F. (1990), Professor of Life Sciences; Associate Director, Facilities, School of Life Sciences; BS, University of Toronto (Canada); MS, University of Pittsburgh; PhD, University of Colorado

Harrison, Marsha (2000), Lecturer of Curriculum and Instruction; BA, MEd, PhD, Arizona State University

Hartman, Don L. (2002), Faculty Associate of Planning; BFA, Maryland Institute College of Art

Hartman, Thomas S. (1990), Associate Professor of Architecture and Landscape Architecture; DPLG, Paris School of Beaux Arts (France)

Hartnett, Hilairy (2003), Assistant Professor of Chemistry and Biochemistry, and Geological Sciences; BS, Vassar; MS, PhD, University of Washington

Harzig, Christiane (2005), Associate Professor of History; MA, Free University of Berlin (Germany); PhD, Technical University of Berlin (Germany)

Hassett, Matthew J. (1966), Professor Emeritus of Mathematics and Statistics; BS, Fordham University; MS, PhD, Rutgers, The State University of New Jersey

Hastings, Vernon L. (1973), Professor Emeritus of Construction; BSME, University of Nebraska; MSIE, Oklahoma A&M University

Hatfield, Mary M. (1988), Professor Emerita of Curriculum and Instruction; BS, MS, PhD, University of Kansas

Häussermann, Ulrich (2005), Assistant Professor of Chemistry and Biochemistry; MS, Stuttgart University (Germany); PhD, Swiss Federal Institute of Technology (Switzerland)

Haydel, Shelley (2005), Assistant Professor of Life Sciences; BS, Louisiana Technical University; Phd, University of Alabama, Birmingham

Hayden, John (2000), Adjunct Professor of Life Sciences; BS, MS, Michigan State University; PhD, University of Missouri

Hayes, Colleen (1998), Senior Lecturer of Computer Information Systems; BS, MBA, Arizona State University

Hayes, Mark (1996), Associate Professor of Chemistry and Biochemistry; BA, Humboldt State University; PhD, Pennsylvania State University

Haygood, Robert C. (1970), Professor Emeritus of Psychology; BS, University of Illinois; MS, PhD, University of Utah

Haynes, Peter (1975), Professor of Justice and Social Inquiry; BS, University of Southampton (United Kingdom); MA, PhD, University of Toronto (Canada)

Hazel, Jeffrey R. (1975), Professor Emeritus of Life Sciences; BA, College of Wooster; MS, PhD, University of Illinois

He, Jiping (1994), Professor of Bioengineering; BS, Huazhong University of Science and Technology, Wuhan (China); MS, PhD, University of Maryland

He, Leping (2003), Assistant Librarian, Technical Services; BA, East China Normal University; MLS, Emporia State University

Head, K. Brad (2002), Assistant Professor of Aerospace Studies; BS, United States Air Force Academy

Hechter, Michael (2005), Foundation Professor of Global Studies; Associate Chair, Graduate Programs, Department of Global Studies; AB, Columbia University; BA, Arizona State University; MA, University of Oxford (United Kingdom); PhD, Columbia University

Heckman, Christopher (2004), Lecturer of Mathematics and Statistics; BS, University of Nebraska, Lincoln; PhD, Georgia Institute of Technology

Hedrick, Philip W. (1992), Virginia A. Ullman Professor of Natural History and the Environment; Professor of Life Sciences; BA, Hanover College; MS, PhD, University of Minnesota

Heenan, Katherine L. (1998), Senior Lecturer of English; BA, California State University, Chico; MA, PhD, University of Connecticut, Storrs

Hegmon, Michelle (1995), Professor of Anthropology; BA, University of Virginia; MA, PhD, University of Michigan

Heier, William D. (1966), Professor Emeritus of Management; BS, University of Maryland; MA, George Washington University; PhD, American University

Heinrichs, Kristinn (2005), Lecturer of Kinesiology; BS, Marquette University; MS, PhD, University of Virginia

Hejduk, Renata (1999), Assistant Professor of Architecture and Landscape Architecture; BA, Barnard College; MA, Tufts University; PhD, Harvard University

Held, Peter (2003), Associate Museum Professional; Curator, Ceramics Research Center; BS, State University College, Brockport; MA, Oregon State University

Heller, Jules (1976), Professor Emeritus of Art; Dean Emeritus, Herberger College of Fine Arts; BA, Arizona State University; MA, Columbia University; PhD, University of Southern California

Helms, Loyce Randel (1976), Professor of English; BA, University of California, Riverside; PhD, University of Washington

Helms-Tillery, Stephen (2000), Assistant Professor of Bioengineering; BS, Arizona State University; PhD, University of Minnesota

Helmstadter, Gerald C. (1959), Professor Emeritus of Education; BS, MS, Iowa State University; PhD, University of Minnesota, Twin Cities

Helton, Jon C. (1973), Professor Emeritus of Mathematics and Statistics; BS, Southwest Texas State College; MA, PhD, University of Texas at Austin

Hembree, Gary G. (1986), Senior Research Scientist of Physics and Astronomy; BA, University of California, San Diego; PhD, Arizona State University

Hendrick, Thomas E. (1984), Professor Emeritus of Supply Chain Management; BS, MBA, University of Washington; PhD, University of Oregon

Hendrickson, Lester E. (1968), Professor Emeritus of Materials Science and Engineering; BS, MS, Michigan Technological University; PhD, University of Illinois

Hendrickson, Suzanne B. (1990), Senior Lecturer of French; BS, MA, Louisiana State University, Baton Rouge; PhD, Washington University

Hendrickson, William L. (1976), Professor Emeritus of French; BA, Arizona State University; MA, University of Kansas; PhD, Princeton University

Henkel, Ray (1966), Professor Emeritus of Geography; BS, Arizona State University; MS, PhD, University of Wisconsin, Madison

Henn, Alexander (2005), Associate Professor of Global Studies and Religious Studies; MA, University of Heidelberg, Institute for Technology (Germany); PhD, Johannes-Gutenberg University, Mainz (Germany)

Hennington, Jo Ann (1975), Professor Emerita of Management Communication; BA, MBA, EdD, Arizona State University

Henry, Joseph (1988), Professor Emeritus of Engineering; BS, West Virginia University; MS, PhD, University of Michigan

Herald, Cherry L. (1973), Research Professor, Cancer Research Institute; Associate Director, Cancer Research Institute; BS, MS, PhD, Arizona State University

Herald, Delbert L. (1973), Research Professor, Cancer Research Institute; BA, University of Colorado; PhD, Arizona State University

Herbots, Nicole (1991), Associate Professor of Physics and Astronomy; Engineering Degree, PhD, Catholic University of Louvain (Belgium)

Herckes, Pierre (2004), Assistant Professor of Chemistry and Biochemistry; PhD, Strasbourg University (France)

Herman, George R. (1956), Professor Emeritus of English; MA, University of Kansas

Herman, Richard M. (1992), Research Professor of Bioengineering; BS, Case Western Reserve University; MB, BCh, BAO, Queen's University Faculty of Medicine (United Kingdom)

Hernandez, Armand P. (1974), Professor Emeritus of Justice and Social Inquiry; BA, MA, San Jose State University; EdD, University of Southern California

Hernández-G., Manuel de Jesús (1992), Associate Professor of Spanish; BA, University of California, San Diego; MA, PhD, Stanford University

Herrendorf, Berthold (2003), Associate Professor of Economics; BS, University of Bonn (Germany); MA, Indiana University; PhD, European University Institute (Italy)

Herrera, Richard (1989), Associate Professor of Political Science; BA, MA, Saint Mary's University; PhD, University of California, Santa Barbara

Herrera, Tamara (2002), Professor of Legal Writing; BA, Grinnell College; JD, University of Nebraska

Herring, Donald E. (1999), Clinical Associate Professor of Industrial Design; BA, American University; BSD, MSD, Arizona State University

Herrington, Scott S. (1982), Librarian, Library Information Systems and Technology; BA, State University of New York, Plattsburgh; MLS, University of Tennessee; PhD, Arizona State University

Herrmann, Achim D. (2005), Honors Faculty Fellow; MS, University of Heidelberg (Germany); PhD, Pennsylvania State University

Hershauer, James C. (1969), Professor of Management; BS, Purdue University; MBA, DBA, Indiana University, Bloomington

Hertzel, Michael G. (1987), Professor of Finance; BA, MBA, MS, University of Rochester; PhD, University of Oregon

Hervig, Richard L. (1981), Professor of Geological Sciences; BS, University of Iowa; PhD, University of Chicago

Hestenes, David O. (1966), Professor Emeritus of Physics and Astronomy; BA, Pacific Lutheran College; MA, PhD, University of California, Los Angeles

Hester, John J. "Jeff" (1991), Professor of Physics and Astronomy; BA, MS, PhD, Rice University

Heydt, Gerald Thomas
(1995)
Regents' Professor of Electrical Engineering; Director, Center for Advanced Control of Energy and Power Systems; BSEE, Cooper Union University; MSEE, PhD, Purdue University

Heys, Jeffery (2004), Assistant Professor of Chemical Engineering; BS, Montana State University; MS, PhD, University of Colorado, Boulder

Heywood, William M. (1997), Adjunct Professor of Visual Communication Design; BFA, Minneapolis College of Art and Design; MS, Arizona State University; PhD, Fielding Institute

Hickman, David R.
(1982)
Regents' Professor of Music; BM, University of Colorado; MM, Wichita State University

Higgins, Norman C. (1968), Professor Emeritus of Educational Media and Computers; BS, Central Missouri State College; MS, PhD, Syracuse University

Higgins, Walter T. Jr. (1967), Professor Emeritus of Electrical Engineering; BEE, Manhattan College; MS, PhD, University of Arizona

Hill, Gary W. (1999), Professor of Music; Director of Bands; BME, MM, University of Michigan

Hillman, Amy (2001), Associate Professor of Management; BA, Trinity University; MBA, University of the Incarnate Word; PhD, Texas A&M University

Hindman, Matthew (2004), Assistant Professor of Political Science; BA, Willamette University; PhD, Princeton University

Hinds, David S. (2002), Assistant Professor of African and African American Studies; BA, University of the District of Columbia; MA, PhD, Howard University

Hinrichs, Richard N. (1987), Associate Professor of Kinesiology; AB, Oberlin College; MA, University of Iowa; PhD, Pennsylvania State University

Hinshaw, Arthur (2004), Associate Clinical Professor of Law; Director, Lodestar Dispute Resolution Program; AB, Washington University; JD, LLM, University of Missouri, Columbia

Hirleman, Edwin D. Jr. (1977), Professor Emeritus of Mechanical and Aerospace Engineering; BSME, MSME, PhD, Purdue University

Hirt, Paul W. (2004), Associate Professor of History; BA, MA, PhD, University of Arizona

Hoekstra, Valerie (2002), Assistant Professor of Political Science; BA, California State University, Long Beach; MA, PhD, State University of New York, Stony Brook

Hoffer, Warren W. (1972), Professor Emeritus of Music; BM, MM, University of Wisconsin, Madison

Hoffman, Dan (1999), Professor of Architecture and Landscape Architecture; BArch, Cooper Union

Hoffman, David R. (1981–1989; 1995), Lecturer of Finance; BS, Iowa State University; MBA, Arizona State University

Hoffman, Dennis L. (1979), Professor of Economics; Associate Dean, Doctoral Programs, W. P. Carey School of Business; Director, L. William Seidman Research Institute; BS, Grand Valley State University; MA, PhD, Michigan State University

Hoffman, Steven A. (1985), Associate Professor of Life Sciences; BA, Clark University; MA, PhD, University of Colorado

Hoffmeister, J. Ronald (1983), Associate Professor of Finance; BS, Millikin University; MS, PhD, University of Illinois

Hofstetter, Sheila (2004), Assistant Librarian; BA, Bluffton College; MLS, Western Michigan University

Hogan, Fiona (1984), Assistant Research Professor, Cancer Research Institute; BSc, MSc, PhD, University College, Dublin (Ireland)

Hogan, Timothy D. (1970), Professor Emeritus of Economics; AB, University of California, Berkeley; MA, University of California, Davis; PhD, Virginia Polytechnic Institute and State University

Hogg, Gary L. (1995), Professor of Industrial Engineering; Chair, Department of Industrial Engineering; BS, Texas A&M University; MS, PhD, University of Texas at Austin

Hogue, Brenda (2002), Associate Professor of Life Sciences; BA, Mississippi University; MEd, Duke University; PhD, University of Tennessee

Hogue, Cynthia (2003), Maxine and Jonathan Marshall Professor of English; Chair, Modern and Contemporary Poetry; BA, Oberlin College; MAH, State University of New York, Buffalo; PhD, University of Arizona

Hokin, Jeanne (1997), Senior Lecturer Emerita of Art; BA, PhD, University of California, Santa Barbara

Holbert, Keith E. (1989), Associate Professor of Electrical Engineering; BS, MS, PhD, University of Tennessee

Holbrook, Amy K. (1975), Associate Professor of Music; BA, MA, Mills College; PhD, University of Washington

Holian, Anna Marta (2004), Assistant Professor of History; BA, MA, PhD, University of Chicago

Hölldobler, Bert (2005), Professor of Life Sciences; DrRerNat, Würzburg University (Germany); DrHC, University of Konstanz (Germany)

Holle, Ronald L. (2003), Adjunct Professor of Geography; BS, MS, Florida State University

Holloway, Allen Jr. (1992), Adjunct Professor of Bioengineering; BA, Yale University; MD, Harvard University

Holloway, John R. (1969), Professor of Chemistry and Biochemistry and Geological Sciences; BS, University of Oregon; PhD, Pennsylvania State University

Holloway, Victoria (1995), Professor Emerita of Theatre; BA, Boise State University

Holway, James (2004), Faculty Associate of Planning

Hom, Peter W. (1984), Professor of Management; BA, New York University; MA, University of California, Berkeley; PhD, University of Illinois

Homa, Donald L. (1975), Professor of Psychology; BS, University of Iowa; MS, PhD, University of Wisconsin, Madison

Homer, Judith (1998), Clinical Associate Professor of Psychology in Education; Director, Counselor Training Center; BA, MS, PhD, University of Oklahoma

Honegger, Gitta (2001), Professor of Theatre; PhD, University of Vienna (Austria)

Hoober, J. Kenneth (1991), Professor Emeritus of Life Sciences; Director, Molecular Biosciences and Biotechnology Program; BA, Goshen College; MS, PhD, University of Michigan

Hood, Mary (2004), Assistant Professor of Art; BFA, Ringling School of Art and Design; MFA, University of Dallas

Hood, Stafford (1992), Professor of Psychology in Education; Associate Dean for Research, College of Education; BA, MS, University of Wisconsin, Whitewater; PhD, University of Illinois

Hoover, Helene M. (1957), Professor Emerita of Family and Human Development; BS, MS, Louisiana State University; EdD, Oklahoma State University

Hope, Diane (1997), Assistant Research Professor of Life Sciences; CAP LTER Field Project Manager, Global Institute of Sustainability; BS, University of London (United Kingdom); MS, PhD, University of Aberdeen (United Kingdom)

Horan, Elizabeth R. (1989), Professor of English; BA, Barnard College; PhD, University of California, Santa Cruz

Horan, John J. (1985), Professor of Psychology in Education; AB, MA, University of Detroit; PhD, Michigan State University

Horwath, Peter (1973), Professor of German; Abitur, Realgymnasium, Landshut (Germany); BA, MA, Indiana University, Bloomington; PhD, University of Michigan

Hoskisson, Robert E. (2004), Professor of Management; The W. P. Carey Chair, Department of Management; BS, MA, Brigham Young University; PhD, University of California, Irvine

Hotelling, Katsuko T. (1991), Associate Librarian, Technical Services Department; BA, MA, University of North Carolina at Chapel Hill; MA, University of Oregon

Houston, Sandra L. (1984), Professor of Civil and Environmental Engineering; Chair, Department of Civil and Environmental Engineering; BS, University of Oklahoma; MSCE, University of New Mexico; PhD, University of California, Berkeley

Houston, William N. (1984), Professor Emeritus of Civil and Environmental Engineering; Professional Degree in Geological Engineering, Colorado School of Mines; MSCE, PhD, University of California, Berkeley

Howard, John B. (2004), Librarian; Associate Dean, University Libraries; BA, Connecticut College; MLS, University of Rhode Island; MA, PhD, Bryn Mawr College

Howard, Pamela (1996), Lecturer of Speech and Hearing Science; BA, MA, California State University, Fresno

Howells, Edmund G. (1960), Professor Emeritus of Philosophy; BA, University of Utah; MA, University of Michigan; MA, Middlebury College; PhD, Stanford University

Hu, Qiang (2001), Assistant Research Professor of Life Sciences; BS, Hubei University (China); MS, Institute of Hydrobiology, Chinese Academy of Sciences (China); PhD, Ben-Gurion University of the Negev (Israel)

Huang, Dijiang (2005), Assistant Professor of Computer Science and Engineering; PhD, University of Missouri, Kansas City

Hubbard, Paul G. (1950), Professor Emeritus of History; AB, Wabash College; MA, PhD, University of Illinois

Hubele, Norma F. (1984), Professor of Industrial Engineering; Director, Strategic Initiatives, Ira A. Fulton School of Engineering; BS, University of Massachusetts; MS, PhD, Rensselaer Polytechnic Institute

Hudak, Thomas (1988), Professor of Anthropology; BA, MA, University of Wisconsin, Madison; PhD, University of Michigan

Hudelson, Sarah J. (1989), Professor of Curriculum and Instruction; Senior Associate Dean for Academic Programs and Personnel, College of Education; BA, College of Wooster; MA, PhD, University of Texas at Austin

Huey, Ben M. (1979), Associate Professor of Computer Science and Engineering; Associate Dean, Planning and Administration, Ira. A. Fulton School of Engineering; BS, Harding College; MS, PhD, University of Arizona

Huff, Robert A. (1985), Professor Emeritus of Education; BA, University of Kansas; MA, University of Missouri, Kansas City; EdD, University of Oregon

Hui, Joseph Y. (1999), Professor of Electrical Engineering; BS, MS, PhD, Massachusetts Institute of Technology

Huizingh, William (1959), Professor Emeritus of Accountancy; BSBA, MBA, University of Denver; PhD, University of Michigan; CPA, Arizona, Colorado

Humphrey, Ted (1966), Professor of Philosophy and Barrett Professor of Barrett Honors College; AB, MA, University of California, Riverside; PhD, University of California, San Diego

Humphreys, Jere T. (1987), Professor of Music; BM, University of Mississippi; MM, Florida State University; PhD, University of Michigan

Hunnicutt, Kay Hartwell (1975), Associate Professor of Educational Leadership and Policy Studies; Associate Director, Division of Educational Leadership and Policy Studies; Academic Program Coordinator, DELTA Doctorate and EdD in Educational Administration and Supervision; BS, MA, Murray State University; PhD, Southern Illinois University, Carbondale; JD, Arizona State University

Hunter, Betty A. (1966), Professor Emerita of Family and Human Development; BS, MEd, University of North Carolina at Greensboro

Hurlbert, Glenn (1990), Associate Professor of Mathematics and Statistics; BS, Wake Forest University; MSc, State University of New York, Stony Brook; PhD, Rutgers, The State University of New Jersey

Husman, Jenefer (2002), Assistant Professor of Psychology in Education; BS, Evergreen State College, Olympia; MA, PhD, University of Texas at Austin

Huston, Gerald D. (1962), Professor Emeritus of Computer Information Systems; BSC, MA, PhD, University of Iowa

Hutt, Michael D. (1982), Ford Motor Company Distinguished Professor of Marketing; BBA, MBA, Ohio University; PhD, Michigan State University

Hwang, Yuhchang (1995), Associate Professor of Accountancy; BA, Fu-Jen Catholic University (Taiwan); MS, National Cheng-Chi University (Taiwan); PhD, University of California, Berkeley

I

Iasemidis, Leon D. (2000), Associate Professor of Bioengineering; BS, National Technical University of Athens (Greece); MS, PhD, University of Michigan

Idso, Sherwood J.B. (1984), Adjunct Professor of Geography and Life Sciences; Research Physicist, U.S.D.A. Agricultural Research Service; BS, MS, PhD, University of Minnesota

Iheduru, Okechukwu (2004), Professor of Political Science; BSc, University of Nigeria; MA, University of Akron; PhD, University of Connecticut

Ihrig, Edwin (1979), Professor of Mathematics and Statistics; BS, MA, University of Maryland; PhD, University of Toronto (Canada)

Ingalls, Todd (2000), Assistant Research Professor of Arts, Media, and Engineering; BM, MM, Arizona State University

Ingram, David (1998), Professor of Speech and Hearing Science; BS, Georgetown University; PhD, Stanford University

Ingram, Kelly D. (1998), Clinical Assistant Professor of Speech and Hearing Science; BA, University of British Columbia (Canada); MS, Purdue University

Inskeep, Gordon C. (1968), Professor Emeritus of Management; BChE, Ohio State University; PhD, Columbia University

Isaac, Gwyneira (2002), Assistant Professor of Anthropology; BFA, University of Michigan; MP, PhD, Oxford University (United Kingdom)

Isom, Matthew (1996), Senior Lecturer of Mathematics and Statistics; Director of First-Year Mathematics and Statistics; BA, Humbolt State University; MA, PhD, University of Northern Colorado

Itule, Bruce D. (1985), Clinical Professor of Journalism and Mass Communication; BA, University of Arizona; MA, University of Colorado

Iverson, Peter
(1986)
Regents' Professor of History; BA, Carleton College; MA, PhD, University of Wisconsin, Madison

Iyer, Govind (1998), Associate Professor of Computer Information Systems; BS, University of Bombay (India); MTx, PhD, Georgia State University

J

Jabbour, Ghassan (2004), Professor of Materials Engineering; BS, Northern Arizona University; MS, PhD, University of Arizona

Jackiewicz, Elzbieta (1994), Lecturer of Mathematics and Statistics; MSc, University of Gdansk (Poland)

Jackiewicz, Zdzislaw (1987), Professor of Mathematics and Statistics; MS, Technical University of Gdansk (Poland); MS, PhD, University of Gdansk (Poland)

Jacks, Mary L. (1955), Professor Emerita of Supply Chain Management; BA, MA, Arizona State University; CPS, Arizona

Jackson, Donald W. Jr. (1972), Professor of Marketing; BA, Albion College; MBA, PhD, Michigan State University

Jackson, Naomi M. (1995), Associate Professor of Dance; BA, McGill University (Canada); MA, University of Surrey (United Kingdom); PhD, New York University

Jacob, Richard J. (1963), Professor Emeritus of Physics and Astronomy; BS, PhD, University of Utah

Jacobowitz, Ronald (1970), Professor Emeritus of Mathematics and Statistics; BA, City College of New York; MS, University of Chicago; PhD, Princeton University

Jacobs, Bertram L. (1985), Professor of Life Sciences; BS, Rutgers, The State University of New Jersey; PhD, University of California, Berkeley

Jacobs, H. Donald (1972), Professor Emeritus of Curriculum and Instruction; Director, Reading Clinic; BAEd, MAEd, Central Washington State College; DEd, University of Oregon

Jacobs, Mark (2003), Professor of Life Sciences; Dean, Barrett Honors College; BA, Harvard University; PhD, Stanford University

Jacobson, Arthur (1956), Professor Emeritus of Art; BS, MS, University of Wisconsin, Madison; PhD, University of Minnesota, Twin Cities

Jacobson, David (1992), Professor of Global Studies; Director, Department of Global Studies; BA, Hebrew University of Jerusalem, (Israel); MSc, London School of Economics (United Kingdom); PhD, Princeton University

Jacobson, Dean L. (1974), Professor Emeritus of Materials Science and Engineering; BS, MS, University of Notre Dame; PhD, University of California, Los Angeles

Jain, Nemi C. (1976), Professor of Communication; BS, MS, Agra University (India); PhD, Michigan State University

Jakob, John H. (1960), Professor Emeritus of Architecture and Landscape Architecture; BArch, Ohio State University; MSArch, Columbia University

Jalali-Farahani, Bahar (2005), Assistant Professor of Electrical Engineering; BSc, MSc, University of Tehran (Iran); PhD, Ohio State University

James, Jodi (2003), Assistant Research Professor of Arts, Media, and Engineering; BA, BS, Hope College; MA, University of Utah

James, Mark A. (2005), Assistant Professor of English; BA, MEd, University of Windsor (Canada); PhD, University of Toronto (Canada)

Jankowski, Daniel F. (1964), Professor Emeritus of Mechanical and Aerospace Engineering; BSE, MSE, PhD, University of Michigan

Janssen, James G. (1968), Professor Emeritus of English; BA, MA, Marquette University; PhD, University of Wisconsin, Madison

Janssen, Marcus A. (2005), Assistant Professor of Ecological Modeling and Computer Science and Engineering; MA, Erasmus University (The Netherlands); PhD, Maastricht University (The Netherlands)

Jarvis, Cheryl Burke (2000), Assistant Professor of Marketing; BS, MS, Texas A&M University; PhD, Indiana University

Jay, William (Bill) (1974), Professor Emeritus of Art; Diploma, Institute of Incorporated Photographers, Berkshire College of Art (United Kingdom); Final Diploma, City and Guildes of The London Institute, Berkshire College of Art (United Kingdom); MA, MFA, University of New Mexico

Jehn, Megan (2004), Assistant Professor of Health Management and Policy; BS, Arizona State University; MHS, PhD, Johns Hopkins University

Jelinek, James (1953), Professor Emeritus of Education; BS, University of Illinois; MA, Northwestern University; EdD, Indiana University, Bloomington

Jenkins, William (1979), Associate Professor of Art; BA, Saint Lawrence University; MFA, State University of New York, Buffalo

Jennings, Marianne M. (1977), Professor of Legal and Ethical Studies; BS, JD, Brigham Young University

Jiang, Danwen (2003), Assistant Professor of Violin; BM, St. Louis Conservatory of Music; MM, Rutgers, The State University of New Jersey; AD, Oberlin College

Jiang, Nan (2000), Associate Research Scientist of Physics and Astronomy; BSc, Jilin University (China); MS, Chinese Science Academy (China); PhD, University of Birmingham (United Kingdom)

Joehnk, Michael D. (1982), Professor Emeritus of Finance; BS, University of Arizona; MBA, Arizona State University; PhD, University of Arizona

Joganic, Edward F. (1996), Adjunct Professor of Speech and Hearing Science; BS, MS, MD, University of Arizona

Johannes, Tricia (1998), Faculty Associate of Interior Design; BSD, Arizona State University

Johanson, Donald C. (1997), Professor of Anthropology; Director, Institute of Human Origins; BA, University of Illinois, Urbana-Champaign; MA, PhD, University of Chicago

Johnson, Alan P. (1967), Professor Emeritus of English; BA, Amherst College; MA, University of Michigan; PhD, University of Minnesota, Twin Cities

Johnson, Douglas A. (1974), Professor of Accountancy; BBA, PhD, University of Texas; CPA, Texas

Johnson, John M. (1972), Professor of Justice and Social Inquiry; BA, Indiana University, Bloomington; MA, San Diego State College; PhD, University of California, San Diego

Johnson, Julia K. (2004), Lecturer of Geological Sciences; BS, MS, Arizona State University

Johnson, Linda Nelson (1985), Associate Professor of Interior Design; BA, MA, Iowa State University

Johnson, Paul C. (1994), Professor of Civil and Environmental Engineering; Associate Vice President for Research, Research and Economic Affairs; BS, University of California, Davis; MA, PhD, Princeton University

Johnson, Robert A. (1991), Adjunct Professor of Life Sciences; BS, MS, University of Illinois, Urbana-Champaign; PhD, Arizona State University

Johnson, Roy M. (1952–53; 1955), Professor Emeritus of Life Sciences; AB, MS, University of Chicago; PhD, University of New Mexico

Johnson, William G. (1990), Professor of Health Management and Policy; BS, University of Pennsylvania; MA, Temple University; PhD, Rutgers, The State University of New Jersey

Jones, Anne Trinkle (2004), Adjunct Professor of Anthropology; BA, Northern Arizona University; MA, Arizona State University

Jones, Austin E. (1968), Professor Emeritus of Psychology; BA, University of Illinois; MS, Purdue University; PhD, University of Rochester

Jones, Brad (2001), Faculty Associate of Visual Communication Design; BSD, Arizona State University

Jones, Don (1996), Associate Professor of Mathematics and Statistics; Associate Chair, Undergraduate Studies; BS, MS, Georgia Institute of Technology; PhD, University of California, Irvine

Jones, Elizabeth E. K. (1996), Lecturer of Mathematics and Statistics; BS, MA, University of Texas; PhD, Arizona State University

Jones, John (1990), Associate Professor of Mathematics and Statistics; AB, University of California, Berkeley; PhD, Harvard University

Jones, Marion K. (1970), Professor Emerita of Dance; BA, Wayne State University; MA, Arizona State University

Jones, Nancy (2003), Academic Associate, Global Institute of Sustainability; BS, Old Dominion University

Jones, Ruth S. (1981), Professor of Political Science; Vice Provost; BS, Indiana State University; MA, PhD, Georgetown University

Jonsson, Hjorleifur (1999), Associate Professor of Anthropology; BA, University of Iceland; MA, University of Iowa; MA, PhD, Cornell University

Joo, Youngjoong (2001), Assistant Professor of Electrical Engineering; BS, MS, Korea University (South Korea); PhD, Georgia Institute of Technology

Jordan, K. Forbis (1987), Professor Emeritus of Educational Administration and Supervision; AB, MA, Western Kentucky State College; EdD, Indiana University

Joshi, Lokesh (2000), Associate Professor of Bioengineering; BS, MS, University of Rajasthan (India); PhD, University of Bath (United Kingdom)

Joyce, Jeffery N. (2000), Adjunct Professor of Life Sciences; BS, PhD, University of Florida, Gainesville

Juergens, Jennifer L. (2001), Assistant Professor of Finance; BS, PhD, The Pennsylvania State University

Jung, Ranu (2002), Associate Professor of Bioengineering; BTech, Regional Engineering College, Warangal, Andhra Pradesh (India); MS, PhD, Case Western Reserve University

Jurik, Nancy (1981), Professor of Justice and Social Inquiry; BA, MA, Southern Methodist University; PhD, University of California, Santa Barbara

Jurs, James E. (2003), Clinical Associate Professor of Educational Leadership and Policy Studies; Academic Program Coordinator, MEd in Educational Administration and Supervision; BA, Western Illinois University; MSEd, Northern Illinois University; EdD, Arizona State University

Justus, Jerry T. (1968), Professor Emeritus of Life Sciences; BA, Franklin College; MA, PhD, Indiana University, Bloomington

Juvet, Richard S. Jr. (1970), Professor Emeritus of Chemistry and Biochemistry; BS, PhD, University of California, Los Angeles

K

Kadell, Kevin (1981), Professor of Mathematics and Statistics; BA, California State University, Sacramento; MA, University of Maryland; PhD, Pennsylvania State University

Kader, David (1979), Professor of Law; BA, California State University, Fresno; JD, University of Washington; LLM, University of London (United Kingdom)

Kagy, Virginia L. (1947), Professor Emerita of Family and Human Development; BA, Drake University; MS, Iowa State University; PhD, Johns Hopkins University

Kahn, B. Winston (1966), Professor Emeritus of History; BA, National Taiwan University (Taiwan); MA, University of Minnesota, Twin Cities; PhD, University of Pennsylvania

Kaida, Tamarra (1980), Professor Emerita of Art; BA, Goddard College; MFA, State University of New York, Buffalo

Kajikawa, William M. (1937), Professor Emeritus of Kinesiology; BA, MA, Arizona State University

Kalika, Dale (1999), Lecturer of Management; BA, Queens College; MA, University of Wisconsin; MBA, New York University

Kaliszewski, Steven (1998), Associate Professor of Mathematics and Statistics; BA, St. Olaf College; MA, PhD, Dartmouth College

Kaloush, Kamil E. (2001), Assistant Professor of Civil and Environmental Engineering; BS, MS, Ohio State University; PhD, Arizona State University

Kambhampati, Subbarao (1991), Professor of Computer Science and Engineering; BTech, Indian Institute of Technology (India); MS, PhD, University of Maryland, College Park

Kambourov, Gueorgui (2005), Assistant Professor of Economics; BA, American University in Bulgaria; MA, PhD, University of Western Ontario (Canada)

Kamel, Nabil (2005), Assistant Professor of Planning; BS, Cairo University (Egypt); MUP, Texas A&M University; PhD, University of California

Kaminsky, Elijah Ben-Zion (1962), Professor Emeritus of Political Science; AB, AM, PhD, Harvard University

Kaminsky, Selina K. (1988), Librarian Emerita; BEd, University of Miami; MALS, University of Denver

Kaplan, Catherine (2001), Assistant Professor of History; BA, Amherst College; MA, PhD, University of Michigan

Kaplan, Robert G. (1984), Professor of Dance; BME, University of Hartford; MM, Arizona State University

Kaplan, Steven (1981), Professor of Accountancy; BS, Arizona State University; MAS, PhD, University of Illinois

Karady, George (1986), Professor of Electrical Engineering; Salt River Project Chair; Diploma, Technical University, Budapest (Hungary); Candidate of Technical Sciences, Hungarian Academy of Science (Hungary); PhD, Budapest University for Technical Sciences (Hungary)

Karam, Lina (1995), Associate Professor of Electrical Engineering; BE, American University of Beirut (Lebanon); MS, PhD, Georgia Institute of Technology

Karcher, Timothy (1989), Associate Research Professional, Center for Solid State Science; BSc, MSc, University of Wisconsin, Milwaukee

Karjala, Dennis S. (1978), Professor of Law; BSE, Princeton University; MS, PhD, University of Illinois; JD, University of California, Berkeley

Karnes, Thomas L. (1968), Professor Emeritus of History; AB, Colorado University; AM, PhD, Stanford University

Karoly, Paul (1982), Professor of Psychology; BA, City College of New York; PhD, University of Rochester

Kashiwagi, Dean T. (1992), Professor of Construction; BS, University of Hawaii, Manoa; MS, PhD, Arizona State University

Kastenbaum, Robert J. (1981), Professor Emeritus of Gerontology and Communication; BA, Long Beach State College; PhD, University of Southern California

Katsulis, Yasmina (2005), Assistant Professor of Women and Gender Studies; BA, University of Arizona; MPhil, PhD, Yale University

Katz, Richard C. (1990), Adjunct Professor of Speech and Hearing Science; BA, MA, University of Massachusetts; PhD, University of Florida

Kaufman, Herbert M. (1973), Professor of Finance; BA, State University of New York, Binghamton; PhD, Pennsylvania State University

Kaufman, Irving (1965), Professor Emeritus of Electrical Engineering; BE, Vanderbilt University; MS, PhD, University of Illinois

Kaufmann, William B. (1968), Professor Emeritus of Physics and Astronomy; AB, MA, PhD, University of California, Berkeley

Kavazanjian, Edward (2004), Associate Professor of Civil and Environmental Engineering; SB, SM, Massachusetts Institute of Technology; PhD, University of California, Berkeley

Kawski, Matthias (1988), Professor of Mathematics and Statistics; PhD, University of Colorado

Kaye, David H.
(1976)
Regents' Professor of Law; BS, Massachusetts Institute of Technology; MA, Harvard University; JD, Yale University

Kazilek, Charles J. (1985), Senior Research Professional of Life Sciences; BFA, MNS, Arizona State University

Kazmier, Leonard J. (1965), Professor Emeritus of Economics; BA, MA, Wayne State University; PhD, Ohio State University

Keane, John L. (1994), Faculty Associate of Planning; BA, Cornell University; MS, Arizona State University

Kearney, James R. III (1968), Professor Emeritus of History; BA, Pomona College; MA, Washington University; PhD, University of Wisconsin, Madison

Keating, Thomas (1972), Associate Professor of Political Science; BA, MA, California State University, Sacramento; MPA, PhD, Indiana University

Keats, Barbara W. (1984), Associate Professor of Management; BA, Louisiana Technical University; MS, Northeast Louisiana University; PhD, Oklahoma State University

Keats, J. Bert (1984), Professor Emeritus of Industrial Engineering; BSIE, Lehigh University; MS, PhD, Florida State University; PhD, Oklahoma State University

Keefer, Donald L. (1987), Associate Professor of Supply Chain Management; BS, Carnegie Mellon University; MS, Stanford University; MS, PhD, University of Michigan

Kefeli-Clay, Agnes (2004), Lecturer of Religious Studies; AM, University of Paris IV, Sorbonne (France); MPhil, School of Higher Studies (France); PhD, Arizona State University

Keha, Ahmet (2003), Assistant Professor of Industrial Engineering; BS, MS, Middle East Technical University (Turkey); PhD, Georgia Institute of Technology

Kehl, Delmar G. (1965), Professor Emeritus of English; BA, Bob Jones University; MS, University of Wisconsin, Madison; PhD, University of Southern California

Keim, Gerald (2001), Professor of Management; Associate Dean, W. P. Carey MBA Program; BS, University of Delaware; MA, PhD, Virginia Polytechnic Institute and State University

Keim, Robert T. (1979), Associate Professor of Computer Information Systems; BS, MBA, PhD, University of Pittsburgh

Keith, Verna M. (1990), Associate Professor of Sociology; BS, University of Central Arkansas; MA, PhD, University of Kentucky

Keller, Gary D.
(1986)
Regents' Professor of Languages and Literatures; Director, Hispanic Research Center; BA, University of the Americas (Mexico); MA, New School for Social Research; MA, PhD, Columbia University

Keller, Thomas (1980), Associate Professor of Management; BEd, MEd, EdSpec, EdD, University of Toledo

Kellgren, Gary (2000), Lecturer of Mathematics and Statistics; BS, Allegheny College; MS, Southern Illinois University

Kelly, John B. (1962), Professor Emeritus of Mathematics and Statistics; BA, Columbia University; PhD, Massachusetts Institute of Technology

Kelly, Richard W. (1965), Professor Emeritus of Electrical Engineering; BSE, MSE, PhD, University of Iowa

Kennedy, Thomas D. (1974), Professor Emeritus of Justice and Social Inquiry; BA, Tulane University; MA, PhD, Louisiana State University, Baton Rouge

Kenney, Patrick J. (1986), Professor of Political Science; Chair, Department of Political Science; BA, MAPA, PhD, University of Iowa

Kenrick, Douglas T. (1980), Professor of Psychology; BA, Dowling College; MA, PhD, Arizona State University

Ketcham, Jonathan D. (2005), Assistant Professor of Health Management and Policy; BA, Baylor University; PhD, The Wharton School of Business, University of Pennsylvania

Keuter, Clifford D. (1988), Professor Emeritus of Dance

Kevane, Clement J. (1956), Professor Emeritus of Physics and Astronomy; BS, PhD, Iowa State University

Keys, Eric G. (2002), Assistant Professor of Geography; BA, Macalester College; MA, University of Texas at Austin; PhD, Clark University

Kiaei, Sayfe (2001), Professor of Electrical Engineering; Director, Connection One/WINTECH Center; BSEE, MS, PhD, Washington State University

Kierstead, Henry A. (1988), Professor of Mathematics and Statistics; BA, MA, PhD, University of California, San Diego

Kiesow, Milton A. (1957), Professor Emeritus of Education; BS, University of Wisconsin; MA, PhD, University of Nebraska, Lincoln

Kihl, Mary (1996), Professor of Planning; AB, Juniata College; MURP, University of Pittsburgh; MA, University of Michigan; PhD, Pennsylvania State University

Killeen, Peter R. (1968), Professor of Psychology; BS, Michigan State University; PhD, Harvard University

Kim, Dongrin (2001), Lecturer of Mathematics and Statistics; BSEE, University of California, San Diego; MSEE, University of California, Los Angeles; MA, California State University, Los Angeles; MA, PhD, University of Southern California

Kim, Joochul (1980), Associate Professor of Planning; BA, University of California, Berkeley; MUP, PhD, University of Michigan

Kim, Seungchan (2004), Assistant Professor of Computer Science and Engineering; BS, MS, Seoul National University (South Korea); PhD, Texas A&M University

Kim, Yuseob (2005), Assistant Professor of Life Sciences; BS, MS, Seoul National University (South Korea); PhD, University of Rochester

Kimball, Bruce A. (1988), Adjunct Professor of Life Sciences; BS, University of Minnesota; MS, Iowa State University; PhD, Cornell University

Kimbel, William H. (1997), Professor of Anthropology; Science Director, Institute of Human Origins; BA, Case Western Reserve University; PhD, Kent State University

Kimler, Stephen J. (1967), Professor Emeritus of Education; BEd, Milwaukee State Teachers College; MEd, Marquette University; EdD, Arizona State University

Kingston, Jerry L. (1969), Professor of Economics; ICA Faculty Representative; BAE, Wayne State College; MS, Colorado State University; PhD, Pennsylvania State University

Kinicki, Angelo J. (1982), Professor of Management; BBA, MBA, DBA, Kent State University

Kinnier, Richard T. (1982), Professor of Psychology in Education; Training Director, Counseling Psychology; BA, Boston College; EdM, Columbia University; PhD, Stanford University

Kintigh, Keith W. (1987), Professor of Anthropology; AB, MS, Stanford University; PhD, University of Michigan

Kinzig, Ann P. (1998), Associate Professor of Life Sciences; BS, University of Illinois, Urbana-Champaign; MS, PhD, University of California, Berkeley

Kirkman-Liff, Bradford L. (1981), Professor of Health Management and Policy; BS, MS, Carnegie Mellon University; DrPH, University of North Carolina at Chapel Hill

Kirkwood, Craig W. (1983), Professor of Supply Chain Management; SB, SM, EE, PhD, Massachusetts Institute of Technology

Kittilson, Miki (2004), Assistant Professor of Political Science; BA, Arizona State University; MA, PhD, University of California, Irvine

Kittrie, Orde (2004), Associate Professor of Law; BA, Yale University; JD, University of Michigan

Klein, James D. (1988), Professor of Psychology in Education; Academic Program Leader, Educational Technology; BA, Florida Atlantic University; MS, PhD, Florida State University

Kleinfeld, Gerald R. (1962), Professor Emeritus of History; BA, New York University; MA, University of Michigan; PhD, New York University

Klett, Mark C.
(1982)
Regents' Professor of Art; BS, Saint Lawrence University; MFA, State University of New York, Buffalo

Kliewer-Britton, Darleen (1975), Professor Emerita of Music; BME, Bethany College; MM, Wichita State University

Klock, John W. (1960), Professor Emeritus of Civil Engineering; BE, University of Southern California; MS, PhD, University of California, Berkeley

Klopatek, Jeffrey M. (1981), Professor of Life Sciences; BS, MS, University of Wisconsin, Milwaukee; PhD, Oklahoma University

Knapp, Margaret M. (1990), Professor of Theatre; Associate Dean, Research and Administration, Herberger College of Fine Arts; BA, LeMoyne College; MA, PhD, City University of New York

Knaupp, Jonathan E. (1970), Professor Emeritus of Elementary Education; BS, Oregon State University; MA, PhD, University of Illinois

Knauth, L. Paul (1979), Professor of Geological Sciences; BA, University of Chicago; PhD, California Institute of Technology

Knight, Donald O. (1981), Professor Emeritus of Industrial Engineering; BEE, Marquette University; MSE, PhD, Arizona State University

Knight, George P. (1986), Professor of Psychology; BA, Macalester College; MA, PhD, University of California, Riverside

Knight, John Costain (1965–68; 1997), Associate Research Professor, Cancer Research Institute; BSc, PhD, University of Liverpool (United Kingdom)

Knowlton, John F. (1964), Professor Emeritus of Spanish; BA, Lewis and Clark College; MA, PhD, University of Oregon

Knox, Robert L. (1963), Professor Emeritus of Economics; BS, MS, Oklahoma State University; PhD, University of North Carolina

Knudson, Kelly J. (2005), Assistant Professor of Anthropology; BA, Beloit College; MS, PhD, University of Wisconsin, Madison

Knutson, Kraig (1997), Senior Lecturer of Construction; BS, MS, PhD, Arizona State University

Kobayashi, Yoshihiro (2001), Assistant Professor of Architecture and Landscape Architecture; BArch, MArch, Waseda University (Japan); PhD, University of California, Los Angeles

Kobes, Bernard W. (1986), Associate Professor of Philosophy; BA, Calvin College; MA, PhD, University of California, Los Angeles

Koblitz, Ann Hibner (1998), Professor of Women and Gender Studies; AB, Princeton University; PhD, Boston University

Kocour, Michael (2004), Associate Professor of Music; Director, Jazz Studies; BS, University of Illinois; MM, Northwestern University

Koeneman, James B. (1984), Adjunct Professor of Bioengineering; BS, University of Minnesota; MS, PhD, Case Western Reserve University

Koka, Balaji (1999), Assistant Professor of Management; BE, Madurai Kamaraj University (India); MBA, Indian Institute of Management, Calcutta (India); PhD, University of Pittsburgh

Kolossa, Katalin (1994), Senior Lecturer of Mathematics and Statistics; BA, Eötvös University (Hungary); MA, PhD, Arizona State University

Konjevod, Goran (2000), Assistant Professor of Computer Science and Engineering; BSc, University of Zagreb (Croatia); MSc, PhD, Carnegie Mellon University

Konomos, Philip J. (1991), Learning Resource Specialist; Head, Library Information Systems and Technology; BS, MEd, Arizona State University

Koonce, Frank W. (1978), Professor of Music; BM, North Carolina School of the Arts; MM, Southern Methodist University

Koopmans, Rachel (2001), Assistant Professor of History; BA, Calvin College; MA, Northwestern University; MA, PhD, University of Notre Dame

Kopta, Anne Elgar (1999), Associate Professor of Music

Koretz, Lora (2004), Senior Lecturer of Management; BS, Western New England College; MBA, Arizona State University; JD, Suffolk University

Kortman, Sharon A. (1998), Assistant Administrative Professional of Curriculum and Instruction; Director, Beginning Educator Support Team; BA, MEd, EdD, Arizona State University

Koshinsky, Deborah H. (2000), Associate Librarian; Head, Architecture and Environmental Design Library; BA, Ohio State University; MLIS, Simmons College

Koss-Chioino, Joan D. (1992), Professor Emerita of Anthropology; BFA, Temple University; MA, PhD, University of Pennsylvania

Kostelich, Eric (1989), Professor of Mathematics and Statistics; BS, University of North Carolina; MS, PhD, University of Maryland, College Park

Kotani, Takao (2005), Associate Research Professor of Chemical and Materials Engineering; BA, Kyoto University (Japan); PhD, Osaka University (Japan)

Kouvetakis, John (1992), Professor of Chemistry and Biochemistry; BS, PhD, University of California, Berkeley

Kozacik, Dorothy Piercey (1968), Professor Emerita of Education; BA, College of St. Francis; MA, Arizona State University; PhD, University of Arizona

Kozicki, Michael (1986), Professor of Electrical Engineering; BS, PhD, University of Edinburgh (United Kingdom)

Krahenbuhl, Gary S. (1973), Professor Emeritus of Kinesiology; BS, MS, Northern Illinois University; EdD, University of Northern Colorado

Krajcinovic, Dusan (1989), Professor Emeritus of Engineering; BSc, MSc, University of Belgrade (Yugoslavia); PhD, Northwestern University

Krause, Daniel R. (2000), Associate Professor of Supply Chain Management; BA, Fort Lewis College; MBA, PhD, Arizona State University

Krause, Stephen (1981), Professor of Materials Science and Engineering; Associate Chair, Department of Chemical and Materials Engineering; BS, Northwestern University; MS, Illinois Institute of Technology; PhD, University of Michigan

