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Arizona State University

2005–2006 General Catalog

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Academic Coordination

Assistant to the Executive Vice President and Provost of the University / Linda Van Scoy

Academic and Administrative Documents

Manager / Steve Gobbell

Associate Editors / Dot DiRienzi, John Maclsaac

Assistant Editor / Rebecca Howe

Senior Office Specialist / Julie Zehring

Senior Desktop Publishing Specialist / Michael J. Martin

Desktop Publishing Specialists / Michael J. Belisle,
Margaret J. Wells

Proofreader / Susan C. Walters

Editorial Assistant / Pamela Coffman

Course Coordination

Manager, Communications / Katty McIntosh

Catalog Coordinators

Academic Transfer Articulation Office / Zoila Gamero de Tovar,
Beverly Luna

Barrett Honors College / Kristen Nielsen

Chief Financial Officer / Edalia Kousari

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Walter Cronkite School of Journalism and Mass

Communication / Frederic "Fritz" Leigh

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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 2005–2006 *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,

A handwritten signature in black ink that reads "Michael Crow". The signature is written in a cursive, flowing style.

Michael M. Crow
President

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Academic Organization

ASU is in the process of becoming one university organized around colleges and schools rather than campuses. To determine the campus(es) where a college or school is located, refer to its section within this catalog.

Academic Affairs (West Campus)

Barrett Honors College
Division of Collaborative Programs
 Campus Advising Center
 Freshman Experience Office
 University-College Center

Barrett Honors College

College of Architecture and Environmental Design

School of Architecture and Landscape Architecture
School of Design
School of Planning

College of Education

Division of Curriculum and Instruction
Division of Educational Leadership and Policy Studies
Division of Psychology in Education

College of Extended Education

Academic and Professional Programs
American English and Culture Program
Distance Learning and Technology
Extended Campus Programs

College of Human Services

Department of Communication Studies
Department of Criminal Justice and Criminology
Department of Recreation and Tourism Management
Department of Social Work
Gerontology Program (University-wide Program)
Nursing (Tempe campus program)

College of Law

College of Liberal Arts and Sciences

African and African American Studies Program
American Indian Studies Program
Asian Pacific American Studies Program
Department of Aerospace Studies
Department of Anthropology
Department of Chemistry and Biochemistry
Department of Chicana and Chicano Studies
Department of English
Department of Family and Human Development
Department of Geography

Department of Geological Sciences
Department of History
Department of Kinesiology
Department of Languages and Literatures
Department of Mathematics and Statistics
Department of Military Science
Department of Philosophy
Department of Physics and Astronomy
Department of Political Science
Department of Psychology
Department of Religious Studies
Department of Sociology
Department of Speech and Hearing Science
Hugh Downs School of Human Communication
School of Justice and Social Inquiry
School of Life Sciences
Women and Gender Studies Program

College of Nursing

College of Public Programs

School of Community Resources and Development
School of Public Affairs
School of Social Work

College of Teacher Education and Leadership

Department of Elementary Education
Department of Graduate Studies and Professional Development
Department of Secondary Education
Department of Special Education

College of Technology and Applied Sciences

Department of Aeronautical Management Technology
Department of Electronics and Computer Engineering Technology
Department of Engineering
Department of Information and Management Technology
Department of Mechanical and Manufacturing Engineering Technology
Division of Computing Studies

Division of Graduate Studies

Science and Engineering of Materials
Transportation Systems

East College

Department of Applied Biological Sciences
Department of Exercise and Wellness
Department of Nutrition
Faculty of Applied Psychology
Faculty of Business Administration
Faculty of Education
Faculty of Human Health Studies
Faculty of Multimedia Writing and Technical
Communication

Ira A. Fulton School of Engineering

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

Katherine K. Herberger College of Fine Arts

Department of Dance
Department of Theatre
School of Art
School of Music

**Morrison School of Agribusiness and
Resource Management**

**New College of Interdisciplinary Arts and
Sciences**

Department of Integrated Natural Sciences
Department of Integrative Studies

Department of Interdisciplinary Arts and Performance
Department of Language, Cultures, and History
Department of Social and Behavioral Sciences
Ethnic Studies Program
Interdisciplinary Studies Graduate Program
Religious Studies Program
Women's Studies Program

**School of Global Management
and Leadership**

Department of Accounting and Information Systems
Management
Department of Economics, Finance, Marketing, and
Quantitative Business Analysis
Department of Management

University College

Academic Success at the University
School of Interdisciplinary Studies
Writing Across the Curriculum

W. P. Carey School of Business

Department of Economics
Department of Finance
Department of Information Systems
Department of Management
Department of Marketing
Department of Supply Chain Management
School of Accountancy
School of Health Management and Policy

**Walter Cronkite School of Journalism and
Mass Communication**

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. For graduate degrees, see the “ASU Graduate Degrees” table, page 510.

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 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

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			West	686
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Aerospace Engineering ²	BSE	—	Tempe	263
African and African American Studies	BA	Humanities/arts; politics and society; or social and behavioral sciences	Tempe	345
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	East	532
American Indian Studies	BS	—	Tempe	348
American Studies	BA	—	West	686
Anthropology	BA	—	Tempe	349
Applied Biological Sciences	BS	Applied biological sciences, applied biological sciences/secondary education, ecological restoration, urban horticulture, or wildlife habitat management	East	541
Applied Computer Science	BS	—	East	593
Applied Computing	BS	Database systems, network and distributed processing, or digital media and graphic design	West	686
Applied Psychology	BS	—	East	547
Applied Science	BAS	Aviation maintenance management technology	East ³	574
		Aviation management technology	East ³	574
		Computer systems administration	East ³	593
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		Digital publishing	East ³	583

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 College of Extended Education.

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

⁵ This program is administered by Tempe campus.

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		Materials joining and manufacturing technology	East ³	590
		Microcomputer systems	East ³	593
		Multimedia writing and technical communication	East ³	561
		Municipal operations management	East ³	583
		Operations management	East ³	583
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		Software technology applications	East ³	593
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		Wellness	East ³	556
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	BFA	Art education, ceramics, drawing, fibers, intermedia, metals, painting, photography, printmaking, or sculpture	Tempe	281
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			East	548
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	BS	Optional: environmental chemistry ¹	Tempe	357
Chicana and Chicano Studies	BA	Humanities/cultural sciences or social sciences/policy	Tempe	363
Civil Engineering ²	BSE	Optional: Construction engineering or environmental engineering ¹	Tempe	244
Clinical Laboratory Sciences	BS	—	Tempe	423
Communication	BA, BS	—	Tempe ³	393
Communication Studies	BA, BS	—	West	686
Computational Mathematical Sciences	BS	—	Tempe	437
Computer Information Systems	BS	—	Tempe	182
Computer Science ²	BS	Optional: software engineering ¹	Tempe	250
Computer Systems ²	BS	Computer hardware technology, embedded systems technology, or software technology	East	594
Computer Systems Engineering ²	BSE	—	Tempe	251
Conservation Biology	BS	—	Tempe	423

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 College of Extended Education.

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

⁵ This program is administered by Tempe campus.

ASU BACCALAUREATE DEGREES

ASU Baccalaureate Degrees (continued)

Major	Degree	Concentration ¹	Campus	Page
Construction ²	BS	General building construction, heavy construction, residential construction, or specialty construction	Tempe	221
Criminal Justice and Criminology	BS	—	West	686
Dance	BFA	Choreography, dance education, dance studies, or performance	Tempe	294
Design Science ⁴	BSD	—	Tempe	148
Early Childhood Education	BAE	—	Tempe	199
Economics	BA BS	— —	Tempe Tempe	365 177 366
Electrical Engineering ²	BSE	—	Tempe	255
Electronics Engineering Technology ²	BS	Electronic systems, microelectronics, or telecommunications	East	576
Elementary Education	BAE	—	East	550
		Optional: bilingual education/English as a second language or early childhood education ¹	West	686
		Optional: indigenous teacher preparation program or multilingual/multicultural education ¹	Tempe ³	201
Engineering	BSE	—	East	580
Engineering Interdisciplinary Studies ⁴	BS	—	Tempe	218
Engineering Special Studies ²	BSE	Premedical engineering	Tempe	271
English	BA	Creative writing, linguistics, or literature	Tempe ³	367
		—	West ³	686
Exercise and Wellness	BS	Exercise and wellness or health promotion	East	555
Family and Human Development	BS	Optional: family studies/child development ¹	Tempe	374
Finance	BS	—	Tempe	180
French	BA	—	Tempe	405
Geography	BA, BS	Meteorology-climatology or urban studies	Tempe	377
Geological Sciences	BS	—	Tempe	383
German	BA	—	Tempe	406
Global Business	BS	Financial management, information systems management, international studies, leadership and management, or marketing	West	686
Graphic Design	BSD	—	Tempe	151
History	BA	—	Tempe ³	386
			West ³	686
Housing and Urban Development	BSD	—	Tempe ³	161
Human Health Studies	BA, BS	—	East	559
Industrial Design	BSD	—	Tempe	152
Industrial Engineering ²	BSE	—	Tempe	260
Industrial Technology	BS	Environmental technology management, graphic information technology, or industrial technology management	East	581

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 College of Extended Education.

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

⁵ This program is administered by Tempe campus.

ASU Baccalaureate Degrees (continued)

Major	Degree	Concentration ¹	Campus	Page
Integrated Studies	BA, BS	—	Tempe	336
Integrative Studies	BA	Any minor available at the West campus or individualized concentration	West	686
Interdisciplinary Arts and Performance	BA	Media, music, performance studies, theater/performance, or visual art	West	686
Interdisciplinary Studies	BIS	See the “BIS Concentrations” table, page 126.	East ³ Tempe ³	540 124
Interior Design	BSD	—	Tempe	153
Italian	BA	—	Tempe	406
Journalism and Mass Communication	BA	Journalism, media analysis and criticism, media management, media production, or strategic media and public relations	Tempe	319
Justice Studies	BS	—	Tempe	397
Kinesiology	BS	Exercise science, movement science, or teacher preparation	Tempe	401
Landscape Architecture	BSLA	—	Tempe	139
Life Sciences	BS	—	West	686
Management	BS	—	Tempe	185
Manufacturing Engineering Technology ²	BS	Manufacturing engineering technology or mechanical engineering technology	East	588
Marketing	BS	—	Tempe	188
Materials Science and Engineering ²	BSE	—	Tempe	238
Mathematics	BA BS	— Optional: statistics ¹	Tempe Tempe	436 436
Mechanical Engineering ²	BSE	—	Tempe	266
Mechanical Engineering Technology ²	BS	Aeronautical engineering technology, automation engineering technology, or mechanical engineering technology	East	589
Microbiology	BS	—	Tempe	424
Molecular Biosciences/ Biotechnology	BS	—	Tempe	424
Multimedia Writing and Technical Communication	BS	—	East	560
Music	BA	—	Tempe	300
Music Education ²	BM	Choral-general, instrumental, or string	Tempe	300
Music Therapy ²	BM	—	Tempe	302
Nursing	BSN	—	East ^{3, 5} Tempe ³ West ^{3, 5}	540 476 686
Nutrition	BS	Dietetics, food and nutrition management, human nutrition, or nutrition communication	East	562
Performance	BM	Guitar, jazz, keyboard, music theatre, orchestral instrument, piano accompanying, or voice	Tempe	303
Philosophy	BA	—	Tempe	446
Physics	BS	—	Tempe	448

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 College of Extended Education.

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

⁵ This program is administered by Tempe campus.

ASU BACCALAUREATE DEGREES

ASU Baccalaureate Degrees (continued)

Major	Degree	Concentration ¹	Campus	Page
Plant Biology	BS	Environmental science and ecology or plant biochemistry and molecular biology	Tempe	425
Political Science	BA, BS	—	Tempe ³ West	453 686
Psychology	BA, BS	—	Tempe ³ West ³	458 686
Real Estate	BS	—	East	549
Recreation	BS	Recreation management or tourism management	Tempe	488
Recreation and Tourism Management	BS	—	West	686
Religious Studies	BA	—	Tempe ³	462
Russian	BA	—	Tempe	406
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 East	197 686 551
Selected Studies in Education ⁴	BAE	—	Tempe	203
Social and Behavioral Sciences	BA, BS	—	West	686
Social Work	BSW	—	Tempe ³ West ³	493 686
Sociology	BA	—	Tempe ³ West ³ West ³	466 686 686
Spanish	BA	—	Tempe West	407 686
Special Education	BAE	—	Tempe West	197 686
Speech and Hearing Science	BS	—	Tempe	469
Supply Chain Management	BS	—	Tempe	189
Theatre	BA	Optional: acting or scenography ¹	Tempe	313
Theory and Composition	BM	Composition or theory	Tempe	306
Urban Planning	BSP	—	Tempe	160
Women and Gender Studies	BA	—	Tempe	472
Women's Studies	BA, BS	—	West	686

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 College of Extended Education.

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

⁵ This program is administered by Tempe campus.

University Calendar

March 2005

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

April 2005

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May 2005

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June 2005

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July 2005

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31						

August 2005

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14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

2005

Check the 2005 *Summer Sessions Bulletin* for details and to confirm these dates.

Sun., Mar. 20–

Tues., May 31

Sun., Mar. 20–

Fri., July 1

Tues., May 3

Mon., May 30

Tues., May 31

Fri., June 17

Fri., July 1

Fri., July 1

Fri., July 1

Mon., July 4

Tues., July 5

Fri., July 22

Fri., July 22

Fri., July 22

Fri., Aug. 5

Fri., Aug. 5

2005

Check the fall 2005 *Schedule of Classes* for details and to confirm these dates.

Thurs., Mar. 24–

Fri., Apr. 1

Mon., Apr. 18–

Sun., Aug. 28

Wed., Apr. 20–

Sun., Aug. 28

Tues., Aug. 2

Tues., Aug. 16–

Sat., Aug. 20

Thurs., Aug. 18

Thurs., Aug. 18–

Sun., Aug. 21

Mon., Aug. 22

Mon., Sept. 5

Mon., Oct. 17

Sun., Oct. 30

Summer Sessions

Registration and drop/add for first five-week session and eight-week session

Registration and drop/add for second five-week session

Final tuition payment deadline for all summer sessions (For students who register on or after the deadline, fees are due daily.)