Kreitner, Robert J. III (1975), Professor Emeritus of Management; BS, MBA, University of Nebraska, Omaha; PhD, University of Nebraska, Lincoln

Krinsley, David (1976), Professor Emeritus of Geological Sciences; PhB, SB, SM, PhD, University of Chicago

Kroelinger, Michael D. (1980), Professor Emeritus of Interior Design; BS, University of Alabama; MS, PhD, University of Tennessee, Knoxville

Kronenfeld, Jennie Jacobs (1990), Professor of Sociology; Chair, Department of Sociology; BA, University of North Carolina at Chapel Hill; MA, PhD, Brown University

Kronengold, Eric A. (1970), Professor Emeritus of Art; BA, MA, San Francisco State University

Krus, David J. (1975), Professor Emeritus of Psychology in Education; BA, MA, Charles University; PhD, University of Minnesota, Twin Cities

Krzys, Katherine J. (1990), Associate Archivist, Archives and Special Collections; BA, California State University, Hayward; MFA, Arizona State University

Kuang, Yang (1988), Professor of Mathematics and Statistics; Associate Chair, Graduate Studies; BS, University of Science and Technology (China); PhD, University of Alberta (Canada)

Kuby, Lauren H. (1995), Academic Associate, Communications Manager, Global Institute of Sustainability; BA, University of Chicago; MA, Arizona State University

Kuby, Michael (1988), Associate Professor of Geography; BA, University of Chicago; PhD, Boston University

Kuester, James L. (1969), Professor Emeritus of Chemical Engineering; BS, University of Texas at Austin; ME, PhD, Texas A&M University

Kugelmass, Jack (1998), Professor of Interdisciplinary Humanities; BA, McGill University (Canada); MA, PhD, New School for Social Research

Kuhlmann, Richard, Master Sergeant (2004); Senior Military Instructor of Military Science

Kuiper, Hendrik J. (1971), Professor of Mathematics and Statistics; BS, University of Wisconsin, Milwaukee; MS, MA, PhD, University of Wisconsin, Madison

Kulaga, Jeffrey A. (2001), Faculty Associate of Planning; BS, MPA, Arizona State University

Kulahci, Murat (2002), Assistant Professor of Industrial Engineering; BS, Bogazici University (Turkey); ME, Illinois Institute of Technology; MS, PhD, University of Wisconsin, Madison

Kulis, Stephen (1984), Professor of Sociology; BA, George Washington University; MA, PhD, Columbia University

Kulkarni, Uday R. (1988), Associate Professor of Computer Information Systems; BTech, Indian Institute of Technology (India); MBA, Indian Institute of Management, Calcutta (India); PhD, University of Wisconsin, Milwaukee

Kumar, Ajith (1991), Professor of Marketing; BS, Indian Institute of Technology (India); Postgraduate Diploma, Indian Institute of Management (India); PhD, University of Massachusetts

Kumar, Sudhir (1998), Associate Professor of Life Sciences; BS, MS, Birla Institute of Technology and Science (India); PhD, Pennsylvania State University

Kuo, Karen (2002), Academic Associate of Asian Pacific American Studies; BA, University of California, Santa Barbara; MA, University of California, Riverside

Kupchik, Aaron (2003), Assistant Professor of Justice and Social Inquiry; BA, Boston University; MA, PhD, New York University

Kurtz, Lynn C. (1967), Professor Emeritus of Mathematics and Statistics; BS, South Dakota School of Mines and Technology; MS, PhD, University of Utah

Kwasnoski, Michael A. (2003), Assistant Professor of Aerospace Studies; BA, Bloomsburg University; MBA, St. Mary's University

L

La Belle, Jeffrey (2002), Assistant Research Scientist of Bioengineering; BSEE, Western New England College; MS, PhD, Arizona State University

Laananen, David (1983), Professor Emeritus of Mechanical and Aerospace Engineering; BS, Worcester Polytechnic Institute; MS, PhD, Northeastern University

Ladd, Becky (2001), Associate Professor of Psychology in Education; BA, San Diego State University; MS, PhD, University of Illinois, Urbana-Champaign

Ladd, Gary W. (2001), Professor of Family and Human Development; BA, Grove City College; MS, Alfred University; EdD, University of Rochester

Laetz, Hans G. (1964), Professor Emeritus of German; BA, University of California, Berkeley; MA, PhD, Stanford University

LaFaro, Lydia E. (1988), Librarian, Hayden Reference Services; BS, Georgetown University; MLS, Emory University

Lafford, Barbara (1980), Professor of Spanish; BA, Middlebury College; MA, PhD, Cornell University

Lafford, Peter A. (1989), Associate Research Professional of Languages and Literatures; Director, Language Computing Laboratory; BA, Cornell University; MA, Arizona State University; MA, Middlebury College

Lage, Chiara (1998), Lecturer of Italian; GA Farina, Teacher's College, Vicenza (Italy); Laurea, University of Study of Urbino (Italy)

Lai, Richard T. (1973), Professor of Planning; AB, MFA, Princeton University; PhD, University of Pennsylvania

Lai, Ying-Cheng (1999), Professor of Electrical Engineering; BS, MS, Zhejiang University (China); PhD, University of Maryland, College Park

Landeira, Ricardo L. (1962), Professor Emeritus of Spanish; Bachiller Universitario, University of Santiago (Spain); Maestro Nacional, Normal School of Santiago (Spain); PhD, University of Colorado

Landers, Daniel M.
(1981)
Regents' Professor of Kinesiology; BA, San Jose State College; MS, PhD, University of Illinois

Landers, Donna M. (1988), Senior Lecturer of Kinesiology; Undergraduate Advisor; BS, State University of New York, Brockport; MS, University of Washington

Landrum, Leslie R. (1986), Senior Research Scientist of Life Sciences; BS, Syracuse University; MS, PhD, University of Michigan

Landschoot, Thomas (2001), Assistant Professor of Music; MM, Conservatory of Music, Antwerp (Belgium); MM, University of Michigan; Artist Diploma, Indiana University; Artist Diploma, Conservatory of Music, Maastricht (Netherlands)

Laner, Mary R. (1976), Professor Emerita of Sociology; AB, University of Chicago; MA, University of New Mexico; PhD, Virginia Polytechnic Institute and State University

Langenfeld, Amy (2005), Associate Clinical Professor of Law; BA, Georgetown University; JD, Arizona State University

Lanyon, Richard I. (1975), Professor of Psychology; BE, University of Adelaide (Australia); MA, PhD, University of Iowa

Lara-Valencia, Francisco (2004), Assistant Professor of Planning; BS, Autonomous University of Baja California (Mexico); MRP, The College of the Northern Border (Mexico); PhD, University of Michigan, Ann Arbor

Larimer, John W. (1969), Professor Emeritus of Geological Sciences; BA, MS, PhD, Lehigh University

Larson, Brook (2005), Senior Lecturer of Music; BA, Moorhead State University; MM, Bowling Green State University; DMA, Arizona State University

Larson, Kelli (2005), Assistant Professor of Geography; BA, MA, Southern Illinois University, Carbondale; PhD, Oregon State University, Corvalis

Larson-Keagy, Elizabeth (2004), Lecturer of Geography; BA, University of Wisconsin; MA, Louisiana State University, Baton Rouge; PhD, University of Wisconsin, Milwaukee

Lastovicka, John L. (1992), Professor of Marketing; BS, MS, PhD, University of Illinois

Laubichler, Manfred (2001), Assistant Professor of Life Sciences; MSc, University of Vienna (Austria); MPhil, Yale University; MA, Princeton University; PhD, Yale University; PhD, Princeton University

Lauderdale, Pat (1981), Professor of Justice and Social Inquiry; BA, University of Oklahoma; MA, University of Texas at Austin; MA, PhD, Stanford University

Lavrin, Asuncion (1995), Professor of History; BA, University of Havana (Cuba); MA, Radcliffe College; PhD, Harvard University

Lawrence, Christopher (2005), Lecturer of Civil and Environmental Engineering; BS, Lawrence Technological University; MS, PhD, Arizona State University

Lawson, Anton E. (1977), Professor of Life Sciences; BS, University of Arizona; MA, University of Oregon; PhD, University of Oklahoma

Le, Thuy-Kim Pham (1997), Lecturer of Vietnamese; BA, Saigon University (Vietnam); BA, MEd, Arizona State University

Leaños, John Jota (2003), Assistant Professor of Chicana and Chicano Studies; BA, MFA, San Francisco State University

Leathers, Chester R. (1957), Professor Emeritus of Life Sciences; BS, Eastern Illinois University; MS, PhD, University of Michigan

Lebed, Richard F. (2000), Assistant Professor of Physics and Astronomy; BS, Michigan State University; MA, PhD, University of California, Berkeley

Lederman, Linda C. (2006), Professor of Communication; BA, Brown University; MA, Columbia University; PhD, Rutgers, The State University of New Jersey

Lee, Deanna (2001), Assistant Professor of Accountancy; BS, University of Pennsylvania; PhD, University of Illinois

Lee, James (1997), Adjunct Professor of Life Sciences; BS, State University of New York, Stony Brook; PhD, California Institute of Technology

Lee, Joohyung (2005), Assistant Professor of Computer Science and Engineering; BS, Seoul National University (Korea); PhD, University of Texas at Austin

Lee, Nancy (1997), Adjunct Professor of Life Sciences; BS, Memphis State University; PhD, Cornell University

Lee, Peggy M. (2005), Assistant Professor of Management; BA, Stanford University; MA, PhD, University of North Carolina

Lee, Tae-woo (1993), Associate Professor of Mechanical and Aerospace Engineering; BS, Ohio State University; MSE, PhD, University of Michigan

Lee, Yann-Hang (2000), Professor of Computer Science and Engineering; BS, National Cheng Kung University (Taiwan); MS, Rensselaer Polytechnic Institute; PhD, University of Michigan

Lefevre, Mary Anne (1990), Clinical Assistant Professor of Life Sciences; BS, Arizona State University; MA, Central Michigan University

Lefler, Scott (2004), Lecturer of Chemistry and Biochemistry; BS, California Polytechnic State University, San Luis Obispo; PhD, Arizona State University

Lehman, Peter (1999), Professor of English; Director, Interdisciplinary Humanities Program; BS, MA, PhD, University of Wisconsin, Madison

Leibold, Anne M. (1977), Librarian Emerita; MA, University of Paris (France)

Leigh, Frederic A. (1979), Senior Administrative Professional and Clinical Professor of Journalism and Mass Communication; BA, University of South Dakota; MA, University of Iowa; EdD, Arizona State University

Leinenweber, Kurt (1994), Assistant Research Professional of Chemistry and Biochemistry; BS, Brown University; PhD, Princeton University

Leket-Mor, Rachel (2004), Academic Associate, Library Collection Development

Lemery, Kathryn (2001), Assistant Professor of Psychology; BA, University of Oregon; MS, PhD, University of Wisconsin, Madison

Lentz, Richard G. (1985), Professor Emeritus of Journalism and Mass Communication; AB, University of North Alabama; MA, Southern Illinois University, Carbondale; PhD, University of Iowa

Leonard, Donald J. (1974), Professor Emeritus of Management Communication; BS, MBA, Nicholls State University; PhD, Louisiana State University

Leonard, Philip A. (1968), Professor Emeritus of Mathematics and Statistics; AB, Boston College; MA, PhD, Pennsylvania State University

Leong, Karen J. (1999), Associate Professor of Women and Gender Studies and Asian Pacific American Studies; Director, Asian Pacific American Studies Program; AB, MA, PhD, University of California, Berkeley

Lerum, Vidar (2000), Assistant Professor of Architecture and Landscape Architecture; BArch, Norwegian Institute of Technology, Trondheim (Norway); MS, Arizona State University; PhD, Norwegian University of Science and Technology, Trondheim (Norway)

Leshowitz, Barry H. (1970), Associate Professor of Psychology; BS, MA, Brooklyn College; PhD, City University of New York

Lessard, Elizabeth C. (1969), Professor Emerita of Dance; BS, Georgia College; MA, PhD, Texas Woman's University

Lester, A. Neal (1997), Bebbling Family Dean's Distinguished Professor of English and Parents Association Professor; Chair, Department of English; BA, State University of West Georgia; MA, PhD, Vanderbilt University

Levan, Frederick D. (1965), Professor Emeritus of Educational Administration and Supervision; BS, MEd, Pennsylvania State University; EdD, Oklahoma State University

Levendowski, Glenda (2004), Lecturer of Accountancy; BBA, Texas Tech University; MS, University of Houston, Clear Lake City

Levine, Gustav (1967), Professor Emeritus of Psychology; BA, MA, College of the City of New York; PhD, Columbia University

Levitus, Marcia (2005), Assistant Professor of Chemistry and Biochemistry; BS, PhD, University of Buenos Aires (Argentina)

Lewin, Benjamin (2005), Lecturer of Sociology; BA, Trinity University; MA, University of Akron; PhD, Arizona State University

Lewis, Paul G. (2005), Assistant Professor of Political Science; AB, Indiana University, Bloomington; MA, PhD, Princeton University

Lewis, William E. (1965), Professor of Computer Science and Engineering; University Chief Information Officer and Vice Provost for Information Technology; BSE, Johns Hopkins University; MS, PhD, Northwestern University

Li, Baoxin (2004), Assistant Professor of Computer Science and Engineering; BS, MS, University of Science and Technology of China; PhD, University of Maryland, College Park

Li, Qunying (2001), Assistant Librarian, Collection Development; MA, Beijing Foreign Studies University (China); MLS, University of Alabama

Li, Wei (2001), Associate Professor of Asian Pacific American Studies and Geography; BS, Beijing Normal College (China); MS, Peking University (China); PhD, University of Southern California

Licon, Lawrence Wendell (2003), Clinical Assistant Professor of Finance; BBA, MBA, PhD, University of Texas at Austin

Liddell, Paul A. (1990), Assistant Research Professional of Chemistry and Biochemistry; BSc, Massey University (New Zealand); PhD, Arizona State University

Liebig, Jurgen (2005), Assistant Professor of Life Sciences; Diplom Biologie, Doktorarbeit, Würzburg University (Germany)

Lightfoot, Marjorie J. (1964), Professor Emerita of English; BA, Brown University; MA, PhD, Northwestern University

Lin, Jerry (2004), Professor of Chemical Engineering; BS, Zhejiang University (China); MS, PhD, Worcester Polytechnic

Lin, Sheng H.
(1965)
Regents' Professor Emeritus of Chemistry and Biochemistry; BS, MS, National Taiwan University (Taiwan); PhD, University of Utah

Lin, Su (1997), Associate Research Professional of Chemistry and Biochemistry; BA, Beijing Normal University, (China); PhD, University of Rochester

Linder, Darwyn E. (1972), Professor Emeritus of Psychology; BA, Macalester College; PhD, University of Minnesota, Twin Cities

Linderman, Earl W. (1966), Professor Emeritus of Art; BS, State University of New York, Buffalo; MEd, EdD, Pennsylvania State University

Lindsay, Stuart M. (1978), Professor of Physics and Astronomy; Nadine and Edward Carson Presidential Chair in Physics; BSc, PhD, University of Manchester (United Kingdom)

Lindsey, Laura (2003), Assistant Professor of Finance; BA, MA, PhD, Stanford University

Lineberry, Heather S. (1990), Senior Curator, ASU Art Museum; Associate Museum Professional; BA, MA, University of Texas at Austin

Liskovec, Richard F. (1958), Professor Emeritus of Mathematics and Statistics; BS, MA, Kent State University

Liss, Julie M. (1994), Associate Professor of Speech and Hearing Science; BA, University of Wisconsin, Madison; MA, University of Denver; PhD, University of Wisconsin, Madison

Littlewood, Mary L. (1965), Professor Emerita of Kinesiology; BS, Miami University; MS, University of Colorado

Liu, C. H. (1965), Professor Emeritus of Chemistry and Biochemistry; BA, PhD, University of Illinois

Liu, Danny D. (1982), Professor Emeritus of Mechanical and Aerospace Engineering; BS, National Taiwan University; MS, Georgia Institute of Technology; PhD, University of Southampton (United Kingdom)

Liu, Huan (2000), Associate Professor of Computer Science and Engineering; BEng, Shanghai Jiao Tong University (China); MSc, PhD, University of Southern California

Liu, Marjory Bon-Ray (1973), Professor Emerita of Philosophy; BM, Alverno College; MM, University of Southern California; CPhil, PhD, University of California, Los Angeles

Liu, Zhenquan (2000), Senior Research Specialist, Center for Solid State Science; BSc, MSc, Peking University (China); PhD, University of Sydney (Australia)

LoBrutto, Russell (1991), Senior Research Scientist of Life Sciences; BA, Cornell University; PhD, State University of New York, Buffalo

Lockard, Joe (2002), Assistant Professor of English; BA, University of California, Santa Cruz; PhD, University of California, Berkeley

Lockwood, Charles (2004), Adjunct Professor of Anthropology; BS, Duke University; PhD, University of Witwatersrand (South Africa)

Lockwood, Ralph G. (1972), Professor Emeritus of Music; BM, Baldwin-Wallace College; MM, New England Conservatory of Music

Lohr, Dennis E. (1979), Professor of Chemistry and Biochemistry; BS, Beloit College; PhD, University of North Carolina at Chapel Hill

Lohr, Sharon (1990), Professor of Mathematics and Statistics; BS, Calvin College; PhD, University of Wisconsin, Madison

Lombardi, Eugene P. (1957), Professor Emeritus of Music; BMusEd, Westminster College; MA, Columbia University; EdS, George Peabody College; DM, Westminster College

Longley, Kyle (1995), Snell Family Dean's Distinguished Professor of History; Director, Graduate Studies; BA, Angelo State University; MA, Texas Technological; PhD, University of Kentucky

Loope, R. Nicholas (1990), Associate Professor of Architecture and Landscape Architecture; BArch, University of Maryland, College Park; MArch, Yale University; PMD, Harvard University

Lopez, Juan (1998), Professor of Mathematics and Statistics; BSc, PhD, Monash University (Australia)

Lopez, Linda C. (2003), Associate Research Professor of Life Sciences; BS, University of Houston; PhD, The University of Texas

Lopez, Vera (2001), Assistant Professor of Justice and Social Inquiry; BA, MA, PhD, University of Texas at Austin

Lorton, Dianne (2000), Adjunct Professor of Life Sciences; BS, PhD, Indiana State University

Losse, Deborah N. (1973), Professor of French; Divisional Dean of Humanities, College of Liberal Arts and Sciences; BA, Connecticut College; MA, PhD, University of North Carolina at Chapel Hill

Loveless, Richard L. (1991), Professor Emeritus of Art; MEd, Pennsylvania State University

Low, Stuart A. (1979), Professor of Economics; BS, MS, PhD, University of Illinois

Lowe, John W. (1956), Professor Emeritus of Economics; BS, Arizona State University; MS, University of Wisconsin, Madison; PhD, University of Florida

Lowe, Robert W. (1966), Professor Emeritus of Romance Languages; MA, Columbia University; Doctorat, University of Paris (France)

Lowenthal, Gary T. (1976), Professor of Law; AB, Harvard College; JD, University of Chicago

Luchsinger, Wayne W. (1966), Professor Emeritus of Chemistry and Biochemistry; BS, MS, PhD, University of Minnesota, Twin Cities

Luckingham, Bradford F. (1971), Professor Emeritus of History; BS, Northern Arizona University; MA, University of Missouri, Columbia; PhD, University of California, Davis

Luderer, Gottfried W.R. (1990), Professor Emeritus of Electrical Engineering; MSEE, PhD, Technical University Braunschweig (Germany)

Ludwig, Ann (1979), Professor Emerita of Dance; BS, North Dakota State University; MS, University of Kansas

Luecken, Linda J. (2000), Assistant Professor of Psychology; BS, Ohio State University; MA, University of North Carolina; PhD, Duke University

Luenow, Paul F. Jr. (1958), Professor Emeritus of Foreign Languages; BA, MA, University of Washington; PhD, University of New Mexico

Luey, Beth (1980), Senior Instructional Professional of History; Director, Scholarly Publishing Program; BA, Radcliffe College; AM, Harvard University

Luft, Julie (2005), Professor of Curriculum and Instruction; BS, University of New Mexico; MS, New Mexico Institute of Mining and Technology; PhD, University of Iowa

Lujan, Carol Chiago (1987), Associate Professor of Justice and Social Inquiry; BA, MAPA, PhD, University of New Mexico

Lukas, Ronald J. (2000), Adjunct Professor of Life Sciences; BS, State University of New York, Cortland; PhD, State University of New York, Downstate Medical Center, Brooklyn

Lukinbeal, Christopher L. (2003), Assistant Professor of Geography; BS, MA, California State University, Hayward; PhD, San Diego State University and University of California, Santa Barbara

Lund, Giuliana (1997), Assistant Professor of Interdisciplinary Humanities; BA, Stanford University; MA, PhD, University of Pennsylvania

Lundgren, Harry R. (1962), Professor Emeritus of Civil and Environmental Engineering; BSCE, Purdue University; MS, Arizona State University; PhD, Oklahoma State University

Lundin, Robert F. (1962), Professor Emeritus of Geological Sciences; BA, Augustana College; MS, PhD, University of Illinois

Luo, Moulun (2005), Assistant Research Professor of Life Sciences; BS, MS, Guangxi College of Traditional Chinese Medicine (China); PhD, Beijing Medical University (China)

Lussier, Mark S. (1994), Associate Professor of English; BA, University of Saint Thomas; MA, PhD, Texas A&M University

Lyman, Jeffrey (1996), Associate Professor of Music; BMus, Temple University; MMus, DMus, University of Michigan

Lynch, David H. (1976), Professor Emeritus of Management Communication; BS, University of Illinois; MS, EdD, Northern Illinois University

Lynch, Jacquelyn (2001), Honors Faculty Fellow; Faculty Chair, Barrett Honors College; BA, Kalamazoo College; MA, Harvard University; PhD, Arizona State University

Lynch, John M. (1994), Honors Faculty Fellow; BSc, PhD, University College, Dublin (Ireland)

Lynk, Myles (2000), Professor of Law; Kiewit Foundation Professor of the Legal Profession; ICA Faculty Athletic Representative; AB, JD, Harvard University

M

Ma, Shouze (2005), Associate Professor of Dance; MFA, University of Iowa, Iowa City

Maatta, Robert (1996), Human Resources Assistant, Department of Military Science; BS, Lake Superior State University

Maccracken, Harriet (1995), Senior Lecturer of Accountancy; BS, Ohio State University; MA, Arizona State University

Macedonia, Joseph (2005), Adjunct Professor of Life Sciences; BS, Colorado State University; Phd, Duke University

Macey, Donna J. (1994), Clinical Associate Professor of Educational Administration and Supervision; Internship Coordinator and Certification, Educational Administration and Supervision; BA, DePaul University; MA, St. John's College; MA, MST, University of Chicago; PhD, Northwestern University

MacKinnon, David (1990), Professor of Psychology; BA, Harvard University; MA, PhD, University of California, Los Angeles

MacKinnon, Stephen R. (1971), Professor of History; BA, MA, Yale University; PhD, University of California, Davis

Mackulak, Gerald T. (1980), Associate Professor of Industrial Engineering; BSIE, MSIE, PhD, Purdue University

MacSwan, Jeff (1998), Associate Professor of Curriculum and Instruction; BA, MA, California State University, Long Beach; PhD, University of California, Los Angeles

Madden, Dennis D. (1990), Archivist Emeritus; BA, Wright State University; MA, Colorado State University

Madden-Derdich, Debra (1994), Associate Professor of Family and Human Development; BA, Washington and Jefferson College; MA, Hollins College; PhD, Virginia Polytechnic Institute and State University

Maddox, Robert A. (1993), Adjunct Professor of Geography; BS, Texas A&M University; MS, PhD, Colorado State University

Magaña, Lisa (1997), Associate Professor of Chicana and Chicano Studies; BA, California Polytechnic University; MA, PhD, Claremont Graduate School

Magenta, Muriel (1969), Professor of Art; BA, Queens College; MA, MFA, PhD, Arizona State University

Magers, William D. (1971), Professor Emeritus of Music; BA, University of California, Santa Barbara; MM, DMA, University of Southern California

Magill, Harry (1984), Professor Emeritus of Accountancy; BS, Miami University; MS, University of Illinois

Mahajan, Subhash (1997), Professor of Chemical and Materials Engineering; Chair, Department of Chemical and Materials Engineering; BS, Punjab University (India); BE, Metallurgy Indian Institute of Science (India); PhD, University of California, Berkeley

Mahalov, Alex S. (1991), Professor of Mathematics and Statistics; MS, Leningrad University (Russia); PhD, Cornell University

Mahoney, Dhira B. (1989), Professor Emerita of English; BA, MA, University of Oxford (United Kingdom); PhD, University of California, Santa Barbara

Mahoney, Richard (2003), Research Professor of Life Sciences; BS, Purdue University; PhD, University of California, San Diego

Maienschein, Jane
(1981)
Regents' Professor of Biology and Society; BA, Yale University; MA, PhD, Indiana University, Bloomington

Major, Roy C. (1992), Professor of English; BA, University of Akron; MA, University of Arizona; MA, PhD, Ohio State University

Majumdar, Anandamayee (2004), Assistant Professor of Mathematics and Statistics; BS, Indian Statistical Institute (India); MS, Michigan State University; PhD, University of Connecticut

Malone, Charles F. (1966), Professor Emeritus of Curriculum and Instruction; BS, Emporia State University; MEd, EdD, University of Kansas

Maltz, Arnold B. (1997), Associate Professor of Supply Chain Management; BS, Trinity College, Hartford; MA, University of California, Santa Barbara; MS, Northwestern University; PhD, Ohio State University

Mamlouk, Michael S. (1984), Professor of Civil and Environmental Engineering; BSCE, Cairo University (Egypt); MSCE, PhD, Purdue University

Manchester, Laurie (2000), Assistant Professor of History; BA, Wellesley College; MA, MPhil, PhD, Columbia University

Mandarino, Lawrence J. (2005), Professor of Kinesiology and Life Sciences; Chair, Department of Kinesiology; BA, MA, PhD, Arizona State University

Mandel, Naomi (2000), Assistant Professor of Marketing; AB, Dartmouth College; MBA, Arizona State University; MIM, American Graduate School of International Management; PhD, University of Pennsylvania

Manelli, Alejandro (1997), Professor of Economics; Licenciatura, National University of Buenos Aires (Argentina); MA, PhD, University of California, Berkeley

Manera, Elizabeth S. (1967), Professor Emerita of Curriculum and Instruction; BS, MA, Towson State College; EdD, Arizona State University

Mangini, Margaret A. (1990), Director, Bureau of Educational Research and Services; BS, MEd, Edinboro State College; EdD, Arizona State University

Mango, Oraib Lecturer of Arabic; BA, University of Jordan (Jordan); MA, Arizona State University

Manuelito, Kathryn (2001), Assistant Professor of Curriculum and Instruction; BA, MA, University of New Mexico; PhD, Arizona State University

Marc, Stephen Smith (1998), Professor of Art; BA, Pomona College; MFA, Temple University

Marchant, Gary E. (1999), Professor of Law; Executive Director, Center for the Study of Law, Science, and Technology; BSc, University of British Columbia (Canada); MPP, JD, Harvard University; PhD, University of British Columbia (Canada)

Marean, Curtis W. (2001), Professor of Anthropology; Research Associate, Institute of Human Origins; BA, Pennsylvania State University; MA, PhD, University of California, Berkeley

Margolis, Eric (1995), Associate Professor of Educational Leadership and Policy Studies; BA, State University of New York, New Paltz; PhD, University of Colorado, Boulder

Marin, Christine N. (1985), Associate Archivist, Archives and Special Collections; BA, MA, Arizona State University

Maris, Mariana (2000), Lecturer of Mathematics and Statistics; BS, MA, Arizona State University

Markiw, Michael (1990), Associate Librarian, Technical Services Department; BA, University of Alberta (Canada); MLS, University of Western Ontario (Canada)

Marks, Pamela (2002), Senior Lecturer of Chemistry and Biochemistry; BS, St. Olaf College; MS, University of Arizona

Marlin, Addison (2002), Clinical Assistant Professor of Architecture and Landscape Architecture; BA, University of New Mexico; MEP, Arizona State University

Marohnic, Charles S. (1981), Professor Emeritus of Music; BA, MM, University of Miami

Marshall, Kimberly (1998), Professor of Music; Associate Director for Graduate Studies, School of Music; BA, University of North Carolina at Chapel Hill; DPhil, University College, Oxford (United Kingdom)

Martin, Carol L. (1988), Professor of Family and Human Development; BA, University of Georgia; MS, Rutgers, The State University of New Jersey; PhD, University of Georgia

Martin, J. Spencer (2000), Assistant Professor of Finance; BS, MBA, University of Texas at Austin; AM, PhD, University of Pennsylvania

Martin, John F. Jr. (1966), Professor of Anthropology; BA, Beloit College; MA, PhD, University of Chicago

Martin, Judith N. (1990), Professor of Communication; BA, Eastern Mennonite College; MA, PhD, Pennsylvania State University

Martin, Linda J. (1980), Professor Emerita of Finance; BA, University of Louisville; MS, University of Kansas; MBA, DBA, Louisiana Technological University

Martin, Scott (2000), Lecturer of Mathematics and Statistics; BS, University of Nebraska, Lincoln; MA, University of Illinois, Springfield

Martin, Thomas W. (2005), Honors Faculty Fellow; BA, Villanova University; MA, University of Pittsburgh; PhD, University of Virginia

Martínez, Jacqueline M. (2000), Associate Professor of Communication; BA, California State University, Northridge; MS, PhD, Southern Illinois University

Martinez, Jeanne L. (2000), Lecturer of Spanish; BA, Indiana University, South Bend; MAT, Indiana University, Bloomington

Martinez Assad, Carlos (2005), Distinguished Scholar of Spanish; BA, MA, National Autonomous University of Mexico (Mexico); PhD, University of Paris (France)

Martinez-Roldan, Carmen (2002), Assistant Professor of Curriculum and Instruction; BA, MA, University of Puerto Rico, Rio Piedras; PhD, University of Arizona

Marzke, Mary W. (1978), Professor Emerita of Anthropology; BA, University of California; MA, Columbia University; PhD, University of California, Berkeley

Marzke, Robert F. (1969), Associate Professor of Physics and Astronomy; AB, Princeton University; PhD, Columbia University

Masilamani, Purushothama (2000), Lecturer of Mathematics and Statistics; BS, University of Madras (India); MS, DA, Adelphi University

Mason, Bruce B. (1960), Professor Emeritus of Political Science; BS, North Texas State College; MA, Texas Christian University; PhD, University of Texas at Austin

Mason, Hugh S. (2002), Associate Professor of Life Sciences; BS, University of Texas at Austin; PhD, University of Arizona

Mason, Marshall W. (1994), Professor Emeritus of Theatre; BS, Northwestern University

Mass, Diana (1974), Clinical Professor of Life Sciences; BS, University of Texas at Austin; MS, Central Michigan University

Massia, Stephen (1998), Associate Professor of Bioengineering; BS, Southwestern University; PhD, University of Texas

Matera, Frances R. (1989), Associate Professor of Journalism and Mass Communication; BS, Florida International University; MA, Goddard College; PhD, University of Miami

Matheson, Alan A. (1968), Professor Emeritus of Law; Dean Emeritus, College of Law; BA, MS, JD, University of Utah

Mathur, Sarup (2002), Clinical Associate Professor of Curriculum and Instruction; BA, BEd, MA, MEd, Agra University (India); MEd, PhD, Arizona State University

Mathy, Pamela A. (1998), Clinical Professor of Speech and Hearing Science; Director, Speech and Language Clinic; BA, University of Massachusetts; MA, Washington State University; PhD, University of Wisconsin, Madison

Matt, Kathleen S. (1987), Professor of Kinesiology; Assistant Vice President for Research; Director of Clinical Partnerships, Department of Kinesiology; BA, MS, University of Delaware; PhD, University of Washington

Matt, Pamela (1980), Professor Emerita of Dance; BA, University of Washington; MA, University of Illinois

Matthias, Judson S. (1967), Professor Emeritus of Civil and Environmental Engineering; BS, United States Military Academy; MS, Oregon State University; PhD, Purdue University

Mattox, John H. (1995), Adjunct Professor of Life Sciences; BA, MD, University of Colorado

Matyushov, Dimitry (2000), Assistant Professor of Chemistry and Biochemistry; BS, Moscow Institute of Physics and Technology (Russia); PhD, Vienna University of Technology (Austria)

Maxwell, Kathryn (1988), Professor of Art; BA, Northwestern University; MFA, University of Wisconsin, Madison

Maxwell, Stephen A. (2005), Clinical Associate Professor of Speech and Hearing Science; BS, Brigham Young University; MS, Idaho State University; AuD, Arizona School of Health Science

May, Judy (1986), Associate Professor of Music; MM, The Juilliard School

Mayer, James W.
(1992)
Regents' Professor of Chemical and Materials Engineering and Solid State Science; BS, PhD, Purdue University

Mayer, Lawrence S. (1983), Professor of Economics; BS, MS, Ohio State University; MD, Associated Medical Schools of the Caribbean; PhD, Ohio State University

Mayer, Michael (1978), Professor Emeritus of Communication; BA, MA, University of Wyoming; PhD, University of Kansas

Mays, Larry W. (1989), Professor of Civil and Environmental Engineering; BS, MS, University of Missouri, Rolla; PhD, University of Illinois

McBeath, Michael K. (1998), Associate Professor of Psychology; BA, Brown University; MS, University of California, Santa Barbara; PhD, Stanford University

McBride, Ingrid (2001), Clinical Associate Professor of Speech and Hearing Disorders; Director, Audiology Clinic; BS, MS, Arizona State University; AuD, University of Florida

McCarter, Joan H. (1961), Professor Emerita of Mathematics and Statistics; BS, MA, University of Arizona

McCarthy, Matthew J. (2003), Lecturer of Computer Information Systems; BS, Arizona State University; MS, Northern Arizona University

McCartney, Martha R. (Molly) (1989), Associate Professor of Physics and Astronomy; Senior Research Scientist, Center for Solid State Science; BS, The Evergreen State College; PhD, Arizona State University

McCartney, Peter (2000), Assistant Research Scientist, Data Manager, Global Institute of Sustainability; BA, MA, University of Arizona; PhD, University of Calgary (Canada)

McCarty, Teresa (2004), Professor of Educational Leadership and Policy Studies; BA, Ohio State University; MA, PhD, Arizona State University

McClure, Sue (2004), Lecturer of Mathematics and Statistics; BS, Ball State University; MA, Purdue University

McCoy, Kathleen M. (1976), Associate Professor of Curriculum and Instruction; BS, University of Portland; MS, Portland State University; PhD, University of Oregon

McCoy, Ronald (1995), Professor of Architecture and Landscape Architecture; BS, University of Southern California; MArch, Princeton University

McDermott, Lauren (1990), Associate Professor of Industrial Design; Chair, Department of Industrial Design; BFA, MFA, Rochester Institute of Technology

McDonah, Becky I. (2005), Assistant Professor of Art; BA, University of Wisconsin, Lacrosse; MFA, Arizona State University

McDonald, Arlys (1970), Librarian Emeritus; BMus, St. Mary of the Plains College; MMus, University of Illinois

McDonald, John N. (1969), Professor Emeritus of Mathematics and Statistics; AB, King's College; MS, PhD, Rutgers, The State University of New Jersey

McDonald, Kelly M. (2000), Assistant Professor of Communication; Director of Forensics; BA, Pacific Lutheran University; MA, PhD, University of Kansas

McDonough, Peter (1990), Professor Emeritus of Political Science; BS, Saint Louis University; PhD, University of Michigan

McDowell, John M. (1978), Professor of Economics; BS, MS, PhD, University of California, Los Angeles

McElroy, Isis (2005), Assistant Professor of Languages and Literatures; BA, Pontifical Catholic University (Brazil); MA, PhD, New York University

McElwee, Pamela (2005), Assistant Professor of Global Studies; BA, University of Kansas; MSc, Oxford University (United Kingdom); MPhil, PhD, Yale University

McGaughey, Robert W. (1971), Professor Emeritus of Life Sciences; BA, Augustana College; MA, University of Colorado; PhD, Boston University

McGehee, Shelley (1985), Librarian Emerita; BMus, Converse College; MMus, MLS, University of Alabama

McGibbney Vlahoulis, Michelle (2004), Lecturer of Women and Gender Studies; BA, University of Massachusetts, Amherst; MA, Arizona State University

McGill, John R. (2004), Adjunct Professor of Life Sciences; BS, MS, Southwest Texas State University; PhD, The University of Texas

McGowan, Patrick J. (1979), Professor Emeritus of Political Science; BA, University of the South; MA, Johns Hopkins University; PhD, Northwestern University

McGraw, Kevin (2004), Assistant Professor of Life Sciences; BS, Lawrence University; MS, Auburn University; PhD, Cornell University

McGregor, Joan L. (1989), Associate Professor of Life Sciences and Philosophy; Lincoln Associate Professor of Bioethics; BA, University of California, Davis; MA, PhD, University of Arizona

McHugh, Kevin E. (1985), Associate Professor of Geography; BS, Pennsylvania State University; MA, Arizona State University; PhD, University of Illinois, Urbana-Champaign

McIntosh, Kirk E., Lieutenant Colonel (2005), Professor of Military Science; Chair, Department of Military Science; BS, Arizona State University; MA, Webster University

McIsaac, Marina Stock (1980), Professor Emerita of Educational Technology; BA, Pomona College; MA, PhD, University of Wisconsin, Madison

McIver, Beverly (1996), Associate Professor of Art; BA, North Carolina Central University; MFA, University of Pennsylvania

McKelvy, Michael J. (1976), Senior Research Scientist, Center for Solid State Science; BS, University of California, Berkeley; MS, PhD, Arizona State University

McKenzie, Patrick Bruce (1970), Professor Emeritus of Accountancy; BS, MS, Kansas State University; PhD, Michigan State University

McLaughlin, Ilene (1995), Assistant Librarian, Hayden Reference Services; BA, Lake Forest College; MLS, Simmons College

McLin, Katherine (1997), Associate Professor of Music; BM, Oberlin College Conservatory, Ohio; MM, Indiana University, Bloomington; DMA, University of Michigan, Ann Arbor

McMahon, Jeffrey (2001), Assistant Professor of Theatre; BA, State University of New York; MFA, Columbia University

McManus, Elizabeth B. (2000), Honors Faculty Fellow; BA, MA, PhD, University of Virginia

McMillan, Paul F. (1983), Professor Emeritus of Chemistry and Biochemistry; BSc, University of Edinburgh (United Kingdom); PhD, Arizona State University

McNally, T. M. (1999), Associate Professor of English; BA, Rockford College; MFA, Arizona State University

McNamara, Allen K. (2004), Assistant Professor of Geological Sciences; BS Michigan State University; MS, PhD, University of Michigan

McNeil, Elizabeth A. (1998), Academic Associate of English; Academic Advisor, Department of English; Assistant Director, Undergraduate Studies; BA, California State University, Chico; MFA, PhD, Arizona State University

McNeill, Barry W. (1976), Associate Professor of Mechanical Engineering; Assistant Dean, Academic Affairs, Ira A. Fulton School of Engineering; BS, MS, PhD, Stanford University

McPhee, Robert D. (1998), Professor of Communication; BA, MA, PhD, Michigan State University

McPheters, Lee R. (1976), Professor of Economics; Director, Bank One Economic Outlook Center; Associate Dean, Executive and Professional Programs, W. P. Carey School of Business; AB, San Francisco State University; PhD, Virginia Polytechnic Institute and State University

McSheffrey, Gerald R. (1982), Professor Emeritus of Architecture and Landscape Architecture; DiplArch, University College, London (United Kingdom); DiplCD, Edinburgh University (United Kingdom)

McTaggart, W. Donald (1971), Professor Emeritus of Geography; MA, University of St. Andrews (United Kingdom); PhD, Australian National University (Australia)

McWhirter, J. Jeffries (1970), Professor Emeritus of Psychology in Education; BA, Saint Martin's College; MEd, Oregon State University; MEd, PhD, University of Oregon

Mehall, Gregory Lawrence (1992), Associate Research Professional of Geological Sciences; MS, Stanford University

Mehta, Zarin (2005), Clinical Associate Professor of Speech and Hearing Science; MBBS, Dow Medical College (Pakistan); MA, University of Kansas; PhD, Wichita State University

Meir, Baruch I. (2000), Assistant Professor of Music; BMus, MMus, Tel Aviv University (Israel); DMA, Arizona State University

Meissinger, Ellen Murray (1986), Professor of Art; BFA, MFA, University of North Carolina at Greensboro

Melendez, Ryan A. (2004), Lecturer of Mathematics and Statistics; BA, College of New Jersey; MA, Arizona State University

Melichar, Dudley W. (1974), Professor Emeritus of Justice and Social Inquiry; BS, MS, South Dakota State University; EdD, Arizona State University

Melody, Noeleen (1991), Assistant Research Professor, Cancer Research Institute; BS, PhD, University College, Galway (Ireland)

Melucci, Donatella Lecturer of Languages and Literatures; BA, MA, University of Bari (Italy)

Melvin, Michael (1980), Professor of Economics; BBA, University of Houston; MA, San Diego State University; PhD, University of California, Los Angeles

Méndez, José A. (1980), Professor of Economics; BA, MA, University of Texas at Austin; MA, PhD, Southern Methodist University

Menéndez, José (1987), Professor of Physics and Astronomy; Licenciado en Física, Balseiro Institute (Argentina); Dr. rer. nat., Stuttgart University (Germany)

Menjivar, Cecilia (1995), Associate Professor of Sociology; BA, MS, University of Southern California; PhD, University of California, Davis

Menke, Robert F. (1947), Professor Emeritus of Education; BS, Oshkosh State College; MA, PhD, Northwestern University

Merbs, Charles F. (1973), Professor Emeritus of Anthropology; BS, MS, PhD, University of Wisconsin, Madison

Merrill, Bruce D. (1971), Professor of Journalism and Mass Communication; Director, Media Research Program; MA, Brigham Young University; PhD, University of Michigan

Mesch, Claudia (2001), Assistant Professor of Art; BA, Yale University; MA, University of California, Los Angeles; PhD, University of Chicago

Messman, Susan J. (2000), Assistant Professor of Communication; BA, University of Missouri, Columbia; MS, Illinois State University; PhD, Ohio University

Metcalf, V. Alonzo (1971), Professor Emeritus of International Studies; BS, MS, University of Arkansas; PhD, University of Missouri, Columbia

Metha, Arlene (1971), Professor Emerita of Psychology in Education; BA, Arizona State University; MA, Ohio State University; PhD, University of Southern California

Metos, Thomas H. (1965), Professor Emeritus of Educational Administration and Supervision; BS, MS, PhD, University of Utah

Metz, John (1980), Professor Emeritus of Music; BA, MM, Syracuse University; DMA, The Juilliard School

Meunier, John (1987), Professor of Architecture and Landscape Architecture; BArch, University of Liverpool (United Kingdom); MArch, Harvard University; MA, University of Cambridge (United Kingdom)

Middleton, James Arthur (1998), Associate Professor of Curriculum and Instruction; Director, Division of Curriculum and Instruction; BA, California State University, Chico; MS, PhD, University of Wisconsin, Madison

Mignolet, Marc P. (1987), Professor of Mechanical and Aerospace Engineering; BS, University of Liege (Belgium); PhD, Rice University

Mikellides, Pavlos G. (2002), Assistant Professor of Mechanical and Aerospace Engineering; BS, MS, PhD, Ohio State University

Miller, Charles D. (1998), Assistant Director, Academic Services, College of Liberal Arts and Sciences

Miller, Christopher (2004), Academic Associate of Collection Development; BM, North Carolina School of the Arts; MS, Northern Illinois University

Miller, Donald S. (1981), Associate Professor of Computer Science and Engineering; BS, Syracuse University; MS, PhD, University of Southern California

Miller, Ian (2004), Assistant Professor of History; BA, Earlham College; MA, University of Illinois, Urbana-Champaign; MA, PhD, Columbia University

Miller, Keith D. (1987), Professor of English; BA, Texas Christian University; MA, State University of New York, Albany; PhD, Texas Christian University

Miller, Rosanna (1974), Librarian Emerita; BA, MA, Arizona State University; MLS, University of Arizona

Miller, Susan A. (2001), Assistant Professor of American Indian Studies; BA, MA, University of Oklahoma; PhD, University of Nebraska, Lincoln

Miller, Terri (1997), Senior Lecturer of Mathematics and Statistics; BS, MA, Arizona State University

Miller-Loessi, Karen A. (1984), Associate Professor of Sociology; BA, University of California, Berkeley; MA, PhD, Stanford University

Millikin, John (1999), Lecturer of Management; BA, University of Arizona; MBA, University of Southern California; PhD, Arizona State University

Mills, Robert (2005), Assistant Professor of Music; BA, University of Maryland, College Park; MM, DMA, Arizona State University

Millsap, Roger E. (1997), Professor of Psychology; BS, University of Washington; MA, PhD, University of California, Berkeley

Milner, Joe W. (1967), Professor Emeritus of Journalism and Mass Communication; BA, East Texas State University; MA, University of Oklahoma; EdD, University of Wyoming

Milun, Kathryn (2000), Assistant Professor of English and Justice and Social Inquiry; BA, MA, PhD, University of Minnesota

Mings, Robert C. (1971), Professor Emeritus of Geography; BS, MAT, Indiana University, Bloomington; PhD, Ohio State University

Minteer, Ben (2003), Assistant Professor of Life Sciences; BA, University of Albany; MS, PhD, University of Vermont

Misra, Rajeev (1991), Professor of Life Sciences; BS, Kanpur University (India); MS, GB Pant University (India); PhD, Adelaide University (Australia)

Mitchell, Frederic F. (1961), Professor Emeritus of Education; BA, MA, University of Arizona; PhD, Columbia University

Mitchell, John (1990), Associate Research Professional of Dance; Director, Dance Multimedia Learning Center; BM, Webster University, St. Louis; MM, University of South Florida

Mitchell, Michael J. (1990), Associate Professor of Political Science; BA, Fordham University; MA, PhD, Indiana University, Bloomington

Mitchell, Michael J., Captain (2005), Assistant Professor of Military Science; BS, West Point

Mitkova, Maria (1999), Associate Research Professor of Chemical and Materials Engineering; MS, PhD, University of Chemical Technology and Metallurgy (Bulgaria)

Mitropoulos, Panagiotis (2004), Assistant Professor of Construction; BS, University of Patras (Greece); MS, Virginia Polytechnic Institute and State University; PhD, Stanford University

Mittelmann, Hans Detlef (1982), Professor of Mathematics and Statistics; MA, University of Mainz (Germany); PhD, Habilitation, University of Darmstadt (Germany)

Mittelstaedt, Robert E. Jr. (2004), Professor of Management; Dean, W. P. Carey School of Business; BS, Tulane University; MBA, The Wharton School of Business, University of Pennsylvania

Mittman, Asa Simon (2005), Senior Lecturer of Art; BA, Cornell University; MA, PhD, Stanford University

Mobasher, Barzin (1991), Professor of Civil and Environmental Engineering; BS, University of Wisconsin, Platteville; MS, Northeastern University; PhD, Northwestern University

Mogey, John M. (1987), Adjunct Professor of Sociology; BA, MA, DSc, Queen's University (United Kingdom)

Mokwa, Michael P. (1979), Professor of Marketing; Chair, Department of Marketing; BBA, MBA, PhD, University of Houston

Molnar, Alex (2001), Professor of Educational Leadership and Policy Studies; Director, Education Policy Studies Laboratory; BA, North Park College; MA, Northwestern University; PhD, University of Wisconsin, Milwaukee