Memorial Day holiday

Instruction begins for first five-week session and eight-week session

Course withdrawal deadline for first five-week session and eight-week session

August graduation filing deadline

Complete withdrawal deadline for first five-week session

First five-week session ends

Classes are excused for Independence Day holiday

Instruction begins for second five-week session

Complete withdrawal deadline for eight-week session

Course withdrawal deadline for second five-week session

Eight-week session ends

Complete withdrawal deadline for second five-week session

Second five-week session ends

Fall Semester

Preregistration

Drop/add

Registration

Final tuition payment deadline for fall 2005 (For students who register on or after the deadline, fees are due daily.)

Residence halls open (Check-in date varies by community/last name. Refer to the Residential Life schedule.)

New Faculty and Academic Professional Orientation and Reception
ASU Sun Devil 101

Instruction begins

Classes are excused for Labor Day holiday

December graduation filing deadline

Course withdrawal deadline

UNIVERSITY CALENDAR

September 2005

S	M	T	W	T	F	S
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October 2005

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30	31					

November 2005

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December 2005

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11	12	13	14	15	16	17
18	19	20	21	22	23	24
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January 2006

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February 2006

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26	27	28				

Fri., Nov. 11	Classes are excused for Veterans Day holiday
Thurs., Nov. 24–	Classes are excused for Thanksgiving recess
Fri., Nov. 25	
Tues., Dec. 6	Complete withdrawal deadline
Tues., Dec. 6	Instruction ends
Wed., Dec. 7	Reading day
Thurs., Dec. 8–	Final examinations
Wed., Dec. 14	
Thurs., Dec. 15	Commencement
Fri., Dec. 16	Residence halls close for semester break
Sat., Dec. 17	Midyear recess begins

2005

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

Mon., Oct. 3	Winter Session registration begins
Tues., Dec. 27	Winter Session instruction begins
Mon., Jan. 2, 2006	Winter Session classes are excused for New Year’s Day holiday
Fri., Jan. 13, 2006	Winter Session instruction ends

Winter Session

2006

Check the spring 2006 *Schedule of Classes* for details and to confirm these dates.

Mon., Oct. 24–	Preregistration
Tues., Nov. 1, 2005	
Mon., Nov. 14, 2005–	Drop/add
Sun., Jan. 22, 2006	
Wed., Nov. 16, 2005–	Registration
Sun., Jan. 22, 2006	
Tues., Dec. 13, 2005	Final tuition payment deadline for spring 2006 (For students who register on or after the deadline, fees are due daily.)
Wed., Jan. 11	Residence halls open
Date Not Yet Available	Orientation for new students
Mon., Jan. 16	Classes are excused for Martin Luther King Jr. Day holiday
Tues., Jan. 17	Instruction begins
Sun., Mar. 12–	Classes are excused for spring recess; semester midpoint
Sun., Mar. 19	
Fri., Mar. 31	May graduation filing deadline
Sun., Apr. 2	Course withdrawal deadline
Tues., May 2	Complete withdrawal deadline
Tues., May 2	Instruction ends
Wed., May 3	Reading day
Thurs., May 4–	Final examinations
Wed., May 10	
Thurs., May 11	Commencement
Fri., May 12	Residence halls close

Spring Semester

Summer Sessions

Check the 2006 *Summer Sessions Bulletin* for details and to confirm these dates.

Tues., Jan. 31–	Registration and drop/add for first five-week session
Wed., May 31	and eight-week session

March 2006

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April 2006

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23	24	25	26	27	28	29
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May 2006

S	M	T	W	T	F	S
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14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

June 2006

S	M	T	W	T	F	S
				1	2	3
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11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

July 2006

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23	24	25	26	27	28	29
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August 2006

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Tues., Jan. 31–

Wed., July 5

Tues., May 2

Mon., May 29

Tues., May 30

Fri., June 16

Fri., June 30

Fri., June 30

Mon., July 3

Mon., July 3

Tues., July 4

Fri., July 21

Fri., July 21

Fri., July 21

Fri., Aug. 4

Fri., Aug. 4

Registration and drop/add for second five-week session

Final tuition payment deadline for all summer sessions (For students who register on or after the deadline, fees are due daily.)

Memorial Day holiday

Instruction begins for first five-week session and eight-week session

Course withdrawal deadline for first five-week session and eight-week session

Complete withdrawal deadline for first five-week session

First five-week session ends

August graduation filing deadline

Instruction begins for second five-week session

Classes are excused for Independence Day holiday

Complete withdrawal deadline for eight-week session

Course withdrawal deadline for second five-week session

Eight-week session ends

Complete withdrawal deadline for second five-week session

Second five-week session ends

Frequently Asked Questions

How do I apply to ASU? Complete an application at www.asu.edu/apply. If you are applying for a major on the East or Tempe campus, have all required transcripts and test scores sent directly to

UNDERGRADUATE ADMISSIONS
PO BOX 870112
TEMPE AZ 85287-0112

If you are applying for a major on West campus, have test scores sent to the Tempe campus and transcripts sent to

ASU AT THE WEST CAMPUS ADMISSION
SERVICES
PO BOX 37100
PHOENIX AZ 85069-7100

For more information, see “[Undergraduate Admission](#),” page 66, for the East and Tempe campuses; or see “[West Campus](#),” page 685. Or call the East campus at 480/727-3278, the Tempe campus 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, see “[Disability Resource Center](#),” page 48, and “[Applicants with Disabilities](#),” page 72. 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 February 15 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. See “[Student Financial Assistance](#),” page 65, and “[Financial Aid](#),” page 59.

How do I find a place to live and purchase a meal plan? Apply early (before February 1) for the best chance to live on campus beginning in the fall semester. Housing is not guaranteed. See “[Residential Life](#),” page 45. Meal plans may be purchased in advance or upon arrival on campus; for

more information call Residential Life at 480/965-3515, and Campus Dining at 480/965-3464. For East campus housing, call 480/727-1700, or see “[Campus and Student Services](#),” page 528. For housing at the West campus, call 602/543-2272.

What about orientation? Complete orientation. It provides answers to your questions about class registration, student IDs, on-campus housing, student activities, and more. Call 480/727-1359 for information about East campus orientation. For more information about Tempe campus orientation, see “[Freshman Orientation](#),” page 72. Tempe transfer students can complete orientation online at www.asu.edu/admissions/transferorientation. Call 602/543-8203 for West campus orientation information, or access the Web site at www.west.asu.edu/gowest.

How do I get an ID, and what about parking? See “[Proof of Identification](#),” page 79, 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. East 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 77, and “[University Testing Requirements](#),” page 77.

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 77. For East campus Academic Advising, see “[Advising](#),” page 528.

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 Student Health and Wellness Center. See “[Immunization Requirements](#),” page 72.

Once I am registered, how can I ensure my success at ASU? Consider enrolling in UNI 100. See “[University College](#),” page 123.

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 on Tempe campus life, call Student Life at 480/965-6547, Sun Devil Involvement Center at 480/965-2255, the Student Recreation Complex at 480/965-8900, or ASASU at 480/965-3161, or see “[Student Services](#),” page 45; for the East campus, call 480/727-3278. Investigate the challenges and advantages of the Barrett Honors College. See “[The Barrett Honors College](#),” page 129.

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 79.

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 73.

AIEP. 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 72.

Audit Enrollment. A student who audits a course attends regularly scheduled class sessions but earns no credit. See “[Audit Enrollment](#),” page 82.

Buckley Amendment. See “Family Educational Rights and Privacy Act” in this section.

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 73.

Complete Withdrawal. A student may withdraw with a grade of “W” from all classes 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 73.

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 80.

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 Prefix Index](#),” 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 semester or the third day through the third week of a summer session or at 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 56 semester hours of course work at ASU and a cumulative GPA of 3.40 to 3.59 graduates *cum laude*. See “[Graduation with Academic Recognition](#),” page 91. See also “Magna Cum Laude” and “Summa Cum Laude” in this section.



The Student Recreation Complex offers students many workout possibilities.

Tim Trumble photo

ACADEMIC DEFINITIONS

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 90.

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 82.

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 86.

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 92.

GPA. The ASU grade point average (GPA) is obtained by dividing the total number of ASU grade points earned by the number of ASU semester hours graded “A” (4.00), “B” (3.00), “C” (2.00), “D” (1.00), or “E” (0.00). Grade point averages are rounded to the nearest hundredth of a grade point. See “[Grade Point Average](#),” page 83.

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 81.

Graduate Catalog. The *Graduate Catalog* describes the procedures and requirements for enrollment in the Division of Graduate Studies. See “[Division of Graduate Studies](#),” page 498.

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 81.

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 73.

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 91. 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 12, and “[ASU Graduate Degrees](#),” page 510.

Minor. A minor is a formalized group of courses contained within the program of study available from some instruction units. See “[Minors](#),” page 117.

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 82.

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 77.

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 85.

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 91. 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 71, and “AECF,” in this section.

Transcript. An official transcript lists in chronological order all courses taken at ASU. It includes all grades received. It is signed and dated by the registrar and displays the seal of the university. Unofficial transcripts include all information shown on the official transcript, plus information concerning changes, additions, etc., to the record. See “[Transcripts](#),” page 84.

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 East 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
East campus	3,983
Tempe campus	49,171
West campus	7,348
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 Administrative Personnel,” page 680](#).

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 712](#).

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.

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.

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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, non-discrimination 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 directions 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 gender, race, 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 the annual Faculty Diversity Conference which explores research, pedagogy, and curriculum resources for instructors, 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 import 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 East 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 Michael M. Crow joined the university as its 16th president. At his inauguration, President Crow highlighted his vision for transforming ASU into a New American University—one that is open and inclusive; that embraces its cultural, socioeconomic, and physical setting; and that promotes use-inspired research. As the only research university serving the entire metropolitan Phoenix area, ASU is in a unique position to evolve together with the city into one of the great intellectual institutions in the world.

A strong foundation already is in place to move Dr. Crow's vision forward. ASU admitted its largest and highest-quality freshman class ever in fall 2003 and has developed nationally recognized programs in a number of fields, including accounting, astrobiology, design science, creative writing, music, ecology and evolutionary biology, electron microscopy, nanotechnology, psychology, solid-state science, and supply chain management.

In addition, ASU has embarked on its most aggressive capital building effort in more than a decade. The university is adding one million square feet of world-class, grade A research infrastructure, with the first building—Phase I of the Biodesign Institute at Arizona State University—was completed in October 2004. ASU will take a leading role in biomedicine and biotechnology, designing new therapies, new vaccines, new diagnostic devices, and better delivery methods.

In addition, the university has undertaken a significant realignment initiative known as "One University in Many Places," which adopts a college/school-centric model for restructuring ASU across four distinct full-service campuses Valley-wide.

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

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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 2003, ASU finished 10th nationally in the Sears Directors' Cup, which recognizes the top athletic programs in the country. Ten teams finished in the top 20 nationally with five teams posting top 10 finishes. Wrestling finished fifth; men's golf, sixth; baseball, seventh; gymnastics, ninth; and women's swimming/diving, 10th.

UNIVERSITY CAMPUSES AND SITES

ASU comprises the East campus, Tempe campus, West campus, Downtown Phoenix campus, the ASU Research Park, and various other entities and facilities. See the [“ASU Campus Locations” map](#), page 27.

Downtown Phoenix Campus. See [“Downtown Phoenix Campus,”](#) page 525.

East Campus. The polytechnic campus of the university, the East Campus opened in 1996 and serves more than 3,500 undergraduate and graduate students. Located in the East 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 East Campus offers a variety of bachelor's and master's degrees, certificate programs, and, through partnerships with programs at the Tempe Campus, select doctoral degrees. Sharing the campus with the East campus 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 East 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 Technology Facility, and the flight program's Altitude Chamber offer unique teaching-learning opportunities for East Campus students.

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

A shuttle service provides transportation between the East 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 [“East Campus,”](#) page 526.

Tempe Campus. The Tempe campus is located near the heart of metropolitan Phoenix in the city of Tempe (population 159,615). 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 Campus. The West campus of ASU, located in northwest Phoenix, is a vital component of ASU. The campus serves more than 7,300 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 30 bachelor's degree programs, nine master's degrees, 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 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.

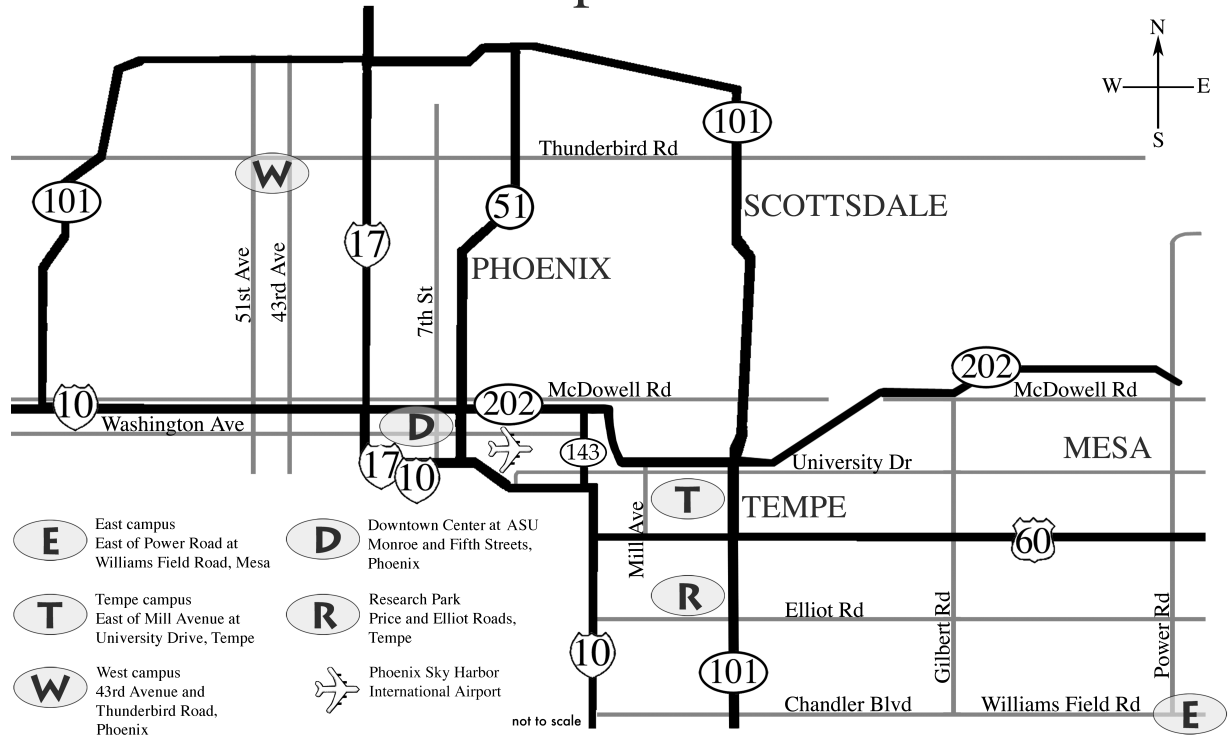
As a full-service campus, West campus includes a child development center, student health center, bookstore, fitness center, credit union, computer center, food service facilities, theater, and meeting rooms. The campus offers valuable resources for the community, including fine arts and cultural programs, 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,”](#) page 28, and [“West Campus,”](#) page 685. For complete information and course listings, see the *West Campus Catalog*.