Monahan, Torin (2003), Assistant Professor of Justice and Social Inquiry; BA, MA, California State University, Northridge; MS, PhD, Rensselaer Polytechnic Institute

Monczka, Robert M. (1999), Research Professor of Supply Chain Management; BA, MBA, PhD, Michigan State University

Mongeau, Paul A. (2002), Professor of Communication; BS, MA, Arizona State University; PhD, Michigan State University

Montenegro, Leonard Jose (1986), Senior Research Professional of Mechanical and Aerospace Engineering; BS, State University of New York, Albany

Montgomery, Douglas C. (1988)
Regents' Professor of Industrial Engineering; Codirector, Executive Committee on Statistics; BSIE, MS, PhD, Virginia Polytechnic Institute and State University

Montgomery, Eric (1997), Faculty Associate of Visual Communication Design; BFA, Arizona State University

Montiel, Miguel (1974), Professor Emeritus of Chicana and Chicano Studies; Motorola Presidential Professor in Community Revitalization; BS, University of Arizona; MSW, Arizona State University; DSW, University of California, Berkeley

Montilla, Jorge (2004), Assistant Professor of Music; BM, University Institute of Musical Studies, Caracas (Venezuela); MM, Indiana University

Montoya, Janet (1999), Adjunct Professor of Anthropology; BA, MA, University of Houston, Clear Lake

Mook, Richard (2005), Senior Lecturer of Music; BA, University of Rochester; PhD, University of Pennsylvania

Mooney, Elina (1988), Associate Professor of Dance

Moor, William C. (1968), Associate Professor of Industrial Engineering; Associate Chair, Undergraduate Programs, Department of Industrial Engineering; BS, MS, Washington University; PhD, Northwestern University

Moore, Ana L. (1989), Professor of Chemistry and Biochemistry; B of Pharmacy, National University of La Plata (Argentina); MSc, Federal University of Rio de Janeiro (Brazil); PhD, Texas Tech University

Moore, Carleton B.
(1961)
Regents' Professor Emeritus of Chemistry and Biochemistry and Geological Sciences; BS, Alfred University; PhD, California Institute of Technology

Moore, Diane B. (1980), Librarian Emerita, Noble Science Reference Services; BS, College of William and Mary; MLS, University of Wisconsin, Madison

Moore, Elsie G. J. (1981), Professor of Psychology in Education; Director, Division of Psychology in Education; BA, Elmhurst College; MA, PhD, University of Chicago

Moore, J. Douglas (1969), Associate Professor of Mathematics and Statistics; BS, MS, Idaho State University; PhD, Syracuse University

Moore, Michael (1982), Professor of Life Sciences; BA, Indiana University; MS, PhD, University of Washington

Moore, Moses N. (1989), Associate Professor of Religious Studies; BA, Eckerd College; MDiv, Yale University; MPhil, PhD, Union Theological Seminary

Moore, Thomas A. (1976), Professor of Chemistry and Biochemistry; BA, PhD, Texas Tech University

Moorhead, Gregory (1978), Associate Professor of Management; BSIE, MBA, PhD, University of Houston

Mor, Tsafrir (2000), Assistant Professor of Life Sciences; BSc, MSc, PhD, Hebrew University of Jerusalem (Israel)

Morales, Andrea C. (2005), Assistant Professor of Marketing; BA, University of Texas at Austin; MS, PhD, University of Pennsylvania

Morgan, Miriam J. (1965), Instructor Emerita of French; Licence-ès-Lettres, University of Paris (France); MA, Arizona State University

Morgan, Owen W. (1968), Professor Emeritus of Family and Human Development; BA, Grinnell College; MA, University of Nebraska, Omaha; PhD, University of Nebraska, Lincoln

Morris, Donald H. (1962), Professor Emeritus of Anthropology; BA, Arizona State University; MA, PhD, University of Arizona

Morrison, Kenneth M. (1983), Professor of Religious Studies; BA, Saint Dunstan's University; MA, PhD, University of Maine

Morton, Thomas (2005), Assistant Professor of Architecture and Landscape Architecture; BA, PhD, Pennsylvania State University

Mossman, Kenneth L. (1990), Professor of Life Sciences; Director, Radiation Safety Office; BS, Wayne State University; MEd, University of Maryland, College Park; MS, PhD, University of Tennessee, Knoxville

Moulton, Gerald L. (1967), Professor Emeritus of Psychology in Education; BA, Hamline University; MEd, EdD, University of Oregon

Mowrer, Donald E. (1965), Professor Emeritus of Speech and Hearing Science; BA, MA, Florida State University; PhD, Arizona State University

Moya, Sara D. (2002), Faculty Associate of Planning; BA, Wheaton College; MPA, PhD, Arizona State University

Moyer, Joan E. (1971), Professor Emerita of Curriculum and Instruction; BS, Kutztown State University; MEd, Pennsylvania State University; PhD, University of Maryland, College Park

Muccino, Julia Catherine (1997), Associate Professor of Civil and Environmental Engineering; BCE, Villanova University; MS, PhD, University of Notre Dame

Mueller-Alexander, Jeanette M. (1989), Librarian, Hayden Reference Services; BA, Moorhead State University; MLS, Indiana University, Bloomington

Mulligan, Donald E. (1985), Professor Emeritus of Construction; BSE, MSME, Arizona State University

Mulvihill, Josepha Anne (1983), Associate Librarian, Hayden Reference Services; BS, University of Kansas; MLS, Emporia State University

Munk, Morton E. (1961), Professor Emeritus of Life Sciences; BS, Northwestern University; MS, University of Miami; PhD, Wayne State University

Munshi, Perseus B. (2001), Lecturer of Accountancy; BCom, Bangalore University (India); MBA, Ohio State University; CPA, Arizona

Murdock, Joe E., Captain (2005), Assistant Professor of Military Science; Recruiting Operations Officer; BS, Illinois State University

Murdough, John M. (1993), Faculty Associate of Construction; BS, MBA, Arizona State University

Murff, Scott (1998), Clinical Associate Professor of Architecture and Landscape Architecture; BSD, Clemson University; BArch, The Cooper Union

Murphey, Claudia (1996), Professor of Dance; Chair, Department of Dance; BA, Western College; MA, George Washington University

Murphy, Jeffrie G.
(1981)
Regents' Professor of Law and Philosophy; Codirector, Committee on Law and Philosophy; BA, Johns Hopkins University; PhD, University of Rochester

Murphy, Kurt R. (1986), Librarian; Associate Dean, Personnel, University Libraries; BS, MLS, University of Illinois; MBA, Arizona State University

Murranka, Patricia A. (1977), Professor Emerita of Supply Chain Management; BA, Trenton State College; MA, Rider College; EdD, Utah State University

Murray, Roger N. (1968), Professor Emeritus of English; BA, BS, Moorhead State Teachers College; MA, Stanford University; PhD, University of Iowa

Musheno, Michael C. (1977), Professor Emeritus of Justice and Social Inquiry; BA, Lycoming College; MA, PhD, American University

Muthuswamy, Jitendran (2000), Assistant Professor of Bioengineering; BTech, Indian Institute of Technology (India); MS, PhD, Rensselaer Polytechnic Institute

Myhajlenko, Stefan (1986), Associate Research Scientist and Associate Director, Center for Solid State Electronics Research; PhD, University of Manchester (United Kingdom)

Myint, Soe W. (2005), Assistant Professor of Geography; BS, Rangoon University (Myanmar); MS, Asian Institute of Technology (Thailand); PhD, Louisiana State University

Myler, Charles E. Jr. (1968), Professor Emeritus of Real Estate; BBA, Loyola University; MBA, Harvard University; PhD, University of Florida

N

Nagasawa, Richard H. (1969), Professor Emeritus of Sociology; BA, University of Hawaii, Manoa; MA, PhD, University of Washington

Nagoshi, Craig (1989), Associate Professor of Psychology; BA, MA, PhD, University of Hawaii, Manoa

Nagrin, Daniel (1982), Professor Emeritus of Dance; BS, City College of New York

Nagy, Bethel (2000), Adjunct Professor of Anthropology; BA, Arizona State University; MA, University of Toronto (Canada); PhD, Arizona State University

Nagy, John D. (1999), Adjunct Professor of Life Sciences; BS, Eastern Michigan University; BS, University of Michigan, Ann Arbor; PhD, Arizona State University

Nakagawa, Kathryn N. (1997), Associate Professor of Psychology in Education and Asian Pacific American Studies; BA, University of Notre Dame; MA, PhD, Northwestern University

Nakamura, Mutsumi (2002), Lecturer of Computer Science and Engineering; BS, MS, University of Texas, El Paso; PhD, University of Texas, Arlington

Nakayama, Thomas K. (1991), Professor of Communication; AB, Georgia State University; MA, PhD, University of Iowa

Nanda, Vikram K. (2005), Professor of Finance; BTech, Indian Institute of Technology, Kanpur (India); MBA, Yale University; PhD, University of Chicago

Narayanan, Vinodh (2005), Adjunct Professor of Life Sciences; BS, Washington University; MA, Princeton University; MD, Louisiana State University Medical Center

Nardari, Federico (1999), Assistant Professor of Finance; BS, University of Bergamo (Italy); MSBA, PhD, Washington University, St. Louis

Nardella, Francis A. (1992), Adjunct Professor of Bioengineering; AB, West Virginia University; MD, West Virginia University, School of Medicine

Nash, Leanne T. (1971), Professor of Anthropology; BA, University of California, Davis; MA, PhD, University of California, Berkeley

Nash, Thomas H. III (1971), Professor of Life Sciences; BS, Duke University; MS, PhD, Rutgers, The State University of New Jersey

Navabi, Faye (1997), Lecturer of Computer Science and Engineering; BS, MS, University of Southwestern Louisiana

Neal, Berna E. (1988), Librarian Emerita; BA, MLS, Syracuse University

Nebeker, Helen E. (1958), Professor Emerita of English; BA, MA, Arizona State University

Neff, Patricia M. (1987), Associate Professor of Family and Human Development; BS, MEd, Iowa State University; PhD, Oklahoma State University

Neisewander, Janet L. (1991), Professor of Psychology; BS, Rockford College; MS, PhD, University of Kentucky

Nelsen, Edward A. (1975), Professor Emeritus of Psychology in Education; BS, University of Wisconsin, Madison; PhD, Stanford University

Nelson, Ben A. (1995), Professor of Anthropology; Associate Director, School of Human Evolution and Social Change; BA, MA, Florida State University; PhD, Southern Illinois University

Nelson, Brian C. (2005), Assistant Professor of Psychology in Education; BA, Washington State University; MA, St. Michael's College; PhD, Harvard University

Nelson, G. Lynn (1973), Associate Professor of English; BA, Kearney State College; PhD, University of Nebraska, Lincoln

Nelson, Harold D. (1962), Professor Emeritus of Mechanical and Aerospace Engineering; BS, South Dakota School of Mines and Technology; MS, Kansas State University; PhD, Arizona State University

Nelson, J. Russell (1981), Professor Emeritus of Finance; President Emeritus of the University; BA, Pacific Union College; MBA, PhD, University of California, Los Angeles

Nelson, John C. (1967), Professor Emeritus of Curriculum and Instruction; BS, MA, Arizona State University; PhD, Vanderbilt University

Nelson, Margaret (1995), Professor of Anthropology; Associate Dean, Barrett Honors College; BA, Occidental College, Los Angeles; PhD, University of California, Santa Barbara

Nemeroff, Carol (1988), Associate Professor of Psychology; BA, McGill University (Canada); MA, PhD, University of Pennsylvania

Nering, Evar D. (1960), Professor Emeritus of Mathematics and Statistics; BA, Indiana University, Fort Wayne; MA, PhD, Princeton University

Neubauer, Mary (1996), Professor of Art; BFA, Colorado State University; MFA, Indiana University

Neuberg, Steven L. (1988), Professor of Psychology; AB, Cornell University; MS, PhD, Carnegie Mellon University

Neuer, Susanne (2004), Associate Professor of Life Sciences; BS, Kiel University (Germany); MS, University of Washington; PhD, Oregon State University

New, Frances Y. (1986), Librarian Emerita; BS, Seattle Pacific University; MLS, University of Arizona

Newcombe, Dennis (2003), Faculty Associate of Planning; BSP, Arizona State University

Newfeld, Stuart J. (1997), Associate Professor of Life Sciences; BS, Hobart College; MA, MS, University of Hawaii; PhD, Emory University

Newhard, Jamie (2005), Assistant Professor of Languages and Literatures; BA, Brown University; MA, PhD, Columbia University

Newhouse, Beth G. (2004), Lecturer of Mathematics and Statistics; BS, University of Wisconsin, Whitewater; MA, Northern Arizona University

Newman, Nathan (2000), Professor of Materials Engineering; BS, University of Southern California; MS, PhD, Stanford University

Newman, Timothy J. (2002), Associate Professor of Physics and Astronomy; BA, University of Oxford (United Kingdom); PhD, University of Manchester (United Kingdom)

Newport, Mark (2001), Associate Professor of Art; BFA, Kansas City Art Institute; MFA, Art School of the Art Institute of Chicago

Newton, Camille (2005), Lecturer of English; BS, University of Louisville; MA, McNeese State University; PhD, Cornell University

Ney, James W. (1969), Professor Emeritus of English; BA, MA, Wheaton College; EdD, University of Michigan

Nickel, James (2002), Professor of Law; Codirector, Committee on Law and Philosophy; BA, Tabor College; PhD, University of Kansas

Nicolaenko, Basil (1989), Professor of Mathematics and Statistics; MS, University of Paris (France); PhD, University of Michigan

Nielsen, Michael J. (1969), Professor Emeritus of Industrial Design; BPD, North Carolina State University, Raleigh; MA, Stanford University

Nielson, Gregory M. (1970), Professor of Computer Science and Engineering; BS, MS, PhD, University of Utah

Nieman, Ronald (1983), Senior Research Professional of Chemistry and Biochemistry; BA, University of Colorado; PhD, Arizona State University

Nikitin, Sergey (1994), Associate Professor of Mathematics and Statistics; MS, Moscow State University (Russia); PhD, Academy of Science of Russia, Research Institute of System Studies

Nilsen, Alleen P. (1975), Professor of English; BA, Brigham Young University; MEd, American University; PhD, University of Iowa

Nilsen, Don L. F. (1973), Professor of English; BA, Brigham Young University; MA, American University; PhD, University of Michigan

Noreuil, Chad (2001), Professor of Legal Writing; BA, JD, University of Illinois, Urbana-Champaign

Northey, William T. (1959), Professor Emeritus of Life Sciences; BA, University of Minnesota, Twin Cities; MA, PhD, University of Kansas

Norton, Janice (1998), Senior Lecturer of English; BA, MA, University of Tennessee, Knoxville; PhD, University of Iowa

Norton, Kay (1999), Associate Professor of Music; BME, MFA, University of Georgia; PhD, University of Colorado

Norton, M. Scott (1973), Professor Emeritus of Educational Leadership and Policy Studies; BS, MEd, EdD, University of Nebraska, Lincoln

Nowlis, Stephen (1996), Professor of Marketing; Dean's Council of 100 Distinguished Scholars, W. P. Carey School of Business; BA, Stanford University; MBA, University of California, Berkeley; PhD, University of California, San Diego

O

O'Brien, Carmen A. (1959), Professor Emerita of Education; BA, MA, Arizona State University

O'Brien, Gary (2005), Assistant Professor of Electrical Engineering; BSEE, Florida Institute of Technology; MSEE, Georgia Institute of Technology; PhD, University of Michigan

O'Brien, Robin K. (1995), Lecturer of Speech and Hearing Science; BA, Gallaudet University

O'Connor, Elinor J. (1970), Professor Emerita of Family and Human Development; BS, St. Catharine College; MS, University of Iowa

O'Dell, Michael A. (1980), Professor Emeritus of Accountancy; BS, MBA, University of California, Los Angeles; PhD, University of Texas at Austin; CPA, Colorado

O'Grady, Catherine (1991), Professor of Law; Executive Director, Clinical Programs, College of Law; BA, University of Michigan; JD, Arizona State University

Ó hUallacháin, Breandán (1987), Professor of Geography; BA, National University of Ireland; MA, Indiana University, Bloomington; PhD, University of Illinois, Urbana-Champaign

O'Keeffe, Michael
(1963)
Regents' Professor Emeritus of Chemistry and Biochemistry; BS, PhD, University of Bristol (United Kingdom)

O'Leary, Timothy J. (1978), Associate Professor of Computer Information Systems; BS, Westminster College; MBA, DBA, Kent State University

Ocampo-Guzman, Antonio (2005), Assistant Professor of Theatre; Diploma, Teatro Libre Acting School (Colombia); MFA, York University (Canada)

Odenkirk, James E. (1967), Professor Emeritus of Kinesiology; BS, MA, Ohio State University; EdD, Columbia University

Odish, Faris (1997), Senior Lecturer of Mathematics and Statistics; BS, University of Baghdad (Iraq); MA, Wayne State University

Oehrtman, Michael (2002), Assistant Professor of Mathematics and Statistics; BS, Oklahoma State University; PhD, University of Texas at Austin

Oetting, Edward (1983), Librarian, Hayden Reference Services; BA, University of Michigan; MA, University of Illinois; MSLS, Wayne State University

Oh, Young (1999), Lecturer of Korean; BA, Sogang University Graduate School (South Korea); MA, University of Wisconsin, Madison

Ohlson, James (2004), Professor of Accountancy; W. P. Carey Chair, School of Accountancy; MBA, PhD, University of California, Berkeley

Ohnersorgen, Michael A. (2002), Affiliate Professor of Anthropology; BA, University of California, Santa Barbara; MA, PhD, Arizona State University

Okun, Morris A. (1976), Professor of Psychology; BA, Brooklyn College; MS, PhD, Pennsylvania State University

Oldani, Robert W. (1982), Professor of Music; BA, University of Illinois; MA, PhD, University of Michigan

Olivas, Louis (1979), Associate Professor of Management; Assistant Vice President for Academic Affairs; BA, MA, EdD, Arizona State University

Oliver, Robert S. (1963), Professor Emeritus of Architecture and Landscape Architecture; BA, MA, University of California, Berkeley; MFA, Allende Institute (Mexico)

Olson, Clark D. (1984), Instructional Professional of Communication; BA, Iowa State University; MS, University of Utah; PhD, University of Minnesota, Twin Cities

Orchinik, Miles (1995), Associate Professor of Life Sciences; BA, San Francisco State University; PhD, Oregon State University

Orlich, Ileana (1996), Associate Professor of Romanian; BA, University of Bucharest (Romania); MA, PhD, Arizona State University

Ormiston, Michael B. (1984), Professor of Economics; BS, Michigan State University; MA, PhD, Johns Hopkins University

Ortiz, Luanna G. (2002), Assistant Professor of Physics and Astronomy; BS, University of New Mexico; MS, PhD, University of Washington

Osmond, Charles Barry (2002), Adjunct Professor of Life Sciences; BS, MS, University of New England (Australia); PhD, University of Adelaide (Australia)

Ossipov, Helene (1987), Associate Professor of French; BA, City University of New York; MA (French Linguistics), MA (Russian Area Studies), PhD, Indiana University, Bloomington

Osterhoudt, Robert G. (1976), Professor Emeritus of Kinesiology; BS, MS, Pennsylvania State University; PhD, University of Illinois

Osterman, Marie (2002), Asian Studies Advisor/Outreach Coordinator; AB, Douglas College; MA, Rutgers, The State University of New Jersey; PhD, Columbia University

Ostrom, Amy (1996), Associate Professor of Marketing; BA, Arizona State University; PhD, Northwestern University

Ostrom, Lonnie L. (1973), Professor of Marketing; Director, Development, Institutional Advancement; President, Arizona State University Foundation; BBA, University of Wisconsin; MS, Southern Illinois University, Carbondale; PhD, University of Alabama

Ovando, Carlos Julio (2001), Professor of Curriculum and Instruction and Educational Leadership and Policy Studies; BA, Goshen College; MA, MAT, PhD, Indiana University

Owen, Jeanette (2003), Assistant Professor of Russian; BA, Knox College; MA, PhD, Bryn Mawr College

Ozel, Filiz (1995), Professor of Architecture and Landscape Architecture; Associate Dean, Academic Programs, Division of Graduate Studies; BArch, MArch, Middle East Technical University (Turkey); DArch, University of Michigan

P

Packer, Merle A. (1959), Professor Emerita of Kinesiology; BA, MA, Arizona State University; EdD, University of Northern Colorado

Pagano, Caio
(1986)
Regents' Professor of Music; BLaws, University of Sao Paulo (Brazil); DMA, Catholic University of America

Page, John B. (1969), Professor Emeritus of Physics and Astronomy; BS, PhD, University of Utah

Page, Robert E., Jr. (2004), Foundation Professor of Life Sciences; Director, School of Life Sciences; BS, San Jose State University; PhD, University of California, Davis

Palais, Elliot S. (1959-62; 1966), Librarian Emeritus; BA, Bowdoin College; AMLS, University of Michigan

Palais, Joseph C. (1964), Professor of Electrical Engineering; Director of Graduate Studies, Department of Electrical Engineering; BSEE, University of Arizona; MSE, PhD, University of Michigan

Palmer, Michael B. (1998), Lecturer of Psychology; BA, Arizona State University; MA, Michigan State University; PhD, Arizona State University

Palumbo, Dennis J.
(1983)
Regents' Professor Emeritus of Justice and Social Inquiry; MA (Social Science), MA (Political Science), PhD, University of Chicago

Pan, George (1995), Professor of Electrical Engineering; BE, Peking Institute of Petroleum Technology (China); MS, PhD, University of Kansas

Panchanathan, Sethuraman (1997), Professor of Computer Science and Engineering; Chair, Department of Computer Science and Engineering; Director, Center for Cognitive Ubiquitous Computing; Director, Institute for Computer and Information Sciences and Engineering; BSc, University of Madras (India); MTech, Indian Institute of Technology, Madras (India); PhD, University of Ottawa (Canada)

Pang, Patty (1999), Lecturer of Chinese; BA, Tamkang University (Taiwan); MA, Arizona State University

Pangrazi, Robert P. (1973), Professor Emeritus of Kinesiology; BA, MS, PhD, Washington State University

Panitch, Alyssa (1999), Research Professor of Bioengineering; BS, PhD, University of Massachusetts

Pantoja, Adrian (2004), Assistant Professor of Political Science; BA, University of San Francisco; MA, PhD, Claremont Graduate University

Pany, Kurt J. (1978), Professor of Accountancy; BSBA, University of Arizona; MBA, University of Minnesota, Twin Cities; PhD, University of Illinois; CPA, Arizona

Papandreou-Suppappola, Antonia (1999), Associate Professor of Electrical Engineering; BS, MS, PhD, University of Rhode Island

Parchesky, Jennifer (2002), Assistant Professor of English; BA, Trinity University, San Antonio; PhD, Duke University

Park, Chan Beum (2002), Assistant Professor of Chemical and Materials Engineering; BS, MS, PhD, Pohang University of Science and Technology (South Korea)

Park, Pori (2002), Assistant Professor of Religious Studies; BA, Sookmyung Women's University (South Korea); MA, University of Iowa; MA, California State University, Hayward; PhD, University of California, Los Angeles

Parker, Harold E. (1987), Senior Research Technologist, Engineering Computer Services

Park-Fuller, Linda M. (2000), Assistant Professor of Communication; BA, University of North Dakota; MA, University of Missouri, Columbia; PhD, University of Texas at Austin

Parkhe, Smita (2001), Assistant Librarian, Technical Services Department; BS, University of Pune (India); MLS, Clarion University of Pennsylvania

Parkinson, Stanley R. (1971), Professor of Psychology; AB, University of California, Berkeley; MA, PhD, University of California, Davis

Parrish, H. Wayne (1967), Professor Emeritus of Curriculum and Instruction; AB, San Diego State College; MEd, EdD, University of Oregon

Parrish, Mila (2000), Assistant Professor of Dance; BFA, University of Michigan; MA, Columbia University; PhD, Ohio State University

Pasqualetti, Martin J. (1977), Professor of Geography; BA, University of California, Berkeley; MA, Louisiana State University, Baton Rouge; PhD, University of California, Riverside

Pastin, H. Mark (1980), Professor Emeritus of Management; BA, University of Pittsburg; AM, PhD, Harvard University

Patel, Mookesh (1990), Associate Professor of Visual Communication Design; Chair, Department of Visual Communication Design; BFA, National Institute of Design (India); MFA, Rhode Island School of Design

Patten, Duncan T. (1965), Professor Emeritus of Life Sciences; AB, Amherst College; MS, University of Massachusetts, Amherst; PhD, Duke University

Patterson, Robert A. (1957), Professor Emeritus of Life Sciences; BS, University of Michigan; PhD, Ohio State University

Patton, David W. (2004), Clinical Professor of Health Management and Policy; BS, Arizona State University; MHA, University of Minnesota; MA, EMBA, PhD, Claremont Graduate University

Pauken, Christine (2001), Research Scientist of Bioengineering; BS, University of Toledo; PhD, Temple University

Paulsen, George E. (1959), Professor Emeritus of History; BA, Hobart College; MA, Rutgers, The State University of New Jersey; PhD, Ohio State University

Peacock, Simon M. (1985), Professor of Geological Sciences; Divisional Dean of Natural Sciences and Mathematics, College of Liberal Arts and Sciences; BS, MS, Massachusetts Institute of Technology; PhD, University of California, Los Angeles

Pearce, Martha V. (1977), Professor Emerita of Technology; BS, Columbia University; MS, Boston University; EdD, Arizona State University

Pearce, Michael J. (2004), Faculty Associate of Planning; BA, University of Michigan; JD, University of Arizona

Pearson, David L. (1988), Research Professor of Life Sciences; BS, Pacific Lutheran University; MS, Louisiana State University, Baton Rouge; PhD, University of Washington

Pearson, John N. (1981), Professor of Supply Chain Management; BS, MBA, Florida Atlantic University; PhD, Georgia State University

Pearson, Nancy B. (1989), Research Professional Emerita of Life Sciences; BA, Earlham College; MS, Louisiana State University, Baton Rouge

Peck, Robert E. (1984), Professor of Engineering; Chair, Department of Mechanical and Aerospace Engineering; BS, University of California, Berkeley; MS, PhD, University of California, Irvine

Pecuch-Herrero, Marta (1981), Lecturer of Mathematics and Statistics; BS, University of Buenos Aires (Argentina); PhD, University of Chicago

Pei, Ker-Wei (1986), Professor of Accountancy; Associate Dean, Asia Pacific Programs; BA, National Chung-Hsing University (Taiwan); MA, Southern Illinois University, Carbondale; PhD, North Texas State University

Peles, Joseph (1997), Adjunct Professor of Bioengineering; BE, Vanderbilt University; MS, PhD, Arizona State University

Peloso, Antony F. (2004), Assistant Clinical Professor of Marketing; BA, University of Queensland (Australia); MB, PhD, Queensland University of Technology (Australia)

Penley, Larry E. (1985), Professor Emeritus of Management; BA, MA, Wake Forest University; PhD, University of Chicago

Peralta, Pedro D. (1998), Associate Professor of Mechanical Engineering; BS, Simón Bolívar University (Venezuela); MS, PhD, University of Pennsylvania

Permana, Paska (2000), Adjunct Professor of Life Sciences; BA, Smith College; PhD, Ohio State University

Perrill, Norman K. (1966), Professor Emeritus of Communication; BS, MA, Northwestern University; PhD, University of Southern California

Perrings, Charles (2005), Professor of Economics; BA, PhD, University of London (United Kingdom)

Perry, Curtis (1995), Associate Professor of English; BA, Cornell University; MA, PhD, Harvard University

Peskin, Victor (2005), Assistant Professor of Global Studies; BA, University of California, Santa Cruz; MA, Stanford University; PhD, University of California, Berkeley

Pessler, Anthony J. (1994), Associate Professor of Art; BFA, MA, St. Cloud State University; MFA, University of Wisconsin, Madison

Peterman, Gordon G. (1966), Professor Emeritus of Construction; BSCE, University of Iowa

Peters, Kathleen A. (1967), Professor Emerita of Family and Human Development; BS, MS, Kansas State University

Petersen, Michael (2001), Assistant Professor of Accountancy; BS, MBA, MAcc, Brigham Young University; PhD, University of Iowa

Petersen, Michelle C. (1997), Lecturer of Spanish; BA, Western Illinois University; MA, University of Iowa

Peterson, John R. (1963), Professor Emeritus of Architecture and Landscape Architecture; Graduate Coordinator of School of Architecture and Landscape Architecture; BA, St. Olaf College; BArch, University of Minnesota, Twin Cities; MArch, Harvard University

Peterson, Ralph (1976), Professor Emeritus of Curriculum and Instruction; BA, Eastern Washington State College; MA, EdD, Columbia University

Petrucci, Darren (1998), Associate Professor of Architecture and Landscape Architecture; Director, School of Architecture and Landscape Architecture; BSD, Arizona State University; MArch, Harvard University

Pettit, G. Robert
(1964)
Regents' Professor of Chemistry and Biochemistry; Director, Cancer Research Institute; BS, Washington State University; MS, PhD, Wayne State University

Pettit, Robin K. (1997), Associate Research Professor, Cancer Research Institute; BS, University of Arizona; MS, Washington State University; PhD, University of Montana

Petuskey, William T. (1983), Professor of Chemistry and Biochemistry; Associate Chair, Department of Chemistry and Biochemistry; Codirector, Science and Engineering of Materials; BS, University of Utah; ScD, Massachusetts Institute of Technology

Pfuhl, Erdwin H. Jr. (1968), Professor Emeritus of Sociology; AB, Whitman College; AM, University of Idaho; PhD, Washington State University

Pfund, Michele E. (1999), Clinical Assistant Professor of Supply Chain Management; BS, Case Western Reserve University; MS, Purdue University; PhD, Arizona State University

Pheanis, David C. (1975), Professor Emeritus of Computer Science and Engineering; BS, Case Institute of Technology; MS, PhD, Arizona State University

Phelan, Patrick E. (1996), Associate Professor of Mechanical and Aerospace Engineering; BS, Tulane University; MS, Massachusetts Institute of Technology; PhD, University of California, Berkeley

Philippakis, Andrew S. (1967), Professor Emeritus of Computer Information Systems; BS, Gannon College; MBA, PhD, University of Wisconsin, Madison

Phillips, Stephen M. (2002), Professor of Electrical Engineering; Chair, Department of Electrical Engineering; BS, Cornell University; MS, PhD, Stanford University

Phillips, William W. (1958), Professor Emeritus of History; PhB, MA, University of North Dakota; PhD, University of Missouri

Piburn, Michael D. (1989), Professor Emeritus of Curriculum and Instruction; BS, University of California, Davis; PhD, Princeton University

Pickus, David (1999), Honors Faculty Fellow; BA, Lawrence University; MA, PhD, University of Chicago

Pigg, Kathleen B. (1988), Associate Professor of Life Sciences; BS, MS, Ohio University; PhD, Ohio State University

Pijawka, K. David (1982), Professor of Planning; Director, PhD Program in Environmental Design and Planning; BA, Brock University (Canada); MA, PhD, Clark University

Pilafian, J. Samuel (1995), Professor of Music; BM, University of Miami

Pile, James (1971), Professor Emeritus of Art; BFA, MFA, University of Nebraska, Lincoln

Piña, Armando (2005), Assistant Professor of Psychology; PhD, Florida International University

Pinckard, Mary-Margaret (1982), Librarian Emerita; BS, University of New Hampshire; MLS, University of Arizona

Pinholster, Jacob (2005), Assistant Professor of Theatre; BFA, MFA, University of Florida

Pinkava, Donald J. (1964), Professor Emeritus of Life Sciences; BS, MS, PhD, Ohio State University

Pinto, Ana C. (2003), Affiliate Professor of Anthropology; BA, Rovira i Virgili University (Spain); MA, University of Barcelona (Spain); PhD, University of Oviedo (Spain)

Pitti, Gina-Marie (2003), Assistant Professor of History; BA, Yale University; MA, PhD, Stanford University

Pittman, Andrea (2004), Assistant Professor of Speech and Hearing Science; BA, Point Loma Nazarene University; MA, San Diego State University; PhD, University of Wisconsin, Madison

Pittman, Anne M. (1952), Professor Emerita of Kinesiology; BS, University of Texas at Austin; MA, New York University; EdD, Stanford University

Pittsley, Janice M. (1987), Professor of Art; BFA, University of North Carolina at Chapel Hill; MFA, University of Georgia

Pizziconi, Vincent B. (1987), Associate Professor of Bioengineering; BS, University of Lowell; MSE, PhD, Arizona State University

Plotkin, Wendy (2003), Assistant Professor of History; BA, University of Illinois, Urbana; MA, Tufts University; PhD, University of Illinois, Chicago

Plunkett, Paul E. (2004), Visiting Professor of Law; BA, MA, JD, Harvard University

Podlich, William F. (1949), Professor Emeritus of Education; BS, Maryland State Teachers College; PhD, University of Iowa

Poe, Jerry B. (1974), Professor Emeritus of Finance; BA, Drury College; MBA, Washington University; DBA, Harvard University

Ponce, Fernando A. (1999), Professor of Physics and Astronomy; BS, National University of Engineering (Peru); MS, University of Maryland, College Park; PhD, Stanford University

Popko, Sigmund (2001), Legal Writing Instructor; BA, JD, University of Arizona

Portmore, Douglas W. (2005), Assistant Professor of Philosophy; BA, University of California, San Diego; MA, CPhil, PhD, University of California, Santa Barbara

Posner, Jonathan (2005), Assistant Professor of Mechanical Engineering; BS, MS, PhD, University of California, Irvine

Poste, George H.
(2003)
Regents' and Del E. Webb Distinguished Professor of Biology; Director, Biodesign Institute at ASU; DVM, PhD, University of Bristol (England)

Potts, Claude H. (2003), Assistant Librarian, Hayden Reference Services; BA, University of California, Berkeley; MA, MLIS, University of California, Los Angeles

Poudrier, Almirer (2002), Lecturer of Latin; BA, Beloit College; MA, University of Minnesota, Minneapolis; PhD, State University of New York, Buffalo

Poweleit, Christian D. (1995), Associate Research Professional of Physics and Astronomy; BA, Thomas Moore College; MA, Purdue University; PhD, University of Cincinnati

Powers, Doris C. (1960), Professor Emerita of English; BA, Wellesley College; MA, Occidental College; PhD, University of California, Berkeley

Powers, Jeanne M. (2001), Assistant Professor of Educational Leadership and Policy Studies; BA, Tufts University; MA, University of California, Irvine; PhD, University of California, San Diego

Powers, Karen (2002), Associate Professor of History; BA, Herbert H. Lehman College; MA, PhD, New York University

Prather, Elizabeth M. (1978), Professor Emerita of Speech and Hearing Science; BS, University of Nebraska, Lincoln; MA, PhD, University of Iowa

Pratt, Melvin W. (1987), Manager, Engineering, Center for Solid State Electronics Research

Prescott, Edward C.
(2004)
Regents' Professor of Economics; Nobel Laureate in Economics; W. P. Carey Chair, Department of Economics; BA, Swarthmore College; MS, Case Western Reserve University; PhD, Carnegie-Mellon University

Presson, Clark C. (1980), Professor of Psychology; BA, Pomona College; MS, PhD, Columbia University

Prewitt, Kathryn A. (1992), Associate Professor of Mathematics and Statistics; BA, University of Kansas; MS, PhD, University of California, Davis

Prichard, Robin (2004), Visiting Assistant Professor of Dance; BFA, State University of New York, Purchase; MFA, University of California, Los Angeles

Prigatano, George P. (1993), Adjunct Professor of Speech and Hearing Science; BS, Loyola University, Los Angeles; MA, California State University, Long Beach; PhD, Bowling Green State University

Pritchard, Melissa (1994), Professor of English; BA, University of California, Santa Barbara; MA, Western Washington University

Privateer, Paul (1991), Associate Professor of English; BA, MA, California State University, Stanislaus; PhD, University of California, Davis

Prochazka, Michal (2000), Adjunct Professor of Life Sciences; MD, University of Zurich (Switzerland)

Proskus, Kristina (1999), Assistant Law Librarian, Ross-Blakley Law Library; BA, Northern Illinois University; MLS, Rosary College

Province, Martin (2002), Assistant Professor of Music; Associate Director of Bands; BA, Wake Forest University, Winston-Salem; MM, DMA, University of Colorado, Boulder

Provine, Doris Marie (2001), Professor of Justice and Social Inquiry; Director, School of Justice and Social Inquiry; AB, University of Chicago; JD, PhD, Cornell University

Pruis, Christine (2004), Lecturer of Chemistry and Biochemistry; BS, Valparaiso University; PhD, Northwestern University

Puglia, Mary (2001), Adjunct Professor of Life Sciences; BS, University of Arizona; MS, PhD, Arizona State University

Pyne, Stephen J.
(1986)
Regents' Professor of Life Sciences; BA, Stanford University; MA, PhD, University of Texas at Austin

Q

Qian, Gang (2003), Assistant Professor of Arts, Media, and Engineering and Electrical Engineering; BE, University of Science and Technology of China; MS, PhD, University of Maryland

Quesada, Eugene R. (1973), Professor Emeritus of Industrial Design; BA, Arizona State University

Quigg, John C. (1981), Professor of Mathematics and Statistics; BS, MS, PhD, Drexel University

Quinn, Paul M. (1995), Lecturer of Speech and Hearing Science; BA, California State University, Northridge

R

Rabe, William (Bill) (2005), Lecturer of Curriculum and Instruction; BA, MA, Arizona State University

Rabinovich, Elliot (2001), Assistant Professor of Supply Chain Management; BS, School of Engineering of Antioquia (Columbia); MS, PhD, University of Maryland

Raby, William (1982), Professor Emeritus of Accountancy; BS, Northwestern University; MBA, PhD, University of Arizona

Rader, Martha (1975), Associate Professor of Curriculum and Instruction; BS, MBE, University of Mississippi; PhD, Kansas State University

Radke, Judith J. (1960), Professor Emerita of French; BS, MA, University of Wisconsin, Madison; PhD, University of Colorado

Ragan, Donal M. (1967), Professor Emeritus of Geological Sciences; BA, Occidental College; MS, University of Southern California; PhD, University of Washington

Ragsdale, Bruce D. (1989), Adjunct Professor of Anthropology; BS, University of California; MD, University of California, San Francisco

Rajan, Subramaniam D. (1983), Professor of Civil and Environmental Engineering; BTech, Indian Institute of Technology (India); MS, PhD, University of Iowa

Ralston, Mack A. (1956), Professor Emeritus of Education; BS, MS, Indiana State University; EdD, Indiana University

Ramage, John (1990), Professor Emeritus of English; BA, Whitman College; PhD, Washington State University

Ramakrishna, B.L. (1999), Associate Professor of Life Sciences and Solid State Science; BSc, Bangalore University (India); MSc, Indian Institute of Technology, Kanpur (India); PhD, Indian Institute of Technology, Madras (India)

Rampe, Siegbert (2005), Assistant Professor of Music; Diploma, Stuttgart Music Academy (Germany); Concert Diploma, Mozarteum University (Austria)

Ranalli, Ronald, Captain (2004), Assistant Professor of Military Science; BA, University of Ohio

Rankin, Robert L. (1971), Professor Emeritus of Engineering; BS, University of Texas, El Paso; PhD, William Marsh Rice University

Rankin, W. Parkman (1982), Professor Emeritus of Journalism and Mass Communication; BS, Syracuse University; MBA, PhD, New York University

Rapp, James R. (1962), Professor Emeritus of Architecture and Landscape Architecture; BArch, University of Detroit; MSArch, Columbia University

Ratliff, John (1954), Professor Emeritus of English; BA, Arizona State University; MA, Claremont Graduate School; PhD, Stanford University

Raupp, Gregory B. (1985), Professor of Chemical Engineering; Director, Flexible Display Center; BS, MS, Purdue University; PhD, University of Wisconsin, Madison

Rausch, Jack D. (1965), Professor Emeritus of Music; BS, MA, Ohio State University

Rave, Wallace J. (1967), Professor Emeritus of Music; BS, Illinois State University; MM, PhD, University of Illinois

Ravindran, Suryanarayanan (2001), Assistant Professor of Computer Information Systems; BA, Indian Institute of Technology (India); MBA, Indian Institute of Management (India); PhD, University of Texas at Austin

Rawls, J. Alan (1997), Associate Professor of Life Sciences; BS, University of Western Ontario (Canada); PhD, Saint Louis University

Ray, William J. (1968), Professor Emeritus of Curriculum and Instruction; BS, MS, State University of New York, Buffalo; EdD, Wayne State University

Rayle, Andrea Dixon (2002), Assistant Professor of Psychology in Education; BA, MA, University of North Carolina at Charlotte; PhD, University of North Carolina at Greensboro

Read, Anne-Marie (2002), Assistant Professor of Educational Leadership and Policy Studies; BA, State University of New York, New Paltz; MS, State University of New York, Oswego; PhD, University of North Carolina at Chapel Hill

Reader, Mark (1967), Professor Emeritus of Political Science; AB, AM, PhD, University of Michigan

Reaven, Peter (2000), Adjunct Professor of Life Sciences; BS, University of Chicago; MD, University of Chicago, Pritzker

Reber, William (1991), Professor of Music; Director, Music Theatre Program; BM, MM, University of Utah; DMA, University of Texas at Austin

Reckers, Philip M.J. (1980), Professor of Accountancy; BS, Quincy College; MBA, Washington University; PhD, University of Illinois

Redman, Betsy J. (1988), Associate Librarian; Management Team, Technical Services Department; BS, MLS, University of Arizona

Redman, Charles L. (1983), Professor of Anthropology; Director, Global Institute of Sustainability; BA, Harvard University; MA, PhD, University of Chicago

Reece, Sandra P. (2005), Adjunct Professor of Anthropology; BA, University of Tulsa; MA, PhD, Arizona State University

Reed, Kaye E. (1997), Associate Professor of Anthropology; Research Associate, Institute of Human Origins; BS, Portland State University; MA, PhD, State University of New York, Stony Brook

Reeves, Henry C. (1969), Professor Emeritus of Life Sciences; BS, Franklin and Marshall College; MA, PhD, Vanderbilt University

Reffett, Kevin L. (1995), Associate Professor of Economics; BBA, MA, University of Iowa; PhD, Purdue University

Regier, Philip R. (1987), Associate Professor of Accountancy; BA, St. John's College; PhD, University of Illinois

Reich, John W. (1965), Professor of Psychology; BA, MS, University of Oklahoma; PhD, University of Colorado

Reif, William E. (1970), Professor Emeritus of Management; BBA, MA, PhD, University of Iowa

Reiman, Etsuko Obata (1978), Associate Professor of Japanese; BA, Keio University (Japan); MA, Seton Hall University; MA, PhD, University of Wisconsin, Madison

Reingen, Peter H. (1982), Davis Distinguished Research Professor of Marketing; BBA, Cologne College (Germany); MBA, PhD, University of Cincinnati

Reiser, Castle O. (1958), Professor Emeritus of Chemical Engineering; BS, Colorado State University; PetE, Colorado School of Mines; PhD, University of Wisconsin, Madison

Reiser, Mark P. (1988), Associate Professor of Biostatistics and Health Management and Policy; BS, University of Michigan; PhD, University of Chicago

Reiss, Peter W. (1976), Professor Emeritus of Business Administration; BS, Marquette University; MA, Arizona State University; JD, Marquette University

Reisslein, Martin (2000), Associate Professor of Electrical Engineering; MS, PhD, University of Pennsylvania

Reiter, Wellington (2003), Professor of Architecture and Landscape Architecture; Dean, College of Design; BSD, Tulane University; MArch, Harvard University

Renaut, Rosemary (1987), Professor of Mathematics and Statistics; Director, Computational Biosciences Program; BS, Durham University; PhD, University of Cambridge (United Kingdom)

Restrepo, Maria Adelaida (2004), Associate Professor of Speech and Hearing Science; BA, University of Florida; MA, University of Massachusetts; PhD, University of Arizona

Reuter, Vincent G. (1961), Professor Emeritus of Operations Management; BSC, MA, PhD, University of Iowa

Reyes, Angelita (2002), Professor of African and African American Studies; BA, City University of New York; MA, New York University; PhD, University of Iowa

Reyes, Guillermo (1996), Associate Professor of Theatre; BA, University of California, Los Angeles; MFA, University of California, San Diego

Reynolds, Richard (2002), Lecturer of Mathematics and Statistics; BS, New Mexico Institute of Mining and Technology; MS, PhD, New Mexico State University

Reynolds, Robert D. (1970), Professor Emeritus of Music; BM, Texas Christian University; MM, University of Texas at Austin; PhD, Ohio State University

Reynolds, Stephen J. (1991), Professor of Geological Sciences; BS, University of Texas, El Paso; MS, PhD, University of Arizona

Reynolds, Steven L. (1988), Associate Professor of Philosophy; BA, University of Chicago; MA, PhD, University of California, Los Angeles

Rez, Peter (1985), Professor of Physics and Astronomy and Solid State Science; BA, University of Cambridge (United Kingdom); PhD, University of Oxford (United Kingdom)

Reznikoff, Sivon C. (1973), Professor Emerita of Interior Design; Certificate, New York School of Interior Design; BA, University of Southwestern Louisiana; MA, Louisiana State University, Baton Rouge

Rhoads, David M. (2000), Assistant Professor of Life Sciences; BS, Pennsylvania State University; PhD, Michigan State University

Rhodes, Jewell Parker (1997), Professor of English; BA, MA, DA, Carnegie Mellon University

Ribic, Catherine (2000), Affiliate Professor of Anthropology; BA, MA, PhD, Arizona State University

Rice, Glen E. (1986), Professor Emeritus of Anthropology; BA, Reed College; MA, PhD, University of Washington

Rice, Warren (1958), Professor Emeritus of Engineering; BS, MS, PhD, Texas A&M University

Richa, Andrea W. (1998), Associate Professor of Computer Science and Engineering; BSc, MSc, Federal University of Rio de Janeiro (Brazil); MSc, PhD, Carnegie Mellon University

Richard, Thelma Shinn (1975), Professor Emerita of English; BA, Central Connecticut State College; MA, PhD, Purdue University

Richards, Gale L. (1965), Professor Emeritus of Communication; BA, University of Akron; MA, PhD, University of Iowa

Richardson, Deane E. (1970), Professor Emeritus of Kinesiology; BS, Bradley University; MA, EdD, Stanford University

Richardson, Diane (2004), Lecturer of Mathematics and Statistics; BS, University of Arkansas; MS, Arizona State University

Richardson, Jeanne (1985), Librarian; Team Leader, Collection Development; BA, Lawrence University; MS, MLS, Columbia University

Richardson, Richard C. Jr. (1977), Professor Emeritus of Higher Education; BS, Castleton State College; MS, Michigan State University; PhD, University of Texas at Austin

Richert, Ranko (1999), Associate Professor of Chemistry and Biochemistry; PhD, Philipps University, Marburg (Germany)

Ridenour, Ronda L. (1970), Associate Librarian; Management Team, Technical Services Department; BA, Arizona State University; MSLS, University of Southern California

Riding In, James (1990), Associate Professor of Justice and Social Inquiry; BA, Fort Lewis College; MA, PhD, University of California, Los Angeles

Rikakis, Thanassis (2001), Professor of Arts, Media, and Engineering; Director, Arts, Media, and Engineering Program; BA, Ithaca College; MA, DMA, Columbia University

Rimsza, Mary Ellen (2004), Associate Research Professor of Health Management and Policy; AB, Washington University, St. Louis; MD, Hahnemann Medical College