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 Campus Locations



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, 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 Hedgpeh 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.

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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

Tempe Campus Libraries

The collections of the university's libraries comprise more than 3.9 million volumes, approximately 7.5 million microform units, and more than 34,000 periodical and serial subscriptions. Computer access to commercially and locally produced databases and the ability to borrow research materials from other libraries enhance local resources. ASU is a member of the Association of Research Libraries and the Center for Research Libraries.

For telephone numbers, see "Libraries," page 609. For more information, access the Web site at www.asu.edu/lib.

Charles Trumbull Hayden Library. The Charles Trumbull Hayden Library, designed by Weaver and Drover in 1966, 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 (L.I.S.T.); Reference; Reserve; and Archives and Manuscripts, which includes Special Collections, the Arizona Collection, the Chicano Research Collection, the Benedict Visual Literacy Collection, the Child Drama Collection, and the Labriola National American Indian Data Center. Archives and Manuscripts holds the papers of several major Arizona political figures, including Senator Carl Hayden, with historic materials about Arizona, Chicano, and Indian affairs.

Other special collections include materials by and about William S. Burroughs, the Press of Thomas Bird Mosher, and the Patten Herbal Collection. For more information, access the Web site at www.asu.edu/lib/hayden.

Architecture and Environmental Design Library.

Located on the first floor of the College of Architecture and Environmental 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/arch.

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/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/noble.

College of Law Library

The John J. Ross–William C. Blakley Law Library is located on McAllister Avenue. See "Law Building and Law Library," page 323, for more information.

Fletcher Library

The holdings of the Fletcher Library at West campus include more than 331,000 volumes, 9,600 videos, and 15,000 slides. For more information and to take a virtual tour of the library, access the Web site at library.west.asu.edu.

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.

University Archives. 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. ASU also serves as the host for the Arizona Historical Foundation, a nonprofit organization that also offers fine archival collections and services. Thousands of archival materials have been digitized and are available through the Web sites associated with each repository. Reference assistance and traditional or digital duplication services are offered at four reference service points, and some materials are made available through on-campus, online, and traveling exhibits. The Luhrs Reading Room offers evening and weekend service hours during the fall and spring semesters.

PERFORMING AND FINE ARTS FACILITIES

ASU Art Museum. The ASU Art Museum serves students and scholars within and beyond the university and as a cultural resource for the Phoenix metropolitan area. The museum serves the global public through traveling exhibitions, publications that contextualize art in the larger issues of society, and its Web site.

Exhibitions, education programs, and publications are interdisciplinary and designed to engage viewers with art

that is relevant to their lives. New technologies in the content of art and in the approaches to reaching new audiences are eagerly and openly adopted.

Collections and exhibitions focus on contemporary art, particularly new media and new methods of presentation; art by Latin American artists; art from the Southwest; prints, both historic and contemporary; and crafts, emphasizing ceramics. In 2002, the Ceramics Research Center was opened, presenting exhibitions and giving access to research in ceramics. The museum was founded by a gift of historic American paintings, which are on continuous display, including works by Gilbert Stuart, Albert Pinkham Ryder, Winslow Homer, Georgia O'Keeffe, and Romare Bearden. The contemporary art holdings include works by Nam June Paik, Lorna Simpson, Vernon Fisher, Sue Coe, and Enrique Chagoya. Ceramics, with a focus in 20th-century examples, include Peter Voulkos, Ken Price, Lucie Rie, and Robert Arneson. Exhibitions and collections are housed in galleries and study rooms within the international award-winning Nelson Fine Arts Center.

Educational programs include artist residencies and dialogs with classes, a student docent program, internships, research assistantships, lectures and symposia, in-gallery materials, community video projects with children, and school and public tours. For information on upcoming exhibitions and programs, call 480/965-2787.

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 Institute for Studies in the Arts' (ISA) 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 performance space that is the mainstage performance site for the 12 formal and informal concerts produced annually by the Department of Dance. 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 Institute for Studies in the Arts' (ISA) Digital Arts Ranch includes a black box theatre. The theatre features a matrix of video, audio and movement sensors, controllable projection screens, surround sound capable of Dolby 5.1 and DTS reproduction, shops for design and fabrication using a variety of materials, including wood, aluminum, brass, steel and plastic, and a CAD unit. The theatre space serves as the ISA's principal venue for arts and technology performance events.

Galleria. The Galleria features work by ASU faculty, staff, and local artists. Exhibits rotate monthly. Located in down-

town 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 of Design. Housed in the College of Architecture and Environmental 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 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 Department of Theatre's annual season of 12 to 15 plays also includes productions in the Lyceum and Prism theatres and the Nelson Fine Arts Center Studios.

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.

The Intelligent Stage. The Intelligent Stage is a research environment and performance space at the Institute for Studies in the Arts (ISA). 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 new music building expansion, 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 164-seat proscenium theatre, the Lyceum Theatre is a venue for faculty productions and a laboratory for the work of student playwrights, directors, and actors in the Department of Theatre.

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,

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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 black-box space devoted to student productions.

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.

Harry Wood Gallery. Housed in the Art Building (ART 120), the Harry Wood Gallery provides temporary exhibitions of the visual arts during the academic year. Works by undergraduate and graduate students, as well as the general public, are showcased.

Gallery 100. The art gallery is located opposite the Tempe campus Bookstore in ECA 100. The exhibition space features art work in a variety of media created by graduating seniors in the School of Art.

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 student-faculty-staff directory;
7. browsing general and graduate catalogs; and
8. obtaining information about ASU athletics.

IT provides several service centers, described below, for the ASU academic community.

Computing Commons. 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, one instructor mediated classroom, two Classroom Support Centers, the Customer Assistance Center, the ASU Computer Store, and the Computing Commons Gallery which is described under Performing and Fine Arts Facilities (see "Computing Commons Gallery," page 29).

Classroom Support. Classroom Support provides the campus community with a variety of tools and services to help faculty, staff, and students integrate technology into the educational process at ASU. Support services for university classrooms include technical assistance, instructor training, equipment installation and maintenance; multimedia equipment loans for classroom instruction and faculty-sponsored student projects; equipment and classroom demonstrations of new and current technologies; and hands-on orientation.

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

Computing Sites. In addition to the Computing Commons Atrium, there are four additional Information Technology 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.

Computer Accounts. Computer Accounts, located on the second floor of the Computing Commons in room 202, assists users with account access issues (including lost passwords), disk space quotas, accounts for non-ASURITE services (including mainframe computer access), and other account-related services. Most computing services are accessible through the standard ASURITE UserID and password, available online at www.asu.edu/asurite. Additional information about Computer Accounts is available on the Web at www.asu.edu/computeraccounts.