Ringenbach, Shannon D. (1998), Associate Professor of Kinesiology; BPe, MS, McMaster University (Canada); PhD, Purdue University

Ringenoldus, Garrit M. (1989), Instructor of Military Science; BS, Illinois State University

Ringhofer, Christian (1983), Professor of Mathematics and Statistics; MA, PhD, University of Vienna (Austria)

Rio, Robin (1998), Associate Professor of Music; BM, East Carolina University; MA, New York University

Ríos, Alberto Alvaro
(1982)
Regents' and Katherine C. Turner Professor of English; BA, MFA, University of Arizona

Riske, Marc C. (1985), Associate Professor of Theatre; BFA, North Dakota State University; MFA, PhD, Wayne State University

Risseeuw, John L. (1980), Professor of Art; BS, MA, MFA, University of Wisconsin, Madison

Ritchie, Barry G. (1984), Professor of Physics and Astronomy; Chair, Department of Physics and Astronomy; BS, Appalachian State University; MS, PhD, University of South Carolina

Rittmann, Bruce E. (2005), Professor of Civil and Environmental Engineering; Director, Biodesign Institute; BS, MS, Washington University; PhD, Stanford University

Rivera, Daniel E. (1990), Associate Professor of Chemical Engineering; BS, University of Rochester; MS, University of Wisconsin, Madison; PhD, California Institute of Technology

Rivera-Servera, Ramon (2004), Assistant Professor of Theatre; BA, University of Rochester; MA, City University of New York; PhD, University of Texas at Austin

Roanhorse-Dineyazhe, Maxine (2003), Lecturer of Curriculum and Instruction; BA, MEd, EdD, Arizona State University

Robbins, Earl R. (1961), Professor Emeritus of Computer Science; BSEE, Texas Technological College; MSE, PhD, Arizona State University

Roberson, Loriann (1992), Professor of Management; BA, PhD, University of Minnesota, Twin Cities

Roberson, Robert W. (1989), Associate Professor of Life Sciences; BS, MS, Stephen F. Austin State University; PhD, University of Georgia

Robert, Jason (2004), Assistant Professor of Life Sciences; BA, Queen's University (Canada); MS, PhD, McMaster University (Canada)

Roberts, Lauren C. (1984), Clinical Associate Professor of Life Sciences; BS, Saint Norbert College; MS, University of Illinois

Roberts, Nancy H. (1980), Senior Lecturer of Economics; BA, University of Texas, Arlington; MS, PhD, Arizona State University

Roberts, Thomas G. (1970), Professor Emeritus of Curriculum and Instruction; BA, Wake Forest University; MA, PhD, University of North Carolina at Chapel Hill

Robertson, Ian G. (2002), Adjunct Professor of Anthropology; BA, MA, University of Calgary (Canada); PhD, Arizona State University

Robillard, Alyssa (2004), Assistant Professor of African and African American Studies; BS, Xavier University of Louisiana; MSPH, PhD, University of Alabama, Birmingham

Robinette, Martin (2000), Adjunct Professor of Speech and Hearing Science; BS, MS, University of Utah; PhD, Wayne State University

Robinson, Dahlia M. (2000), Assistant Professor of Accountancy; BS, MS, University of the West Indies (Barbados); MS, Pennsylvania State University; PhD, University of Georgia

Robinson, Helene M. (1967), Professor Emerita of Music; BA, University of Oregon; MM, Northwestern University

Robinson Kurpius, Sharon E. (1978), Professor of Psychology in Education; BS, MS, University of Wisconsin, LaCrosse; PhD, Indiana University, Bloomington

Rockmaker, Jody (1997), Associate Professor of Music; BM, New England Conservatory, Boston; MFA, PhD, Princeton University

Rodriguez, Armando (1990), Professor of Electrical Engineering; BS, Polytechnic Institute of New York, Brooklyn; MS, PhD, Massachusetts Institute of Technology

Rody, Joseph (1994), Senior Lecturer of Mathematics and Statistics; BS, MS, University of Akron

Roedel, Ronald J. (1981), Professor of Electrical Engineering; Director, Engineering Core and Special Studies; BSE, Princeton University; MS, PhD, University of California, Los Angeles

Rogers, Joseph (1988), Adjunct Professor of Life Sciences; BA, Emory University; PhD, University of California, San Diego

Rogers, Rodney (1987), Professor of Music; BM, University of Iowa; MM, Arizona State University; PhD, University of Iowa

Rogerson, Richard (2001), Rondthaler Professor of Economics; BSc, University of Alberta (Canada); PhD, University of Minnesota

Roh, Kyeong Hah (2005), Assistant Professor of Mathematics and Statistics; BS, Ewha Womans University (South Korea); MS, PhD, Seoul National University (South Korea); PhD, The Ohio State University, Columbus

Roher, Alex E. (1997), Adjunct Professor of Life Sciences; MD, National University of Mexico School of Medicine; PhD, University of Cambridge (United Kingdom)

Rolstad, Kellie (1999), Assistant Professor of Curriculum and Instruction; BA, MA, PhD, University of California, Los Angeles

Romanovsky, Andrej (2001), Adjunct Professor of Life Sciences; PhD, Institute of Physiology, Belarusian Academy of Sciences (Belarus)

Romero, Mary (1995), Professor of Justice and Social Inquiry; BA, Regis College; PhD, University of Colorado

Romero, Mary Eunice (2004), Assistant Professor of Curriculum and Instruction; BA, MA, University of New Mexico; PhD, University of California, Berkeley

Romeyn, Esther (1998), Assistant Professor of Interdisciplinary Humanities; BA, MA, University of Amsterdam (Netherlands)

Roosa, Mark W. (1980), Professor of Family and Human Development; BS, Ohio State University; MA, PhD, Michigan State University

Rosa, John P. (2000), Assistant Professor of Asian Pacific American Studies; BA, Northwestern University; MA, PhD, University of California, Irvine

Rosales, F. Arturo (1980), Professor of History; BA, Arizona State University; MA, Stanford University; PhD, Indiana University, Bloomington

Rose, Jonathan (1968), Professor of Law; BA, University of Pennsylvania; LLB, University of Minnesota, Twin Cities

Rose, Seth D. (1976), Professor of Chemistry and Biochemistry; BS, University of California, Berkeley; PhD, University of California, San Diego

Rosen, Bernice M. (1986), Instructional Professional Emerita; BA, Brooklyn College; MA, New York University

Rosen, Seymour L. (1986), Professor Emeritus of Music; Dean Emeritus, Herberger College of Fine Arts; BS, The Juilliard School

Rosenberg, Erica (2004), Associate Clinical Professor of Law; Director, Program of Public Policy, College of Law; BA, Harvard University; JD, Boston College

Rosenberg, Michael (2003), Assistant Professor of Life Sciences; BA, Northwestern University; PhD, State University of New York, Stony Brook

Rosier, Kathlene (2000), Director, Indian Legal Program; BA, Capital University; JD, University of Utah

Ross, Katherine B. (2002), Adjunct Professor of Speech and Hearing Science; BA, University of North Carolina at Chapel Hill; MS, PhD, Vanderbilt University

Rossi, Patrick J. (1967), Professor Emeritus of Psychology; BS, Saint Mary's College; MA, San Fernando Valley State College; PhD, University of California, Riverside

Rotaru, Catalin (2005), Associate Professor of Music; MM, University of Illinois

Roth, Aleda (2005), Professor of Supply Chain Management; W. P. Carey Chair, Department of Supply Chain Management; BS, The Ohio State University; MSPH, University of North Carolina at Chapel Hill; PhD, The Ohio State University

Rothschild, Mary Logan (1975), Professor of History and Women and Gender Studies; BA, MA, PhD, University of Washington

Rotondi, Michael (1999), Professor of Architecture and Landscape Architecture; DiplArch, Southern California Institute of Architecture

Roudenko, Svetlana (2004), Assistant Professor of Mathematics and Statistics; MS, Nuclear Power Engineering Institute (Russia); PhD, Michigan State University

Roussinov, Dmitri (2001), Assistant Professor of Computer Information Systems; BS, MS, Moscow Institute of Physics and Technology (Russia); MA, Indiana University, Bloomington; PhD, University of Arizona

Rowe, Casey (2001), Assistant Professor of Accountancy; BS, Northern Arizona University; MS, San Diego State University; PhD, University of Pittsburgh

Rowe, Kenneth L. (1962), Professor Emeritus of Marketing; BA, MA, Northern Iowa University; PhD, Michigan State University

Roy, Asim (1983), Professor of Computer Information Systems; BE, Calcutta University (India); MS, Case Western Reserve University; PhD, University of Texas at Austin

Roy, Ramendra P. (1981), Professor of Engineering; BSc, University of Calcutta (India); MS, University of Washington; MSc, PhD, University of California, Berkeley

Ruch, William A. (1968), Professor Emeritus of Management; BS, MBA, DBA, Indiana University, Bloomington

Ruedemann, Richard (1997), Senior Lecturer of Mathematics and Statistics; BS, MA, Arizona State University; PhD, University of South Florida

Rummel, John R. (1975), Professor Emeritus of Architecture and Landscape Architecture; BA, MS, Stanford University

Rund, James A. (2001), Associate Professor of Educational Leadership and Policy Studies; Vice President, University Undergraduate Initiatives; BA, Moorehead State University; MS, North Dakota State University; EdD, Arizona State University

Runger, George (1996), Professor of Industrial Engineering; BS, Cornell University; PhD, University of Minnesota

Rungtusanatham, Manus (Johnny) (1998), Associate Professor of Supply Chain Management; BS, Birmingham-Southern College; PhD, University of Minnesota

Ruppert, K.D. (1976), Research Specialist Emeritus of Geography; BSEE, University of Iowa

Rush, James (1990), Associate Professor of History; BA, Gettysburg College; MA, PhD, Yale University

Russell, Dennis E. (1991), Associate Professor of Journalism and Mass Communication; BS, MMC, Arizona State University; PhD, University of Utah

Russell, Paul E. (1967), Professor Emeritus of Electrical Engineering; BSEE, BSME, New Mexico A&M University; MSEE, PhD, University of Wisconsin, Madison; PE

Russell, Scott C. (1990), Adjunct Professor of Anthropology; BA, University of New Mexico; MA, PhD, Arizona State University

Russell, Timothy (1993), Professor of Music; BMEd, Northwestern University; MA, PhD, Ohio State University

Russo, Nancy Felipe
(1985)
Regents' Professor of Psychology; BA, University of California, Davis; PhD, Cornell University

Russomanno, Joseph A. (1994), Associate Professor of Journalism and Mass Communication; BA, University of Colorado, Denver; MA, University of Missouri, Columbia; PhD, University of Colorado

Rutherford, Robert B. Jr. (1976), Professor of Curriculum and Instruction; Director, Interdisciplinary PhD Program in Curriculum and Instruction; Associate Director of Research and Graduate Education, Division of Curriculum and Instruction; BS, MEd, University of Virginia; EdS, PhD, Vanderbilt University

Rutowski, Kathleen (2001), Lecturer of Curriculum and Instruction; BA, University of California, Santa Cruz; MA, San Francisco State University; PhD, Arizona State University

Rutowski, Ronald L. (1976), Professor of Life Sciences; Associate Director, School of Life Sciences Undergraduate Program; BA, University of California, Santa Cruz; PhD, Cornell University

Ryu, Hodon (2003), Faculty Research Associate of Civil and Environmental Engineering; BS, MS, Hanyang University (South Korea); PhD, University of Arizona

Ryu, Kyung Dong (2001), Assistant Professor of Computer Science and Engineering; BS, MS, Seoul National University (South Korea); MS, PhD, University of Maryland, College Park

S

Sabo, John S. (2001), Assistant Professor of Life Sciences; BS, University of Notre Dame; MS, University of Washington; PhD, University of California, Berkeley

Sacks, Benjamin (1963), Professor Emeritus of History; BA, University of New Mexico; MA, McGill University (Canada); PhD, Stanford University

Sadalla, Edward K. (1974), Professor of Psychology; BA, University of California, Berkeley; PhD, Stanford University

Sadowski-Smith, Claudia (2004), Assistant Professor of English; BA, University of Lepizig (Germany); MA, Free University, Berlin (Germany); PhD, University of Delaware

Saenz, Delia S. (1989), Associate Professor of Psychology; BA, Pan American University; MA, PhD, Princeton University

Sager, Harvey M. (1977), Librarian Emeritus; BA, San Francisco State College; MA, California State University, Chico; MA, University of Denver

St. Louis, Robert D. (1982), Professor of Computer Information Systems; Chair, Department of Information Systems; AB, Rockhurst College; MS, PhD, Purdue University

Saks, Michael (2000), Professor of Law; BA, BS, Penn State University; MSL, Yale University; MA, PhD, Ohio State University

Saldaña, Johnny (1981), Professor of Theatre; BFA, MFA, University of Texas at Austin

Salerno, Nicholas A. (1961), Professor Emeritus of English; BA, MA, Arizona State University; PhD, Stanford University

Saltz, Charlene (2000), Academic Associate, Environmental Education Coordinator, Global Institute of Sustainability; BA, Emory University; MS, Antioch New England Graduate School

Salvatore, Joseph Raphael (1998), Adjunct Professor of Life Sciences; MD, Autonomous University of Guadalajara (Mexico)

Salvucci, Michael E. (1995), Adjunct Professor of Life Sciences; BS, Pennsylvania State University; MS, PhD, University of Florida

Samuelson, Hava Tirosh (1999), Professor of History; BA, State University of New York, Stony Brook; PhD, Hebrew University of Jerusalem (Israel)

Samuelson, Norbert M. (1998), Professor of Religious Studies; Harold and Jean Grossman Chair in Jewish Studies; BA, Northwestern University; BHL, MHL, Hebrew Union College Jewish Institute of Religion; PhD, Indiana University

Sanchez, Angel (1990), Associate Professor of Languages and Literatures; Licenciatura, Complutense University (Spain); MA, University of Minnesota, Twin Cities; PhD, University of Minnesota, Minneapolis

Sanchez, Marta (2004), Professor of Chicano and Latin American Studies; BA, Mount St. Mary's College; MA, John Carroll University; PhD, University of California, San Diego

Sanders, Bevie T. (1957), Professor Emeritus of Accountancy; BBA, North Texas State University; MS, Texas A&M University; PhD, University of Texas; CPA, Arizona, Texas

Sandler, Irwin N.
(1970)
Regents' Professor of Psychology; BA, Brooklyn College; PhD, University of Rochester

Sands, Kathleen M. (1977), Professor Emerita of English; BA, Fort Wright College of the Holy Names; MA, PhD, University of Arizona

Sands, Teryl (2005), Lecturer of English; BA, MTESL, PhD, Arizona State University

Sanft, Alfred C. (1990), Associate Professor of Visual Communication Design; BFA, Brigham Young University; MFA, Basel School of Design (Switzerland)

Sankey, Otto F. (1982), Professor of Physics and Astronomy; BS, University of Missouri, St. Louis; MS, PhD, Washington University

Sansone, Fred J. (1965), Professor Emeritus of Mathematics and Statistics; BSE, MSE, University of Michigan; MS, PhD, Rutgers, The State University of New Jersey

Santanam, Raghu (1998), Associate Professor of Computer Information Systems; BE, National Institute of Engineering (India); MS, Indian Institute of Technology (India); MS, PhD, State University of New York, Buffalo

Santello, Marco (1999), Associate Professor of Kinesiology; BSc, Higher Institute of Physical Education (Italy); MPhil, PhD, University of Birmingham (United Kingdom)

Santos, Manuel (1999), Professor of Economics; Licenciatura, Autonomous University of Madrid (Spain); MA, PhD, University of Chicago

Santos de Barona, Maryann (1989), Professor of Curriculum and Instruction; BS, City University of New York; MA, PhD, University of Texas at Austin

Sarewitz, Daniel R. (2004), Professor of Geological Sciences and Life Sciences; Director, Center for Science, Policy, and Outcomes; BS, Haverford College; MS, Oregon State University; PhD, Cornell University

Sargent, Charles S. Jr. (1971), Professor Emeritus of Geography; BA, University of Wyoming; MA, PhD, University of California, Berkeley

Saric, William (1984), Professor Emeritus of Mechanical and Aerospace Engineering; BS, Illinois Institute of Technology; MS, University of New Mexico; PhD, Illinois Institute of Technology

Sarjoughian, Hessam S. (2001), Assistant Professor of Computer Science and Engineering; BS, Mississippi State University; MS, PhD, University of Arizona

Sater, Vernon E. (1962), Professor Emeritus of Chemical Engineering; BSChE, MSChE, PhD, Illinois Institute of Technology

Satterlie, Richard A. (1980), Professor Emeritus of Life Sciences; BA, Sonoma State University; PhD, University of California, Santa Barbara

Satterthwaite, Lester L. Jr. (1968), Professor Emeritus of Educational Media and Computers; BS, MS, EdD, Indiana University, Bloomington

Sattler, Howard E. (1967), Professor Emeritus of Education; BS, MS, PhD, Arizona State University

Saubolle, Michael (1998), Adjunct Professor of Life Sciences; BS, PhD, University of California, Davis

Saucan, Lucian (2000), Adjunct Professor of Life Sciences; MD, University of Cluj (Romania)

Savage, Nevin W. (1959), Professor Emeritus of Mathematics and Statistics; BS, MA, Pennsylvania State University; PhD, University of California, Los Angeles

Savage, Stephen H. (1998), Affiliate Professor of Anthropology; BA, Cincinnati Bible Seminary; MA, University of South Carolina; PhD, Arizona State University

Savard, Jeannine A. (1990), Associate Professor of English; BS, State University of New York, Plattsburg; MA, University of New Hampshire

Savenye, Wilhelmina C. (1991), Associate Professor of Psychology in Education; BA, University of Washington; MEd, PhD, Arizona State University

Sawhney, Anil (1999), Associate Professor of Construction; BSE, Institution of Engineers (India); MS, School of Planning and Architecture (India); PhD, University of Alberta (Canada)

Scarberry-Garcia, Susan (2005), Associate Professor of English; BA, University of California, Santa Barbara; MA, University of New Mexico; PhD, University of Colorado, Boulder

Schabacker, Joseph C. (1963), Professor Emeritus of Management; BS, Temple University; MBA, PhD, University of California, Los Angeles

Schade, Thomas V. (1974), Professor Emeritus of Justice and Social Inquiry; BA, Hope College; MA, PhD, Western Michigan University

Schall, Merri H. (1960-66; 1967), Professor Emerita of Curriculum and Instruction; BA, Albion College; MS, EdD, Arizona State University

Schatzki, George (2000), Professor of Law; Dean of Faculty, College of Law; AB, LLB, LLM, Harvard University

Schatzman, Christina (2005), Assistant Professor of Political Science; BA, MA, PhD, University of New Mexico

Scheatzle, David G. (1979), Professor Emeritus of Architecture and Landscape Architecture; BS, Kent State University; MSE, Arizona State University; ArchD, University of Michigan

Scheck, Adrienne C. (1997), Adjunct Professor of Life Sciences; BA, University of Rochester; PhD, Rensselaer Polytechnic Institute

Scheiner, Ricarda (2005), Adjunct Professor of Life Sciences; MS, PhD, Technical University Berlin (Germany)

Scheiner, Samuel M. (2000), Adjunct Professor of Life Sciences; BS, MS, PhD, University of Chicago

Schexnayder, Clifford J. (1994), Visiting Eminent Scholar Emeritus of Construction; BCE, MSCE, Georgia Institute of Technology; PhD, Purdue University

Schildkret, David (2002), Professor of Music; BA, Rutgers, The State University of New Jersey, New Brunswick; MM, DMA, Indiana University, Bloomington

Schlacter, John L. (1969), Professor Emeritus of Marketing; BBA, Case Western Reserve University; MBA, PhD, Ohio State University

Schlee, Edward E. (1990), Professor of Economics; BA, North Texas State University; MS, PhD, University of Illinois

Schleif, Corine (1988), Professor of Art; BA, Concordia College; MA, Washington University; PhD, University of Bamberg (Germany)

Schmeeckle, Mark W. (2003), Assistant Professor of Geography; BS, MS, University of Washington; PhD, University of Colorado, Boulder

Schmid, Maureen (1990), Associate Research Scientist; Director, Tandem Translation Project; BA, Saint Mary's College of Notre Dame; MA, University of Notre Dame; PhD, State University of New York, Buffalo

Schmidt, Jean M. (1966), Professor Emerita of Life Sciences; Associate Director, Cancer Research Institute; BA, MS, University of Iowa; PhD, University of California, Berkeley

Schmidt, Kevin E. (1989), Professor of Physics and Astronomy; AB, Washington University; MS, PhD, University of Illinois

Schmidt, Margaret (2001), Assistant Professor of Music; BME, Lawrence University; MM, State University of New York, Stony Brook; PhD, University of Michigan

Schmidt, Randall B. (1968), Professor of Art; BA, Hamline University; MA, University of New Mexico

Schmidt, Sherrie (1990), University Librarian; Dean, University Libraries; BA, Ohio State University; MLS, Emory University

Schneberger, Lois I. (1969), Librarian Emerita; BA, Viterbo College; MLS, Emporia State University

Schneider, Anne L. (1989), Professor of Justice and Social Inquiry; BA, MA, Oklahoma State University; PhD, Indiana University, Bloomington

Schneider, David (2005), Visiting Assistant Professor of Global Studies and Languages and Literature; Associate Chair, Undergraduate Programs, Department of Global Studies; BA, University of Colorado, Boulder; MIA, Columbia University; PhD, University of California, Berkeley

Schneider, Elizabeth (2002), Assistant Professor of Art; BA, University of Michigan; BFA, Art Institute of Chicago; MFA, Mills College

Schneller, Eugene S. (1985), Professor of Health Management and Policy; BA, Post College; PhD, New York University

Schober, Juliane (1991), Associate Professor of Religious Studies; BA, University of Northern Colorado; MA, PhD, University of Illinois

Schoebel, Henry L. (1990), Professor of Art; BFA, Syracuse University; MFA, University of Maryland, College Park

Schoenhoff, Molly (2002), Assistant Professor of Visual Communication Design; BS, University of Cincinnati; MFA, Rhode Island School of Design

Schoenwetter, James (1967), Professor Emeritus of Anthropology; AB, University of Chicago; MS, University of Arizona; PhD, Southern Illinois University

Schroder, Dieter K. (1981), Professor of Electrical Engineering; Codirector, Center for Low Power Electronics Research; BSEE, MSEE, McGill University (Canada); PhD, University of Illinois

Schroeder, Milton R. (1969), Professor of Law; BA, Wesleyan University; JD, University of Chicago

Schuback, Gertrud B. (1966), Professor Emerita of German; BA, MA, Arizona State University

Schultz, Joseph J. (1983), Professor of Accountancy; BS, MBA, Mississippi State University; PhD, University of Texas at Austin; CPA, Mississippi

Schupp, Karen (2003), Senior Lecturer of Dance; BFA, State University of New York, Buffalo; MFA, Arizona State University

Schuring, Martin (1992), Associate Professor of Music; BM, Curtis Institute of Music; MA, Arizona State University

Schutte, Jerry (1988), Associate Professor of Art; BA, Fort Hays State University; MFA, Arizona State University

Schwalbe, Carol (2002), Assistant Professor of Journalism and Mass Communication; BA, Smith College; MA, George Washington University

Schwalm, David E. (1986), Associate Professor of English; Dean, East College, Vice Provost of Arizona State University Polytechnic Campus; BA, Carleton College; MA, PhD, University of Chicago

Schwartz, Andrew B. (1993), Adjunct Professor of Bioengineering; BA, PhD, University of Minnesota

Schwartz, Gary T. (2004), Assistant Professor of Anthropology; BA, State University of New York, Stony Brook; MA, PhD, Washington University

Schwenke, Dawn C. (2002), Associate Research Professor of Health Management and Policy; BA, Whitman College; MS, Wake Forest University; PhD, Cornell University

Scott, Mark C. (2003), Assistant Librarian, University Libraries, Government Documents and Maps; BA, LeMoyne College; MLS, University of Albany

Scowen, Paul A. (1992), Assistant Research Professor of Physics and Astronomy; BS, University of Birmingham (United Kingdom); MS, PhD, Rice University

Seal, Charles (2004), Lecturer of Mathematics and Statistics; BS, Northern Arizona University; MA, University of New Mexico

Searfoss, Lyndon W. (1973), Professor Emeritus of Curriculum and Instruction; BS, West Chester State College; MA, PhD, Syracuse University

Sears, Robert L. (1986), Senior Research Administrator Emeritus, Center for Energy Systems Research; BS, U.S. Military Academy; MSE, Arizona State University

Seaton, Helen J. (1987), Librarian Emerita, Noble Science Reference Services; BA, Rutgers, The State University of New Jersey; MLS, University of Missouri, Columbia

Sefchovich, Sara (2004), Distinguished Scholar of Languages and Literatures; BA, MA, PhD, National Autonomous University of Mexico (Mexico)

Segura, Joseph M. (1979), Associate Professor of Art; BA, MFA, Southern Illinois University, Carbondale

Seipp, Kenneth F. (1963), Professor Emeritus of Music; BS, Hartwick College; MM, University of Kansas; MusEdD, Indiana University, Bloomington

Selkirk, Susan (1977), Senior Research Professional of Geological Sciences; BA, MA, Arizona State University

Sellheim, Eckart (1989), Professor of Music; Concert Diploma, Cologne Academy of Music (Germany)

Semken, Steven (2003), Assistant Professor of Geological Sciences; BS, Massachusetts Institute of Technology; MS, University of California, Los Angeles; PhD, Massachusetts Institute of Technology

Sen, Arunabha (1986), Associate Professor of Computer Science and Engineering; Associate Chair for Graduate Programs, Department of Computer Science and Engineering; BE, Jadavpur University (India); PhD, University of South Carolina

Sender, Darin (2003), Faculty Associate of Planning; BSD, Arizona State University; JD, DePaul University

Senner, Wayne M. (1973), Professor Emeritus of German; BA, Portland State University; MA, University of Washington; PhD, University of Illinois

Sensibar, Judith L. (1985), Professor Emerita of English; BA, Vassar College; MA, PhD, University of Chicago

Seo, Dong-Kyun (2001), Assistant Professor of Chemistry and Biochemistry; BS, MS, Seoul National University (South Korea); PhD, North Carolina State University

Serwint, Nancy J. (1988), Associate Professor of Art; BA, University of Illinois; MA, University of Chicago; MA, PhD, Princeton University

Seymann, Marilyn (2005), Associate Dean, External Affairs, College of Law; BA, Brandeis University; MA, Columbia University; PhD, California Western University

Shackle, Linda A. (1984), Librarian; Team Leader, Noble Science Reference Services; BA, State University of New York, Oswego; MLS, State University of New York, Albany

Shaeffer, J. Duncan (2000), Lecturer of Geography; BS, Brigham Young University; MA, PhD, Arizona State University

Shah, Jami (1984), Professor of Engineering; BSME, University of Karachi (Pakistan); MS, University of Pittsburgh; PhD, Ohio State University

Shao, Benjamin (1999), Assistant Professor of Computer Information Systems; BS, MS, National Chiao Tung University (Taiwan); PhD, State University of New York, Buffalo

Shapiro, Joan Rankin (1997), Adjunct Professor of Life Sciences; BS, Westminster College; MA, Hofstra University; PhD, Cornell University Medical College

Sharer, Jon W. (1975), Professor Emeritus of Art; BA, Roosevelt University; MS, Illinois Institute of Technology; PhD, Ohio State University

Sharma, Renu (1985), Associate Research Scientist, Center for Solid State Science; BS, BEd, Punjab University (India); MS, PhD, University of Stockholm (Sweden)

Sharp, Thomas (1996), Associate Professor of Geological Sciences; BS, University of Minnesota; MS, PhD, Arizona State University

Sharp, William P. (1979), Senior Research Specialist Emeritus of Life Sciences; BA, University of Northern Iowa; MS, Arizona State University

Shaw, Milton C. (1978), Professor Emeritus of Engineering; BSME, Drexel University; MESc, ScD, University of Cincinnati; DrHC, University of Louvain (Belgium)

Shears, Brenda L. (1987), Affiliate Professor of Anthropology; Associate Research Administrator, Research Coordinator, Global Institute of Sustainability; BA, Arizona State University; MA, Hunter College, City University of New York

Shell, Leon G. (1967), Professor Emeritus of Psychology in Education; BA, University of Colorado; AM, EdD, University of Northern Colorado

Shellans, Michael J. (1992), Senior Lecturer of Music; BM, University of Arizona; MM, Arizona State University

Shen, Jun (1996), Professor of Electrical Engineering; BS, South China University of Science and Technology; MS, Texas Tech University; PhD, University of Notre Dame

Shen, Yong (2000), Adjunct Professor of Life Sciences; BSc, Nanjing University (China); MSc, Shanghai Institute of Physiology (China); PhD, State University of New York, Binghamton

Sheppard, Douglas C. (1971), Professor Emeritus of Spanish; BA, Montana State University; MA, PhD, University of Wisconsin, Madison

Sherman, Thomas L. (1964), Professor Emeritus of Mathematics and Statistics; BA, University of California, Los Angeles; MS, PhD, University of Utah

Sheydayi, E. Yury (1973), Professor Emeritus of Architecture and Landscape Architecture; BSCE, University of Arizona; MSCE, Arizona State University

Shi, Fu-Dong (2005), Adjunct Professor of Life Sciences; PhD, Karolinska Institute (Sweden); MD, Harbin Medical College (China)

Shigo, Peter (2002), Faculty Associate of Industrial Design; BSD, Arizona State University

Shimansky, Yury (2000), Assistant Research Professor of Bioengineering; MS, Polytechnic Institute of Kiev (Ukraine); PhD, Institute of Physiology of Kiev (Ukraine)

Shimomura, Tomoko (2002), Lecturer of Japanese; BA, Kwassui Women's College (Japan); MA, Ohio State University

Shin, Dosun (2004), Assistant Professor of Industrial Design; BFA, Keimyung University (South Korea); MFA, University of Illinois, Urbana-Champaign

Shinn, Randall A. (1978), Professor Emeritus of Music; BA, Southwestern Oklahoma State University; MM, University of Colorado; DMA, University of Illinois

Shipp, Vernon E. (1966), Professor Emeritus of Art; BS, Grand Canyon College; MA, Arizona State University

Shlyakhtenko, Luda (1993), Adjunct Professor of Life Sciences; MS, PhD, Moscow Physical Technical Institute (Russia)

Shock, Everett L. (2002), Professor of Chemistry and Biochemistry and Geological Sciences; BS, University of California, Santa Cruz; PhD, University of California, Berkeley

Shrednick, Harvey R. (1995), Senior Lecturer of Computer Information Systems; BS, City College of New York; MBA, Bernard M. Baruch College

Shriver, Keith A. (1982), Professor Emeritus of Accountancy; BS, Linfield College; MS, Arizona State University; PhD, University of Texas at Austin; CPA, Arizona

Shumway, John (2001), Assistant Professor of Physics and Astronomy; BS, MS, University of Missouri, Columbia; PhD, University of Illinois, Urbana-Champaign

Shunk, Dan L. (1984), Professor of Industrial Engineering; BSIE, MSIE, PhD, Purdue University

Si, Jennie (1991), Professor of Electrical Engineering; BS, MS, Tsinghua University (China); PhD, University of Notre Dame

Siegel-Valdes, Rebeca (2002), Assistant Professor of Spanish; BA, Manuel del Castillo Negrete National School of Conservation, Restoration and Museum Studies (Mexico); MA, PhD, University of Texas at Austin

Sieradzki, Karl (1994), Professor of Chemical and Materials Science Engineering and Mechanical and Aerospace Engineering; BS, Utica College of Syracuse University; MS, PhD, Syracuse University

Sierks, Michael R. (2000), Associate Professor of Chemical Engineering; BS, Stanford University; MS, Colorado State University; PhD, Iowa State University

Siferd, Sue Perrott (1989), Associate Professor of Supply Chain Management; Director, Undergraduate Supply Chain Management Program; BS, Denison University; MBA, Wright State University; MA, PhD, Ohio State University

Sigler, Mary (2003), Associate Professor of Law; BA, MA, Arizona State University; JD, University of Pennsylvania

Silcock, B. William (2001), Assistant Professor of Journalism and Mass Communication; BA, MA, Brigham Young University; PhD, University of Missouri

Silver, Benjamin (1971), Professor Emeritus of Journalism and Mass Communication; BA, MA, University of Iowa

Simhony, Avital (1994), Associate Professor of Political Science; BA, MA, University of Haifa (Israel); DPhil, University of Oxford (United Kingdom)

Simmons, Douglas J. (1963), Professor Emeritus of French; AB, Wabash College; MAT, Harvard University; Certificat de français usuel, degreésupérieur, Certificat de pronônciation française, Sorbonne University (France)

Simmons, Howard (1996), Professor Emeritus of Educational Leadership and Policy Studies; BS, Spring Hill College; MAT, Indiana University; PhD, Florida State University

Simon, Arleyn W. (1989), Associate Research Professor of Anthropology; BA, Montana State University; MA, Oregon State University; PhD, Arizona State University

Simon, Sheldon (1975), Professor of Political Science; BA, University of Minnesota, Twin Cities; MA, Princeton University; PhD, University of Minnesota, Twin Cities

Simonson, Mark (1998), Clinical Assistant Professor of Finance; BS, University of Northern Colorado; MS, PhD, University of Oregon

Simper, David (2005), Research Professor of Bioengineering; MD, Charles University (Czech Republic)

Simpkins, Sandra (2005), Assistant Professor of Family and Human Development; BA, University of California, Santa Barbara; MA, PhD, University of California, Riverside

Simpson, Brooks (1990), Professor of History; BA, University of Virginia; MA, PhD, University of Wisconsin, Madison

Sinclair, Mark R. (1985), Adjunct Professor of Geography; BSc, Otago University (New Zealand); PhD, U.S. Naval Postgraduate School, Monterey

Singh, Rakesh (2002), Associate Research Professor of Chemical and Materials Engineering; BT, PhD, Institute of Technology (India)

Singhal, Avi C. (1977), Professor of Civil and Environmental Engineering; BScMath, Agra University (India); BScEngr, BScHons, St. Andrews University (United Kingdom); SM, CE, ScD, Massachusetts Institute of Technology

Sinha, Rajiv K. (1989), Associate Professor of Marketing; BA, MA, Delhi University (India); PhD, Pennsylvania State University

Sipka, Danko (2002), Professor of Slavic Languages; BA, University of Sarajevo (Bosnia); MA, PhD, University of Belgrade (Serbia); PhD, Polish Academy of Sciences (Poland)

Siriprakob, Prakorn (2000), Lecturer of Languages and Literatures; BA, Chulalongkorn University (Thailand); MPA, Arizona State University

Sirkis, Murray D. (1968), Professor Emeritus of Electrical Engineering; BS, Massachusetts Institute of Technology; MS, PhD, University of Illinois

Skiba, Christopher J. (1987), Senior Research Professional of Geological Sciences; BS, Arizona State University

Skibo, Edward B. (1982), Professor of Chemistry and Biochemistry; BS, MS, Drexel University; PhD, University of California, San Francisco

Skindlov, Jonathan A. (1993), Adjunct Professor of Geography; BA, St. Olaf College; MA, Ohio University; PhD, University of Delaware

Skoldberg, Phyllis (1977), Professor Emerita of Music; BM, MM, New England Conservatory of Music; MME, DM, Indiana University, Bloomington

Skromme, Brian J. (1989), Associate Professor of Electrical Engineering; BS, University of Wisconsin, Madison; MS, PhD, University of Illinois

Slater, Steven C. (2004), Associate Professor of Life Sciences; BSc, MSc, James Madison University; PhD, Case Western Reserve University

Sloane, Finbarr C. (Barry) (2005), Associate Professor of Curriculum and Instruction; BA, National University of Ireland; MA, California State University, Chico; MBA, Lake Forest Graduate School of Management; PhD, University of Chicago

Smith, Andrew T. (1978), Professor of Life Sciences; AB, University of California, Berkeley; PhD, University of California, Los Angeles

Smith, Arthur B. Jr. (1967), Professor Emeritus of General Business; BS, Hardin-Simmons University; MBA, EdD, University of Houston

Smith, Brian H. (2005), Professor of Life Sciences; BS, Juniata College; PhD, University of Kansas

Smith, David F. (2004), Adjunct Professor of Life Sciences; BS, MIssissippi State University; PhD, University of Texas

Smith, David J.
(1984)
Regents' Professor of Physics and Astronomy and Solid State Science; BSc, PhD, DSc, University of Melbourne (Australia)

Smith, Hal L. (1979), Professor of Mathematics and Statistics; BA, PhD, University of Iowa

Smith, Harvey A. (1977), Professor Emeritus of Mathematics and Statistics; BS, Lehigh University; MS, AM, PhD, University of Pennsylvania

Smith, Henry Charles (1989), Professor Emeritus of Music; BA, University of Pennsylvania; Artist Diploma, Curtis Institute of Music

Smith, Jeffrey B. (1990), Professor of Music; MM, University of Illinois; DMA, University of North Texas

Smith, Karen Ann (1999), Associate Professor of Curriculum and Instruction; BA, University of the Americas (Mexico); MA, PhD, Arizona State University

Smith, L. Christian (1971), Associate Professor of History; BA, Union College; MA, PhD, University of Illinois

Smith, Lehi T. (1959), Professor Emeritus of Mathematics and Statistics; BS, MA, Arizona State University; EdD, Stanford University

Smith, Marion W. (1952), Professor Emerita of Music; BS, Capital University; MM, American Conservatory of Music

Smith, Mary Lee
(1986)
Regents' Professor of Educational Leadership and Policy Studies and Psychology in Education; BA, MPS, PhD, University of Colorado

Smith, Michael E. (2005), Professor of Anthropology; BA, Brandeis University; MA, PhD, University of Illinois, Urbana-Champaign

Smith, Ralph E. (1970), Professor Emeritus of Accountancy; BBA, Washburn University of Topeka; MS, PhD, University of Kansas; CPA, Kansas

Smith, Richard L. (1967), Professor Emeritus of Industrial Engineering; BS, Washington University; MS, Ohio State University; PhD, Arizona State University

Smith, Ronald D. (1962), Professor Emeritus of History; AB, San Diego State College; PhD, University of Southern California

Smith, Stanley E. (1977), Professor Emeritus of Journalism and Mass Communication; BA, Colgate University; MA, Purdue University

Smith, Thomas H. (2003), Associate Research Professor, Cancer Research Institute; BS, Niagara University; PhD, Arizona State University

Smith-Daniels, Dwight E. (1987), Associate Professor of Supply Chain Management; BBA, University of Michigan; PhD, University of Arizona

Smith-Daniels, Vicki L. (1987), Professor of Supply Chain Management; BBA, University of San Diego; PhD, Ohio State University

Sneed, Jimmie R. (1988), Faculty Associate of Construction; BS, Arizona State University

Snow, Robert (1970), Professor Emeritus of Sociology; BS, MA, PhD, University of Minnesota, Twin Cities

Snyder, Lester M. Jr. (1967), Professor Emeritus of Psychology in Education; BS, Millersville State College; MEd, Western Maryland College; PhD, University of Michigan

Sola, Anthony (1995), Faculty Associate of Interior Design; BA, Ottawa University; MBA, University of Phoenix

Solís, Theodore (1989), Professor of Music; BA, Arizona State University; MA, University of Hawaii, Manoa; PhD, University of Illinois

Somerville, Susan C. (1977), Professor of Psychology; BA, University of New England (Australia); PhD, Australian National University (Australia)

Sommerfeld, Milton R. (1968), Professor of Life Sciences; BS, Southwest Texas State College; PhD, Washington University

Song, Yuwu (1999), Assistant Librarian; BA, Luo Yang Foreign Languages University, China; MA, Clemson University; MLIS, University of Texas at Austin

Sorensen, Dorrit Vibeke (2004), Professor of Languages and Literatures; BA, Royal Academy of Art and Architecture (Denmark); MAH, State University of New York, Buffalo

Soroka, Susan C. (2003), Lecturer of Curriculum and Instruction; BS, University of South Alabama; MA, Arizona State University

Soto, Shelli (2005), Assistant Dean, Admissions and Financial Aid, College of Law; BA, University of Texas at Austin; JD, University of Texas School of Law

Spanias, Andreas S. (1988), Professor of Electrical Engineering; BSEE, MSEE, PhD, West Virginia University

Spanias, Photini (1998), Lecturer of Curriculum and Instruction; BA, MEd, EdD, Arizona State University

Spellman, Catherine (1995), Associate Professor of Architecture and Landscape Architecture; Associate Director, Academic Affairs, School of Architecture and Landscape Architecture; BA, BArch, Rice University; MArch, University of California, Los Angeles

Spence, John C. H.
(1976)
Regents' Professor of Physics and Astronomy; MSc, PhD, University of Melbourne (Australia)

Spencer, Lillian (2004), Adjunct Professor of Anthropology; BA, University of California; MA, PhD, State University of New York, Stony Brook

Spencer, Mark A. (2004), Assistant Professor of Anthropology; BA, Indiana University; MA, PhD, State University of New York, Stony Brook

Spielberg, John (1990), Associate Professor of Mathematics and Statistics; BS, Stanford University; PhD, University of California, Berkeley

Spielmann, Katherine A. (1987), Professor of Anthropology; AB, Harvard University; MA, PhD, University of Michigan

Spiers, James V. (1990), Senior Lecturer of Marketing; BS, Weber State College; MA, University of Northern Colorado

Spindler, Robert P. (1988), Archivist; Head, Archives and Special Collections; BA, MA, Boston University; MS, Simmons College

Spinosa, Frank (1965), Professor Emeritus of Music; BM, MA, Boston University; DMA, University of Illinois

Spinrad, Tracy (2000), Assistant Professor of Family and Human Development; BA, University of California, Irvine; MS, PhD, Pennsylvania State University

Spring, Robert S. (1988), Professor of Music; BM, MM, DMA, University of Michigan

Spritzer, Ralph S. (1986), Professor of Law; BS, LLB, Columbia University

Squires, Kyle D. (1997), Professor of Mechanical and Aerospace Engineering; BS, Washington State University; MS, PhD, Stanford University

Staab, Wayne J. (2001), Adjunct Professor of Speech and Hearing Science; BA, Fort Hays State University; MS, University of Wisconsin; PhD, Michigan State University

Stafford, Kenneth R. (1957), Professor Emeritus of Education; BA, MEd, PhD, University of Oklahoma

Stafford, Mary E. (1994), Professor Emerita of Psychology in Education; BA, University of Texas at Austin; MEd, University of Houston, Victoria; PhD, University of Texas at Austin

Stahl, Robert (1978), Professor of Curriculum and Instruction; BA, MA, EdD, University of Florida

Stahlman, Rebecca (2003), Lecturer of Curriculum and Instruction; MEd, Arizona State University

Staley, Federick A. (1970), Professor Emeritus of Curriculum and Instruction; BA, MA, Western Michigan University; PhD, Michigan State University

Stalzer, Frank S. (1955), Professor Emeritus of Music; BMEd, University of Kansas; MM, Eastman School of Music

Stamm, Jill (1998), Clinical Associate Professor of Psychology in Education; BA, DePauw University; MA, PhD, Arizona State University

Stanford, Michael (1992), Honors Faculty Fellow; BA, Duke University; MA, PhD, University of Virginia

Stange, Jean B. (1970), Professor Emerita of Family and Human Development; BS, Iowa State University; MS, University of Minnesota, Twin Cities

Stanley, James T. (1968), Professor Emeritus of Materials Science and Engineering; BS, MS, PhD, University of Illinois

Stanton, Ann M. (1980), Professor of Law; BA, University of Minnesota, Twin Cities; PhD, JD, Stanford University

Stanton, Dan (2000), Assistant Librarian, Government Documents/Maps Collection; BA, Trinity College; MLS, University of Arizona

Stark, Barbara L. (1972), Professor of Anthropology; BA, Rice University; MPhil, PhD, Yale University

Starkey, Timothy (2003), Faculty Associate of Planning; BS, Purdue University

Starrfield, Sumner G.
(1972)
Regents' Professor of Physics and Astronomy; BA, University of California, Berkeley; MA, PhD, University of California, Los Angeles

Stauffer, Sandra L. (1990), Professor of Music; BS, West Chester University; MM, PhD, University of Michigan

Steadman, Lyle B. (1971), Professor Emeritus of Anthropology; BA, Occidental College; MA, University of California, Los Angeles; PhD, Australian National University (Australia)

Stearns, Mary Beth
(1981)
Regents' Professor Emerita of Physics and Astronomy; BS, University of Minnesota, Twin Cities; PhD, Cornell University

Stearns, Robert (2004), Professor of Practice of Finance; BA, Harvard University; MBA, University of Chicago; JD, DePaul University

Steele, Kim (2005), Assistant Professor of Architecture and Landscape Architecture; BA, University of Colorado; MA, University of North Carolina at Chapel Hill; MArch, MLandscape, University of Colorado

Steere, Caryl J. (1960), Professor Emerita of Education; BA, Albion College; MA, Arizona State University

Steimle, Timothy C. (1985), Professor of Chemistry and Biochemistry; BS, Michigan State University; PhD, University of California, Santa Barbara

Stein, Peter (1958), Professor Emeritus of Mechanical and Aerospace Engineering; BSc, MSc, Massachusetts Institute of Technology

Steinbart, Paul (1997), Professor of Computer Information Systems; BA, University of Illinois; MBA, Southern Illinois University; PhD, Michigan State University

Steinmetz, Peter (2004), Associate Professor of Bioengineering; BS, University of Minnesota; PhD, Johns Hopkins University

Stelmach, George E. (1990), Professor of Kinesiology; BS, University of Illinois; MA, EdD, University of California, Berkeley

Stephan, Dietrich A. (2003), Adjunct Professor of Life Sciences; BS, Carnegie Mellon University; PhD, University of Pittsburgh

Stephens, Nancy J. (1979), Associate Professor of Marketing; Director, Night MBA Program; BS, MS, University of Illinois; PhD, University of Texas at Austin

Stephenson, Alan (2004), Faculty Associate of Planning; BA, MEP, Arizona State University

Stephenson, Christine F. (1995), Adjunct Professor of Life Sciences; BS, University of Ulster (United Kingdom); PhD, The Queen's University of Belfast (United Kingdom)

Sterling, Pamela (1999), Associate Professor of Theatre; BFA, MFA, University of Washington

Stewart, Donald G. (1964), Professor Emeritus of Mathematics and Statistics; BA, MS, Utah State University; PhD, University of Tennessee, Knoxville

Stewart, Laura (2004), Assistant Museum Professional; Curator of Education, ASU Art Museum; BA, University of Kentucky; MA, University of Cincinnati

Stiftel, Ruthy Z. (1997), Lecturer of Hebrew; BA, Hebrew University of Jerusalem (Israel); MA, Ohio State University

Stinson, Judith M. (1997), Senior Instructional Professional of Law; Director, Legal Research and Writing and Academic Success Programs; BS, JD, University of Arizona

Stites, William H. (1954), Professor Emeritus of Communication; BA, Louisiana Polytechnic Institute; MA, PhD, University of Denver

Stock, William A. (1984), Professor Emeritus of Kinesiology; BA, Blackburn College; MS, PhD, Iowa State University

Stocker, David Allen (1978), Professor Emeritus of Music; BS, Concordia Teachers College; MM, PhD, Northwestern University

Stojanowski, Christopher M. (2005), Assistant Professor of Anthropology; BA, University of North Carolina at Wilmington; MS, Florida State University; PhD, University of New Mexico

Stokrocki, Mary L. (1990), Professor of Art; BS, State University of New York, New Paltz; MS, Massachusetts College of Art; DEd, Pennsylvania State University

Stone, Anne C. (2003), Associate Professor of Anthropology; BA, University of Virginia; MA, PhD, Pennsylvania State University

Stone, Gregory O. (1986), Associate Professor of Psychology; BA, Harvard University; PhD, University of California, San Diego

Stoner, K. Lynn (1985), Associate Professor of History; BS, George Peabody College for Teachers; MA, PhD, Indiana University

Stout, Robert (1978), Professor Emeritus of Educational Administration and Supervision; BA, Carleton College; PhD, University of Chicago

Stout, Valerie (1991), Associate Professor of Life Sciences; BS, University of Wisconsin, Madison; PhD, Kansas State University

Stover, Myles E., Sergeant First Class (2005), Instructor of Military Science; AS, Pierce College

Stowe, Noel J. (1967), Professor of History; Chair, Department of History; BA, PhD, University of Southern California

Strange, Richard E. (1974), Professor Emeritus of Music; BME, Wichita State University; MME, University of Colorado; DMA, Boston University

Streufert, Hildegarde (1961), Professor Emerita of Interior Design; BS, University of Minnesota, Twin Cities; MS, Iowa State University

Strickland, Deon (2004), Assistant Professor of Finance; BA, Harvard University; MBA, Boston College; PhD, University of North Carolina

Strittmatter, Connie (2000), Assistant Law Librarian; BA, Indiana University of Pennsylvania; MLS, Kent State University

Strom, Robert (1969), Professor of Psychology in Education; BS, Macalester College; MS, University of Minnesota, Twin Cities; PhD, University of Michigan

Stromberg, Juliet C. (1988), Associate Professor of Life Sciences; BS, MS, University of Wisconsin, Milwaukee; PhD, Arizona State University

Strouse, Daniel S. (1990), Professor of Law; AB, SM, Harvard University; JD, University of Wisconsin, Madison

Stuler, John H. (1962), Professor Emeritus of Art; BA, MFA, Arizona State University

Stump, Edmund (1976), Professor of Geological Sciences; AB, Harvard University; MS, Yale University; PhD, Ohio State University

Sudol, David E. (1996), Senior Lecturer of English; BA, Simpson College; MA, Drake University; PhD, University of Arizona

Sugiyama, Saburo (1999), Associate Research Professor of Anthropology; BS, Tokyo-Keizai University (Japan); PhD, Arizona State University

Sullivan, Deborah A. (1976), Associate Professor of Sociology; BS, University of Massachusetts, Amherst; MA, University of California, Irvine; PhD, Duke University

Sullivan, Howard (1971), Professor of Psychology in Education; BS, Oregon College of Education; MEd, PhD, University of Oregon

Sullivan, Jill M. (2000), Assistant Professor of Music; BM, Illinois State University; MM, University of Michigan; PhD, University of Iowa

Sullivan, John J. (1976), Professor Emeritus of Education; BA, Villanova University; MA, PhD, Arizona State University

Sullivan, Kenneth (2004), Assistant Professor of Construction; BS, MS, MBA, PhD, University of Wisconsin, Madison

Sumner, Anthony (2003), Faculty Associate of Planning; BSD, Arizona State University

Sundaram, Hari (2002), Assistant Professor of Arts, Media, and Engineering and Computer Science and Engineering; BTech, Indian Institute of Technology, New Delhi (India); MS, State University of New York, Stony Brook; PhD, Columbia University

Sunkett, Mark E. (1976), Professor of Music; BM, Curtis Institute of Music; MM, Temple University; PhD, University of Pittsburgh

Surbeck, Elaine (1988), Professor of Curriculum and Instruction; Associate Dean for Teacher Education, College of Education; BA, University of Washington; MEd, EdD, University of Georgia

Surgent, Scott (1997), Senior Lecturer of Mathematics and Statistics; BS, MS, University of California, Riverside

Sushka, Marie E. (1984), Professor of Finance; BA, Sweet Briar College; MA, PhD, Georgetown University

Suslov, Sergei K. (1997), Professor of Mathematics and Statistics; MSc, Moscow Institute of Physics and Technology (Russia); PhD, Kurchatov Institute of Atomic Energy (Russia)

Susser, Eric (1997), Honors Faculty Fellow; BA, University of Michigan; MA, PhD, University of Virginia

Suwarno, Peter (1993), Associate Professor of Indonesian; BA, Satya Wacana Christian University (Indonesia); MA, PhD, Ohio University

Svoboda, William S. (1969), Professor Emeritus of Education; BS, MS, EdD, University of Kansas

Swadener, Beth Blue (2001), Professor of Curriculum and Instruction; BA, Indiana University, South Bend; MS, PhD, University of Wisconsin, Madison

Swafford, James R. (1971), Professor Emeritus of Life Sciences; BS, MS, Arizona State University

Swaim, S. Daniel (1975), Professor Emeritus of Music; BM, Cincinnati College Conservatory of Music; MME, Indiana University, Bloomington; DMA, North Texas University

Swanson, Tod D. (1988), Associate Professor of Religious Studies; Director, Latin American Studies Center; BA, University of Minnesota, Twin Cities; MDiv, Luther Theological Seminary; PhD, University of Chicago

Swartz, Jonathan (2001), Assistant Professor of Music; BM, Rice University; MM, Mannes College of Music; DMA, Rice University

Swaty, Mary A. (1968), Associate Librarian, Technical Services Department; BA, University of Missouri, Columbia; MLS, Indiana University, Bloomington

Swimmer, Alvin (1963), Professor Emeritus of Mathematics and Statistics; BS, Pennsylvania State University; MS, New York University; PhD, University of California, Berkeley

Sylvester, Douglas J. (2002), Associate Professor of Law; BA, University of Toronto; LLM, New York University; JD, University of Buffalo

Sylvester, Edward J. (1982), Professor of Journalism and Mass Communication; AB, Princeton University; MA, City College of New York

Sylvester, Ginny (1981), Librarian; Head, Access Services/ Interlibrary Loan and Document Delivery; BA, Hobart and William Smith Colleges; MLS, Rutgers, The State University of New Jersey

Syrotiuk, Violet R. (2002), Assistant Professor of Computer Science and Engineering; BSc, University of Alberta (Canada); MSc, University of British Columbia (Canada); PhD, University of Waterloo (Canada)

Szarek, Stanley R. (1974), Associate Professor of Life Sciences; BS, California Polytechnic State University, Pomona; PhD, University of California, Riverside

Szkupinski-Quiroga, Seline (2003), Assistant Professor of Chicana and Chicano Studies; BA, University of California, Irvine; PhD, University of California, Berkeley

T

Tainter, Joseph A. (2005), Adjunct Professor of Anthropology; BA, University of California, Santa Barbara; MA, PhD, Northwestern University

Tambs, Lewis A. (1969), Professor Emeritus of History; BS, University of California, Berkeley; MA, PhD, University of California, Santa Barbara

Tan, Rui (1990), Assistant Research Professor, Cancer Research Institute; BS, Beijing Medical University (China); MS, PhD, Chinese Academy of Medical Sciences (China)

Tao, Nongjian (2001), Professor of Electrical Engineering; BS, Anhui University (China); PhD, Arizona State University

Taylor, Jack J. (1960), Professor Emeritus of Art; BS, Kutztown State College; MEd, Pennsylvania State University

Taylor, Nora Annesley (1998), Associate Professor of Global Studies and History; BA, Brown University; MA, PhD, Cornell University

Taylor, Thomas (1983), Associate Professor of Mathematics and Statistics; BS, California State University; PhD, Harvard University

Tenney, Lester I. (1969), Professor Emeritus of Finance; BA, University of Miami; MA, San Diego State College; DBA, University of Southern California

Tepedelenlioglu, Cihan (2001), Assistant Professor of Electrical Engineering; BS, Florida Institute of Technology; MS, University of Virginia; PhD, University of Minnesota

Tescarollo, Hamilton (2004), Visiting Assistant Professor of Music; BM, Saint Marceline Faculty, Sao Paulo (Brazil); MM, DMA, Arizona State University

Thacker, Ron (2005), Clinical Assistant Professor of Theatre; Technical Director, School of Theatre and Film; BFA, Virginia Commonwealth University; MFA, California Institute of the Arts

Tharp, Julie (1991), Associate Librarian, Hayden Reference Services; BA, University of Hawaii; MLS, University of Arizona

Thibeau Catsis, Connie (2001), Assistant Professor of Interior Design; BSc, University of Maryland; MSc, PhD, Oklahoma State University

Thieme, Horst R. (1988), Professor of Mathematics and Statistics; MS, PhD, University of Münster (Germany)

Thomas, George M. (1981), Professor of Global Studies; Associate Director, Department of Global Studies; BA, Arizona State University; MA, PhD, Stanford University

Thomas, Keith J. (1975), Professor Emeritus of Reading and Library Science; BS, Illinois State University; MA, Loyola University, Chicago; EdD, University of Arizona

Thomas, Michael (2005), Adjunct Professor of Life Sciences; BS, Bowling Green State University; MS, PhD, Arizona State University

Thompson, Ayanna (2004), Assistant Professor of English; BA, Columbia University; MA, Sussex University; PhD, Harvard University

Thompson, Janice Catherine (1977), Professor of Music; BME, MME, University of Wisconsin; MM, Western Michigan University; DM, Northwestern University

Thompson, Lynette (2004), Lecturer of Curriculum and Instruction; BS, Lewis and Clark College; MS, Portland State University

Thompson, Marilyn S. (1999), Assistant Professor of Psychology in Education; BA, Carleton College; MA, PhD, University of Kansas

Thompson, Patrick (2005), Professor of Mathematics and Statistics; BSc, Central Washington State College; MEd, EdD, University of Georgia

Thompson, Victoria E. (1999), Associate Professor of History; BA, University of California, Berkeley; PhD, University of Pennsylvania

Thompson, William J. (2004), Senior Lecturer of Industrial Engineering; Director, Graduate Studies; BSIE, University of Texas, Arlington; MSE, PhD, Arizona State University

Thomson, Jeffrey (1981), Professor of Theatre; BA, Ripon College; MA, University of Washington; MFA, Wayne State University

Thomson, Tom R. (1961), Professor Emeritus of Chemistry and Biochemistry; BA, University of California, Berkeley; MS, PhD, Kansas State University

Thornburg, Harvey (2005), Assistant Professor of Arts, Media, and Engineering and Electrical Engineering; BSE, MEE, Harvey Mudd College; PhD, Stanford University

Thornton, Leslie-Jean (2004), Assistant Professor of Journalism and Mass Communication; BS, Mercy College; MA, New York University

Thornton, Sybil (1994), Associate Professor of History; BA, University of California, Berkeley; BA, University of Cambridge (United Kingdom); MA, San Francisco State University; MA, PhD, University of Cambridge (United Kingdom)

Thornton, Trevor John (1998), Professor of Electrical Engineering; Director, Center for Solid State Electronics Research; BS, Saint Catherine's College (United Kingdom); MA, PhD, Cambridge University (United Kingdom)

Thorpe, Michael (2003), Professor of Physics and Astronomy; BS, Manchester University (United Kingdom); PhD, Oxford University (United Kingdom)

Tice, Thomas E. (1967), Professor Emeritus of Electrical Engineering; BSEE, MSEE, PhD, Ohio State University

Tidwell, Victor H. (1971), Professor Emeritus of Accountancy; BS, Illinois College; MBA, DBA, Indiana University; CPA, Arizona, Iowa

Tiger, Fern (2004), Professor of Practice of Planning; BFA, MS, Pratt Institute; MFA, Pennsylvania State University

Tillery, Bill W. (1973), Professor of Physics and Astronomy and Science Education; BS, Northeastern State College; MA, EdD, University of Northern Colorado

Tillman, Hoyt C. (1976), Professor of History; BA, Belhaven College; MA, University of Virginia; AM, PhD, Harvard University

Tipton, Gary P. (1969), Professor Emeritus of Chinese; BA, Brigham Young University; PhD, Indiana University, Bloomington

Tobin, Beth Fowkes (2001), Professor of English; BA, Earlham College; MA, PhD, University of Chicago

Tobin, Joseph (2001), Nadine Mathis Basha Professor of Curriculum and Instruction; BA, Earlham College; PhD, University of Chicago

Tohe, Laura (1994), Associate Professor of English; BA, University of New Mexico; MA, PhD, University of Nebraska, Lincoln

Tompkins, Cynthia M. (1992), Associate Professor of Spanish; Licenciada en Letras Modernas, National University of Cordoba (Argentina); MA, PhD, Pennsylvania State University

Tongret, JoAnn (2000), Lecturer of Music; BA, MA, Arizona State University

Torrens, Paul (2005), Assistant Professor of Geography; BA, MA, University of Dublin, Trinity College (Ireland); MA, Indiana University, Bloomington; PhD, University of London, University College (United Kingdom)

Torrest, Robert S. (1980), Professor Emeritus of Chemical Engineering; BS, Polytechnic Institute of Brooklyn; PhD, University of Minnesota, Twin Cities

Touchman, Jeffrey (2003), Assistant Professor of Life Sciences; BA, University of California, San Diego; PhD, University of Texas M. D. Anderson Cancer Center

Towe, Bruce C. (1984), Professor of Bioengineering; BS, MS, PhD, Pennsylvania State University

Towill, Leslie R. (1975), Associate Professor of Life Sciences; BS, MS, University of Wisconsin, Milwaukee; PhD, University of Michigan

Tracey, Terence J. G. (1999), Professor of Psychology in Education; Academic Program Leader, Counseling and Counseling Psychology; BA, Cornell University; MSEd, University of Kansas, Lawrence; PhD, University of Maryland, College Park

Tracogna, Stefania (2000), Lecturer of Mathematics and Statistics; Laurea, University of Trieste (Italy); PhD, Arizona State University

Tracy, Sarah J. (2000), Assistant Professor of Communication; BA, University of Southern California; MA, PhD, University of Colorado

Trapido-Lurie, Barbara (1987), Associate Research Professional of Geography; BA, Pomona College; MA, University of Hawaii

Trapuzzano, Michael (1989), Senior Lecturer of Mathematics and Statistics; BS, United States Air Force Academy, Colorado; MBA, University of Utah

Treacy, Michael (2003), Professor of Physics and Astronomy; BA, PhD, Cambridge University (United Kingdom)

Trelease, Richard N. (1971), Professor of Life Sciences; BS, MS, University of Nevada, Reno; PhD, University of Texas at Austin

Trennert, Robert A. (1974), Professor Emeritus of History; BA, Occidental College; MA, Los Angeles State College; PhD, University of California, Santa Barbara

Trethewey, Angela (1996), Associate Professor of Communication; BA, MA, California State University, Chico; PhD, Purdue University

Trotta, Victoria K. (1996), Associate Dean, Information Technology; Director, Ross–Blakley Law Library; BA, Occidental College; MLS, University of California, Los Angeles; JD, University of Southern California

Tsai, Wei-Tek (1999), Professor of Computer Science and Engineering; SB, Massachusetts Institute of Technology; MS, PhD, University of California, Berkeley

Tsakalis, Konstantinos S. (1988), Professor of Electrical Engineering; BS, National Technical University of Athens (Greece); MSEE, PhD, University of Southern California

Tsen, Kong-Thon (1984), Professor of Physics and Astronomy; BS, Fu-Jen Catholic University (Japan); MS, PhD, Purdue University

Tseng, Ampere A. (1995), Professor of Mechanical and Aerospace Engineering; MS, University of Illinois, Urbana-Champaign; PhD, Georgia Institute of Technology

Tsong, Ignatius S.T. (1981), Professor of Physics and Astronomy; BSc, MSc, University of Leeds (United Kingdom); PhD, University of London (United Kingdom); DSc, University of Leeds (United Kingdom)

Tsosie, Rebecca A. (1993), Professor of Law; Executive Director, Indian Legal Program; BA, JD, University of California, Los Angeles

Tsuda, Takeyuki (2006), Associate Professor of Anthropology; BA, University of Chicago, MA, PhD, University of California, Berkeley

Tsui, Anne S. (2003), Motorola Professor of International Management; BA, University of Minnesota, Duluth; MA, University of Minnesota; PhD, University of California, Los Angeles

Tsukayama, Jennifer (1998), Assistant Professor of Dance; BFA, George Mason University; MFA, New York University

Tu, Eugenia Y. (1973), Professor Emerita of Chinese; BEd, Taiwan Normal University (Taiwan); BA, University of Mary Hardin-Baylor; MS, University of Arizona

Tucker, Bonnie P. (1987), Professor Emerita of Law; BS, Syracuse University; JD, University of Colorado

Turban, Renee C. (2002), Lecturer of Computer Science and Engineering; BS, MS, Rensselaer Polytechnic Institute

Turk, Rudy H. (1967), Professor Emeritus of Art; BS, University of Wisconsin; MA, University of Tennessee

Turkon, Paula (2004), Adjunct Professor of Anthropology; BA, University of Pennsylvania; MA, State University of New York, Buffalo; PhD, Arizona State University

Turner, Caroline Sotello Viernes (1999), Professor of Educational Leadership and Policy Studies; Academic Program Coordinator, EdD in Higher and Postsecondary Education; BA, MA, University of California, Davis; EdS, PhD, Stanford University

Turner, Christy G. II
(1966)
Regents' Professor Emeritus of Anthropology; BA, MA, University of Arizona; PhD, University of Wisconsin, Madison

Turner, Terry (2000), Lecturer of Mathematics and Statistics; BS, College of Charleston; MS, Northern Arizona University

Tyburczy, James A. (1985), Professor of Geological Sciences; Chair, Department of Geological Sciences; BA, Whitman College; PhD, University of Oregon

Tylavsky, Daniel J. (1982), Associate Professor of Electrical Engineering; BSE, MSE, PhD, Pennsylvania State University

U

Uhl, Rebecca S. (1989), Associate Librarian; Management Team, Technical Services Department; BS, MA, Colorado State University; MSLIS, University of Illinois

Umaña-Taylor, Adriana (2004), Assistant Professor of Family and Human Development; BA, MA, University of Texas at Austin; PhD, University of Missouri

Umar, Muhammad Sani (1996), Assistant Professor of Religious Studies; BA, University of Jos (Nigeria); MA, Bayero University (Nigeria); PhD, Northwestern University

Umberger, Emily (1982), Associate Professor of Art; BA, University of Pennsylvania; MA, University of Texas at Austin; PhD, Columbia University

Umberson, George E. (1977), Professor Emeritus of Music; BME, Eastern New Mexico University; MA, University of Iowa; EdD, University of Northern Colorado

Underhill, Michael J. (1990), Professor of Architecture and Landscape Architecture; BArch, Massachusetts Institute of Technology; MCPUD, Harvard University

Underiner, Tamara (2001), Associate Professor of Theatre; BA, University of Dayton; MA, Arizona State University; PhD, University of Washington, Seattle

Underwood, Max (1985), Professor of Architecture and Landscape Architecture; BS, University of Southern California; MArch, Princeton University

Upchurch, Jonathan E. (1982), Professor Emeritus of Civil and Environmental Engineering; BS, MS, University of Illinois; PhD, University of Maryland

Updegraff, Kimberly (1997), Associate Professor of Family and Human Development; BS, MS, PhD, Pennsylvania State University

Urban, Joseph E. (1989), Professor of Computer Science and Engineering; BS, Florida State Institute of Technology; MS, University of Iowa; PhD, University of Southwestern Louisiana

Urban, Susan D. (1989), Professor of Computer Science and Engineering; BS, MS, PhD, University of Southwestern Louisiana

Urioste-Azcorra, Carmen (1995), Associate Professor of Spanish; Licenciatura, University of Seville (Spain); MA, PhD, Arizona State University

Usman, Aribidesi (2001), Assistant Professor of African and African American Studies; BA, MA, University of Ibadan (Nigeria); PhD, Arizona State University

Utley, Elliott M., Sergeant First Class (2004), Instructor of Military Science

Uttal, William R. (1988), Professor Emeritus of Industrial Engineering; BS, University of Cincinnati; PhD, Ohio State University

V

Valasquez, Joseph (2001), Faculty Associate of Industrial Design; BS, Arizona State University

Valdivieso, L. Teresa (1971), Professor Emerita of Spanish; BA, MAE, PhD, Arizona State University

Valenti, F. Miguel (2004), Professor of Theatre and Film and Lincoln Professor of Ethics in the Arts; BA, JD, Yale University

Valentin-Martinez, Joel (2005), Lecturer of Dance; BA, State University of New York, Empire State College

Valentine, Kristin B. (1976), Professor Emerita of Communication; BS, University of Wisconsin, Madison; MA, University of Washington; PhD, University of Utah

Valiente, Carlos (2003), Assistant Professor of Family and Human Development; BS, MS, PhD, Arizona State University

Vallejo, Carlos J. (1975), Associate Professor of Curriculum and Instruction; BS, Chadron State College; MA, PhD, University of Nebraska, Lincoln

Valverde, Leonard A. (1992), Professor of Educational Leadership and Policy Studies; BA, California State University, Los Angeles; PhD, Claremont Graduate School

van der Leeuw, Sander E. (2004), Professor of Anthropology; Director, School of Human Evolution and Social Change; BA, PhD, University of Amsterdam (Netherlands)

van Gelderen, Elly (1995), Professor of English; Director, Teaching English as a Second Language Program; BA, MA, Utrecht University (Netherlands); PhD, McGill University (Canada)

Van Hook, Barry L. (1976), Professor Emeritus of Management; BS, Illinois State University; MS, EdD, Northern Illinois University

Van Orden, Guy C. (1987), Professor of Psychology; BS, University of Oregon; MA, PhD, University of California, San Diego

Van Schilfgaarde, Mark (2002), Professor of Chemical and Materials Science and Mechanical and Aerospace Engineering; BA, University of California, San Diego; PhD, Stanford University

Van Wagenen, R. Keith (1963), Professor Emeritus of Education; BA, Pacific Union College; MA, Arizona State University; PhD, University of Utah

Vanderhoff, Barbara A. (1968), Associate Librarian, Technical Services Department; BA, Fort Hays State University; MA, University of Denver

VanderMeer, Philip R. (1985), Associate Professor of History; BA, Calvin College; MA, PhD, University of Illinois

Vasileska, Dragica (1997), Assistant Professor of Electrical Engineering; BS, MS, University Cyril and Methodius (Macedonia); PhD, Arizona State University

Vaz, Paul (1997), Senior Lecturer of Mathematics and Statistics; BS, MS, PhD, Bombay University (India); PhD, Arizona State University

Vega, Santos C. (1989), Senior Research Specialist Emeritus, Hispanic Research Center; BA, MEd, University of Arizona; PhD, Arizona State University

Vekstein, Claudio (2002), Assistant Professor of Architecture and Landscape Architecture; BS, Buenos Aires University (Argentina); MArch, Academy of Arts Stadelschule (Germany)

Vélez-Ibáñez, Carlos (2005), Professor of Chicana and Chicano Studies; Chair, Department of Chicana and Chicano Studies; BA, MA, University of Arizona; MA, PhD, University of California, San Diego

Venables, John A. (1986), Professor of Physics and Astronomy; BA, PhD, University of Cambridge (United Kingdom)

Verdini, William A. (1976), Associate Professor of Supply Chain Management; BS, Case Western Reserve University; MBA, DBA, Kent State University

Verheidje, Joseph (2005), Adjunct Professor of Life Sciences; MBA, University of Phoenix; PhD, University of Groningen (The Netherlands)

Vermaas, Willem F. J. (1986), Professor of Life Sciences; Associate Director, School of Life Sciences Research Initiatives; DSc, Agricultural University (The Netherlands)

Vernon, Brent (2000), Assistant Professor of Bioengineering; BSE, Arizona State University; PhD, University of Utah

Verrelli, Brian (2004), Assistant Professor of Life Sciences; BA, University of Delaware; PhD, State University of New York, Stony Brook

Verstegen, Clare M. (1989), Professor of Art; BS, University of Wisconsin, Stevens Point; MFA, Cranbrook Academy of Art

Vestre, Norris D. (1972), Professor Emeritus of Psychology; BA, PhD, University of Minnesota, Twin Cities

Vicenti Carpio, Myla (2001), Assistant Professor of American Indian Studies; BA, University of New Mexico; MA, PhD, Arizona State University

Videan, Elaine N. (2005), Adjunct Professor of Anthropology; BS, Grand Valley State University; MS, PhD, Miami University

Villalobos, J. Rene (1999), Associate Professor of Industrial Engineering; BS, Institute of Technology of Chihuahua (Mexico); MS, University of Texas, El Paso; PhD, Texas A&M University

Vining, David C. (1975), Professor Emeritus of Theatre; BA, University of Redlands; MFA, University of Minnesota, Twin Cities

Vinze, Ajay (1998), Professor of Computer Information Systems; Director, Center for Advancing Business through Information Technology; BCom, University of Delhi (India); MBA, University of Connecticut; PhD, University of Arizona

Virgillo, Carmelo (1965), Professor Emeritus of Romance Languages; AB, State University of New York, Albany; AM, PhD, Indiana University

Viri, Denis (1998), Associate Research Professional; BA, San Francisco State University; MEd, PhD, University of Arizona

Vissicaro, Pegge (1983), Assistant Professor of Dance; Interim Chair, Department of Dance; BFA, University of Michigan; MFA, University of North Carolina; PhD, Arizona State University

Vittal, Vijay (2004) Professor of Electrical Engineering; BE, BMS College of Engineering (India); MT, Indian Institute of Technology (India); PhD, Iowa State University

Vitullo, Juliann (1990), Associate Professor of Italian; BA, University of Illinois; MA, PhD, Indiana University, Bloomington

Voaden, Rosalynn (1998), Associate Professor of English; BA, BEd, Queen's University, Kingston (Canada); MA, University of Victoria, British Columbia (Canada); PhD, University of York (United Kingdom)

Voeller, Kytja (2000), Adjunct Professor of Speech and Hearing Science; BA, Reed College; MA, Bryn Mawr College; MD, Columbia University

Vogus, Brad T. (1999), Assistant Librarian; Head, Government Documents/Map Collection; BA, Indiana University, Bloomington; MILS, University of Michigan, Ann Arbor

Volek, Emil (1975), Professor of Spanish; Prom.Phil., PhD, Charles University, Prague (Czechoslovakia)

Voss, Howard G. (1964), Professor Emeritus of Physics and Astronomy; AB, Hope College; MNS, Arizona State University; MS, Purdue University

Voth, Annette (1978), Librarian Emerita; BMus, University of Kansas; MLS, MA, University of California, Berkeley

Votichenko, T. Alexander (1956), Professor Emeritus of Philosophy; AB, Princeton University; MA, Columbia University

Vrudhula, Sarma (2005), Professor of Computer Science and Engineering; BMath, University of Waterloo (Canada); MS, PhD, University of Southern California

W

Wachter, Rebekka (2001), Assistant Professor of Chemistry and Biochemistry; BA, University of California, Santa Cruz; PhD, University of Oregon

Wagner, J. Bruce Jr.
(1977)
Regents' Professor Emeritus, Chemistry and Biochemistry and Solid State Science; BS, PhD, University of Virginia

Wagner, Ronald F. (1962), Professor Emeritus of Art; BS, University of Wisconsin, Madison; MFA, University of Iowa

Wahal, Sunil (2005), Professor of Finance; BA, University of Delhi (India); MBA, Wake Forest University; PhD, University of North Carolina at Chapel Hill

Walker, Beth A. (1988), State Farm Professor of Marketing; BS, Virginia Polytechnic Institute and State University; MS, PhD, Pennsylvania State University

Walker, John E. (1970), Professor Emeritus of Educational Administration and Supervision; BA, Albion College; MA, Michigan State University; EdD, Utah State University

Walker, Margaret U. (2002), Professor of Philosophy and Lincoln Professor of Ethics; BA, University of Illinois, Chicago; MA, PhD, Northwestern University

Walker, Stephen G. (1969), Professor Emeritus of Political Science; BA, Creighton University; MA, PhD, University of Florida

Wallace, Charles E. (1958), Professor Emeritus of Mechanical and Aerospace Engineering; BS, Lewis and Clark College; MS, Oregon State University; PhD, Stanford University

Wallen, Carl (1973), Professor Emeritus of Curriculum and Instruction; BA, University of California, Santa Barbara; MA, San Francisco State College; EdD, Stanford University

Walmsley, Amanda (2001), Assistant Research Professor of Life Sciences; BS, PhD, University of Queensland (Australia)

Walsberg, Glenn E. (1978), Professor of Life Sciences; BS, California State University, Long Beach; PhD, University of California, Los Angeles

Walt, Henry J. (2002), Adjunct Professor of Anthropology; BA, University of California, Santa Barbara; MA, PhD, University of New Mexico

Walters, Sheila A. (1971), Librarian Emerita; BA, University of Oklahoma; MLS, Louisiana State University

Walton-Ramirez, Anne (1999), Lecturer of Spanish; BA, University of South Alabama; MA, Arizona State University

Wamacks, Naomi W. (1968), Professor Emerita of Curriculum and Instruction; BA, MA, EdD, Arizona State University

Wang, Alan P. (1970), Professor Emeritus of Mathematics and Statistics; BA, Washington State University; MA, PhD, University of California, Los Angeles

Wang, Cecilia (1971), Professor Emerita of Mathematics and Statistics; BA, Immaculate Heart College; MA, PhD, University of California, Los Angeles

Wang, Edward Y. (1979), Professor Emeritus of Electrical Engineering; BS, Morningside College; MS, Purdue University; PhD, Tufts University

Wang, Joseph (2004), Professor of Chemical Engineering and Chemistry and Biochemistry; BSc, MSc, DSc, Technion—Israel Institute of Technology

Wang, Ning (2005), Assistant Professor of Global Studies; BS, Beijing University (China); MA, University of Chicago; MEd, Guangzhou Teaching College (China); PhD, University of Chicago

Ward, James C. (1986), Yellow Corporation Professor of Marketing; BA, MBA, PhD, University of Minnesota, Twin Cities

Ward, Lance (1997), Lecturer of Mathematics and Statistics; BS, MS, Brigham Young University

Wardwell, Sandra W. (1974), Research Specialist Emerita of Geography; BS, University of Michigan

Wargo, Rebecca (2003), Assistant Librarian, University Libraries, Archives and Special Collections; BA, Pennsylvania State University; MLIS, University of Pittsburgh

Warne, Donald K. (2003), Clinical Professor of Law; BS, Arizona State University; MPH, Harvard; MD, Stanford University

Warner, Carolyn (1994), Associate Professor of Global Studies and Political Science; BA, University of California, San Diego; AM, PhD, Harvard University

Warnicke, Retha M. (1972), Professor of History; AB, Indiana University; MA, PhD, Harvard University

Warren-Findley, Jannelle (1992), Associate Professor of History; BA, Texas Woman's University; MPhil, PhD, George Washington University

Washington, Simon (2005), Professor of Civil and Environmental Engineering; BS, MS, California State University, Chico; PhD, University of California, Davis

Watson, Clyde W. (1971), Professor Emeritus of Art; BFA, Bethany College; MA, Kansas State University

Watson, George L. (1969), Professor of Journalism and Mass Communication; BA, Phillips University; MA, PhD, Duke University

Webb, L. Dean (1978), Professor of Educational Leadership and Policy Studies; Academic Program Coordinator, PhD in Educational Administration and Supervision; BA, MAT, PhD, University of Florida

Webb, Patricia R. (1998), Associate Professor of English; BA, MA, Illinois State University, Normal; PhD, University of Illinois, Urbana-Champaign

Webber, Andrew N. (1989), Professor of Life Sciences; Associate Dean, Student Support Services, Division of Graduate Studies; Associate Director, School of Life Sciences Graduate Programs; Director, Center for the Study of Early Events in Photosynthesis; Director, Interdisciplinary Committee for Molecular and Cellular Biology; BSc, PhD, University of Essex (United Kingdom)

Webster, Douglas R. (2005), Professor of Global Studies and Institute for International Sustainability; BA, University of Toronto (Canada); MA, University of Waterloo (Canada); PhD, University of California, Berkeley

Weed, Andrew (1999), Clinical Associate Professor of Visual Communication Design; BFA, Arizona State University; MFA, Basel School of Design (Switzerland)

Weidemaier, William (1977), Professor Emeritus of Barrett Honors College; BA, Northern Arizona University; MA, PhD, Arizona State University

Weierstall, Uwe (1994), Assistant Research Scientist of Physics and Astronomy; BS, University of Tübingen (Germany); MS, PhD, Institute of Applied Physics in Tübingen (Germany)

Weigand, Robert (1990), Senior Lecturer of Family and Human Development; Director, Early Intervention Program; BS, University of Scranton; MS, Purdue University

Weigend, Guido G. (1976), Professor Emeritus of Geography; Dean Emeritus, College of Liberal Arts and Sciences; BS, MS, PhD, University of Chicago

Weiner, Gordon M. (1968), Professor Emeritus of History; AB, PhD, University of Pennsylvania

Weinstein, James (1986), Professor of Law; Amelia D. Lewis Professor of Constitutional Law; BA, JD, University of Pennsylvania

Weiser, Kurt
(1989)
Regents' Professor of Art; BFA, Kansas City Art Institute; MFA, University of Michigan

Weiss, Karl H. (1984), Senior Research Professional, Center for Solid State Science; BSc, Ursinus College; MSc, University of Arizona

Weiss, Neil A. (1970), Professor Emeritus of Mathematics and Statistics; BA, MA, PhD, University of California, Los Angeles

Weitz, Rose (1978), Professor of Sociology and Women and Gender Studies; BA, City University of New York; MA, PhD, Yale University

Weitzman, Irene (1998), Adjunct Professor of Life Sciences; BS, Brooklyn College; MA, PhD, Columbia University

Welch, H. William (1967), Professor Emeritus of Electrical Engineering; BA, DePauw University; MS, PhD, University of Michigan; PE

Welfert, Bruno (1990), Associate Professor of Mathematics and Statistics; MA, University of Paris VI (France); PhD, University of California, San Diego

Wellner, Karen (2003), Lecturer of Curriculum and Instruction; BS, State University of New York, Oneonta; MA, PhD, University of Iowa

Wells, Barrie E. (1981), Professor Emeritus of Music; BM, MM, University of the Pacific; DMA, University of Oregon

Wells, Christine L. (1976), Professor Emerita of Kinesiology; BS, University of Michigan; MS, Smith College; PhD, Pennsylvania State University

Wells, Valana L. (1987), Associate Professor of Aerospace Engineering; Vice Chair, Undergraduate Programs in Mechanical and Aerospace Engineering; AB, MS, PhD, Stanford University

Welsh, Peter H. (1986), Associate Professor of Anthropology; BA, Northern Arizona University; MA, PhD, University of Pennsylvania

Wenger, Tisa (2004), Assistant Professor of Religious Studies; BA, Eastern Mennonite University; MA, Claremont Graduate University; PhD, Princeton University

Wentz, Elizabeth A. (1997), Associate Professor of Geography; BA, MA, Ohio State University; PhD, Pennsylvania State University

Wentz, Richard E. (1972), Professor Emeritus of Religious Studies; AB, Ursinus College; BD, Lancaster Theological Seminary; MPhil, PhD, George Washington University

Wesbury, Stuart A. Jr. (1994), Professor Emeritus of Health Management and Policy; BS, Temple University; MHA, University of Michigan; PhD, University of Florida

West, Stephen G. (1981), Professor of Psychology; BA, Cornell University; MA, PhD, University of Texas at Austin

West, Stephen H. (2004), Professor of Global Studies and Chinese; BA, MA, University of Arizona; PhD, University of Michigan

Westerhoff, Paul (1995), Associate Professor of Civil and Environmental Engineering; BS, Lehigh University; MS, University of Massachusetts, Amhurst; PhD, University of Colorado, Boulder

Westie, Frank R. (1983), Adjunct Professor of Sociology; BS, Central Michigan University; PhD, Ohio State University

Wetsel, W. David (1989), Professor of French; BA, University of Texas at Austin; MA, University of Chicago; MA, PhD, Brandeis University

Wexler, Kathryn (1992), Clinical Assistant Professor of Speech and Hearing Science; BA, University of Michigan; MS, Tulane University

Wheeler, Jacqueline (1994), Senior Lecturer of English; BS, MA, Northern Arizona University; PhD, Arizona State University

Wheeler, Michael D. (1975), Senior Research Professional of Chemistry and Biochemistry; BS, University of Wisconsin, Madison

Whitaker, Lisa (1979), Instructor of Sociology; BA, Arizona State University; MA, PhD, Stanford University

Whitaker, Matthew (2001), Assistant Professor of History; BA, MA, Arizona State University; PhD, Michigan State University

Whitam, Frederick L. (1966), Professor Emeritus of Sociology; BA, Millsaps College; AM, PhD, Indiana University, Bloomington

White, Harold C. (1966), Professor Emeritus of Management; BS, MS, University of Oregon; PhD, University of Florida

White, James R. (1981), Professor of Art; BFA, MFA, Ohio University

White, Joann (1997), Faculty Associate of Visual Communication Design; BS, Northwestern University

White, Michael J. (1974), Professor of Law and Philosophy; BA, Arizona State University; MA, PhD, University of California, San Diego

White, Patricia D. (1999), Professor of Law; Dean, College of Law; BA, MA, JD, University of Michigan

White, Philip (2005), Assistant Professor of Industrial Design; BS, University of Kansas; MFA, Cranbrook Academy of Art

Whitecotton, Stacey (1997), Associate Professor of Accountancy; BA, Texas Tech University; MAcc, PhD, University of Oklahoma

Whitehurst, Harry B. (1958), Professor Emeritus of Chemistry and Biochemistry; BA, MA, PhD, Rice University

Whitley, David S. (2003), Adjunct Professor of Geography; AB, MA, PhD, University of California, Los Angeles

Wie, Bong (1989), Professor of Engineering; BS, Seoul National University (South Korea); MS, PhD, Stanford University

Wiezel, Avi (1995), Associate Professor of Construction; BScCE, Polytechnic Institute of Timisoara (Romania); MScCE, PhD, Technion—Israel Institute of Technology (Israel)

Wiggins, Harry B. (1987), Senior Lecturer Emeritus of Supply Chain Management; BS, U.S. Merchant Marine Academy; BS, University of Vermont; MBA, Harvard University

Wilcox, M. Jeanne (1990), Professor of Speech and Hearing Science; BA, Kansas State; MA, PhD, Memphis State University

Wiley, Terrence G. (2000), Professor of Educational Leadership and Policy Studies and Curriculum and Instruction; Director, Division of Educational Leadership and Policy Studies; BA, MA, California State University, Long Beach; PhD, University of Southern California

Wiley, Terry L. (2002), Clinical Professor of Speech and Hearing Science; BA, University of Northern Iowa; MS, Colorado State University; PhD, University of Iowa

Wilkens, Barry J. (1992), Senior Research Professional, Center for Solid State Science; BA, Columbia Union College; MSc, Rutgers, The State University of New Jersey

Wilkinson, Christine K. (1970), Associate Professor of Educational Leadership and Policy Studies; Senior Vice President and Secretary of the University; BA, Arizona State University; MA, University of California, Berkeley; PhD, Arizona State University

Wilkinson, Joseph W. (1964), Professor Emeritus of Accountancy; BS, Carnegie Institute of Technology; MBA, Stanford University; DBA, University of Oregon

Williams, David P. III (1978), Instructor of Sociology; BA, BS, MA, University of Pennsylvania; PhD, Arizona State University

Williams, Douglas (2000), Lecturer of Mathematics and Statistics; BS, University College of Belize; MS, Arizona State University

Williams, Frank G. (1975), Professor Emeritus of Health Management and Policy; BS, MA, Oregon State University; MA, PhD, University of Iowa

Williams, Jenny L. (1967), Librarian Emerita; BA, MLS, Indiana University

Williams, Lynda B. (2004), Associate Research Professor of Geological Sciences; AB, Smith College; MS, Dartmouth College; PhD, University of Calgary (Canada)

Williams, Peter (1981), Professor of Chemistry and Biochemistry; BS, PhD, University of London (United Kingdom)

Williams, Philip F.C. (1986), Professor of Chinese; BA, University of Arkansas; MA, PhD, University of California, Los Angeles

Williams, Robert C. (1978), Professor of Anthropology; BA, MA, University of Cambridge (United Kingdom); BA, MA, PhD, University of Michigan

Williams, Stanley N. (1991), Professor of Geological Sciences; BS, Beloit College; MA, PhD, Dartmouth College

Williamson, Madeline J. (1976), Professor of Music; BA, Ohio Wesleyan University; MM, Western Michigan University; PhD, Arizona State University

Willis, Wayne T. (1989), Associate Professor of Kinesiology; AB, University of California, Berkeley; MA, San Francisco State University; PhD, University of California, Berkeley

Wills, J. Robert (1994), Professor Emeritus of Theatre; Dean Emeritus, The Katherine K. Herberger College of Fine Arts; BA, College of Wooster; MA, University of Illinois; PhD, Case Western Reserve University

Wilson, Angela Cavender (2000), Assistant Professor of History; BA, University of Minnesota, Minneapolis; MA, PhD, Cornell University

Wilson, Gail Eugene (1972), Associate Professor of Music; BS, Ohio State University; MM, Arizona State University

Wilson, Gloria N. (1961), Professor Emerita of Educational Media and Computers; BA, Montclair State College; MA, EdD, Columbia University

Wilson, Jeffrey R. (1985), Associate Professor of Statistics; Director, School of Health Management and Policy; BA, University of the West Indies (Trinidad and Tobago); MS, PhD, Iowa State University

Wilson, Lorna A. (1968), Professor Emerita of French; BEd, University of Saskatchewan (Canada); MA, Arizona State University

Wilson-Rawls, N. Jeanne (1997), Assistant Professor of Life Sciences; BS, McMaster University (Canada); PhD, Saint Louis University

Wilt, Glenn A. Jr. (1963), Professor Emeritus of Finance; AB, Occidental College; MBA, Miami University; PhD, University of Michigan; CFA

Windhorst, Rogier A. (1987)
Regents' Professor of Physics and Astronomy; BSc, MSc, PhD, University of Leiden (Netherlands)

Winer, Laurence H. (1983), Professor of Law; BA, MA, PhD, Boston University; JD, Yale University

Winkelman, Michael (1988), Associate Professor of Anthropology; BA, Rice University; PhD, University of California, Irvine

Winkelman, Richard D. (1965), Professor Emeritus of Economics; BA, Southern Illinois University; MA, PhD, University of Illinois

Wirtz, Dorothy (1959), Professor Emerita of French; BA, University of Iowa; MA, PhD, University of Wisconsin

Wiseman, Douglas E. (1976), Professor Emeritus of Curriculum and Instruction; BS, MA, Eastern Michigan University; PhD, University of Illinois

Witczak, Matthew W. (1999), Professor of Civil and Environmental Engineering; BSCE, MSCE, PhD, Purdue University

Witt, Tom (1975), Associate Professor of Interior Design; BA, MA, MFA, University of California, Los Angeles

Wixted, J. Timothy (1978), Professor Emeritus of Asian Languages; BA, University of Toronto (Canada); AM, Stanford University; DPhil, University of Oxford (United Kingdom)

Wodrich, David L. (2002), Associate Professor of Psychology in Education; BS, MA, Northern Arizona University; PhD, Arizona State University

Wojciechowski, Martin F. (2001), Assistant Professor of Life Sciences; BS, Northern Michigan University; PhD, University of Northern Colorado

Wolchik, Sharlene (1980), Professor of Psychology; BA, Vassar College; MS, PhD, Rutgers, The State University of New Jersey

Wolf, Donald J. (1969), Professor Emeritus of Political Science; BA, MA, Gonzaga University; STM, University of Santa Clara; PhD, Georgetown University

Wolf, George H. (1986), Associate Professor of Chemistry and Biochemistry; BA, University of California, San Diego; MS, PhD, University of California, Berkeley

Wolf, Robert (1985), Professor Emeritus of Interior Design; BS, Southern Illinois University, Carbondale; MA, University of Missouri; Certificate, Konstindustriskulan (Sweden)

Wolfe, Philip M. (1988), Professor of Industrial Engineering; BS, University of Missouri; MSE, PhD, Arizona State University

Wolford, Johanna K. (2005), Adjunct Professor of Life Sciences; BS, Ohio State University; PhD, Kent State University

Wolfthal, Diane (1995), Professor of Art; BA, MA, City University of New York; PhD, Institute of Fine Arts, New York University

Wollam, Owen A. (1964), Professor Emeritus of French; BA, MA, Montana State University; PhD, University of Washington

Wong, Elizabeth (1996), Lecturer of Japanese; BA, William Smith College; MA, Washington University, St. Louis; PhD, Stanford University

Wong, Timothy C. (1995), Professor of Chinese; Director, Center for Asian Studies; BA, Saint Mary's College; MA, University of Hawaii; PhD, Stanford University

Wonka, Peter (2004), Assistant Professor of Computer Science and Engineering; MS, PhD, Vienna University of Technology (Austria)

Wood, Byard D. (1970), Professor Emeritus of Mechanical and Aerospace Engineering; BSME, MSME, Utah State University; PhD, University of Minnesota, Twin Cities

Wood, Linda Sargent (2005), Assistant Professor of History; BA, MA, Montana State University; PhD, University of Maryland, College Park

Wood, Steven D. (1975), Professor Emeritus of Marketing; BS, MA, California State University, San Diego; PhD, University of Wisconsin, Madison

Woodbury, Neal W. (1987), Professor of Chemistry and Biochemistry; BS, University of California, Davis; PhD, University of Washington

Woodfill, Marvin (1966), Professor Emeritus of Computer Science and Engineering; BS, MS, PhD, Iowa State University

Wooding, Robert R. (1971), Professor Emeritus of Construction; BS, United States Naval Academy; BCE, MCE, Rensselaer Polytechnic Institute

Woods, David R. (2004), Clinical Assistant Professor of Speech and Hearing Science; BA, Brigham Young University; MS, University of Arizona

Woodson, Stephani E. (2000), Assistant Professor of Theatre; BFA, MA, University of Texas at Austin; PhD, Arizona State University

Woodward, Mark R. (1985), Associate Professor of Religious Studies; BA, MA, PhD, University of Illinois

Woolf, Charles M. (1961–63; 1964), Professor Emeritus of Life Sciences; Dean Emeritus, College of Liberal Arts and Sciences and Division of Graduate Studies; BS, MS, University of Utah; PhD, University of California, Berkeley

Wootten, William W. (1959), Professor Emeritus of History; BA, University of Chicago; MA, University of Iowa; PhD, University of Minnesota, Twin Cities

Wootton, Richard T. (1964), Professor Emeritus of Education; BS, MS, EdD, University of Utah

Wosinski, Marek (1995), Senior Lecturer of Psychology; BA, MA, PhD, University of Warsaw (Poland)

Wright, David (1981), Associate Research Professional, Center for Solid State Science; BS, Arizona State University

Wright, Heather Harris (2005), Assistant Professor of Speech and Hearing Science; BA, University of Maryland; MA, PhD, University of Georgia

Wright, Johnson Kent (1994), Associate Professor of History; BA, Kalamazoo College; MA, PhD, University of Chicago

Wright, M. Lin (1973), Professor Emerita of Theatre; BA, MA, PhD, University of Minnesota, Twin Cities

Wu, Ai-Hwa (1964), Librarian Emerita; BA, National Taiwan University (Taiwan); MLS, University of Washington

Wu, Jianguo (1995), Professor of Life Sciences; BS, University of Inner Mongolia (China); MS, PhD, Miami University

Wu, Teresa (2001), Assistant Professor of Industrial Engineering; BS, MS, Beijing University of Aeronautics and Astronautics (China); PhD, University of Iowa