Customer Assistance Center. The Customer Assistance Center, located on the second floor of the Computing Commons in room 202, offers a library of reference manuals and other information concerning computing systems and software. Self-paced training is available for various software applications running under the Windows or Unix operating systems. The Customer Assistance Center also distributes some site-licensed software, including computer security software. “Print on demand” help documents are available on the Web at www.asu.edu/quicklook. Additional information about the Customer Assistance Center is available on the Web at www.asu.edu/cacenter.

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 College 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 PCOM 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 about IS Lab resources, support, and workshops, access the Web site at dmit.asu.edu/islab.



A Biodesign Institute researcher performs microchip analysis.

Tim Trumble photo

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Downtown Center at ASU Computer Labs. The Downtown Center at ASU offers two state-of-the-art computer labs. These facilities feature Pentium IV-class computers with the latest versions of software, high-speed laser printers, a color flatbed scanner, and a ceiling-mounted video projection system. The labs are located in central Phoenix. The center is a unique educational, applied-research, and community-service facility designed to address the multifaceted urban opportunities of the central Phoenix community. For more information, call 480/965-3046, or access the Web site at www.asu.edu/xed/computerlab.

Help Desk/Consulting. The IT Help Desk provides ASU students, faculty, and staff with centralized systems information and first-level assistance in resolving computing problems. The IT Help Desk assists with AFS filespace and permissions for Web sites; communication, e-mail, and virus protection software; file recovery from floppy disks; and computing and equipment problem referral. Services are available by telephone at 480/965-6500, and by walk-in at the Customer Assistance Center, CPCOM 202. For more information, access the Web site at www.asu.edu/helpdesk.

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

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Research Centers

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Research centers, institutes, and laboratories serve the university’s mission in research. They are overseen by eight of the colleges, the President’s Office, the Office of the Vice President for Research and Economic Affairs, and the East 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 www.eas.asu.edu/~CRESMET.

Institute for Studies in the Arts

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 development of the Arts, Media, and Engineering Program (AME), 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 in 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 www.isa.asu.edu or ame.asu.edu.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

Herberger Center for Design Research

The Herberger Center for Design Research (HCDR) has recently changed in name and mission. Previously known as the Herberger Center for Design Excellence, the center’s mission will focus on promoting and funding design research. To fulfill this mission, HCDR will support new enterprises, including InnovationSpace, an interdisciplinary laboratory where students and faculty form partnerships with inventors, researchers, and businesses to create consumer-driven product concepts that improve society and the environment. InnovationSpace is a partnership among the College of Architecture and Environmental Design, the Ira A. Fulton School of Engineering, and the W. P. Carey

RESEARCH CENTERS

School of Business. For more information, call 480/965-6367, or access the Web site at innovationspace.asu.edu. HCDR will also seek new partnerships to share resources and knowledge within the ASU community, with local businesses and educational institutions, and nationally and internationally with other universities and businesses.

HCDR also supports the Joint Urban Design Program (JUDP), based at the ASU downtown Phoenix campus. The JUDP is a community outreach program that facilitates interaction among college faculty, students, and the broader community and promotes design as a way to further dialogue and to address urban issues. The JUDP conducts intensive workshops (community-based charrettes) that help neighborhoods, groups, and other city stakeholders focus on and respond to critical needs. For more information, call the JUDP at 480/727-5146, or access the Web site at www.asu.edu/caed.

For more information about College of Architecture and Environmental Design research centers, call 480/965-6693, or access the Web site at www.asu.edu/caed.

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 www.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 www.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. Similarly, the dean's office has worked with School of Business faculty to successfully advance the recommendations of the E-Business Task Force by implementing significant changes in the M.B.A and undergraduate programs. For more information, call 480/965-2280, access the CABIT Web site at www.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 consistent source of information on the Arizona and metropolitan Phoenix economies since 1951. Both the business community and the public have access to the economic indicators produced by the ongoing projects of the center, including quarterly net migration estimates for Arizona and Maricopa County. CBR also conducts projects under the sponsorship of private and public agencies. Recent examples include the economic impact of the Fiesta Bowl, a study of seasonal migration to Arizona, and an analysis of the Arizona Lottery. A monthly publication of the center, *AZB/Arizona Business*, plays a major role in disseminating to the public the economic information compiled by the research centers of the Seidman Institute. CBR staff is available to respond to inquiries and to provide available data.

For more information, call 480/965-3961, access the CBR Web site at www.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.

The center also actively supports the W. P. Carey School of Business MBA program that offers a specialization in Services Marketing and Management. This specialization infuses strong company-based experience and encourages summer internships.

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 www.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 Computing and Information Science and Engineering," page 43, for information about this joint venture of the Ira A. Fulton School of Engineering and the W. P. Carey School of Business.

EAST CAMPUS

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.east.asu.edu/arec, or write

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

RESEARCH CENTERS

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.east.asu.edu/research/star.

COLLEGE OF EDUCATION

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 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

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 33.

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 stan-

dards, 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

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 43.

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 ENGR 115, call 480/965-8654, or access the Engineering Research Services Web site at www.asu.edu/~ers.

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See “[Center for Research on Education in Science, Mathematics, Engineering, and Technology](#),” page 33.

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, ferroelectrics, 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 ENGR 115, call 480/965-3708, or access the CSSER Web site at ceaspub.eas.asu.edu/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 Ari-

zona. Research thrust areas include virtual manufacturing, enterprise systems, knowledge management, and software in the system solution.

For more information, visit the institute in GWC 402, call 480/965-3709, or access the Engineering Research Services Web site at www.eas.asu.edu/~ers.

Institute for Studies in the Arts

The Ira A. Fulton School of Engineering has a collaborative relationship with this institute. For more information, see “[Institute for Studies in the Arts](#),” page 33.

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

Ceramics Research Center

The Ceramics Research Center was established in 2002 as part of the ASU Art Museum and features selections from the more than 3,000 ceramics works in the collection. Works are shown in open storage, in a gallery with changing exhibitions, and in the Susan Harnly Peterson Ceramics Archive. The center offers opportunities for hands-on study and enjoyment of one of the outstanding ceramics collections in the country. For more information, call 480/727-8170, or access the museum’s Web site at asuartmuseum.asu.edu.

Institute for Studies in the Arts

The Katherine K. Herberger College of Fine Arts has a collaborative relationship with this institute. For more information, see “[Institute for Studies in the Arts](#),” page 33.

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

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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 outreach activities, including teacher training, curriculum development, public symposia, film series, and exhibitions.

The program in 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 grad-

uate 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 one of the most comprehensive and rigorous undergraduate certificate programs at ASU. Requiring language skills in Chinese, Japanese, Indonesian, Korean, Lao, Thai, or Vietnamese. The Asian Studies Certificate Program also encourages students to gain area-specific knowledge of Asia by taking courses in anthropology, art, geography, history, humanities, literature, politics, and religion. 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 provides students with official transcript recognition of specialization in Asian Studies related to their major area of study. The certificate is offered in two tracks: East Asia (China, Japan, Korea) and Southeast Asia (Indonesia, Laos, Thailand, and Vietnam). 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, Japan, Korea, Taiwan, Hong Kong, India, Vietnam, Thailand, and Singapore.

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/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 the 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 lifesciences.asu.edu/centerbiosoc.

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

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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 2000° 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. In 1990, it was designated a Regents Center of the University. Since September of 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 bio-

physical 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. As 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.

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See "Center for Research on Education in Science, Mathematics, Engineering, and Technology," page 33.