Wu, Xu (2005), Assistant Professor of Journalism and Mass Communication; LLB, People's University of China; MA, University of Florida

Wurzburger, Marilyn J. (1960), Librarian; Archives and Special Collections; BA, MacMurray College

Wyckoff, Susan (1979), Professor Emerita of Physics and Astronomy; BA, Mount Holyoke College; PhD, Case Western Reserve University

Wyndelts, Robert W. (1974), Professor Emeritus of Accountancy; BBA, MPA, Georgia State University; PhD, University of Georgia; CPA, Arizona, Georgia

Wytko, Joseph R. (1975), Professor of Music; BME, West Virginia University; MM, DM, Northwestern University

X

Xia, X. James (2002), Adjunct Professor of Life Sciences; MS, Arizona State University; MD, China Medical University (China)

Xu, Jun-Ping (1991), Associate Research Professor, Cancer Research Institute; BS, Shanghai College of Traditional Chinese Medicine (China); PhD, Tokyo College of Pharmacy (Japan)

Xue, Guoliang (2001), Professor of Computer Science and Engineering; BS, MS, Qufu Teachers University (China); PhD, University of Minnesota, Minneapolis

Y

Yabes, Ruth Ammerman (1990), Associate Professor of Planning; BS, BA, University of California, Davis; MCP, University of Pennsylvania; PhD, Cornell University

Yabiku, Scott (2002), Assistant Professor of Sociology; BA, University of Chicago; MA, Pennsylvania State University; PhD, University of Michigan

Yamamori, Tetsumao (1989), Adjunct Professor of Sociology; BA, Northwest Christian College; BD, Texas Christian University; PhD, Duke University

Yan, Hao (2004), Assistant Professor of Chemistry and Biochemistry; BS, Shandong University (China); MS, PhD, New York University

Yao, Lun-Shin (1981), Professor of Engineering; BSE, Cheng Kung University; MS, University of Texas at Austin; PhD, University of California, Berkeley

Yao, Winberta M. (1975), Librarian Emerita; BA, University of California, Berkeley; MS, Columbia University

Yarger, Jeff (2005), Professor of Chemistry and Biochemistry; BS, University of Arizona; PhD, Arizona State University

Yates, Ann M. (1978), Research Professional Emerita of Chemistry and Biochemistry; BS, Saint Lawrence University; PhD, Arizona State University

Yau, Stephen S. (1994), Professor of Computer Science and Engineering; BS, National Taiwan University (Taiwan); MS, PhD, University of Illinois, Urbana-Champaign

Ye, Jieping (2005), Assistant Professor of Computer Science and Engineering; BA, Fudan University (China); MS, National University of Singapore (Singapore); PhD, University of Minnesota, Minneapolis

Ye, Nong (1998), Professor of Industrial Engineering; BS, Peking University (China); MSE, Chinese Academy of Sciences (China); PhD, Purdue University

Yeater, James W. (1958), Professor Emeritus of Theatre; BA, Baker University; MA, University of Washington; PhD, University of Illinois

Young, Bernard (1988), Professor of Art; BFA, Temple University; MFA, PhD, Cornell University

Young, David A. (2001), Professor of Life Sciences; Vice President and Dean, College of Liberal Arts and Sciences; BA, MA, California State University, Fullerton; PhD, Claremont Graduate University

Young, Dennis L. (1975), Professor of Mathematics and Statistics; Codirector, Executive Committee on Statistics; BS, Saint Louis University; MS, PhD, Purdue University

Young, Hewitt H. (1967), Professor Emeritus of Industrial Engineering; BSME, MSIE, Case Institute of Technology; PhD, Arizona State University

Young, Joseph E. (1979), Professor Emeritus of Art; BA, California State University, Los Angeles; MA, University of California, Los Angeles

Young, Josephine Peyton (1998), Associate Professor of Curriculum and Instruction; MA, University of West Florida; PhD, University of Georgia

Young, Otis E. Jr. (1963), Professor Emeritus of History; AB, AM, PhD, Indiana University

Young, Sheila (2002), Assistant Librarian; Noble Science Reference Services; BEd, University of Toledo; MS, University of Arkansas; MLS, University of Oklahoma

Youngblood, Robert L. (1973), Professor of Political Science; BA, Willamette University; MA, University of Hawaii, Manoa; PhD, University of Michigan

Yu, Hongbin (2005), Assistant Professor of Electrical Engineering; BS, MS, Peking University (China); PhD, University of Texas at Austin

Z

Zandieh, Michelle (1997), Assistant Professor of Mathematics and Statistics; BA, Northwestern University; MS, PhD, Oregon State University

Zapata, Claudia (1996), Faculty Associate of Civil and Environmental Engineering; BS, National University of Colombia (Colombia); MSE, PhD, Arizona State University

Zaslow, Bertram (1956), Professor Emeritus of Chemistry and Biochemistry; BA, Cornell University; MS, University of Minnesota, Twin Cities; PhD, Iowa State University

Zatz, Marjorie S. (1982), Professor of Justice and Social Inquiry; Vice Provost; BA, University of Massachusetts, Amherst; MA, PhD, Indiana University, Bloomington

Zautra, Alex (1976), Professor of Psychology; Director, Clinical Program in Psychology; BA, Antioch College; MS, PhD, University of Utah

Zehnder, Joseph A. (2000), Professor of Geography; Director, Southwest Center for Environmental Research and Policy; Codirector, Executive Committee, Atmospheric Science; BS, MS, University of Illinois, Chicago; PhD, University of Chicago

Zeitlin, Marilyn A. (1992), Director, ASU Art Museum; AB, MA, Harvard University

Zenhausern, Frederic (2003), Professor of Chemical and Materials Engineering; Director, Center for Applied Nanobiosciences; BS, University of Geneva (Switzerland); MBA, Rutgers, The State University of New Jersey; PhD, University of Geneva (Switzerland)

Zhang, Junshan (2000), Associate Professor of Electrical Engineering; BE, Huazong University of Science and Technology (China); MS, University of Georgia; PhD, Purdue University

Zhang, Xia (2002), Lecturer of Chinese; BA, Sichuan University (China); MA, University of Victoria (Canada); PhD, University of Alberta (Canada)

Zhang, Yong-Hang (1997), Professor of Electrical Engineering; Nanjing Normal University (China); MSc, Institute of Semiconductors, Chinese Science and Technology University (China); PhD, University of Stuttgart (Germany)

Zhou, Lin (2001), Lincoln Professor of Economics; BS, Fudan University (China); PhD, Princeton University

Zhu, Anmin (1997), Senior Lecturer of Mathematics and Statistics; BS, Anhui University (China); MS, Milin University (China); PhD, Arizona State University

Zimiles, Herbert (1988), Professor Emeritus of Psychology in Education; BA, New York University; PhD, University of Rochester

Zucker, Stanley H. (1975), Professor of Curriculum and Instruction; BA, State University of New York, Stony Brook; MS, Hofstra University; PhD, University of Missouri, Columbia

Zwiebel, Imre (1979), Professor Emeritus of Chemical Engineering; BS, University of Michigan; MS, PhD, Yale University

Zygas, K. Paul (1984), Associate Professor of Architecture and Landscape Architecture; AB, MArch, Harvard University; PhD, Cornell University

West Campus

A

Achilles, Elayne R. (1986), Professor Emerita of Education; BMEd, Temple University; MM, EdD, Arizona State University

Ackroyd, William S. (2000), Lecturer, Department of Social and Behavioral Sciences; BA, MA, MS, Portland State University; PhD, University of Arizona

Allgood, Tammy (2002), Assistant Librarian, Fletcher Library; BA, University of Arizona; MS, University of North Carolina

Amani, Jennifer (2005), Assistant Librarian, Fletcher Library; BA, MIS, MLS, Indiana University, Bloomington

Amobi, Olufunmilanyo A. (2001), Assistant Professor, Department of Secondary Education; BA, University of Ibadan (Nigeria); MEd, EdD, Arizona State University

Anastasi, Jeffrey S. (2001), Assistant Professor, Department of Social and Behavioral Sciences; BA, MA, PhD, State University of New York at Binghamton

Andereck, Kathleen L. (1993), Professor, Department of Recreation and Tourism Management; BS, University of Wisconsin, Stevens Point; MS, Texas A&M University; PhD, Clemson University

Anders, Gary C. (1989), Professor, Department of Management; Director, Institute for International Business; BS, West Texas State University; MA, PhD, University of Notre Dame

Anders, Kathleen K. (2003), Lecturer, Department of Management; BA, University of Notre Dame; MBA, University of Alaska; PhD, Arizona State University

Anderson, Laurel A. (1989), Associate Professor, Department of Economics, Finance, Marketing, and Quantitative Business Analysis; BSN, University of Minnesota, Twin Cities; MN, University of Washington; PhD, Arizona State University

Anderson, Owen (2004), Lecturer, Department of Integrative Studies; BA (History), BA (Philosophy), MA (Philosophy), MA (Religious Studies), Arizona State University

Anokye, Akua Duku (1999), Associate Professor, Department of Language, Cultures, and History; BA, Michigan State University; MA, Federal City College, District of Columbia; MA, PhD, City University of New York Graduate School and University Center

Atwater, Leanne E. (1993), Professor, Department of Management; Interim Dean, School of Global Management and Leadership; BA, MA, San Diego State University; PhD, Claremont Graduate School

Autry, Cari E. (2005), Assistant Professor, Department of Recreation and Tourism; BS, North Carolina State University; MS, University of North Carolina at Chapel Hill; PhD, University of Florida

Ávalos, Manuel (1990), Associate Professor, Department of Social and Behavioral Sciences; Associate Vice Provost for Research and Faculty Development; BA, MA, University of Arizona; PhD, University of New Mexico

Awender, Michael A. (2000), Professor, Department of Graduate Studies and Professional Development; Vice Provost, Academic Affairs; BA, MA, University of Windsor (Canada); MEd, University of Toronto (Canada); PhD, Claremont Graduate School

B

Baldwin, Bruce A. (1989), Professor Emeritus of Accounting; BA, MBA, Michigan State University; PhD, Arizona State University

Balthazard, Pierre A. (1999), Associate Professor, Department of Management; BS, McGill University (Canada); MS, PhD, University of Arizona

Beardsley, Audrey L. (2004), Assistant Professor, Department of Elementary Education; BA, University of Arizona; MEd, PhD, Arizona State University

Bellizzi, Joseph A. (1988), Professor and Chair, Department of Economics, Finance, Marketing, and Quantitative Business Analysis; BS, MA, PhD, University of Nebraska, Lincoln

Berger, Roger L. (2004), Professor and Chair, Department of Mathematical Sciences and Applied Computing; BA, University of Kansas; MS, PhD, Purdue University

Berheim, Barbara Elaine (2005), Lecturer, Department of Elementary Education; BA, MEd, University of Arizona

Bernat, Frances P. (1993), Associate Professor, Department of Criminal Justice and Criminology; BS, MA, JD, State University of New York, Buffalo; PhD, Washington State University

Bixby, Patrick W. (2004), Assistant Professor, Department of Language, Cultures, and History; BA, University of California, Los Angeles; MA, California State University, Long Beach; PhD, Emory University

Bjork, Mary (2005), Assistant Professor, Department of Language, Cultures, and History; BA, University of Arizona; MA, Claremont Graduate University; PhD, University of California, Santa Barbara

Boorse, Graham C. (2005), Assistant Professor, Department of Integrated Natural Sciences; BS, Pepperdine University; PhD, University of Michigan

Borror, Connie M. (2005), Associate Professor, Department of Mathematical Sciences and Applied Computing; BS, MS, Southern Illinois University, Edwardsville; PhD, Arizona State University

Bowman, Scott (2005), Lecturer, Department of Criminal Justice and Criminology; BA, BS, MS, PhD, Arizona State University

Bradshaw, Lori G. (2005), Assistant Professor, Department of Special Education; BA, BEd, University of Winnipeg (Canada); MEd, University of Manitoba (Canada); PhD, Berne University International Graduate School (St. Kitts, West Indies)

Brady, Sharon J. (2005), Assistant Professor, Department of Special Education; BS, Appalachian State University; MS, University of Kentucky; PhD, University of Delaware

Brawley, E. Allan (1992), Professor Emeritus of Human Services; Certificate of Social Work, University of Strathclyde (United Kingdom); DSW, University of Pennsylvania

Bredbenner, Candice D. (1990), Associate Professor, Department of Language, Cultures, and History; Associate Dean, New College of Interdisciplinary Arts and Sciences; Director, Interdisciplinary Studies Program; BA, Russell Sage College; MA, PhD, University of Virginia

Brett, Joan F. (1999), Associate Professor, Department of Management; Associate Vice Provost, Graduate Studies and Academic Programs; BA, BS, Ohio State University; PhD, New York University

Bristol, Terry (2000), Assistant Professor, Department of Economics, Finance, Marketing, and Quantitative Business Analysis; BS, MS, San Diego State University; PhD, Virginia Polytechnic Institute

Britt, Chester L. III (1999), Associate Professor and Chair, Department of Criminal Justice and Criminology; BS, University of Iowa; MA, Washington State University; PhD, University of Arizona

Broaddus, Dorothy C. (1990), Associate Professor, Department of Language, Cultures, and History; BA, Eastern Kentucky University; MEd, PhD, University of Louisville

Buenker, Joe (2000), Assistant Librarian, Fletcher Library; BA, University of Wisconsin-Parkside; MS, University of Illinois, Urbana

Burk, John E. (2004), Lecturer, Department of Communication Studies; BA, Carroll College; MS, PhD, Southern Illinois University

Burleson, Mary H. (1997), Associate Professor, Department of Social and Behavioral Sciences; BA, MS, New Mexico State University; PhD, Arizona State University

Buscher, Dick (2002), Lecturer, Department of Elementary Education; BS, MS, Eastern Illinois University; EdD, Arizona State University

Bushfield, Suzanne Y. (2002), Assistant Professor, Department of Social Work; BM, Southern Methodist University; MSW, University of Southern Mississippi; PhD, University of Idaho

Buss, Ray R. (1990), Associate Professor, Department of Graduate Studies and Professional Development; Assistant Dean, College of Teacher Education and Leadership; BS, MS, PhD, University of Wisconsin, Madison

C

Cabrera, Elizabeth F. (2005), Visiting Associate Professor, Department of Management; BA, Rhodes College; MS, PhD, Georgia Institute of Technology

Cabrera, Luis (2002), Assistant Professor, Department of Social and Behavioral Sciences; BA, Western Washington University; MFA, Eastern Washington University; MA, PhD, University of Washington

Califano, Linda (2005), Lecturer, Department of Elementary Education; BA, MS, City University of New York at Queens College; MA, EdD, Northern Arizona University

Cardelle-Elawar, Maria (1987), Professor, Department of Graduate Studies and Professional Development; BA, Liberator Experimental pedagogical University (Venezuela); MS, University of Southern California; PhD, Stanford University

Cárdenas, Lupe (1986), Associate Professor, Department of Language, Cultures, and History; BA, MA, PhD, Arizona State University

Carey, Jane M. (1988), Associate Professor, Department of Management; BS, MBA, Eastern Illinois University; PhD, University of Mississippi

Carter, Heather Lynn (2003), Lecturer, Department of Elementary Education; BS, Arizona State University; MEd, Arizona State University West

Champion, Kelly M. (2001), Assistant Professor, Department of Social and Behavioral Sciences; AB, University of Michigan, Ann Arbor; MS, Eastern Michigan University; PhD, University of Kansas

Chen, Huajing (2005), Assistant Professor, Department of Accounting; BE, Xiamen University (China); PhD, Temple University

Chisholm, Inés M. (1991), Professor Emerita of Education; BA, MEd, University of Puerto Rico; PhD, University of Florida

Christie, Alice A.
(1995)
President's Professor, Department of Graduate Studies and Professional Development; BA, Denison University; MEd, Boston University; PhD, Arizona State University

Chung, Hyeeso (2005), Assistant Professor, Department of Accounting; BS, University of California, Davis; MSM, PhD, Purdue University

Cisler, Sherry A. (2003), Lecturer, Department of Language, Cultures, and History; BA, MA, California State University, San Marcos

Clark, Patricia (2003), Assistant Professor, Department of Interdisciplinary Arts and Performance; BFA, MFA, Arizona State University

Cleland, Jo Ann V. (1991), Professor Emerita of Education; BA, Saint Olaf College; MA, EdD, Northern Arizona University

Clemency, Andrew (2005), Lecturer, Department of Criminal Justice and Criminology; BA, University of Notre Dame; JD, Rutgers, The State University of New Jersey School of Law

Collins-Chobanian, Shari (1994), Associate Professor and Chair, Department of Integrative Studies; BA, Colorado State University; MA, PhD, Washington University

Coon, David W. (2004), Associate Professor, Department of Social and Behavioral Sciences; BA (Foreign Service and Public Affairs), BA (Linguistics and Cross-Cultural Communication), MA, University of Oklahoma; PhD, Stanford University

Coulter, Cathy A. (2004), Assistant Professor, Department of Elementary Education; BA, Lewis and Clark College; PhD, Arizona State University

Cuádraz, Gloria H. (1994), Associate Professor, Department of Language, Cultures, and History; Director, Ethnic Studies Program; BA, University of California, Santa Cruz; MA, PhD, University of California, Berkeley

Cutrer, Emily F. (1990), Professor, Department of Language, Cultures, and History; Dean, New College of Interdisciplinary Arts and Sciences; BA, MA, PhD, University of Texas, Austin

Cutrer, Thomas W. (1992), Professor, Department of Language, Cultures, and History; BA, MA, Louisiana State University; PhD, University of Texas, Austin

D

Dallmus, John T. (2000), Lecturer, Department of Accounting; BS, Towson University; MBA, Loyola College in Maryland

Davidson, Ronald (1996), Professor Emeritus of Global Management and Leadership; BComm, University of Manitoba (Canada); MBA, York University (Canada); PhD, University of Arizona

DeBacker, Stephanie Fink (2003), Assistant Professor, Department of Language, Cultures, and History; BSFS, Georgetown University; MA, Catholic University of America; PhD, University of Arizona

Decker, Scott (2006), Professor, Department of Criminal Justice and Criminology; BA, DePauw University; MA, PhD, Florida State University

De La Cruz, Yolanda (1991), Associate Professor, Department of Elementary Education; BA, MA, California State University, Northridge; EdD, University of California, Berkeley

Dennis, Douglas E. (2003), Professor and Chair, Department of Integrated Natural Sciences; BA, Adrian College; PhD, University of Tennessee, Knoxville

Deutch, Charles E. (2002), Associate Professor, Department of Integrated Natural Sciences; BA, Reed College; PhD, University of California, Riverside

Dietrich, Suzanne W. (1988), Associate Professor, Department of Mathematical Sciences and Applied Computing; BS, MS, PhD, State University of New York, Stony Brook

Di Mare, Lesley (1992), Associate Professor, Department of Communication Studies; Associate Vice Provost, Undergraduate Initiatives and Academic Programs; BA, California State University, Chico; MA, California State University, Hayward; PhD, Indiana University, Bloomington

Dorsey, Jennifer Hull (2004), Assistant Professor, Department of Language, Cultures, and History; BA, Emory University; MA, Boston College; PhD, Georgetown University

Doyle, Jacqueline (2005), Assistant Librarian, Fletcher Library; BS, California State University, Northridge; MS, California State University, Fullerton

Duarte, Marisa (2004), Assistant Librarian, Fletcher Library; BA, University of Arizona; MSLIS, Catholic University America

Duncan, William A. (1991), Associate Professor and Chair, Department of Accounting; BS, Portland State University; PhD, University of Texas, Austin

E

Ealy, Saundra A. (2002), Field Director and Lecturer, Department of Social Work; BSW, Temple University; MSW, University of Michigan, Ann Arbor

Elenes, C. Alejandra (1992), Associate Professor, Women's Studies Program; Licenciada en Ciencias de la Información, University of Monterrey (Mexico); MA, PhD, University of Wisconsin, Madison

F

Farone, Diane Weis (2001), Assistant Professor, Department of Social Work; BA, University of Colorado at Boulder; MBA, University of Tennessee; MS, DSW, Columbia Univeristy; JD, Vanderbilt University

farrelly, deg (1991), Associate Librarian, Fletcher Library; BA, Illinois State University; MLS, Rutgers, The State University of New Jersey

Finger, Catherine A. (2004), Lecturer, Department of Accounting; BS, University of the Pacific; MBA, University of Southern California; PhD, University of California, Berkeley

Fitzpatrick, Tanya R. (2000), Associate Professor, Department of Social Work; BA, Clark University; MSW, Simmons School of Social Work; PhD, Boston College

Flynn, Matthew J. (2005), Visiting Assistant Professor, Department of Language, Cultures, and History; BA, Loyola Marymount University; MA, San Diego State University; PhD, Ohio University

Forster, Bruce A. (2000), Professor Emeritus of Global Management and Leadership; BA, University of Guelph (Canada); PhD, Australian National University (Australia)

Foulger, Teresa S. (2004), Assistant Professor, Department of Elementary Education; BS, University of Utah; MS, Arizona State University; EdD, Pepperdine University

French, Kathryn J. (2004), Lecturer, Department of Communication Studies; BS, Northern Arizona State University; MA, Arizona State University; PhD, University of Southern California, Los Angeles

Friedrich, Patricia Marques (2003), Assistant Professor, Department of Language, Cultures, and History; Director, Writing Certificate Program; BA, University of São Paulo (Brazil); MA, PhD, Purdue University

G

Gable, Karla (2003), Lecturer, Department of Graduate Studies and Professional Development; BA, MA, MC, Arizona State University

Gallegos, Bee (1984), Librarian, Fletcher Library; BS, University of North Alabama; MLS, George Peabody College for Teachers

Garcia, James E. (2005), Lecturer, Department of Language, Cultures, and History; BA, University of Texas at Austin; MFA, Arizona State University

Gately, Jacqueline (2005), Lecturer, Department of Integrative Studies; AB, Bryn Mawr College; MA, PhD, Binghamton University

Gater, Helen L. (1970), Dean Emerita of the Fletcher Library; BA, Fort Hays State University; MA, University of Denver

George, Peggy J. (2001), Lecturer, Department of Elementary Education; BA, Arizona State University; MEd, EdD, University of Massachusetts, Amherst

Gilkeson, John S. (1991), Associate Professor, Department of Language, Cultures, and History; AB, Amherst College; MA, University of Oklahoma; PhD, Brown University

Gitelson, Richard (1994), Professor, Department of Recreation and Tourism Management; Director, Gerontology Program; BA, MAT, MS, University of North Carolina at Chapel Hill; PhD, Texas A&M University

Glass, Ronald D. (1996), Professor Emeritus of Teacher Education and Leadership; BA, Harvard College; MA, PhD, Stanford University; EdM, Harvard University; CPhil, University of California, Berkeley

Glavac, Sonya M. (2004), Assistant Professor, Department of Social and Behavioral Sciences; BA, MA, University of Queensland (Australia); PhD, University of Arizona

Goldman, Alan (2002), Lecturer, Department of Management; BEd, University of Miami, Coral Gables; MA, San Francisco State University; PhD, University of Colorado, Boulder

Gonzalez-Jensen, Margaret (1994), Professor Emerita of Education; BA, Our Lady of the Lake University; MA, EdD, Texas A&M University

Gopalakrishnan, Mohan (1998), Associate Professor and Director, Master of Business Administration Program, Department of Management; BE, College of Engineering (India); MS, PhD, University of Alabama, Tuscaloosa

Greenhut, John G. (1989), Associate Professor, Department of Economics, Finance, Marketing, and Quantitative Business Analysis; BA, PhD, Texas A&M University

Griffin, Marie (1997), Assistant Professor, Department of Criminal Justice and Criminology; BS, Santa Clara University; PhD, Arizona State University

Gruber, Diane (1995), Lecturer, Department of Communication Studies; BA, Rutgers, The State University of New Jersey; MA, PhD, Purdue University

Guevarra, Anna Romina P. (2004), Assistant Professor, Department of Social and Behavioral Sciences; BA, BS, University of California, Irvine; PhD, University of California, San Francisco

Gutierres, Sara E. (1990), Associate Professor, Department of Social and Behavioral Sciences; BS, MA, PhD, Arizona State University

H

Haas, Nancy S. (1986), Associate Professor, Department of Graduate Studies and Professional Development; BA, MEd, PhD, Arizona State University

Haladyna, Thomas M. (1986), Professor, Department of Elementary Education; BS, Illinois State University; MA, San Jose State University; PhD, Arizona State University

Hansen, Cory C. (2002), Assistant Professor, Department of Elementary Education; BEd, University of Calgary (Canada); MEd, Arizona State University West; PhD, Arizona State University

Harken, Henry R. Jr. (1986), Associate Librarian, Fletcher Library; BA, Hofstra University; MSLS, Long Island University

Harrington, Gregory Nigel (2004), Assistant Professor, Department of Integrated Natural Sciences; BSc (Biological Sciences), BSc (Plant Physiology), PhD, University of Newcastle (Australia)

Harris, Kathleen C. (1990), Professor Emerita of Education; BA, MEd, Rutgers, The State University of New Jersey; PhD, Temple University

Hattenhauer, Darryl (1988), Associate Professor, Department of Language, Cultures, and History; BA, MA, California State University; PhD, University of Minnesota, Twin Cities

Henderson, Katherine Andrews (2004), Assistant Librarian, Fletcher Library; BS, Arizona State University West; MLIS, University of Wisconsin, Milwaukee

Hepburn, John R. (1984), Professor, Department of Criminal Justice and Criminology; Dean, College of Human Services; BA, Butler University; MS, University of Kentucky; PhD, University of Iowa

Herold, Mariela E. (2005), Assistant Professor, Department of Elementary Education; BA, Teacher College (Peru); MA, PhD, University of Arizona

Hess, Robert K. (1990), Associate Professor, Department of Secondary Education; BA, MEd, University of Georgia; PhD, University of South Carolina

Hinde, Elizabeth R. (2004), Assistant Professor, Department of Elementary Education; BA, University of Arizona; MEd, PhD, Arizona State University

Hodge, David R. (2005), Assistant Professor, Department of Social Work; MSW, New Mexico Highlands University; PhD, Washington University in St. Louis

Hultsman, Wendy Z. (1990), Associate Professor and Chair, Department of Recreation and Tourism Management; BSE, State University of New York, Cortland; MS, Indiana University, Bloomington; PhD, Pennsylvania State University

Humphreys, Alexandra (2005), Assistant Librarian, Fletcher Library; BA, University of Kiril and Metodij (Macedonia); MILS, University of Arizona

Hurwitz, Sally (2001), Senior Lecturer, Department of Elementary Education; BAE, MEd, PhD, Arizona State University

I–J

Inman, Thomas E. (2002), Lecturer, Department of Mathematical Sciences and Applied Computing; BA, MA, Arizona State University

Irwin, Leslie H. (1995), Associate Professor, Department of Elementary Education; BS, University of Wisconsin, Superior; BEd, MEd, University of Ottawa (Canada); EdD, Brigham Young University

Isbell, Dennis (1991), Associate Librarian, Fletcher Library; BS, MA, Northern Arizona University; MLS, University of Arizona

Jimenez-Silva, Margarita (2005), Assistant Professor, Department of Elementary Education; BA, Concordia University; MEd, EdD, Harvard University

Johnson, Carolyn R. (1995), Librarian Emerita, Fletcher Library; BA, Montclair State College; MSLS, University of Illinois; MBA, University of Minnesota

Johnson, James Chadwick (2006), Assistant Professor, Department of Integrated Natural Sciences; BA, Earlham College; MS, Illinois State University; PhD, University of Kentucky

Joshipura, Smita (2004), Assistant Librarian, Fletcher Library; BLIS, Gujarat University (India); MLIS, IGNOU (India); MA, University of Arizona

Juris, Jeffrey S. (2005), Assistant Professor, Department of Social and Behavioral Sciences; BA, Wesleyan University; MA, PhD, University of California, Berkeley

Jurutka, Peter W. (2004), Assistant Professor, Department of Integrated Natural Sciences; BS, University of Nevada, Las Vegas; PhD, University of Arizona

K

Kammerlocher, Lisa (1988), Associate Librarian, Fletcher Library; BS, MLS, University of Oklahoma

Kassing, Jeffrey W. (1998), Associate Professor and Director of Graduate Studies, Department of Communication Studies; BA, William Jewell College; MA, Murray State University; PhD, Kent State University

Katz, Charles (1997), Associate Professor and Director of Graduate Studies, Department of Criminal Justice and Criminology; Interim Director, Center for Violence Prevention and Community Safety; BS, Truman State University; MA, University of Nebraska, Omaha; PhD, Rutgers University

Keil, Thomas J. (1999), Professor, Department of Social and Behavioral Sciences; BA, King's College; MA, PhD, Temple University

Kelley, Douglas L. (1994), Associate Professor, Department of Communication Studies; BA, Westmont College; MC, Arizona State University; PhD, University of Arizona

Kelley, Michael F. (1990), Associate Professor and Chair, Department of Elementary Education; BS, MS, Arizona State University; EdD, University of Georgia

Kennedy, Jeffrey T. (2000), Lecturer, Department of Interdisciplinary Arts and Performance; BA, California State University, Fullerton; MA, New York University

Kim, Marianne (2006), Assistant Professor, Department of Interdisciplinary Arts and Performance; BS, Northwestern University; MFA, University of California, Los Angeles

Kirby, Andrew (1995), Professor, Department of Social and Behavioral Sciences; Associate Dean, Barrett Honors College; BA, PhD, University of Newcastle (United Kingdom)

Knopf, Richard C. (1986), Professor, Department of Recreation and Tourism Management; Director, Partnership for Community Development; BS, MS, PhD, University of Michigan

Kochanoff, Anita T. (2005), Assistant Professor, Department of Elementary Education; BA, DePaul University; MA, PhD, George Mason University

Koenig, John E. (2005), Lecturer, Department of Elementary Education; BS, Southeast Missouri State University; MS, Southern Illinois University, Edwardsville; PhD, Southern Illinois University, Carbondale

Koptiuch, Kristin (1992), Associate Professor, Department of Social and Behavioral Sciences; BA, State University of New York, Binghamton; MA, PhD, University of Texas, Austin

Korzec, Daniel M. (2005), Lecturer, Department of Elementary Education; BS, Illinois State University; MA, Northern Arizona University

Kwiatkowski, Matthew A. (2004), Lecturer, Department of Integrated Natural Sciences; BS, New Mexico State University, Las Cruces; MA, University of South Dakota, Vermillion; PhD, Arizona State University

L

Langer, Carol L. (2004), Assistant Professor, Department of Social Work; Director, Undergraduate Program; BA, Peru State College; MSW, University of Nebraska, Omaha; PhD, University of Nebraska, Lincoln

Larson, Susan E. (2003), Lecturer, Department of Elementary Education; BS, Bucknell University; MS, Fitchburg State College

Lawton, Stephen B. (2005), Professor, Department of Graduate Studies and Professional Development; Chair, Department of Graduate Studies and Professional Development; BA, University of California, Santa Barbara; MA, PhD, University of California, Berkeley

Lee, Lloyd L. (2004), Assistant Professor, Department of Language, Cultures, and History; BA, Dartmouth College; MA, Stanford University; PhD, University of New Mexico, Albuquerque

Lentz, Daniel (1991), Professor Emeritus of Arts and Sciences; BA, Saint Vincent College; MFA, Ohio University, Athens

Lerman, Richard (1995), Professor, Department of Interdisciplinary Arts and Performance; BA, MFA, Brandeis University

Lewallen, Gary (2004), Lecturer, Department of Elementary Education; BA University of Northern Colorado; MEd, Arizona State University West

Lietz, Cynthia A. (2004), Lecturer, Department of Social Work; BA, Valparaiso University; MSW, University of Illinois, Chicago

Lowe, D. Jordan (2003), Associate Professor, Department of Accounting; BS, MAcc, Brigham Young University; PhD, Arizona State University

M

Macfie, Brian P. (2004), Lecturer, Department of Economics, Finance, Marketing, and Quantitative Business Analysis; BA, Seton Hall University; MBA, Monmouth College; MA (Economics), MS, MA (Political Economy), PhD, Rutgers, The State University of New Jersey

Malian, Ida M. (1990), Professor and Chair, Department of Special Education; BA, Oakland University; MA, PhD, University of Michigan

Marshall, Pamela A. (2003), Assistant Professor, Department of Integrated Natural Sciences; BS, Southern Methodist University; PhD, University of Texas Southwestern Medical Center, Dallas

McCabe, Deborah Brown (2004), Assistant Professor, Department of Economics, Finance, Marketing, and Quantitative Business Analysis; BA, MA, California State University, Hayward; PhD, Arizona State University

McCabe, James (2000), Assistant Professor, Department of Social Work; BA, St. Ambrose College; MPH, MSW, University of Hawaii; DSW, University of California, Berkeley

McGovern, Thomas V. (1990), Professor, Department of Integrative Studies; AB, Fordham University; MA, PhD, Southern Illinois University, Carbondale

McKennon, Edward (2000), Assistant Librarian, Fletcher Library; BA, Rutgers University; MA, University of Arizona

McQuiston-Surrett, Dawn E. (2003), Assistant Professor, Department of Social and Behavioral Sciences; BS, Eastern New Mexico University; MA, PhD, University of Texas, El Paso

Meân, Lindsey J. (2003), Assistant Professor, Department of Communication Studies; BSc, Plymouth Polytechnic (United Kingdom); PhD, University of Sheffield (United Kingdom)

Mengesha, Astair Gebre Mariam (1991), Associate Professor and Chair, Women's Studies Program; BA, Purdue University; MA, Michigan State University; PhD, Iowa State University

Mesquita, Luiz F. (2003), Assistant Professor, Department of Management; BS, University of São Paulo (Brazil); MS, PhD, Purdue University

Messner, Kyle Ann (2004), Lecturer, Department of Elementary Education; BA, Lycoming College; MEd, PhD, Arizona State University

Meznar, Martin (1994), Associate Professor, Department of Management; BA, BS, Bryan College; MS, University of Texas, Dallas; PhD, University of South Carolina

Miller, Paul A. (1988), Associate Professor, Department of Social and Behavioral Sciences; BS, Saint Vincent College; MS, North Carolina State University, Raleigh; MA, PhD, University of Texas, Austin

Mitchell-Kay, Sascha (2005), Assistant Professor, Department of Elementary Education; BA, University of North Carolina at Chapel Hill; MA, PhD, University of California, Berkeley

Mizzi, Philip J. (1988), Associate Professor, Department of Economics, Finance, Marketing, and Quantitative Business Analysis; BA, Rockford College; PhD, Texas A&M University

Mohan, Srimathy (1999), Assistant Professor, Department of Management; BS, MS, University of Alabama, Tuscaloosa; MS, Massachusetts Institute of Technology; PhD, University of Montreal (Canada)

Mola, Simona (2005), Assistant Professor, Department of Economics, Finance, Marketing, and Quantitative Business Analysis; BA, PhD, Bocconi University (Italy)

Montaño, Henry (2000), Lecturer, Department of Social Work; BA, California State University, Northridge; MSW, University of California, Los Angeles

Moore, David W. (1989), Professor, Department of Secondary Education; BA, MEd, University of Arizona; PhD, University of Georgia

Moore, Harold (2005), Lecturer, Department of Criminal Justice and Criminology; BA, JD, University of Denver

Morris, Richard (1999), Professor, Department of Communication Studies; BA, San Jose State University; MA, PhD, University of Wisconsin, Madison

Morse, Geoffrey (2006), Assistant Professor, Department of Integrated Natural Sciences; BA, Carleton College; PhD, Harvard University

Mueller, Carol M. (1988), Professor, Department of Social and Behavioral Sciences; BA, University of California, Berkeley; MA, Rutgers, The State University of New Jersey; PhD, Cornell University

Muller, Barbara J. (1991), Senior Lecturer, Department of Accounting; BS, MBA, Arizona State University

Murphy Erfani, Julie A. (1989), Associate Professor, Department of Social and Behavioral Sciences; BA, Knox College; MA, PhD, University of Minnesota, Twin Cities

Myers, Marilyn (1987), Librarian and Dean, Fletcher Library; BA, MA, Kansas State University; MS, University of Illinois

N

Nadesan, Majia H. (1994), Associate Professor, Department of Communication Studies; BA, MA, San Diego State University; PhD, Purdue University

Nadir, P. Aneesah (1994), Assistant Professor, Department of Social Work; BSW, Adelphi University; MSW, PhD, Arizona State University

Nahavandi, Afsaneh (1989), Professor, Department of Management; Director, University College; BA, University of Denver; MA, PhD, University of Utah

Náñez, José E. Sr. (1988), Professor, Department of Social and Behavioral Sciences; BA, MA, California State University; PhD, University of Minnesota, Twin Cities

Nemanich, Louise (2006), Assistant Professor, Department of Management; BS, West Virginia University; MBA, PhD, University of Houston

Nevin, Ann (1991), Professor Emerita of Education; BA, Westminster College; MEd, University of Vermont; PhD, University of Minnesota, Twin Cities

Noronha, Gregory M. (1995), Professor Emeritus of Global Management and Leadership; BSE, University of Michigan; MBA, PhD, Virginia Polytechnic Institute and State University

O

Oke, Adegoke (2005), Visiting Assistant Professor, Department of Economics, Finance, Marketing, and Quantitative Business Analysis; BEng, Ahmadu Bello University (Nigeria); MBA, University of Wales (United Kingdom); PhD, Cranfield University (United Kingdom)

Olander, George A. (2000), Lecturer, Department of Economics, Finance, Marketing, and Quantitative Business Analysis; BS, Xavier University, MBA, Pepperdine University

Olson, Kathryn (2005), Assistant Professor, Department of Elementary Education; BA, College of William and Mary; MEd, PhD, University of California, Los Angeles

Onofrey, Karen A. (2002), Assistant Professor, Department of Secondary Education; BS, Westfield State College; MEd, American International College; PhD, University of Arizona

Osborn-Popp, Sharon (2004), Assistant Professor, Department of Elementary Education; BS, Rutgers, The State University of New Jersey; MA, PhD, Arizona State University

P

Pagán, Eduardo Obregón (2004), Associate Professor and Chair, Department of Language, Cultures, and History; BA, Arizona State University; MA, University of Arizona; MA, PhD, Princeton University

Painter, Suzanne R. (1995), Associate Professor, Department of Graduate Studies and Professional Development; BS, Eastern Oregon State College; MEd, PhD, University of Oregon

Pambuccian, Victor V. (1994), Associate Professor, Department of Integrative Studies; Baccalaureat, German Lyceum (Romania); MS, University of Bucharest (Romania); PhD, University of Michigan

Perry, Eleanor A. (1996), Professor Emerita, College of Teacher Education and Leadership; BA, Douglas College; MEd, Rutgers, The State University of New Jersey; PhD, University of Oregon

Perry, Nancy J. (2005), Assistant Professor, Department of Elementary Education; BS, Madonna University; MEd, PhD, Arizona State University

Persau, Linda (1999), Lecturer, Department of Integrative Studies; Department Coordinator of Internships and Fieldwork; BA, University of California, Davis; MA, Ottawa University

Peterson, Suzanne J. (2005), Assistant Professor, Department of Management; BA, University of Southern California; MBA, PhD, University of Nebraska, Lincoln

Plascencia, Luis F. B. (2005), Assistant Professor, Department of Social and Behavioral Sciences; BA, San Diego State University; MA, PhD, University of Texas, Austin

Printezis, Antonios (2005), Assistant Professor, Department of Management; BS, MS, University of Patras (Greece); PhD, Case Western Reserve University

Prosch, Marilyn (2000), Associate Professor, Department of Accounting; Director, Undergraduate Global Business Program and Assessment; BBA, University of Houston; PhD, Temple University

Puckett, Kathleen S. (2004), Associate Professor, Department of Special Education; BS, MS, EdS, PhD, University of Tennessee

R

Raiser, Tiffany C. (2002), Lecturer, Department of Language, Cultures, and History; BA, Fu-Jen Catholic University (Taiwan); MA, Sussex University (United Kingdom); MEd, PhD, Arizona State University

Ramsey, R. Eric (1994), Associate Professor, Department of Communication Studies; BA, Rutgers, The State University of New Jersey; MA, PhD, Purdue University

Renne, Diane (2000), Assistant Professor, Department of Special Education; BS, MS, University of Kansas; EdD, University of Kentucky

Ridley, Dale Scott (1990), Associate Professor, Department of Elementary Education; BS, New Mexico State University; MA, PhD, University of Texas, Austin

Rillero, Peter (1994), Associate Professor and Interim Chair, Department of Secondary Education; BA, State University of New York, Buffalo; MA, Columbia University; PhD, Ohio State University

Robles, Elias (2005), Associate Professor, Department of Social and Behavioral Sciences; BA, Veracruz University (Mexico); MA, Western Michigan University; PhD, University of Arizona

Rodriguez, Nancy (1998), Associate Professor, Department of Criminal Justice and Criminology; BS, Sam Houston University; PhD, Washington State University

Rojas, Michelle (2005), Lecturer, Department of Elementary Education; BA, University of Arizona; MAEd, University of Phoenix

Ryan, Joseph M. (1995), Professor, Department of Graduate Studies and Professional Development; Interim Dean, College of Teacher Education and Leadership; Director, Research Consulting Center; AB, MEd, Boston College; PhD, University of Chicago

S

Sabatini, Arthur J. (1991), Associate Professor, Department of Interdisciplinary Arts and Performance; BA, MA, Ohio University; PhD, New York University

Saenz, Cecilia (2005), Lecturer, Department of Elementary Education; MEd, University of Houston; PhD, Capella University

Samuels, Janet A. (2003), Assistant Professor, Department of Accounting; BBA, University of Wisconsin, Milwaukee; PhD, Arizona State University

Sander-Staudt, Maureen (2003), Assistant Professor, Department of Integrative Studies; BA, Alverno College; MA, University of Wisconsin, Milwaukee; PhD, University of Colorado, Boulder

Schmidtke, Paul C. (1998), Senior Lecturer, Department of Integrative Studies; BS, Rose-Hulman Institute of Technology; PhD, Ohio State University

Schnebly, Stephen M. (2004), Assistant Professor, Department of Criminal Justice and Criminology; BA, MA, Southern Illinois University, Carbondale; PhD, University of Missouri, St. Louis

Searle, Mark S. (1995), Professor, Department of Recreation and Tourism Management; Vice President, ASU; Provost, West campus; BA, University of Winnipeg (Canada); MS, University of North Dakota; PhD, University of Maryland

Shaffer, Jennifer N. (2003), Assistant Professor, Department of Criminal Justice and Criminology; BA, University of Oklahoma; MA, PhD, Pennsylvania State University

Share, Jessica A. (2004), Lecturer, Women's Studies Program; BA, Arizona State University; PhD, University of Iowa

Shell, Leslee B. (2001), Assistant Librarian, Fletcher Library; BA, Oklahoma State University; MLS, University of Arizona

Shirreffs, Janet H. (1977), Professor Emerita of Human Services, BS, Ithaca College; MS, Syracuse University; PhD, Texas Woman's University

Shome, Raka (1999), Associate Professor, Department of Communication Studies; BA, University of Calcutta (India); PhD, University of Georgia, Athens

Silberman, Jonathan (1992), Professor Emeritus of Global Management and Leadership; BS, Bowling Green State University; MS, PhD, Florida State University

Simmons, William P. (2002), Assistant Professor, Department of Social and Behavioral Sciences; BA, University of Wisconsin, Milwaukee; MA, PhD, Louisiana State University

Singh, Chaitanya (2004), Lecturer, Department of Economics, Finance, Marketing, and Quantitative Business Analysis; BC, University of Delhi (India); MBA, University of Louisiana, Monroe; DBA, Louisiana Tech University

Solis, Francisco J. (2003), Assistant Professor, Department of Integrated Natural Sciences; BS, Technological Institute of Pachuca (Mexico); MS, Center for Research and Advanced Studies (Mexico); PhD, University of Chicago

Soto, Leandro (2002), Senior Lecturer and Artist in Residence, Department of Interdisciplinary Arts and Performance; BFA, National School for the Arts (Cuba); MFA, University of Havana (Cuba)

Sowell, Evelyn J. (1990), Professor Emerita of Education; BA, Howard Payne College; MEd, Wichita State University; EdD, Northern Illinois University

St. Clair, Charles E. (1991), Fine Arts Specialist, Department of Interdisciplinary Arts and Performance; BFA Fairmount Center for Creative and Performing Arts

Stage, Sarah J. (1994), Professor, Women's Studies Program; BA, University of Iowa; MA, University of Massachusetts; MPhil, PhD, Yale University

Stancliff, Michael (2004), Assistant Professor, Department of Language, Cultures, and History; BA, Albion College; MA, PhD, State University of New York, Buffalo

Stryker, Linda L. (1985), Associate Professor, Department of Integrative Studies; BA, Whittier College; BA, MS, San Diego State University; MA, California State University, Los Angeles; PhD, Yale University

Sullivan, Brian K. (1989), Professor, Department of Integrated Natural Sciences; BA, University of California, Berkeley; PhD, Arizona State University

Svoboda, William S. (1969), Professor Emeritus of Education; BS, MS, EdD, University of Kansas

Sweat, Ken Gunter (2000), Lecturer, Department of Integrated Natural Sciences; BA, Claremont McKenna College; MS, Arizona State University

Swenson, Daniel (2000), Associate Professor, Department of Accounting; BA, Memphis State University; PhD, University of Mississippi

T

Taylor, Robert D. (1996), Associate Professor and Chair, Department of Interdisciplinary Arts and Performance; BA, Crewe and Alsager College, Manchester Metropolitan University (United Kingdom); MA, University of Essex (United Kingdom); PhD, University of Kansas

Tellez, Michelle (2005), Assistant Professor, Department of Women's Studies; BA, University of California, Los Angeles; MA, Columbia University; PhD, Claremont Graduate University

Tinsley, Barbara J. (2005), Professor and Chair, Department of Social and Behavioral Sciences; BS, MA, PhD, University of Illinois, Urbana-Champaign

Toth, Stephen A. (2000), Assistant Professor, Department of Language, Cultures, and History; BA, BS, University of Nebraska at Omaha; MA, Arizona State University; PhD, Indiana University

U–V

Ukpanah, Ime J. (2001), Assistant Professor, Department of Language, Cultures, and History; BS, MA, Sam Houston State University; PhD, University of Houston

Vakilzadeh, Ardeshir (2002), Lecturer, Department of Mathematical Sciences and Applied Computing; BS, Florida Agricultural and Mechanical University; MS, PhD, Tehran University (Iran)

Van Fleet, David D. (1989), Professor, Department of Management; Director, Master of Business Administration Program; BS, PhD, University of Tennessee, Knoxville

Vaughan, Suzanne (1987), Associate Professor, Department of Social and Behavioral Sciences; BA, Roanoke College; MA, University of New Mexico; PhD, Ohio State University

Vickrey, Don W. (1992), Professor, Department of Accounting; BBA, University of Houston; MBA, PhD, University of Texas, Austin

W

Waldman, David A. (1995), Professor and Interim Chair, Department of Management; BA, University of Kentucky; MS, PhD, Colorado State University

Waldron, Kathleen M. (2002), Lecturer, Gerontology Program; BA, University of Dayton; MS, University of Texas, Dallas

Waldron, Vincent R. (1992), Professor, Department of Communication Studies; Director, Osher Lifelong Learning Institute; BA, MA, University of Arizona; PhD, Ohio State University

Walumbwa, Fred O. (2005), Assistant Professor, Department of Management; BA, BEd, Egerton University (Kenya); MHR, PhD, University of Illinois at Urbana-Champaign

Wang, Haiyan (2005), Assistant Professor, Department of Mathematical Sciences and Applied Computing; BS, Northwest Normal University (China); MS, Ocean University of China (China); MS, PhD, Michigan State University

Washburn, Nathan T. (2005), Lecturer, Department of Management; BA, MBA, Brigham Young University

Wertheimer, Eric H. R. (1995), Associate Professor, Department of Language, Cultures, and History; BA, Haverford College; MA, PhD, University of Pennsylvania

Wetzel, Keith (1991), Professor, Department of Elementary Education; BA, Greenville College; MA, Goddard College; MA, PhD, University of Oregon

Whitlock, Monica L. (2003), Assistant Professor, Department of Criminal Justice and Criminology; BA, Point Loma Nazarene College; MA, MMFT, PhD, University of Southern California

Wilhelm, Lance A. (2002), Assistant Professor, Department of Secondary Education; BS, MS, PhD, Iowa State University

Williams, Mia K. (2002), Lecturer, Department of Elementary Education; BS, Northern Arizona University; MEd, Arizona State University West

Wise, J. Macgregor (1999), Associate Professor and Chair, Department of Communication Studies; BA, Trinity University; MA, PhD, University of Illinois, Urbana-Champaign

Wood, Robert E. (2005), Lecturer, Department of Accounting; BA, Harvard; MBA, Arizona State University; PhD, University of California, Berkeley

Wosinska, Wilhelmina (1994), Senior Lecturer, Department of Social and Behavioral Sciences; BA, University of Warsaw (Poland); MA, PhD, Jagiellonian University (Poland)

Z

Zambo, Debby (2003), Assistant Professor, Department of Elementary Education; BA, University of South Florida; MEd, PhD, Arizona State University

Zambo, Ronald W. (1991), Associate Professor, Department of Elementary Education; BS, Indiana University, Bloomington; MA, PhD, University of South Florida

Zhang, Qiong (2005), Assistant Professor, Department of Mathematical Sciences and Applied Computing; BS, Hunan University (China); MS, PhD, University of Texas at Dallas

Zhang, Wei (2005), Assistant Professor, Department of Economics, Finance, Marketing, and Quantitative Business Analysis; BA, Towson University; MS, State University of New York, Binghamton; PhD, Syracuse University

Zorita, Paz Méndez-Bonito (1993), Associate Professor, Department of Social Work; AS, School of Social Work of Gijon (Spain); MSSA, PhD, Case Western Reserve University

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Tennis—Men . . . . . Lou Belken
Tennis—Women . . . . . Sheila McInerney
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Volleyball—Women . . . . . Brad Saindon
Water Polo—Women . . . . . Todd Clapper
Wrestling—Men . . . . . Thom Ortiz

Public Affairs

Vice President for Public Affairs . . . . . Virgil Renzulli
Deputy Vice President for Public Affairs . . . . . Charles S. Miller
Associate Vice President for Community Development . . . . . Nancy Jordan

Assistant Vice President for Strategic Communication . . . . . Terri Schafer
Assistant Vice President for Policy Affairs and Executive Director, Federal Relations . . . . . Stuart Hadley
Assistant Vice President for Cultural Affairs and Executive Director, Public Events . . . . . Colleen Jennings-Roggensack
Director, Community Outreach. . . . . Paul Berumen
Director, Constituent Relations. . . . . Wilma Mathews
Director, Special Communications Projects . . . . . William Dabars
Director, Special Events . . . . . Tye Thede
Director, State Relations . . . . . Scott A. Smith
Executive Director, Community Development . . . . . Sandra Ferniza
General Manager, Television Station KAET . . . . . Greg Giczi

Research and Economic Affairs

Vice President for Research and Economic Affairs . . . . . Jonathan Fink
Associate Vice President for Research . . . . . Paul C. Johnson
Associate Vice President, Economic Affairs. . . . . Robert Melnick
Assistant Vice President for Research. . . . . Kathleen Matt
Director, Strategic Communications and Operations . . . . . Jake Kupiec
Assistant to the Vice President . . . . . Cynthia Ryan
Executive Director, Financial Services . . . . . Jay Murphy
Director, Biodesign Institute at ASU . . . . . George H. Poste
Director, Office of Research and Sponsored Projects Administration . . . . . Cheryl Conover
Director, Center for the Study of Religion and Conflict . . . . . Linell Cady
Director, Decision Theater . . . . . Rick Shangraw
Director, Flexible Display Center . . . . . Greg Raupp
Director, Office of Research Publications. . . . . Conrad Storad
Director, Global Institute of Sustainability . . . . . Charles L. Redman
Director, Animal Care and Technology . . . . . Michael McGarry
Director, Southwest Center for Environmental Research and Policy . . . . . Joseph Zehnder

Student Affairs

Interim Senior Vice President for Student Affairs . . . . . Sally Ramage
Senior Associate Vice President and Dean of Students . . . . . Bob Soza
Interim Associate Vice President and Director, Campus Recreation . . . . . Tamra Garstka
Director, Arizona Prevention Resource Center . . . . . Gail Chadwick
Director, Career Services . . . . . Raymond I. Castillo
Director, Counseling and Consultation . . . . . Martha Dennis Christiansen
Director, Educational Development . . . . . Carol Takao
Director, Learning Support Services. . . . . Jeanne Hanrahan
Director, Multicultural Student Services . . . . . Alonzo Jones
Director, Student Development and Memorial Union . . . . . Brett Perozzi
Director, Campus Health Service . . . . . Gary Septon
Director, Student Life . . . . . Deborah Sullivan
Director, Student Media . . . . . Kristin Gilger
Director, Wellness and Health Promotion. . . . . Karen Moses
Director, Development . . . . . Mike Birgen

University Administration and General Counsel

Vice President for University Administration and General Counsel . . . . . Paul J. Ward
Deputy Vice President, University Administration . . . . . LeEtta Overmyer
Director, Internal Audit and Management Services . . . . . *To Be Appointed*
Director, Information Technology Services. . . . . *To Be Appointed*
Director, Equal Opportunity/Affirmative Action . . . . . Barbara Mawhiney
Associate Vice President, Human Resources . . . . . David Butler
Director, Consulting Services . . . . . Al Filardo
Director, Employee Assistance Office/Wellness/Worklife Balance Programs . . . . . Phillip Potter
Senior Director, Human Resources . . . . . Christine Cervantes
Associate Vice President for Legal Affairs . . . . . Nancy Tribbensee
Director/Chief of Police, Department of Public Safety . . . . . John Pickens

University Undergraduate Initiatives

Vice President for University Undergraduate Initiatives . . . . . James A. Rund
Associate Vice President and Senior Advisor, Academic Initiatives . . . . . Patricia Arredondo
Assistant Vice President . . . . . Mistalene Calleroz
Director, Strategic Marketing and Communication . . . . . Gini Sater

Director, Student Financial Assistance . . . . . Craig Fennell
Director, Undergraduate Initiatives Technology Services . . . . . Mike Schaefer
Dean, Undergraduate Admissions . . . . . Martha Byrd
University Registrar . . . . . Lou Ann Denny

Downtown Phoenix Campus
Academic Administration

Vice President, ASU; Provost, Downtown Phoenix Campus . . . . . Mernoy E. Harrison Jr.
Vice Provost and Dean, University College . . . . . Gail Hackett
Vice Provost for Administrative Services . . . . . Sheila W. Stokes
Dean of Students . . . . . Kevin Cook
Dean, College of Nursing . . . . . Bernadette M. Melnyk
Dean, College of Public Programs . . . . . Debra Friedman
Director of External Affairs and Community Relations . . . . . Mary Hughes

College of Public Programs

Dean, College of Public Programs . . . . . Debra Friedman
Associate Dean, College of Public Programs . . . . . Timothy Tyrell
Assistant Dean, College of Public Programs . . . . . Nancy Gwilliam
Director, Alumni and Media Relations . . . . . Debra Palka
Director, School of Community Resources and Development . . . . . Randy J. Virden
Director, School of Public Affairs . . . . . Robert Denhardt
Director, School of Social Work . . . . . Leslie Leighninger
Director, Advanced Public Executive Program . . . . . *To Be Appointed*
Director, Morrison Institute for Public Policy . . . . . Robert Melnick
Director, Center for Nonprofit Leadership and Management . . . . . Robert F. Ashcraft
Director, Center for Urban Inquiry . . . . . Peg Bortner
Director, Development . . . . . Miriam Nickerson
Director, Southwest Interdisciplinary Research Center . . . . . Flavio F. Marsiglia
Student Retention Specialist . . . . . Sara Lyness

College of Nursing

Dean, College of Nursing . . . . . Bernadette M. Melnyk
Administrator, Center for Research and Scholarship . . . . . Lori Weaver
Associate Dean for Clinical Practice and Community Partnerships . . . . . *To Be Appointed*
Associate Dean for Research . . . . . Melissa Faulkner
Director, Academy for Continuing Education . . . . . David P. Hrabe
Director, American Indian Student United for Nursing (ASUN) . . . . . Beverly Warne
Director, Baccalaureate Program . . . . . Brenda Morris
Director of Development . . . . . Laurel Van Dromme
Director, Center for the Advancement of Evidence-Based Practice (CAEP) . . . . . Ellen Fineout-Overholt
  Associate Director of CAEP . . . . . Alyce A. Schultz
  Assistant Director, Outcomes Management, CAEP . . . . . Anne Wojner-Alexandrov
Director, Center for Healthy Outcomes in Aging . . . . . Colleen Keller
Director, Center for Healthy Outcomes in Children, Teens, and Family . . . . . *To Be Announced*
Director, Center for Evaluation and Research . . . . . Pauline Komnenich
Director, Data Management and Information Systems . . . . . Edward A. Greenberg
Director, DNS Program . . . . . Julie Fleury
Director, Information Technology . . . . . Suleman Hamid
Director, Marketing and Communication . . . . . *To Be Appointed*
Director, MS and Post-Master's Programs . . . . . Renee McLeod
Director, RN Baccalaureate Programs . . . . . Karen Saewert
Director, Second Degree Programs . . . . . *To Be Appointed*
Director, Senior Business Services . . . . . Christopher Simms
Director, Student Services for Nursing . . . . . Cheryl L. Herrera
Manager, Learning Resource Center . . . . . Ruth Brooks

University College

Vice Provost and Dean, University College . . . . . Gail Hackett
Associate Dean, Academic Affairs . . . . . Frederick C. Corey
Assistant Dean, Assessment and Evaluation . . . . . Shelly Potts
Assistant Dean, Planning and Business Services . . . . . Elaine Sweet

Assistant Dean, Student Retention and Community College Relations . . . . . Inta "Maggie" Tolan
Director, Facilities Management Downtown Center. . . . . .Cathie Fox
Director, Academic Success and Engagement Programs . . . . . .Stephen Rippon
Executive Director, Center for Academic Advising . . . . . .Casey Self
Interim Executive Director, School of Extended Education . . . . . Patricia A. Feldman
Interim Director, School of Interdisciplinary Studies. . . . . Frederick C. Corey

School of Extended Education

Interim Executive Director, School of Extended Education . . . . . Patricia A. Feldman
Interim Director, Academic and Professional Programs and Director, Student Services and Operations . . . . . Gailynn Valdes
Director, American English and Culture Program . . . . . Mark D. Rentz
Interim Associate Executive Director and Director, Technology and Learning Innovation . . . . . Marc Van Horne
Director, Community Outreach. . . . . Jim Patzer

Polytechnic Campus Academic Administration

Vice President, ASU; Provost, Polytechnic Campus . . . . . Gerald S. Jakubowski
Vice Provost, Academic Programs . . . . . David E. Schwalm
Vice Provost, Administrative Services . . . . . Terry C. Isaacson
Vice Provost, Planning and Budget. . . . . Sheila L. Ainlay
Dean, Student Affairs . . . . . Gary L. McGrath
Director, American Indian Programs . . . . . Phillip J. Huebner
Director, E-Learning . . . . . Gary L. Kleemann
Director, Information Technology . . . . . Kati L. Weingartner
Director, Public Affairs . . . . . C. Vinette Williams
Director, Library Services. . . . . *To Be Appointed*
Director, Research and Special Projects . . . . . Jean N. Humphries
Director, University College, Polytechnic Campus . . . . . Cynthia J. Boglin

East College

Dean, East College . . . . . Glenn W. Irvin
Chair, Department of Exercise and Wellness . . . . . William J. Stone
Chair, Department of Nutrition. . . . . Linda A. Vaughan
Chair, Department of Applied Biological Sciences . . . . . Ward W. Brady
Head, Faculty of Applied Psychology . . . . . Roger W. Schvaneveldt
Head, Faculty of Business Administration . . . . . Roger W. Hutt
Head, Faculty of Education. . . . . Bette S. Bergeron
Head, Faculty of Human Health Studies. . . . . William L. Mermis
Head, Faculty of Humanities and Arts . . . . . Duane H. Roen
Head, Faculty of Multimedia Writing and Technical Communication. . . . . Barry M. Maid
Head, Faculty of Social and Behavioral Sciences. . . . . Nicholas O. Alozie

College of Technology and Applied Sciences

Dean, College of Technology and Applied Sciences . . . . . Albert L. McHenry
Associate Dean, College of Technology and Applied Sciences . . . . . Dale E. Palmgren
Associate Dean and Director, Computing Studies . . . . . Timothy E. Lindquist
Chair, Department of Aeronautical Management Technology . . . . . William K. McCurry
Chair, Department of Electronics and Computer Engineering Technology . . . . . Lakshmi V. Munukutla
Chair, Department of Engineering . . . . . Chell A. Roberts
Chair, Department of Mechanical and Manufacturing Engineering Technology . . . . . Scott G. Danielson
Chair, Department of Technology Management . . . . . Thomas E. Schildgen
Project Director, International Projects Unit. . . . . Gary M. Grossman

Morrison School of Agribusiness and Resource Management

Dean, Morrison School of Agribusiness and Resource Management. . . . . *To Be Appointed*
Associate Dean, Morrison School of Agribusiness and Resource Management . . . . . George J. Seperich

Tempe Campus

Academic Affairs

Executive Vice President and Provost of the University . . . Milton D. Glick
Vice Provost and Dean, Graduate Studies . . . Maria T. Allison
Vice Provost and Dean, University College . . . Gail Hackett
Vice Provost . . . Kathleen K. Church
Vice Provost . . . Marjorie Zatz
Vice Provost . . . Ruth S. Jones
University Chief Information Officer and Vice Provost for Information Technology . . . William E. Lewis
Assistant Vice President for Academic Affairs . . . Louis Olivas
Assistant to the Executive Vice President and Provost of the University . . . Linda Van Scoy
Special Assistant to the Executive Vice President and Provost for Web Development . . . Jake Kupiec
Director, Fiscal and Business Services . . . Lynn Carpenter
Director, Academic Articulation . . . Kathy Wigal
Director, Data Warehousing and Data Administration . . . John Rome
Director, International Programs . . . William G. Davey
Interim Director, Center for Learning and Teaching Excellence . . . Judy Grace
Director, Center for Research on Education in Science, Mathematics, Engineering, and Technology . . . Marilyn Carlson
Director, Summer Sessions . . . Carol Switzer
Director, University Evaluation . . . *To Be Appointed*

Barrett Honors College

Dean, Barrett Honors College . . . Mark Jacobs
Associate Dean . . . Margaret Nelson
Associate Dean, National Scholarship Advisement and Student Internships . . . Janet M. Burke
Assistant Dean, Student Services . . . Kristen J. Nielsen

College of Design

Dean, College of Design . . . Wellington Reiter
Associate Dean for Academic Affairs, College of Design . . . Kenneth R. Brooks
Director, PhD Program in Environmental Design and Planning . . . Nan Ellin
Director, School of Architecture and Landscape Architecture . . . Darren Petrucci
Associate Director, School of Architecture and Landscape Architecture . . . Catherine Spellman
Director, Design Studies, College of Design . . . Jacques Giard
Chair, Department of Industrial Design . . . Lauren McDermott
Chair, Department of Interior Design . . . Lorraine Cutler
Chair, Department of Visual Communication Design . . . Mookesh Patel
Director, School of Planning . . . Hemalata Dandekar
Coordinator, Herberger Center for Design Research . . . Janet Holston
Coordinator, Community Design Studio . . . John McIntosh

College of Education

Vice President for University-School Partnerships and Dean, College of Education . . . Eugene E. García
Senior Associate Dean for Academic Programs and Personnel . . . Sarah Hudelson
Associate Dean, Teacher Education . . . Elaine Surbeck
Associate Dean for Research . . . Stafford Hood
Assistant Dean, Office of Student Services . . . *To Be Appointed*
Director, Division of Curriculum and Instruction . . . James Middleton
Associate Director of Research and Graduate Education, Division of Curriculum and Instruction . . . Robert B. Rutherford Jr.
Associate Director for Professional Development and Induction, Division of Curriculum and Instruction . . . Billie J. Enz
Associate Director of Initial Teacher Certification, Division of Curriculum and Instruction . . . Carol J. Christine
Director, Beginning Educator Support Team (BEST) . . . Sharon Kartman
Director, Division of Educational Leadership and Policy Studies . . . Terrence G. Wiley
Associate Director, Division of Educational Leadership and Policy Studies . . . Kay Hartwell Hunnicutt
Director, Education Policy Studies Laboratory . . . Alex Molnar
Academic Program Coordinator, DELTA Doctorate and EdD in Educational Administration and Supervision . . . Kay Hartwell Hunnicutt
Academic Program Coordinator, EdD in Higher and Postsecondary Education . . . Caroline Sotello Viernes Turner
Academic Program Coordinator, Educational Leadership and Policy Studies . . . Gene V Glass
Academic Program Coordinator, MEd in Educational Administration and Supervision . . . James E. Jurs

Academic Program Coordinator, MEd in Higher and Postsecondary Education . . . . . Caroline Sotello Viernes Turner
Academic Program Coordinator, Social and Philosophical Foundations . . . . . Nicholas R. Appleton
Internship Coordinator and Certification, Educational Administration and Supervision . . . . . Donna J. Macey
Director, Division of Psychology in Education . . . . . Elsie G. J. Moore
Training Director, Counseling Psychology . . . . . Richard T. Kinnier
Academic Program Leader, Counseling and Counseling Psychology . . . . . Terence J. G. Tracey
Academic Program Leader, Educational Psychology . . . . . Samuel B. Green
Academic Program Leader, Educational Technology . . . . . James D. Klein
Interim Training Director, School Psychology . . . . . Linda C. Caterino
Director, Counselor Training Center . . . . . Judith Homer
Director, Southwest Center for Education Equity and Language Diversity . . . . . Josué M. González
Director, Bureau of Educational Research and Services . . . . . Margaret A. Mangini
Director, Center for Indian Education . . . . . David Beaulieu
Director, Office of Professional Field Experiences . . . . . Karen Kimerer

College of Law

Dean, College of Law . . . . . Patricia D. White
Dean of the Faculty . . . . . George Schatzki
Associate Dean of Graduate Studies and Program Development . . . . . Noel Fidel
Associate Dean of Information Technology and Director, Ross–Blakley Law Library . . . . . Victoria K. Trotta
Associate Dean of External Affairs . . . . . Marilyn Seymann
Assistant Dean, Institutional Operations . . . . . Christopher Baier
Assistant Dean, Academic Affairs . . . . . Leslie Mamaghani
W. P. Carey Assistant Dean of Career Services . . . . . Ilona DeRemer
Assistant Dean of Admissions and Financial Aid . . . . . Shelli Soto
Assistant Dean, Student Life and Development . . . . . Michael Bossone
Executive Director, Indian Legal Program . . . . . Rebecca A. Tsosie
Director, Indian Legal Program . . . . . Kathlene Rosier
Executive Director, Center for the Study of Law, Science, and Technology . . . . . Gary E. Marchant
Director, Center for the Study of Law, Science, and Technology . . . . . Andrew Askland
Executive Director, Clinical Programs . . . . . Catherine O'Grady
Director, Communications . . . . . Paul Atkinson
Director, Immigration Clinic . . . . . Evelyn Cruz
Director, Legal Research and Writing and Academic Success Program . . . . . Judith M. Stinson
Director, Lodestar Dispute Resolution Program . . . . . Arthur Hinshaw

College of Liberal Arts and Sciences

Vice President and Dean, College of Liberal Arts and Sciences . . . . . David A. Young
Divisional Dean of Humanities . . . . . Deborah N. Losse
Divisional Dean of Social Sciences . . . . . Alan Artibise
Divisional Dean of Natural Sciences and Mathematics . . . . . Simon M. Peacock
Divisional Dean of Undergraduate Programs . . . . . Daniel Bivona
Chair, Department of Aerospace Studies . . . . . Colonel David W. Guthrie
Chair, Department of Chemistry and Biochemistry . . . . . Robert E. Blankenship
Chair, Department of Chicana and Chicano Studies . . . . . Carlos Vélez-Ibáñez
Chair, Department of English . . . . . Neal A. Lester
Chair, Department of Family and Human Development . . . . . Richard A. Fabes
Chair, Department of Geography . . . . . Richard Aspinall
Chair, Department of Geological Sciences . . . . . James A. Tyburczy
Chair, Department of History . . . . . Noel J. Stowe
Chair, Department of Kinesiology . . . . . Lawrence Mandarino
Chair, Department of Languages and Literatures . . . . . Robert Joe Cutter
Interim Chair, Department of Mathematics and Statistics . . . . . Dieter Armbruster
Chair, Department of Military Science . . . . . Lieutenant Colonel Kick McIntosh
Chair, Department of Philosophy . . . . . Stewart Cohen
Chair, Department of Physics and Astronomy . . . . . Barry G. Ritchie
Chair, Department of Political Science . . . . . Patrick J. Kenney
Chair, Department of Psychology . . . . . Keith A. Crnic
Chair, Department of Religious Studies . . . . . Joel D. Gereboff
Chair, Department of Sociology . . . . . Jennie Jacobs Kronenfeld
Chair, Department of Speech and Hearing Science . . . . . Sid P. Bacon
Director, African and African American Studies Program . . . . . *To Be Appointed*
Director, American Indian Studies Program . . . . . Eddie F. Brown

Director, Asian Pacific American Studies Program . . . . . Karen J. Leong
Director, Hugh Downs School of Human Communication . . . . . H.L."Bud" Goodall, Jr.
Director, School of Human Evolution and Social Change . . . . . Sander van der Leeuw
Director, School of Justice and Social Inquiry . . . . . Doris Marie Provine
Director, School of Life Sciences . . . . . Robert E. Page
Director, Center for Asian Studies . . . . . Claudia Brown
Director, Center for the Study of Early Events in Photosynthesis . . . . . Andrew N. Webber
Director, Climatology Laboratory . . . . . Robert C. Balling
Director, Computational Biosciences Program . . . . . Rosemary Renaut
Director, Hispanic Research Center . . . . . Gary D. Keller
Director, Interdisciplinary Humanities Program . . . . . Peter Lehman
Director, Interdisciplinary Committee for Molecular and Cellular Biology . . . . . Andrew N. Webber
Director, Institute of Human Origins . . . . . Donald C. Johanson
Director, Latin American Studies Center . . . . . Tod D. Swanson
Director, Arizona Center for Medieval and Renaissance Studies . . . . . Robert E. Bjork
Director, Center for Meteorite Studies . . . . . Laurie Leshin
Director, Center for Solid State Science . . . . . David J. Smith
Director, Program for Southeast Asian Studies . . . . . James F. Eder Jr.
Director, Women and Gender Studies Program . . . . . Mary Margaret Fonow

Division of Graduate Studies

Vice Provost and Dean of Graduate Studies . . . . . Maria T. Allison
Associate Dean, Student Support Services . . . . . Andrew Webber
Associate Dean, Academic Programs . . . . . Filiz Ozel
Assistant Dean, Academic Programs . . . . . Sarah B. Lindquist
Assistant Dean, Administrative Services and Information Systems . . . . . Kent D. Blaylock
Assistant Dean . . . . . Michael A. Dickson

Ira A. Fulton School of Engineering

Dean, Ira A. Fulton School of Engineering . . . . . *To Be Appointed*
Interim Deputy Dean, Ira A. Fulton School of Engineering . . . . . Stephen M. Goodnick
Interim Associate Dean, Academic Affairs . . . . . Antonio A. Garcia
Interim Executive Associate Dean, Research . . . . . Edward Hall
Assistant Dean, Business and Fiscal Services . . . . . Ruth Bettenhausen
Assistant Dean, Research . . . . . Douglas Cochran
Assistant Dean and Director, Center for Professional Development . . . . . Jeffrey S. Goss
Assistant Dean, Academic Administration . . . . . Marilyn L. Hart
Assistant Dean, Academic Affairs . . . . . Barry W. McNeill
Interim Director, Del E. Webb School of Construction . . . . . James J. Ernzen
Chair, Harrington Department of Bioengineering . . . . . Eric J. Guilbeau
Chair, Department of Chemical and Materials Engineering . . . . . Subhash Mahajan
Chair, Department of Civil and Environmental Engineering . . . . . Sandra L. Houston
Chair, Department of Computer Science and Engineering . . . . . Sethuraman Panchanathan
Chair, Department of Electrical Engineering . . . . . Stephen M. Phillips
Chair, Department of Industrial Engineering . . . . . Gary L. Hogg
Chair, Department of Mechanical and Aerospace Engineering . . . . . Robert E. Peck
Director, Center for Flexible Panel Display Research . . . . . Gregory B. Raupp
Codirector, Center for Low Power Electronics Research . . . . . Dieter K. Schroder
Director, Center for Solid State Electronics Research . . . . . Trevor John Thornton

The Katherine K. Herberger College of Fine Arts

Dean, Katherine K. Herberger College of Fine Arts . . . . . *To Be Appointed*
Associate Dean, Research and Administration . . . . . Margaret M. Knapp
Assistant Dean, Student Academic Services . . . . . Gina Stephens
Director, School of Art . . . . . *To Be Appointed*
Interim Chair, Department of Dance . . . . . Pegge Vissicaro
Director, School of Music . . . . . *To Be Appointed*
Chair, School of Theatre and Film . . . . . Linda Essig
Director, Communications . . . . . Stacey Shaw
Director, Community Programs . . . . . Melanie Ohm
Director, Fine Art Programs . . . . . Catherine Fletcher
Director, Arts, Media, and Engineering . . . . . Thanassis Rikakis
Director, Public Art . . . . . Dianne Cripe
Director, ASU Art Museum . . . . . Marilyn A. Zeitlin

Senior Business Operations Manager . . . . . Marty Booher
Director, Enrollment and Student Success . . . . . Heather Landes

University Libraries

University Librarian and Dean . . . . . Sherrie Schmidt
Associate Dean, Library Services . . . . . Vicki Coleman
Associate Dean . . . . . John B. Howard
Associate Dean, Personnel . . . . . Kurt R. Murphy
Head, Access Services/Interlibrary Loan and Document Delivery . . . . . Ginny Sylvester
Head, Architecture and Environmental Design Library . . . . . Deborah H. Koshinsky
Head, Archives and Special Collections . . . . . Robert P. Spindler
Head, Government Documents/Map Collection . . . . . Brad T. Vogus
Head, Library Information Systems and Technology (LIST) . . . . . Philip J. Konomos
Head, Music Library . . . . . Brian Doherty
Management Team, Technical Services Department . . . . . Betsy J. Redman, Ronda L. Ridenour, and Rebecca S. Uhl
Team Leader, Noble Science Reference Services . . . . . Linda A. Shackle
Team Leader, Collection Development . . . . . Jeanne Richardson
Team Leader, Hayden Reference Services . . . . . Julie Tharp

W. P. Carey School of Business

Dean, W. P. Carey School of Business . . . . . Robert E. Mittelstaedt Jr.
Deputy Dean . . . . . Philip R. Regier
Associate Dean, Asia Pacific Programs . . . . . Ker-Wei "Buck" Pei
Associate Dean, Doctoral Programs . . . . . Dennis L. Hoffman
Associate Dean, Executive and Professional Programs . . . . . Lee R. McPheters
Associate Dean, W. P. Carey MBA Program . . . . . Gerald Keim
Associate Dean, Undergraduate Programs . . . . . Kay Faris
Assistant Dean, Fiscal and Business Services . . . . . Anne Nguyen
Director, School of Accountancy . . . . . Charles W. Christian
Chair, Department of Economics . . . . . Arthur E. Blakemore
Chair, Department of Finance . . . . . Jeffrey L. Coles
Director, School of Health Management and Policy . . . . . Jeffrey R. Wilson
Chair, Department of Information Systems . . . . . Robert D. St. Louis
Chair, Department of Management . . . . . Albert Cannella
Chair, Department of Marketing . . . . . Michael P. Mokwa
Chair, Department of Supply Chain Management . . . . . Joseph R. Carter
Director, Center for Advanced Purchasing Studies . . . . . Phillip L. Carter
Director, Center for the Advancement of Small Business . . . . . Mary Lou Bessette
Director, Center for Advancing Business through Information Technology . . . . . Ajay Vinze
Research Manager, Center for Business Research . . . . . Tom Rex
Executive Director, Center for Services Leadership . . . . . Stephen W. Brown
Director, Bank One Economic Outlook Center . . . . . Lee R. McPheters
Director, L. William Seidman Research Institute . . . . . Dennis L. Hoffman

Walter Cronkite School of Journalism and Mass Communication

Dean, Walter Cronkite School of Journalism and Mass Communication . . . . . Christopher Callahan

West Campus Administration

Vice President, ASU; Provost, West Campus . . . . . Mark S. Searle
Vice Provost for Academic Affairs . . . . . .Michael A. Awender
Associate Vice Provost, Graduate Studies and Academic Programs . . . . . Joan F. Brett
Associate Vice Provost, Research and Faculty Development . . . . . .Manuel Ávalos
Associate Vice Provost, Undergraduate Initiatives and Academic Programs . . . . . Lesley Di Mare
Assistant Vice Provost, Information Technology . . . . . Connie McNeill
Associate Dean, Barrett Honors College . . . . . Andrew Kirby
Director, Curriculum and Academic Articulation . . . . . Julia R. Ramsden
Director, University College. . . . . Afsaneh Nahavandi
Vice Provost for Administrative Affairs. . . . . Barry R. Bruns
Vice Provost for Public Affairs . . . . . Carol A. Poore
Dean, Fletcher Library. . . . . Marilyn Myers
Dean of Student Affairs . . . . . Luoluo Hong

College of Human Services

Dean, College of Human Services. . . . . .John Hepburn
Chair, Department of Communication Studies . . . . . J. Macgregor Wise
Chair, Department of Criminal Justice and Criminology. . . . . Chester L. Britt III
Chair, Department of Recreation and Tourism Management. . . . . Wendy Hultsman
Interim Chair, Department of Social Work . . . . . Wendy Hultsman
Director, Gerontology Program . . . . . Richard Gitelson
Director, Partnership for Community Development . . . . . .Richard C. Knopf
Liaison, Nursing (Tempe campus program). . . . . Brenda Morris

College of Teacher Education and Leadership

Interim Dean, College of Teacher Education and Leadership. . . . . Joseph M. Ryan
Assistant Dean, College of Teacher Education and Leadership. . . . . Ray R. Buss
Chair, Department of Elementary Education . . . . . .Michael F. Kelley
Chair, Department of Graduate Studies and Professional Development . . . . . .Stephen B. Lawton
Interim Chair, Department of Secondary Education . . . . . Peter Rillero
Chair, Department of Special Education . . . . . .Ida M. Malian

New College of Interdisciplinary Arts and Sciences

Dean, New College of Interdisciplinary Arts and Sciences. . . . . .Emily F. Cutrer
Associate Dean, New College of Interdisciplinary Arts and Sciences. . . . . Candice D. Bredbenner
Chair, Department of Integrated Natural Sciences. . . . . Douglas Dennis
Chair, Department of Integrative Studies . . . . . Shari C. Collins-Chobanian
Chair, Department of Interdisciplinary Arts and Performance. . . . . Robert D. Taylor
Chair, Department of Language, Cultures, and History . . . . . Eduardo Pagán
Chair, Department of Social and Behavioral Sciences. . . . . Barbara Tinsley
Chair, Women's Studies Program. . . . . Astair Gebre Mariam Mengesha

School of Global Management and Leadership

Interim Dean, School of Global Management and Leadership . . . . . Leanne Atwater
Chair, Department of Accounting . . . . . William A. Duncan
Chair, Department of Economics, Finance, Marketing, and Quantitative Business Analysis . . . . . .Joseph A. Bellizzi
Interim Chair, Department of Management . . . . . .David A. Waldman
Director, Master of Business Administration Program . . . . . Mohan Gopalakrishnan

Accreditation and Affiliation

Arizona State University is accredited by the Higher Learning Commission, a Commission of the North Central Association of Colleges and Schools. For more information, call 312/263-0456, access the Web site at www.ncahigherlearningcommission.org, or write

HIGHER LEARNING COMMISSION
30 N LaSALLE ST
SUITE 2400
CHICAGO IL 60602-2504

Programs in the various colleges, schools, divisions, and departments are accredited by, affiliated with, or members of national bodies as described in the

1. "Academic Accreditation at the Downtown Phoenix Campus" table, on this page;
2. "Academic Accreditation at the Polytechnic Campus" table, on this page;
3. "Academic Accreditation at the Tempe Campus" table, page 856;
4. "Academic Accreditation at the West Campus" table, page 857;
5. "Academic Affiliation and Membership at the Downtown Phoenix Campus" table, page 857;
6. "Academic Affiliation and Membership at the Polytechnic Campus" table, page 857;
7. "Academic Affiliation and Membership at the Tempe Campus" table, page 858; and
8. "Academic Affiliation and Membership at the West Campus" table, page 861.

Academic Accreditation at the Downtown Phoenix Campus

Unit or Program	Accredited By
College of Nursing	
BSN, MS, Nursing	Arizona State Board of Nursing Commission on Collegiate Nursing Education
College of Public Programs	
BS, Recreation	National Recreation and Park Association/American Association for Leisure and Recreation Council on Accreditation
BSW, MSW, School of Social Work	Council on Social Work Education
MPA	National Association of Schools of Public Affairs and Administration

Academic Accreditation at the Polytechnic Campus

Unit or Program	Accredited By
College of Technology and Applied Sciences	
BS, Aeronautical Management Technology, with concentrations in professional flight and air transportation management	Council on Aviation Accreditation
BS, Electronics Engineering Technology; Manufacturing Engineering Technology; Mechanical Engineering Technology	Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc.
BS, Environmental Technology Management, Graphic Information Technology, and Operations Management Technology	National Association of Industrial Technology
East College	
BS, Business Administration*	AACSB International—The Association to Advance Collegiate Schools of Business
BS, Nutrition (didactic program in dietetics); MS, Nutrition (dietetic internship)	American Dietetic Association

* This program is accredited through the ASU W. P. Carey School of Business.

Academic Accreditation at the Polytechnic Campus (continued)

Unit or Program	Accredited By
Morrison School of Agribusiness and Resource Management	
BS, Agribusiness, with a concentration in professional golf management	Professional Golfer's Association of America

* This program is accredited through the ASU W. P. Carey School of Business.

Academic Accreditation at the Tempe Campus

Unit or Program	Accredited By
College of Design	
BSD, Graphic Design, Interior Design	Foundation for Interior Design Education Research
BSD, Industrial Design	National Association of Schools of Art and Design
BSLA	Landscape Architectural Accreditation Board
BSP, MUEP	Planning Accreditation Board
MArch	National Architectural Accrediting Board
MSD, Design, with concentrations in graphic design and industrial design	National Association of Schools of Art and Design
College of Education	
MC, Counseling	Council for Accreditation of Counseling and Related Educational Programs
PhD, Counseling Psychology; Educational Psychology with a concentration in school psychology	American Psychological Association
College of Law	
JD	American Bar Association
College of Liberal Arts and Sciences	
BS, Clinical Laboratory Sciences	National Accrediting Agency for Clinical Laboratory Sciences
MS, Communication Disorders, AuD	American Speech-Language-Hearing Association
PhD, Psychology, with a concentration in clinical psychology	American Psychological Association
Ira A. Fulton School of Engineering	
BS, Computer Science	Computing Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc.
BS, Construction	American Council for Construction Education
BSE, Aerospace Engineering; Bioengineering; Chemical Engineering; Civil Engineering; Computer Systems Engineering; Electrical Engineering; Industrial Engineering; Materials Science and Engineering; Mechanical Engineering	Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc.
Katherine K. Herberger College of Fine Arts	
School of Music	National Association of Schools of Music
W. P. Carey School of Business	
All programs	AACSB International—The Association to Advance Collegiate Schools of Business
MHSM, School of Health Management and Policy	Accrediting Commission on Education for Health Services Administration
School of Accountancy	AACSB International—The Association to Advance Collegiate Schools of Business
Walter Cronkite School of Journalism and Mass Communication	
All programs	Accrediting Council on Education in Journalism and Mass Communications

Academic Accreditation at the West Campus

Unit or Program	Accredited By
College of Human Services	
BS, Recreation and Tourism Management	National Recreation and Park Association/American Association for Leisure and Recreation Council on Accreditation
BSW, MSW	Council on Social Work Education
School of Global Management and Leadership	
All business and accountancy programs	AACSB International—The Association to Advance Collegiate Schools of Business

Academic Affiliation and Membership at the Downtown Phoenix Campus

Unit or Program	Affiliation or Membership With
College of Nursing	American Association of Colleges of Nursing
	National Organization of Nurse Practitioner Faculties
	Research America Council for the Advancement of Nursing Science
	Western Institute of Nursing
Continuing and Extended Education Program	Arizona Nurses Association (American Nurses Credentialing Center's Commission on Accreditation)
College of Public Programs	American Humanics, Inc.
School of Community Resources and Development	Arizona American Indian Tourism Association
	Arizona Heritage Alliance
	Arizona Parks and Recreation Association
	Arizona State Therapeutic Recreation Association
	Association for Research on Nonprofit Organizations and Voluntary Action
	Association for Volunteer Administration
	Learning Institute
	National Center for Nonprofit Boards
	National Society of Fund Raising Executives
	Nonprofit Academic Centers Council
	Peter F. Drucker Foundation for Nonprofit Management
	Society for Nonprofit Organizations
	Travel Tourism Research Association
School of Public Affairs	National Association of Schools of Public Affairs and Administration
	Baccalaureate Program Directors Association
School of Social Work	Council on Social Work Education
	Group for the Advancement of Doctoral Education
	National Association of Deans and Directors of Social Work
	National Association of Social Workers

Academic Affiliation and Membership at the Polytechnic Campus

Unit or Program	Affiliation or Membership With
East College	
Department of Applied Biological Sciences	Society for Range Management
Department of Exercise and Wellness	American Association of Health Education
	Association of Worksite Health Promotion
	Committee on Allied Health Education
	National Strength and Conditioning Association
	National Wellness Association
	North American Society for Sports Psychology and Physical Activity

Academic Affiliation and Membership at the Polytechnic Campus (continued)

Unit or Program	Affiliation or Membership With
East College (continued)	
Department of Exercise and Wellness (continued)	North American Society for the Study of Obesity
Department of Nutrition	American Dietetic Association
Faculty of Education—Physical Education	American Academy of Kinesiology and Physical Education
	American Alliance for Health, Physical Education, Recreation, and Dance
	American College of Sports Medicine
	American Educational Research Association
	Council on Physical Education for Children
	Middle and Secondary School Physical Education Council
	National Association for Physical Education in Higher Education
	National Association of Sport and Physical Education

Academic Affiliation and Membership at the Tempe Campus

Unit or Program	Affiliation or Membership With
Barrett Honors College	National Collegiate Honors Council
College of Design	
Department of Industrial Design	Human Factors and Ergonomics Society
	Industrial Designers Society of America
Department of Interior Design	American Society of Interior Designers
	Interior Design Educators Council
Department of Visual Communication Design	American Institute of Graphic Artists
School of Architecture and Landscape Architecture	American Indian Council of Architects and Engineers
	American Institute of Architects, Central Arizona and Rio Salado Chapters
	Architectural Research Centers Consortium
	Association for Computer-Aided Design in Architecture
	Association of Collegiate Schools of Architecture
	American Society of Landscape Architects
	Council of Educators in Landscape Architecture
School of Planning	American Planning Association
	Association of Collegiate Schools of Planning
College of Education	American Association of Colleges for Teacher Education
	American Educational Research Association
	University Council for Educational Administration
PhD, Educational Psychology with a concentration in school psychology	National Association of School Psychologists
College of Law	Association of American Law Schools
College of Liberal Arts and Sciences	
Department of Chemistry and Biochemistry	American Association for the Advancement of Science
	American Chemical Society
	American Society for Advancement of Science
Department of Geography	Association of American Geographers
Department of Geological Sciences	American Association of Petroleum Geologists
	American Geophysical Union
	American Institute of Professional Geologists
	Geological Society of America
	Mineralogical Society of America
	Society of Economic Paleontologists and Mineralogists
Department of History	American Association for State and Local History
	American Association of Museums
	American Historical Association
	Coordinating Committee for History in Arizona
	Institute of Historical Research

Academic Affiliation and Membership at the Tempe Campus (continued)

Unit or Program	Affiliation or Membership With
College of Liberal Arts and Sciences (continued)	
Department of History (continued)	National Council on Public History
	Western History Association
Department of Kinesiology	American Academy of Kinesiology and Physical Education
	American Alliance for Health, Physical Education, Recreation, and Dance
	American College of Sports Medicine
	American Society of Biomechanics
	Committee on Allied Health Education
	Council on Physical Education for Children
	International Society of Biomechanics
	National Association for Physical Education in Higher Education
	North American Society for Sports Psychology and Physical Activity
	Physiological Society
	Society for Experimental Biology
	Society for Neuroscience
Department of Languages and Literatures	American Council on Teaching Foreign Language
	International Studies Association
	Modern Language Association
Department of Mathematics and Statistics	American Mathematical Society
	Mathematical Association of America
	Rocky Mountain Mathematics Consortium
	Society for Industrial and Applied Mathematics
Department of Military Science	Association of U.S. Army
Department of Philosophy	American Philosophical Association
Department of Physics and Astronomy	Acoustical Society of America
	American Association of Physicists in Medicine
	American Association of Physics Teachers
	American Astronomical Society
	American Crystallographic Association
	American Physical Society
	American Vacuum Society
	International Astronomical Union
	Materials Research Society
	Optical Society of America
Department of Political Science	American Political Science Association
	Inter-university Consortium for Political and Social Research
Department of Psychology	American Society of Clinical Psychologists
Department of Sociology	American Sociological Association
Hugh Downs School of Human Communication	National Communication Association
	Western States Communication Association
School of Human Evolution and Social Change	American Anthropological Association
	Council for Museum Anthropology
School of Justice and Social Inquiry	American Society of Criminology
	Arizona Justice Educators
	Association of Criminal Justice Doctoral Programs
	Consortium for Graduate Law and Society Programs
	Consortium of Undergraduate Law and Justice Programs
	Justice Studies Association
	Law and Society Association
	National Academic Advising
	Onati International Institute for the Sociology of Law
	Society for the Study of Social Problems
School of Life Sciences	American Society for Photobiology
	American Society for Virology
	American Society of Cell Biology

Academic Affiliation and Membership at the Tempe Campus (continued)

Unit or Program	Affiliation or Membership With
College of Liberal Arts and Sciences (continued)	
School of Life Sciences (continued)	American Society of Horticultural Science American Society of Medical Technology American Society of Naturalists American Society of Plant Physiologists American Society of Plant Taxonomy American Society of Zoologists Animal Behavior Society Arizona-Nevada Academy of Science Botanical Society of America Botanical Society of Japan California Botanical Society Ecological Society of America International Association for Study of Plant Succulents International Association of Landscape Ecology International Association of Plant Taxonomy International Association of Wood Anatomists International Organization of Paleobotany International Photosynthesis Society International Phycological Society International Society of Arboriculture International Society of Ecological Modeling International Society of Plant Molecular Biology International Society of Plant Propagators International Union of Woody Plant Physiologists Microscopy Society of America Mycological Society of America Phycological Society of America Phytochemical Society of North America Sigma Psi Sigma Xi Society for Economic Botany Society for Neuroscience Society of Ecological Restoration Society of Wetlands Scientists Soil Science Society of America Southwestern Association of Naturalists
Women and Gender Studies Program	Association for Women in Science National Women's Studies Association
Division of Graduate Studies	Council of Graduate Schools
Katherine K. Herberger College of Fine Arts	
School of Theatre and Film	American Alliance for Theatre and Education American Society for Theatre Research Association for Theatre in Higher Education Hemispheric Institute on Performance and Politics United States Institute of Theatre Technology
School of Music	American Music Therapy Association
Walter Cronkite School of Journalism and Mass Communication	Association of Schools of Journalism and Mass Communication Broadcast Education Association

Academic Affiliation and Membership at the West Campus

Unit or Program	Affiliation or Membership With
College of Human Services	
Department of Communication Studies	International Communication Association
	National Communication Association
	Western States Communication Association
Department of Criminal Justice and Criminology	Academy of Criminal Justice Sciences
Department of Recreation and Tourism Management	American Association of Physical Education Health Recreation and Dance
	American Hotel and Motel Association
	Arizona Festivals and Events Association
	Arizona Parks and Recreation Association
	International Festivals and Events Association
	National Employee Service and Recreation Association
	National Intramural Recreation Services Association
	National Recreation and Park Association
	National Tour Association
	Resort and Commercial Recreation Association
	The Travel Industry Association of America
	Travel and Tourism Research Association
Department of Social Work	Association of Baccalaureate Social Work Program Directors, Inc
	The National Association of Social Workers
	The National Association of Deans and Directors of Schools of Social Work
Gerontology Program	American Society on Aging
	Association for Gerontology in Higher Education
	National Council on Aging
	The Gerontological Society of America
New College of Interdisciplinary Arts and Sciences	
Department of Language, Cultures, and History	American Historical Association
	American Studies Association
	Modern Language Association
Department of Social and Behavioral Sciences	American Political Science Association
MA Interdisciplinary Studies	Association of Graduate Liberal Studies Programs
School of Global Management and Leadership	
Accountancy Program	Institute of Internal Auditors

Index

A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

Q

R

S

T

U

V

W

Directory

For the "Downtown Phoenix Campus," see below. For the "Polytechnic Campus," see page 899. For the "Tempe Campus," see page 900. For the "West Campus," see page 906.