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 activ-

ity across the lifespan; and the effects of exercise on mental health.

For more information, visit ESRI in PEBE 159, or call 480/965-7906.

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 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,

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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/reesc and www.asu.edu/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, will serve as the permanent campus home for the center. Renovations are anticipated to be completed in the fall of 2004.

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/pipercenter.

COLLEGE OF PUBLIC PROGRAMS

Center for Nonprofit Leadership and Management

The Center for Nonprofit Leadership and Management (CNLM) promotes the understanding and improved practice of nonprofit organizations. The center coordinates a nonprofit sector research program, facilitates educational offerings in nonprofit studies, serves as a convener on topical issues, and provides selected technical assistance and information services. The center facilitates relationships among students, faculty, and community organizations across a range of research and outreach activities. In addition, the center convenes leaders and managers from the nonprofit, business, and government sectors on topical issues pertinent to building nonprofit capacity in the region. The center supports the activities of three complementary nonprofit leadership and management education programs: the ASU American Humanics Program (undergraduate certificate), a

postbaccalaureate program (graduate certificate in Non-profit Leadership and Management), and a noncredit program (through the Nonprofit Management Institute). For more information, call 480/965-0607, or access the Web site at www.asu.edu/copp/nonprofit.

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 Arizonans. 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 areas such as 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 institute's Web site at www.asu.edu/copp/morrison, or write

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

VICE PRESIDENT FOR RESEARCH AND ECONOMIC AFFAIRS

Biodesign Institute at Arizona State University

The Biodesign Institute at Arizona State University was established by ASU to provide an intellectual and physical environment for large-scale interdisciplinary and collaborative research. The vision for the institute is to make it the benchmark for excellence in use-inspired research focused on the intentional manipulation of biological systems. The institute is becoming a catalyst for innovation, facilitating the multidisciplinary investigations in basic science and engineering that are required to design critical biotechnology solutions in the 21st century.

The hallmark of the Biodesign Institute is a physical and intellectual environment that leverages communication, collaboration, integration, and a research agenda that emphasizes the application of discoveries to commercial uses and societal benefits. The research programs are clustered into four focus areas of increasing contemporary importance:

1. biologics and therapeutics,
2. nano-biosystems and devices,
3. neural interface engineering, and
4. integrative tools for genomics and informatics.

The institute's output is measurable in terms of highly trained professionals, pioneering discoveries, new technologies, new practices, and new businesses—all of which can drive statewide economic development. The institute is becoming a hub for biodesign research in central Arizona, building collaborative networks among scientists and clinical researchers from leading industries and institutions. The Biodesign Institute is anchored in a Tempe campus research complex.

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

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

RESEARCH CENTERS

collaborates with five affiliated research groups: the Consortium for Embedded and Internetworking Technologies; the Partnership for Research in Stereo Modeling; the Arts, Media and Engineering Research Center; the Center for Advancing Business through Information Technology; and the Software Factory.

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.

International Institute for Sustainability

Established originally in 1974 as the Center for Environmental Studies, the primary mission of this institute is to facilitate collaborations among faculty researchers and to aid decision making about environmental issues. Through its collaborations, both with ASU faculty and partners from government, business, and the educational community, the institute advances the identification of key local and global environmental issues and collects reliable information to be

used by scholars, policy makers, and the general public. 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 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 ces.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.



Biodesign Institute Building A was recently completed. The complex will include three additional buildings. Tim Trumble photo

Student Services

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](#),” on this page) 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/reslife, call 480/965-3515, or write to

RESIDENTIAL LIFE
ARIZONA STATE UNIVERSITY
PO BOX 870212
TEMPE AZ 85287-0212

Information about optional 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

East Campus Housing

On-campus housing at the East campus ranges from residence hall rooms for single students to two- to four-bedroom homes for students with families. Three distinct freshman residence halls are available for students participating in the East campus's Freshman Year Experience program. For more information, see “[Williams Campus Housing and Residential Life](#),” page 530, call 480/727-1700, or access the Web site at www.east.asu.edu/housing.

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 a unique experience of an academic advisor in residence, faculty mentors, study sessions, 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 classroom and 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, or access the Web site at www.west.asu.edu/lascasas.

STUDENT DEVELOPMENT

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.

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;

STUDENT SERVICES

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, math, 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. 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
7. 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 Architecture and Environmental Design, and Barrett Honors College.

FYE is open to all freshmen regardless of their place of residence (on or off-campus). Halls designated as FYE sites in 2005-2006 are Cholla, Manzanita, McClintock, Palo Verde complex, San Pablo, Sonora, and Sahuaro. For more information, call 480/965-1512, or access the Web site at www.asu.edu/vpsa/fye. For information regarding the East campus FYE program, access the Web site at www.east.asu.edu.

Learning Resource Center

The Learning Resource Center (LRC) provides academic support to ASU students through tutoring, peer coaching, academic skills workshops, software training, and instructional computer labs.

Tutoring is offered in approximately 100 courses, including mathematics, languages, business, physics, chemistry, and computer science. Students can participate in scheduled small-group tutoring Monday through Friday during daytime hours at two campus locations: Palo Verde West (north campus) and in MU 14. Walk-in tutoring is available Sunday through Thursday during evening hours in Palo Verde West as well as in all FYE Residence Halls. Residential and off-campus students are welcome to use tutoring services in all locations.

The peer coaching program provides structured assistance to ASU students to help improve general academic skills, including time and stress management, organizational strategies, textbook reading, and test preparation. Students can be seen on a walk-in basis or by appointment. Those who qualify can schedule weekly meetings with a peer coach throughout the semester. Peer coaches regularly present workshops on academic skills topics.

The LRC offers students two options 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 labs. These are located in the Memorial Union (Montgomery Instructional Lab), Palo Verde West, and SSV 392.

For more information or to register for workshops, call the LRC in Palo Verde West at 480/965-6254 or in MU 14 at 480/965-7728, or access the Web site at www.asu.edu/lrc.

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/mu/family.

For specific information about child care at the East campus, call 480/279-4829; at the West campus, call 602/543-5437.

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 and graduate student body 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. For specific information about student government at the East campus call 480/727-1065; at the West campus call 602/543-8186.

Sun Devil Involvement Center

Located on the third floor of the Memorial Union, the Sun Devil Involvement Center 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/mu/sdic.

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/mu/legal.

Co-Curricular Programs

Co-Curricular Programs (CCP) encourages involvement by providing opportunities for student and faculty interaction outside the traditional classroom setting. Faculty from a variety of different disciplines collaborate with CCP to offer programs that foster dialogue, lead to the exchange of ideas, and provide out-of-class learning experiences. Each year, CCP sponsors a number of annual events, such as the Student/Faculty Retreat and the Last Lecture Series. In addition, CCP offers specialty programs geared toward the interests of students in various majors. The CCP Student Advisory Board assists in the development and promotion of programs for the campus community.

For more information on CCP programs or the Student Advisory Board, call 480/965-9600, or access the Web site at www.asu.edu/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.

Student Leadership Programs

Student Leadership Programs (SLP) provides opportunities to students, faculty, and staff interested in individual and support group leadership development. The SLP office offers a wide variety of leadership development resources, including a library complete with books, articles, and audio and visual materials; leadership seminars; and the Emerging Leaders Program, an eight-week interactive learning experience designed to introduce students to various leadership styles. Staff is available for presentations; workshop facilitation; and advising, guidance, and coordination of efforts in leadership development. For more information, call 480/965-2255, or access the Web site at www.asu.edu/mu/slp.