Downtown Phoenix Campus

Organization	Location	Telephone	Web Address
Arizona Drug and Gang Prevention Resource Center	ASUDC Bldg. D	480/727-5015 1-888-432-2347	www.asu.edu/adgprc
Arizona Prevention Resource Center	ASUDC Bldg. D	480/727-2772 1-800-432-2772	www.azprevention.org
Extended Education, School of	ASUDC C319	480/965-3986	www.asu.edu/xed
Academic and Professional Programs	RITT B132	480/965-9797	—
American English and Culture Program	MARIP	480/965-2376	www.asu.edu/esl
Downtown Center at ASU and Property Administration	ASUDC	480/965-3046	www.asu.edu/xed/asudt
Communications and Marketing	ASUDC C319	480/965-9696	—
Distance Learning and Technology	RITT A129	480/965-6738	www.dlt.asu.edu
Community Outreach Programs	ASUDC C250	480/965-9696	—
Planning and Business Services	ASUDC C319	480/965-3046	www.asu.edu/xed/asudt/
Winter Session	RITT B132	480/965-9900 480/727-9797	www.asu.edu/xed/winter
Interdisciplinary Studies, School of	UASB 203	480/965-1970	uc.asu.edu/sis
Nursing, College of	—	480/965-3244	nursing.asu.edu
Academic Nursing Centers (ANC) Office	—	—	nursing.asu.edu/anc
Academy for Continuing Education Office	—	480/965-7431	nursing.asu.edu/ace
Advancement of Evidence-Based Practice Office, Center for the	—	480/965-1196	nursing.asu.edu/caep
American Indian Students United for Nursing (ASUN) Office	—	480/965-0123	nursing.asu.edu/asun
Associate Dean for Academic Affairs Office	—	—	—
Associate Dean for Clinical Practice Office and Director of Community Health and Wellness Office	—	—	—
Associate Dean for Research Office	—	—	nursing.asu.edu/research
BSN Program Office	—	480/965-6331	nursing.asu.edu/programs/undergraduate/bsn
Clinical Practice and Community Partners Office	—	—	—
Dean's Office	—	480/965-6431	nursing.asu.edu/general/deans_welcome.htm
Development Office	—	480/965-2564	—
DNS Program Office	—	480/965-3948	nursing.asu.edu/programs/doctorate
Evaluation and Educational Research (CEER) Office, Center for	—	480/965-3928	—
Improving Health Outcomes in Aging Office, Center for	—	480/727-0672	—
Improving Health Outcomes in Children, Teens, and Families Office, Center for	—	—	—
Information Systems	—	480/965-0891	nursing.asu.edu/infosystems
Learning Resource Office	—	480/965-3942	nursing.asu.edu/lrc
Marketing and Communications Office	—	—	nursing.asu.edu/depts/marketing.htm
MS and Post-Master's Programs Office	—	480/965-6411	nursing.asu.edu/programs/graduate

Organization	Location	Telephone	Web Address
Nursing, College of (continued)			
Research and Scholarship Office, Center for	—	—	nursing.asu.edu/research
RN-BSN, RN-BSN-MS Programs Office	—	480/965-3992	nursing.asu.edu/programs/rn
Second Degree Program Office	—	—	—
Student Services Office	—	480/965-2987	nursing.asu.edu/studentservices
Provost, Office of the	TBA	602/496-1000	www.asu.edu/downtownphoenix
Public Programs, College of	WILSN 234	480/965-1034	copp.asu.edu
Advanced Public Executive Program	ASUDC C110	480/965-4006	spa.asu.edu/apep
American Humanics Program	AG 213	480/965-5726	scrd.asu.edu/emphasis/ah
Community Resources and Development, School of	AG 281	480/965-7291	scrd.asu.edu
Morrison Institute for Public Policy	UVCMN 203	480/965-4525	www.morrisoninstitute.org
Nonprofit Leadership and Management, Center for	AG 356	480/965-0607	www.asu.edu/copp/nonprofit
Public Affairs, School of	WILSN 208	480/965-3926	spa.asu.edu
Social Work, School of	WHALL 135	480/965-6081	ssw.asu.edu
Southwest Interdisciplinary Research Center	20 E. University Room 203	480/965-4699	sirc.asu.edu
Student Services Office	WILSN 203	480/965-1034	—
Urban Inquiry, Center for	AG 320	480/965-9216	www.asu.edu/copp/urban
Winter Session	RITT B132	480/727-9900	www.asu.edu/xed/winter

Polytechnic Campus

Organization	Location	Telephone	Web Address
Agribusiness and Resource Management, Morrison School of	WANER 101	480/727-1585	www.poly.asu.edu/msabr
Professional Golf Management	PGM	480/727-1912	www.poly.asu.edu/msabr/pgm
American Indian Programs	AIP	480/727-1075 480/727-1161	www.poly.asu.edu/aip
Bookstore, ASU	UNION	480/727-1168	bookstore.asu.edu
Campus Copy Center, Williams Express	COPY	480/727-1600	www.poly.asu.edu/admin/bus/williamsexpress
Cashiering Services	QUAD 2	480/727-1081	www.poly.asu.edu/admin//bus/cashiering
Computing Commons, Polytechnic campus	CNTR 150	480/727-1118	www.poly.asu.edu/infotech/labs
East College	SUTON	480/727-1333	www.poly.asu.edu/ecollege
Advising	—	480/727-1333	—
Applied Biological Sciences, Department of	WANER third floor	480/727-1444	www.poly.asu.edu/ecollege/appliedbiologicalsciences
Applied Psychology, Faculty of	SUTON third floor	480/727-1177	www.poly.asu.edu/ecollege/appliedpsych
Business Administration, Faculty of	SUTON third floor	480/727-1287	www.poly.asu.edu/ecollege/businessadmin
Education, Faculty of	SUTON 240E	480/727-1103	www.poly.asu.edu/ecollege/education
Exercise and Wellness, Department of	EAW 109	480/727-1945	www.poly.asu.edu/ecollege/wellness
Human Health Studies, Faculty of	WANER third floor	480/727-1333	www.poly.asu.edu/ecollege/humanhealth
Multimedia Writing and Technical Communication, Faculty of	SUTON third floor	480/727-1287	www.poly.asu.edu/ecollege/multimedia
Nutrition, Department of	HSC 1386	480/727-1728	www.poly.asu.edu/ecollege/nutrition
Fitness Center, Williams Campus (CGCC)	WCFC Bldg.	480/988-8400	www.poly.asu.edu/students/recreation
General information	QUAD 2	480/727-3278	www.poly.asu.edu
Housing, Williams Campus	BELL	480/727-1700	www.poly.asu.edu/housing

* Student Services includes Registration Services, Student Business Services, Student Financial Assistance, and Undergraduate Admissions.

Organization	Location	Telephone	Web Address
Library Services	CNTR 001	480/727-1037	eastlib.poly.asu.edu
Parking	FMDPS 109	480/727-2775	www.poly.asu.edu/admin/pts
Provost, Office of the	ADMIN	480/727-1028	www.poly.asu.edu/about/provost
Student Health Center	SHC	480/727-1500	www.poly.asu.edu/students/health
Student Union	UNION	480/727-1098	www.poly.asu.edu/union
Student Services*	QUAD 2	480/727-3278	www.poly.asu.edu/students
Technology and Applied Sciences, College of	CTDO	480/727-1874	technology.poly.asu.edu/
Aeronautical Management Technology, Department of	SIM 201	480/727-1381	eastair.poly.asu.edu
Computing Studies, Division of	SUTON 140	480/727-1257	www.poly.asu.edu/ctas/dcst
Electronics and Computer Engineering Technology, Department of	TECH 101	480/727-1514	www.poly.asu.edu/ctas/ecet
Engineering, Department of	CNTR 110	480/727-2727	www.poly.asu.edu/ctas/engineering
Mechanical and Manufacturing Engineering Technology, Department of	SIM 295	480/727-1584	www.poly.asu.edu/ctas/mmet
Technology Management, Department of	TECH 102	480/727-1781	technology.poly.asu.edu/dtm
University College	CNTR 001	480/727-1452	www.poly.asu.edu/learningcenter
Winter Session	RITT B132	480/727-9900	www.asu.edu/xed/winter

* Student Services includes Registration Services, Student Business Services, Student Financial Assistance, and Undergraduate Admissions.

Tempe Campus

Organization	Location	Telephone	Web Address
Academic Transfer Articulation Office	UASB 125B	480/965-8332	www.asu.edu/provost/articulation
Academic Transfer Programs	UASB 125B	480/965-2476	asu.edu/admissions/transfer
Course Equivalency Guide	UASB 125B	480/965-9172	www.asu.edu/provost/articulation
Transfer Guides	UASB 125B	480/965-8332	www.asu.edu/provost/articulation
Adelphi Commons	739 E. Apache	480/965-2192	www.campushousing.com/asum
Adelphi II Commons	1342 S. Sunset	480/965-2192	www.campushousing.com/asum2
Admissions	—	—	—
Graduate	ADM B170	480/965-6113	www.asu.edu/graduate/admissions
Law	LAW 120	480/965-1474	www.law.asu.edu
Readmissions (undergraduate)	SSV 140	480/965-7550	www.asu.edu/registrar/readmissions
Undergraduate	SSV 112	480/965-7788	www.asu.edu/admissions
Adult Re-Entry	MU 14	480/965-2252	www.asu.edu/studentaffairs/reentry
Associated Students of ASU (ASASU)	MU third floor	480/965-3161	www.asu.edu/asasu
Graduate and Professional Student Association	CFS	480/727-9870	www.asu.edu/gpsa
Programming and Activities Board	MU third floor	480/965-0089	www.asu.edu/pab
Undergraduate Student Government	MU third floor	480/965-1255	asasu.net/usg
ASU Alumni Association	MAIN 200	480/965-2586 1-800-258-6687	www.asu.edu/alumni
ASU Operator	—	480/965-9011	www.asu.edu/directory
Bookstore, ASU	BKSTR	480/965-7928	bookstore.asu.edu
Business, W. P. Carey School of	BA 109	480/965-4227	wpcarey.asu.edu
Accountancy, School of	BA 223	480/965-3631	wpcarey.asu.edu/acc
Business Administration (MBA)	BA 160	480/965-3332	wpcarey.asu.edu/mba
Business Administration (PhD)	BA 171	480/965-3368	wpcarey.asu.edu/grad/phd
Business Honors	BA 150	480/965-8710	wpcarey.asu.edu/hon
Economics, Department of	BAC 659	480/965-3531	wpcarey.asu.edu/ecn
Finance, Department of	BAC 519	480/965-3131	wpcarey.asu.edu/fin
Health Management and Policy, School of	BA 318	480/965-7778	wpcarey.asu.edu/hmp
Information Systems, Department of	BA 223	480/965-3252	wpcarey.asu.edu/is
International Business Studies	BA 109	480/965-0596	wpcarey.asu.edu/international

Organization	Location	Telephone	Web Address
Business, W. P. Carey School of (continued)	—	—	—
Management, Department of	BA 323	480/965-3431	wpcarey.asu.edu/mgt
Marketing, Department of	BAC 460	480/965-3621	wpcarey.asu.edu/mkt
Supply Chain Management, Department of	BA 446	480/965-6044	wpcarey.asu.edu/scm
Undergraduate Office	BA 109	480/965-4227	wpcarey.asu.edu/up
Campus Children's Center	910 S. Terrace	480/921-2737	—
Campus Dining at ASU	—	—	www.asucampusdining.com
Administrative Office	MU 138	480/965-3464	—
Distinctive Catering Sales Office	MU 182	480/965-6508	—
Meal Plan Sales	MU 138	480/965-3464	—
Campus Health Service	SHS	480/965-3346	www.asu.edu/studentaffairs/health
Appointments	—	480/965-3349	—
Fax	—	480/965-8914	—
Insurance	—	480/965-2411	—
Measles information	—	480/965-1358	—
Career Services	SSV 329	480/965-2350	www.asu.edu/studentaffairs/career
Cashiering Services	SSV 244	480/965-7468	www.asu.edu/sbs
Child and Family Services	MU 14C	480/965-9515	www.asu.edu/studentaffairs/mu/family
Co-Curricular Programs and Activities	MU third floor	480/965-9600	www.asu.edu/studentaffairs/mu/partnerships
Community Service Program	MU third floor	480/965-0305	www.asu.edu/studentaffairs/mu/community
Counseling and Consultation	SSV 334	480/965-6146	www.asu.edu/studentaffairs/counseling
Creative Writing (MFA)	LL 307C	480/965-3528	www.asu.edu/clas/english/creativewriting
Danforth Chapel	CHAPL	480/965-6547	www.asu.edu/studentaffairs/studentlife/danforth
Design, College of	ARCH 101	480/965-6384	www.asu.edu/caed
Architecture and Landscape Architecture, School of	AED 162	480/965-3536	www.asu.edu/caed/sala
Design Studies	AED 162	480/965-7007	www.asu.edu/caed/SOD
Herberger Center for Design Research	ARCH 119	480/727-0478	www.asu.edu/caed/HCDE
Industrial Design, Department of	AED 162	480/965-1767	www.asu.edu/caed/SOD
Interior Design, Department of	AED 162	480/965-3571	www.asu.edu/caed/SOD
Planning, School of	AED 162	480/965-7167	www.asu.edu/caed/sop
Visual Communication Design, Department of	AED 162	480/965-8947	www.asu.edu/caed/SOD
Disability Resource Center	MCENT first floor	—	www.asu.edu/studentaffairs/ed/drc
TTY	—	480/965-9000	—
Voice	—	480/965-1234	—
Drop/add and withdrawal information	SSV 140	480/965-3124	—
Education, College of	EDB 108	480/965-3306	coe.asu.edu
Computer Support/Student Computer Lab	EDB 122	480/965-2126	coecs.asu.edu
Curriculum and Instruction, Division of	ED 426	480/965-1644	coe.asu.edu/candi
Beginning Educator Support Team (BEST)	EDB 101C	480/965-4339	coe.asu.edu/best
Professional Field Experiences	EDB L1-14	480/965-6255	coe.asu.edu/pfe
Graduate Program Office	ED 434	480/965-4602	coe.asu.edu/candi
Dean's Office	EDB 104	480/965-3306	coe.asu.edu
Vice President for University-School Partnerships	ED 140	480/965-3538	prek12partnership.asu.edu
Education Policy Studies Laboratory	EDB L1-01	480/965-1886	www.asu.edu/educ/epsl
Educational Leadership and Policy Studies, Division of	ED 120	480/965-6357	coe.asu.edu/elps
Educational Research and Services, Bureau of	ED 140	480/965-3538	bers.asu.edu
Indian Education, Center for	ED 402	480/965-6292	coe.asu.edu/cie

Organization	Location	Telephone	Web Address
Education, College of (continued)	—	—	—
Psychology in Education, Division of	EDB 302	480/965-3384	coe.asu.edu/psyched
Admissions (recording, voice mail)	EDB 302	480/965-6420	coe.asu.edu/psyched
Counselor Training Center	EDB 401	480/965-5067	coe.asu.edu/ctc
Southwest Center for Education Equity and Language Diversity	ED 440	480/965-7134	www.asu.edu/educ/sceed
Student Services, Office of	—	—	—
Academic Advising	EDB L1-13	480/965-5555	coe.asu.edu/oss
Living and Learning Residential Floor	MANZH	480/965-9706	coe.asu.edu/oss
New Student Recruitment	EDB L1-12	480/965-5555	coe.asu.edu/oss
Educational Opportunity Center	1000 E. Apache, No. 118	480/894-8451	www.asu.edu/studentaffairs/mss/eoc
Engineering, Ira A. Fulton School of	ECG 109	480/965-1726	fulton.asu.edu/fulton
Bioengineering, Harrington Department of	ECG 334	480/965-3028	fulton.asu.edu/~bme
Chemical and Materials Engineering, Department of	ECG 202	480/965-3313	fulton.asu.edu/~cme
Civil and Environmental Engineering, Department of	ECG 252	480/965-3589	fulton.asu.edu/civil
Computer Science and Engineering, Department of	BYENG 501	480/965-3190	fulton.asu.edu/cse
Construction, Del E. Webb School of	USE 138	480/965-3615	construction.asu.edu
Electrical Engineering, Department of	ENGRC 552	480/965-3424	fulton.asu.edu/ee
Industrial Engineering, Department of	GWC 502	480/965-3185	fulton.asu.edu/ie
Mechanical and Aerospace Engineering, Department of	ECG 346	480/965-3291	fulton.asu.edu/mae
Equal Opportunity/ Affirmative Action	ADM B171	480/965-5057	www.eoaa.asu.edu
TTY	—	480/965-0471	—
Exercise Science (PhD)	FOUND 445	480/965-7906	www.asu.edu/clas/espe
Fine Arts Box Office	FAC	480/965-6447	—
Fine Arts, Katherine K. Herberger College of	GHALL 132	480/965-6536	herbergercollege.asu.edu
Art, School of	ART 102	480/965-3468	herbergercollege.asu.edu/art
Arts, Media, and Engineering	BYENG 395	480/965-9438	herbergercollege.asu.edu/ame
Dance, Department of	PEBE 107A	480/965-5029	herbergercollege.asu.edu/dance
Music, School of	MUSIC E185	480/965-3371	herbergercollege.asu.edu/music
Theatre and Film, School of	GHALL 232	480/965-5337	herbergercollege.asu.edu/theatre
Freshman Year Experience	PVW	480/965-1512	www.asu.edu/studentaffairs/fye
Gerontology Program	FAB S121	602/543-6642	www.west.asu.edu/chs/grn
Graduate Studies, Division of	WILSN lobby	480/965-3521	www.asu.edu/graduate
Admissions	ADM B170	480/965-6113	www.asu.edu/graduate/admissions
Advising/Referral Office	ADM B288	480/965-3521	www.asu.edu/graduate
Financial Support	SSV 216A	480/965-3355	www.asu.edu/graduate/financial
Student Academic Services/Format Advising	ADM B170	480/965-3521	www.asu.edu/graduate/current/sas.htm www.asu.edu/graduate/format
Graduation Section	SSV 140	480/965-3256	www.asu.edu/registrar/graduation
Commencement Office	RITT B160	480/965-6611	www.asu.edu/ssc/commence
Graduate Division	SSV 144	480/965-6980	—
Undergraduate Division	SSV 144	480/965-3256	—
Greek Life (Fraternities and Sororities)	MU third floor	480/965-5292	www.asu.edu/studentaffairs/mu/greeklife
Honors College, Barrett	IRISH A121	480/965-4033	honors.asu.edu
Human Resources Customer Service Center	USB	480/965-2701	asu.edu/hr
Information Technology	—	—	www.asu.edu/it
Chief Information Officer, Office of the	—	—	www.asu.edu/cio
Classroom Management, Office of	CPCOM 105	480/965-3342	www.asu.edu/classrooms
Classroom Support Centers	—	—	www.asu.edu/classroomsupport
Computer Accounts Office	CPCOM 202	480/965-1211	www.asu.edu/it/tempe/cac
Computing Policies	—	—	www.asu.edu/it/policies

Organization	Location	Telephone	Web Address
Information Technology (continued)			
Customer Assistance Center	CPCOM 202	480/965-5939	www.asu.edu/cacenter
DMIT Instruction Support Lab	CPCOM 213	480/965-6739	dmit.asu.edu/islab
Help Desk	CPCOM 202	480/965-6500	www.asu.edu/helpdesk
Intergroup Relations Center	SSV 278	480/965-1574	www.asu.edu/provost/intergroup
International Programs Office	TMPCT 198	480/965-5965	ipo.asu.edu
International Student Office	SSV 265	480/965-7451	www.asu.edu/studentaffairs/ed/iso
International Undergraduate Admissions	SSV 101	480/965-2688	www.asu.edu/admissions/international
Journalism and Mass Communication, Walter Cronkite School of	STAUF A231	480/965-5011	cronkite.asu.edu
Law, College of	LAW 101	480/965-6181	www.law.asu.edu
Admissions Office	LAW 120	480/965-1474	—
John J. Ross–William C. Blakley Law Library	LAWLB	480/965-6144	www.law.asu.edu/library
Learning Resource Center	MU 14	480/965-7728	www.asu.edu/studentaffairs/lrc
	PVW	480/965-6254	—
Liberal Arts and Sciences, College of	FOUND 110	480/965-6506	clas.asu.edu
Aerospace Studies, Department of	SS 352	480/965-3181	www.asu.edu/clas/afrotc
African and African American Studies Program	COWDN 224	480/965-4399	www.asu.edu/clas/aframstu
American Indian Studies Program	AG 372	480/965-3634	www.asu.edu/clas/americanindian
Asian Pacific American Studies Program	SS 100	480/965-9711	www.asu.edu/clas/apas
Chemistry and Biochemistry, Department of	PS D102	480/965-3461	chemistry.asu.edu
Chicana and Chicano Studies, Department of	COOR 6633	480/965-5091	www.asu.edu/clas/chicana
Computational Biosciences Program	PSA 216	480/965-9845	www.asu.edu/compbiosci
English, Department of	LL 542	480/965-3168	www.asu.edu/clas/english
Family and Human Development, Department of	COWDN 106	480/965-6978	www.asu.edu/clas/fhd
Film and Media Studies	LL 641	480/965-6747	—
Geography, Department of	SCOB 330	480/965-7533	geography.asu.edu
Geological Sciences, Department of	PS F686	480/965-5081	geology.asu.edu
Global Studies, School of	COOR 5634	480/727-8286	www.asu.edu/clas/globalstudies
History, Department of	COOR 4595	480/965-5778	www.asu.edu/clas/history
Human Communication, Hugh Downs School of	STAUF A412	480/965-5095	www.asu.edu/clas/communication
Human Evolution and Social Change, School of	ANTH 233	480/965-6213	www.asu.edu/clas/shesc
Justice and Social Inquiry, School of	WILSN 331	480/965-7682	www.asu.edu/clas/justice
Kinesiology, Department of	PEBW 218	480/965-3875	www.asu.edu/clas/kines
Languages and Literatures, Department of	LL 440	480/965-6281	www.asu.edu/clas/dll
Life Sciences, School of	LSC 226	480/727-6277	sols.asu.edu
Graduate Programs	LSE 229	480/965-1768	sols.asu.edu/grad
Research and Training Initiatives	LSE 205	480/965-2543	sols.asu.edu/rti
Student Services/advising	LSC 206	480/727-6277	sols.asu.edu/ugrad/uadvising.php
Undergraduate Programs	LSC 226	480/965-9537	sols.asu.edu/ugrad/udegrees.php
Mathematics and Statistics, Department of	PS A216	480/965-3951	math.la.asu.edu
Military Science, Department of	SS 330	480/965-3318	www.asu.edu/clas/military
Philosophy, Department of	COOR 3309	480/965-3394	www.asu.edu/clas/philosophy
Physics and Astronomy, Department of	PS F470	480/965-3561	phy.asu.edu
Political Science, Department of	COOR 6801	480/965-6551	www.asu.edu/clas/polisci
Psychology, Department of	PSY 237	480/965-3326	www.asu.edu/clas/psych
Religious Studies, Department of	ECA 377	480/965-7145	www.asu.edu/clas/religious_studies
Sociology, Department of	COOR 5681	480/965-3546	www.asu.edu/clas/sociology
Speech and Hearing Science, Department of	COOR 2211	480/965-2374	www.asu.edu/clas/shs
Women and Gender Studies Program	ECA 209	480/965-2358	www.asu.edu/clas/womens_studies

Organization	Location	Telephone	Web Address
Libraries	—	—	—
John J. Ross–William C. Blakley Law Library	LAWLB	480/965-6144	www.law.asu.edu/library
Libraries at the Tempe campus	LIB	480/965-6164	www.asu.edu/lib/libraries
Architecture and Environmental Design Library	AED 153	480/965-6400	www.asu.edu/lib/libraries/architecture
Archives and Special Collections	LIB 413	480/965-3145	www.asu.edu/lib/archives
Hayden Library, Charles Trumbull (Circulation Desk)	LIB	480/965-3605	www.asu.edu/lib/libraries/hayden
Library Administration	LIB 113	480/965-3417	—
Music Library	MUSIC W302	480/965-3513	www.asu.edu/lib/libraries/music
Noble Science and Engineering Library, Daniel E.	NOBLE	480/965-7607	www.asu.edu/lib/libraries/science
Reference questions	—	480/965-6164	www.asu.edu/lib/hayden/ref
Memorial Union	MU	—	www.asu.edu/studentaffairs/mu
Administration	MU mezzanine	480/965-5310	—
Event and Meeting Services	MU 182	480/965-3406	www.asu.edu/mu/events
Information Desk	MU first level	480/965-5728	—
Lost and Found	MU first level	480/965-5728	—
Montgomery Instructional Lab	MU 178	480/727-6663	—
Sparky's Den	MU lower level	480/965-3642	—
Sun Devil Involvement Center	MU third level	480/965-2255	www.asu.edu/mu/sdic
Multicultural Student Center	SSV 394	480/965-6060	www.asu.edu/studentaffairs/mss/mcc
Operator, university	—	480/965-9011	www.asu.edu/directory
Orientation	SSV 110	480/965-2880	www.asu.edu/admissions/orientation
Parents Association	MARIP A120	480/965-7625	www.asuparentsassociation.com
Parking and Transit Services	UNIVT	480/965-6406	www.asu.edu/dps/pts
Polytechnic campus (See "Polytechnic Campus," page 899.)	—	480/727-3278	www.poly.asu.edu
Professional Enhancement Programs	SSV 340	480/965-6777	www.asu.edu/testprep
careertest@asu.edu	—	—	—
testprep@asu.edu	—	—	—
Readmissions (undergraduate)	SSV 140	480/965-7550	www.asu.edu/registrar/readmissions
Registrar, University	SSV 140	—	www.asu.edu/registrar
General information (recorded)	—	480/965-4747	—
TTY	—	480/965-3236	—
Voice	—	480/965-3124	—
Residency Classification	SSV 140	480/965-7712	www.asu.edu/registrar/residency
Residential Life	SSV 170	480/965-3515	www.asu.edu/studentaffairs/reslife
Safety Escort Service	MU first floor	480/965-1515	—
Science and Engineering of Materials (MS and PhD)	PS A323	480/965-2460	www.asu.edu/graduate/SEM
Speech and Hearing Science (PhD)	CSB 146	480/965-9396	www.asu.edu/clas/shs
Statistics (MS and certificate)	BAC 570	480/965-2671	www.asu.edu/graduate/statistics
Student Accounts	SSV 230	480/965-6341	www.asu.edu/sbs
Student Advocacy and Assistance	SSV 263	480/965-5852	www.asu.edu/studentaffairs/deanofstudents/advocacy
Student Business Services	ADM A107	480/965-6301	www.asu.edu/sbs
Student Development and Memorial Union	MU mezzanine	480/965-5310	www.asu.edu/studentaffairs/mu
Student Employment	SSV 216A	—	www.asu.edu/fa/studemp
Off-Campus	—	480/965-6318	—
On-Campus	—	480/965-5186	—
Student Financial Assistance	SSV 216A	480/965-3355	www.asu.edu/fa
Student ID (Sun Card)	MU 190	480/965-2273	www.suncard1.com

Organization	Location	Telephone	Web Address
Student Judicial Affairs	SSV 263	480/965-6547	www.asu.edu/studentaffairs/studentlife/judicial
Student Legal Assistance	MU 329	480/965-6307	www.asu.edu/studentaffairs/mu/legal
Student Life	SSV 263	480/965-6547	www.asu.edu/studentaffairs/studentlife
Student Media	MCENT 2	480/965-7572	www.statepress.com
State Press Advertising	—	480/965-6555	www.statepress.com
State Press Information	—	480/965-7572	—
State Press Newsroom	—	480/965-2292	—
Web Devil	—	480/727-6941	www.asuwebdevil.com
Student Organization Resource Center	MU third floor	480/965-2255	www.asu.edu/clubs
Student Recreation Complex and Campus Recreation	SRC 220	480/965-8900	www.asu.edu/studentaffairs/src
Student Risk Management	MCL 113B	480/965-5298	www.asu.edu/studentaffairs/risk
Summer Sessions	RITT B160	480/965-6611	www.asu.edu/summer
	—	480/965-6611	www.asu.edu/summer/abroad
Sun Card (See "Student ID," in this section.)	—	—	—
Sun Devil Involvement Center	MU third floor	480/965-2255	www.asu.edu/studentaffairs/mu/sdic
SunDial	—	480/350-1500	www.asu.edu/registrar/registration/intouch.html
Tickets	—	—	—
Athletic Events, Intercollegiate (Sun Devil Ticket Office)	—	480/965-2381	—
Gammage Auditorium Box Office	GGMA	480/965-3434	—
Public Events Administrative Offices	—	480/965-5062	—
Transcripts (outgoing)	SSV 140	480/965-7276	www.asu.edu/registrar/transcripts
Transition and Parent Programs	MU third floor	480/965-4564	www.asu.edu/studentaffairs/mu/transitions
Transportation Systems (certificate)	ARCH 119	480/965-6395	www.asu.edu/caed/transportation
Tuition Payment Office	SSV 230	480/965-4347	www.asu.edu/sbs
University Evaluation, Office of	ADM B366	480/965-9291	www.asu.edu/oue
University Libraries (See "Libraries," in this section.)	—	—	—
University Testing Services	EDB 301	480/965-7146	www.asu.edu/uts
Upward Bound	SSV 276	480/965-6483	www.asu.edu/studentaffairs/mss/upwardbound
Veterans Services section	SSV 140	480/965-7723	www.asu.edu/registrar/veterans
Veterans Upward Bound	1000 E. Apache, No. 106	480/965-3944	www.asu.edu/studentaffairs/mss/vub
Wellness and Health Promotion	SHS 195	480/965-4721	www.asu.edu/studentaffairs/wellness
Winter Session	RITT B132	480/727-9900	www.asu.edu/xed/winter

West Campus

Organization	Location	Telephone	Web Address
Academic Achievement Center (TRiO)	UCB 220	602/543-8121	www.west.asu.edu/trio
Academic Affairs	FAB N301	602/543-4500	westcgi.west.asu.edu/acadaffairs
Admission and Enrollment Services	UCB 120	602/543-8203	www.west.asu.edu/registrar
Arts and Sciences, New College of Interdisciplinary	FAB N201	602/543-6000	www.west.asu.edu/newcollege
Bachelor of Applied Science Program	FAB N279	602/543-6003	www.west.asu.edu/ias/bas
Ethnic Studies Program	FAB N205A	602/543-6007	www.west.asu.edu/ethnic
Integrated Natural Sciences, Department of	CLCC 217	602/543-6050	www.west.asu.edu/dins
Integrative Studies, Department of	FAB N279	602/543-6003	www.west.asu.edu/ias
Interdisciplinary Arts and Performance, Department of	FAB N290A	602/543-6057	www.west.asu.edu/iap
Language, Cultures, and History, Department of	FAB N220	602/543-6090	www.west.asu.edu/lch
MA in Interdisciplinary Studies	FAB N230D	602/543-6241	www.west.asu.edu/mais
Mathematical Sciences and Applied Computing	CLCC 250	602/543-4223	www.west.asu.edu/msac
Social and Behavioral Sciences, Department of	FAB N250-1	602/543-6058	www.west.asu.edu/sbs
Women's Studies Program	FAB N291	602/543-3300	www.west.asu.edu/ws
Associated Students of ASU at the West campus	UCB 226	602/543-8186	www.west.asu.edu/asasuw
Barrett Honors College	UCB 201	602/543-3410	westcgi.west.asu.edu/honors
Bookstore, ASU	UCB 140	602/543-6800	bookstore.asu.edu
Career Services	UCB 320	602/543-8124	www.west.asu.edu/cspc
Disability Resource Center	UCB 130	602/543-8145	www.west.asu.edu/drc
TTY	—	602/543-4327	—
Financial Aid Services	UCB 120	602/543-8178	www.west.asu.edu/financialaid
Global Management and Leadership, School of	FAB N101	602/543-6200	www.west.asu.edu/sgml
Accountancy, Department of	FAB S190	602/543-6275	www.west.asu.edu/sgml/accountancy
Economics, Finance, Marketing and Quantitative Business Analysis, Department of	FAB N120A	602/543-6101	www.west.asu.edu/sgml
Management, Department of	FAB N120D	602/543-6204	www.west.asu.edu/sgml/glb
Master of Business Administration Program	FAB N150	602/543-6201	www.west.asu.edu/sgml/MBA
Graduate Studies	FAB S301	602/543-4567	westcgi.west.asu.edu/acadaffairs/gradstudies
Human Services, College of	FAB S105A	602/543-6600	www.west.asu.edu/chs
Communication Studies, Department of	FAB S141C	602/543-6606	www.west.asu.edu/chs/comm
Criminal Justice and Criminology, Department of	FAB S323	602/543-6607	www.west.asu.edu/chs/aoj
Gerontology Program	FAB S117	602/543-6642	www.west.asu.edu/chs/grn
Nursing (Tempe campus program)	FAB S331-1	602/543-6605	nursing.asu.edu
Recreation and Tourism Management, Department of	FAB S115A	602/543-6603	www.west.asu.edu/chs/RTM
Social Work, Department of	FAB S126	602/543-6602	www.west.asu.edu/chs/sw
Information Desk	FAB Lobby	602/543-5500	westcgi.west.asu.edu/adaff/auxs/infodesks.cfm
International Student Services	UCB 220	602/543-8201	www.west.asu.edu/international
Learning Enhancement Center	FLHLB LL2	602/543-6151	www.west.asu.edu/lec
Library	FLHLB	602/543-8501	library.west.asu.edu
Multicultural Student Services	UCB 220	602/543-8148	www.west.asu.edu/multicultural
Native American Student Services	UCB 220	602/543-8138	www.west.asu.edu/nativeamerican
Parking Services (Permits, Appeals)	WIB 101	602/543-7275	westcgi.west.asu.edu/adaff/auxs/parking
Provost, Office of the	FAB N303	602/543-7000	westcgi.west.asu.edu/acadaffairs/provost
Recruitment and Outreach	UCB 105	602/543-8550	www.west.asu.edu/gowest
Residential Life	LCR	602/543-2272	www.west.asu.edu/lascasas
Statistics Lab	CLCC 107	602/543-6117	www.west.asu.edu/statlab
Student Counseling Services	UCB 320	602/543-8124	www.west.asu.edu/cspc

Organization	Location	Telephone	Web Address
Student Employment	UCB 120	602/543-8178	www.west.asu.edu/financialaid/stdemply.htm
Student Health Services	UCB 170	602/543-8019	www.west.asu.edu/studenthealth
Student Life	UCB 221	602/543-8200	www.west.asu.edu/studentlife
Teacher Education and Leadership, College of	FAB S210A	602/543-6300	www.west.asu.edu/ctel
Elementary Education, Department of	FAB S218	602/543-6315	www.west.asu.edu/ctel/elem
Graduate Studies and Professional Development, Department of	FAB S220	602/543-3634	www.west.asu.edu/ctel/graduate
Secondary Education, Department of	FAB S251A	602/543-6445	www.west.asu.edu/ctel/sed
Special Education, Department of	FAB S252A	602/543-6380	www.west.asu.edu/ctel/spe
Testing Services	WIB 102	602/543-8136	www.west.asu.edu/testing
University College	UCB 201	602/543-4600	www.west.asu.edu/uc
Veteran Student Services	UCB 120	602/543-8220	www.west.asu.edu/veteran
West campus	—	602/543-5500	www.west.asu.edu
Women's Studies Resource Center	UCB 323	602/543-3426	www.west.asu.edu/ws/wrc

Building Abbreviations

For building abbreviations used in the *General Catalog*, *Graduate Catalog*, *Schedule of Classes*, and *Summer Sessions Bulletin*, see the "Building Abbreviations" table below. Tempe campus map coordinates are provided. For the Tempe campus map, see the inside back cover. For other locations, see the "Polytechnic Campus Map," page 277; "West Campus Map," page 757; and "Downtown Center at ASU" map, page 139. For the locations of campuses, see the "ASU Campus Locations" map, page 31.

Building Abbreviations

Abbreviation	Name	Wings	Location (Coordinate)
ADELA	Adelphi II Commons	—	Tempe campus (H-8)
ADM	Administration Building	A, B	Tempe campus (F-3)
ADMIN	Administration	—	Polytechnic campus
ADPCM	Adelphi Commons	—	Tempe campus (G-8)
ADSVC	Administrative Services	—	Polytechnic campus
AED	College of Design/North	—	Tempe campus (D-2)
AG	Agriculture Building	—	Tempe campus (F-3)
AGBC	Agribusiness Center	—	Polytechnic campus
AIP*	American Indian Programs	—	Polytechnic campus
AIP2	American Indian Programs Annex	—	Polytechnic campus
ALTCH	Altitude Chamber	—	Polytechnic campus
ANTH	Anthropology Building	—	Tempe campus (D-3)
ANX	Visual Arts Annex	—	Tempe campus (B-3)
AQUAT	Mona Plummer Aquatics Center	A, B	Tempe campus (B-4)
ARCH	College of Design/South	—	Tempe campus (D-2)
ARCHV*	University Library Archives	—	Polytechnic campus
ART	Art Building	—	Tempe campus (D-2)
ARWH	Art Warehouse	—	Tempe campus (D-2)
ASEOC	Alternate State Emergency Operations Center	—	Polytechnic campus
ASUDC	Downtown Center	A–F	502 E. Monroe St., Phoenix
BA	Business Administration Building	—	Tempe campus (F-4)
BAC	Business Administration C-Wing	—	Tempe campus (F-4)
BELL	Bell Hall	—	Polytechnic campus
BDA	Biodesign Institute Building A	—	Tempe campus: 850 E. Terrace Dr., Tempe (E-7)
BDB	Biodesign Institute Building B	—	Tempe campus: 850 E. Terrace Dr., Tempe (E-7)
BKSTR	ASU Bookstore	—	Tempe campus: 525 E. Orange St., Tempe (F-5)
BYAC	Brickyard Artisan Court	—	Tempe campus: 30 E. Seventh St., Tempe (B-1)
BYENG	Brickyard Engineering	—	Tempe campus: 699 S. Mill Ave., Tempe (B-1)
BYOH	Orchidhouse at the Brickyard	—	Tempe campus: 21 E. Sixth St., Tempe (B-1)
CDC	Child Development Center	—	Polytechnic campus: 6110 S. Sagewood, Mesa
CFS	Center for Family Studies	—	Tempe campus (D-3)
CGS	Ceramic Graduate Studio	—	Tempe campus (C-7)
CHAPL	Danforth Chapel	—	Tempe campus (E-3)
CHOLA	Cholla Apartments	A–G	Tempe campus (E-9)

* This abbreviation is not used for classroom scheduling.

Building Abbreviations (continued)

Abbreviation	Name	Wings	Location (Coordinate)
CLCC	Classroom Laboratory/Computer Classroom Building	—	West campus
CLRB	Classroom Building	—	Polytechnic campus: 6113 S. Avery, Mesa
CNTR	Academic Center	—	Polytechnic campus
COMM	Communications	—	Polytechnic campus
COOR	Lattie F. Coor Hall	—	Tempe campus (E-2)
COPY	Williams Campus Copy Center	—	Polytechnic campus
COWDN	Cowden Family Resources Building	—	Tempe campus (D-3)
CP	Central Plant	—	Tempe campus (E-4)
CPCOM	Computing Commons Building	—	Tempe campus (F-5)
CRC	Ceramics Research Studio	—	Tempe campus (E-7)
CRI	Cancer Research Institute	—	Tempe campus (D-5)
CRNX	Classroom Annex	—	West campus
CSAC	Nadine and Ed Carson Student Athlete Center	—	Tempe campus (B-4)
CSB	Community Services Building	—	200 E. Curry Road, Tempe
CSC	Central Services Complex	—	West campus
CTDO	College of Technology and Applied Science Office of the Dean	—	Polytechnic campus
DEAN	Dean Hall	—	Polytechnic campus
DPSMN	Department of Public Safety	—	Tempe campus (G-7)
EAW	Exercise and Wellness Center	—	Polytechnic campus: 7350 E. Unity Ave., Mesa
EAW2	Exercise Instructional Lab	—	Polytechnic campus: 7429 E. Utah Ave., Mesa
ECA	Engineering Center A-Wing	—	Tempe campus (E-5)
ECANX	Engineering Center Annex	—	Tempe campus (E-5)
ECB	Engineering Center B-Wing	—	Tempe campus (E-5)
ECC	Engineering Center C-Wing	—	Tempe campus (E-5)
ECD	Engineering Center D-Wing	—	Tempe campus (E-5)
ECE	Engineering Center E-Wing	—	Tempe campus (E-5)
ECF	Engineering Center F-Wing	—	Tempe campus (E-5)
ECG	Engineering Center G-Wing	—	Tempe campus (E-5)
ED	Hiram B. Farmer Education Building	—	Tempe campus (F-2)
EDB	Ira D. Payne Education Hall	—	Tempe campus (E-2)
EDC	Education Lecture Hall	—	Tempe campus (F-2)
ELAB	Electronics Laboratory Building	—	West campus
ENGRC	Engineering Research Center	—	Tempe campus (E-5)
FAB	Faculty and Administration Building	N, S	West campus
FABNX	Faculty and Administration Building Annex	—	West campus
FAC	Nelson Fine Arts Center	—	Tempe campus (E-1)
FDSCI	Agribusiness Center	—	Polytechnic campus
FLHLB	Fletcher Library	—	West campus
FMDPS	Facilities Management/DPS	—	Polytechnic campus
FOUND	ASU Foundation	—	Tempe campus (C-4)
FST	Fire Science Technology	—	Polytechnic campus
GGMA	Grady Gammage Memorial Auditorium	—	Tempe campus (F-2)
GHALL	Dixie Gammage Hall	—	Tempe campus (E-3)
GRNHS	Greenhouses	—	Polytechnic campus: 7405 E. Unity Ave., Mesa

* This abbreviation is not used for classroom scheduling.

Building Abbreviations (continued)

Abbreviation	Name	Wings	Location (Coordinate)
GS	General Studies	—	Polytechnic campus
GWC	Barry M. Goldwater Center for Science and Engineering Research	—	Tempe campus (D-6)
HAYDN	Hayden Hall	E, W	Tempe campus (G-3)
HSC	Health Sciences Center	—	Polytechnic campus: 6950 E. Williams Field Road, Mesa
HSC2	Health Sciences Center Research	—	Polytechnic campus: 6950 E. Williams Field Road, Mesa
IAPNX	Interdisciplinary Arts and Performance Annex	—	West campus
IRISH	Frederick M. Irish Hall	A–C	Tempe campus (G-3)
ISTB1	Interdisciplinary Science and Technology Building 1	—	Tempe campus (E-5)
ISTB3	Interdisciplinary Science and Technology Building 3	—	Polytechnic campus
LAW	John S. Armstrong Hall	—	Tempe campus (F-6)
LAWLB	John J. Ross–William C. Blakley Law Library	—	Tempe campus (F-6)
LCR	Las Casas Residences	—	West campus
LIB	Charles T. Hayden Library	—	Tempe campus (E-4)
LL	G. Homer Durham Language and Literature Building	—	Tempe campus (D-4)
LSA	Life Sciences A-Wing	—	Tempe campus (E-4)
LSB	Life Sciences B-Wing	—	Tempe campus (E-4)
LSC	Life Sciences C-Wing	—	Tempe campus (E-4)
LSD	Life Sciences D-Wing	—	Tempe campus (E-4)
LSE	Life Sciences E-Wing	—	Tempe campus (E-4)
LYC	Lyceum Theatre	—	Tempe campus (D-3)
MAIN	Old Main	—	Tempe campus (D-4)
MANZH	Manzanita Hall	—	Tempe campus (C-6)
MARIP	Mariposa Hall	A–E	Tempe campus (G-6 and G-7)
MB	M.O. Best Hall	A–C	Tempe campus (G-3)
MCENT	A. J. Matthews Center	—	Tempe campus (E-3)
MCL	James H. McClintock Hall	—	Tempe campus (E-3)
MHALL	Carrie Matthews Hall	—	Tempe campus (E-3)
MOEUR	B. B. Moeur Administration	—	Tempe campus (F-3)
MTCHL	Mitchell School	—	900 S. Mitchell St., Tempe
MU	Memorial Union	—	Tempe campus (F-4)
MUR	John Murdock Lecture Hall	—	Tempe campus (E-4)
MUSIC	Music Building	E, W	Tempe campus (F-1)
NEEB	L. S. Neeb Hall	—	Tempe campus (D-2)
NOBLE	Daniel E. Noble Science and Engineering Library	—	Tempe campus (E-6)
NUR	Nursing Building	—	Tempe campus (D-3)
OCOT	Ocotillo Hall	A–E	Tempe campus (G-5 and G-6)
PABLO	San Pablo Residence Hall	A–C	Tempe campus (C-5)
PAC	Physical Activity Center	—	Polytechnic campus: 7411 E. Utah Ave., Mesa
PBS	Packard Baseball Stadium	—	Tempe campus (A-7)
PEBE	Physical Education Building East	—	Tempe campus (F-6)
PEBW	Physical Education Building West	—	Tempe campus (F-4)
PGM	Professional Golf Management	—	Polytechnic campus: 5935 S. Edgewater, Mesa

* This abbreviation is not used for classroom scheduling.

Building Abbreviations (continued)

Abbreviation	Name	Wings	Location (Coordinate)
PS	George M. Bateman Physical Sciences Center	A–H	Tempe campus (D-5)
PSA	Wexler Hall	—	Tempe campus (D-5)
PSY	Psychology Building	—	Tempe campus (E-6)
PSYN	Psychology Building North	—	Tempe campus (D-6)
PVE	Palo Verde East Hall	—	Tempe campus (C-5)
PVM	Palo Verde Main Hall	A–E	Tempe campus (C-4)
PVW	Palo Verde West Hall	—	Tempe campus (C-4)
PWH	Virginia G. Piper Writers House	—	Tempe campus (D-4)
QUAD 1, 2, 3, 4	Student Affairs Complex	—	Polytechnic campus
RES1*	Freshman Experience Dorm	—	Polytechnic campus
RITT	Ritter Building	A, B	Tempe campus (E-8)
SAHU	Sahuaro Hall	A–D	Tempe campus (H-7)
SANDS	Sands Classroom Building	—	West campus
SCD	Sonora Center Dormitory	—	Tempe campus (H-8)
SCOB	John W. Schwada Classroom Office Building	—	Tempe campus (E-6)
SCRED	Sonora Center Residence Education Center	—	Tempe campus (H-8)
SHC	Student Health Center	—	Polytechnic campus: 7153 E. Thistle, Mesa
SHS	Student Health Service	A, B	Tempe campus (D-4)
SIM	Simulator Building	—	Polytechnic campus: 7442 E. Tillman Ave., Mesa
SLB	Science Lab	—	Polytechnic campus
SOLAR	Photovoltaics Testing Lab	—	Polytechnic campus: 7349 E. Unity Ave., Mesa
SRC	Student Recreation Complex	—	Tempe campus (G-5)
SS	Social Sciences Building	—	Tempe campus (E-4)
SSV	Student Services Building	—	Tempe campus (F-3)
STAD	Sun Devil Stadium	—	Tempe campus (A-4)
STAUF	Charles Stauffer Communication Arts Building	A, B	Tempe campus (E-2)
SUTON	Sutton Hall	—	Polytechnic campus
TECH	Technology Center	—	Polytechnic campus
TECH2	Technology Center Annex	—	Polytechnic campus
TMPCT	Tempe Center	—	Tempe campus: 929 (Suite 150) and 951 (Suite 190) S. Mill Ave., Tempe (E-1)
TOWER	Tower Center	A, B	Tempe campus (D-2)
TRACK	Joe Selleh Track	—	Tempe campus (A-7)
UASB	Undergraduate Academic Services Building	—	Tempe campus (E-4)
UCB	University Center Building	—	West campus
UCLUB	University Club	—	Tempe campus (D-4)
UNION	The Union	—	Polytechnic campus
UNON2	Student Union Annex	—	Polytechnic campus
UNIVT	University Towers	—	Tempe campus: 525 S. Forest Ave., Tempe (B-3)
USB	University Services Building	—	Tempe campus: 1551 S. Rural Road, Tempe (H-9)
USE	Urban Systems Engineering	—	Tempe campus (D-6)
UVCMN	University Commons	—	Tempe campus: 215 E. Seventh St., Tempe (C-2)
VISIT	ASU Visitor's Information Center	—	Tempe campus (G-8)
WANER	Wanner Hall	—	Polytechnic campus
WASH*	Launderette	—	Polytechnic campus

* This abbreviation is not used for classroom scheduling.

Building Abbreviations (continued)

Abbreviation	Name	Wings	Location (Coordinate)
WFA	Wells Fargo Arena	—	Tempe campus (B-5)
WHALL	West Hall	—	Tempe campus (E-3)
WIB*	Welcome Information Building	—	West campus
WILSN	George W. Wilson Hall	—	Tempe campus (E-3)
WTC	Whiteman Tennis Center	—	Tempe campus (B-7)

* This abbreviation is not used for classroom scheduling.