Leadership Classes. A series of leadership classes are offered to provide students an opportunity through class activities, discussions, and small group experiences to understand leadership theories and models, to develop leadership skills, and to apply leadership knowledge through service and internships. For more information, access the Web site at www.asu.edu/mu/slp.

Greek Life

Involvement in a fraternity or sorority can be one of the most rewarding aspects of a student's college experience. Fraternities and sororities provide opportunities for leadership development, academic success, campus involvement, community service, social interaction, brotherhood/sisterhood, and intramural participation. Sixteen fraternities are governed by the Interfraternity Council and 10 sororities hold memberships in the Panhellenic Council. The National Panhellenic Council offers six predominantly African American fraternities and sororities for involvement with community service, cultural learning, and a deep sense of tradition. The Hispanic Greek Council, three fraternities and three sororities, offers Hispanic students an opportunity to work on service projects, give back to the Latina/Latino culture, and network within the Hispanic community. In addition to the benefits of lifelong membership, many of the fraternities and sororities have chapter housing that provide a rewarding living/learning option for their members. For more information, call Greek Life at 480/965-2255, or access the Web site at www.asu.edu/mu/greeklife.

Community Service Program

The Community Service Program strives to engage students, faculty, and staff in meaningful cocurricular service. Through the integration of academic studies with public service, the campus community is provided with intentional avenues to serve the societal needs of Valley communities. By engaging students in worthwhile service while promoting a lifelong commitment to citizenship and social justice, the Community Service Program not only augments curricular learning but also 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/mu/community, or call 480/965-2255.

Short-Term Service Projects. The Community Service Program collaborates with Valleywide agencies and campus entities to provide meaningful episodic service events such as Alternative Spring Break, the Cesar Chavez Day of Service, the Fall Service Plunge, and the Martin Luther King Jr. Day of Service. Current information can be found in updated listings in the office and on the Web site on a weekly basis.

Cocurricular Service Learning Opportunity Clearinghouse. A detailed 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.

Cocurricular Service Learning in the Classroom. The Community Service Program works with faculty and instructors on campus to successfully integrate cocurricular service learning into the classroom setting. Information regarding courses that integrate cocurricular service

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learning is available for students, and the resources are open to students as they seek to meet course requirements.

Workshops and Skill-Building. Throughout the year, the Community Service Program offers workshops and presentations around service-related topics to develop strong campus leaders and exceptional civic leaders for the future. Topics may include servant leadership, volunteer management, event planning, and reflection. Workshop series information is available in the office.

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, a card and gift shop, catering, infant care facilities, film developing, food venues, a general store, a hair salon, Internet stations, a music store, a post office, and a travel agency.

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 School of Art, 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/mu.

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/studentlife.

Adult Re-Entry Program. The Adult Re-Entry Program offers a variety of services to assist 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/studentlife/reentry.

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 480/965-3570, or access the Web site at www.asu.edu/studentlife/danforth.

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), or access the Web site at www.asu.edu/drs. Faxes may be sent to 480/965-0441.

Educational Opportunity Center. This community outreach service 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 www.asu.edu/studentlife/eoc.

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, 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/studentlife/iso.

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 Hispanic Mother/Daughter Program and the Native American Achievement Program strive to increase the persistence and graduation rates of students within the Hispanic and American Indian communities. Summer opportunities, such as the Academic Program Promoting Leadership Enrichment and Service, African American Summer Bridge Program, 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/studentlife/msc.

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 480/965-6547, or access the Web site at www.asu.edu/studentlife/advocacy.

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 *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 *Student Code of Conduct* are subject to appropriate sanctions for student misconduct. Student Judicial Affairs is located in the Office of Student Life, SSV 263. For more information, call 480/965-6547, or access the Web site at www.asu.edu/studentlife/judicial.

Student Risk Management. Student Risk Management serves the ASU community by providing education resources to develop a safe and productive environment and encourage effective decision making.

For more information, call 480/965-6547, or access the Web site at www.asu.edu/studentlife/risk.

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/studentlife/ub.

Veterans Upward Bound. This program 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 www.asu.edu/studentlife/vub.

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.

STUDENT SERVICES

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 either 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/counseling_center.

For information about counseling services at the East campus, call 480/727-1255; at the West campus, call 602/543-8124.

Training Programs. Counseling and Consultation provides training for psychologists and other mental health professionals through postdoctoral, internship, residency, and practicum training programs.

Testing Support Services. Testing Support Services (TSS) 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). Students may obtain information about test preparation workshops by phone (480/965-6777), in person, or from the TSS Web site at www.vpsa.asu.edu/cc/tss_reg/student_testingsupport_information.asp. The TSS 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.

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/counseling_center/personaldev.html.

STUDENT HEALTH AND WELLNESS CENTER

Services. The Student Health and Wellness Center 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, orthope-

dics, and other specialties are on-site and are available by referral from a member of the Student Health and Wellness Center 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 Student Health and Wellness Center 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 the Student Health and Wellness Center. A copy of the parental consent form may be obtained from the Student Health and Wellness Center's Web site at www.asu.edu/health.

For information about student health services at the East campus, call 480/727-1041, and at the West campus, call 602/543-8019.

Health Promotion. The Student Health and Wellness Center provides educational programs on nutrition, stress management, alcohol and other drug use and abuse, sexuality, and sexually transmitted diseases, including the Human Immunodeficiency Virus (HIV). Peer education programs provide students an opportunity to gain experience in health education and to enhance presentation skills. Services and educational brochures are available at the Student Health and Wellness Center and at other locations on campus.

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 Student Health and Wellness Center's 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 the Student Health and Wellness Center 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 the Student Health and Wellness Center 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 Student Health and Wellness Center's insurance office at 480/965-2411.

Bridge Discount Program. This discount program reduces the total health care costs for certain services rendered at the Student Health and Wellness Center. Students enrolled in this program are charged co-payments for specialist visits, basic x-rays, and laboratory tests. More information is available on the Web site at www.asu.edu/health, or by calling 480/965-2411.

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 East, 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 career.asu.edu.

East campus students may visit the Career Preparation Center, call 480/727-1041, or access the Web site at www.east.asu.edu/students/career.

STUDENT RECREATION COMPLEX AND RECREATIONAL SPORTS

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' Recreational Sports 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.

Located on the south end of Palm Walk, the SRC is one of the finest student recreation facilities in the United States. 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. All Tempe campus students are automatic members and can use the SRC for drop-in use. East 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/src.

ARIZONA PREVENTION RESOURCE CENTER

The Arizona Prevention Resource Center (APRC) is a partnership among ASU, the Governor's Office for Substance Abuse Prevention, the Arizona Department of Education, and the Arizona Department of Juvenile Corrections.

The APRC serves as a centralized source for individuals, schools, and communities throughout Arizona to support,

STUDENT SERVICES

enhance, and initiate programs focused on the prevention of the use of tobacco products and 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.

The Arizona Drug and Gang Prevention Resource Center (ADGPRC), located with the APRC, provides similar information and technical assistance for communities to help them focus strategically on drug and gang prevention issues.

The ADGPRC can be contacted at 480/727-5015 or toll-free at 1-888-432-2347, or access the Web site at www.asu.edu/adgprc.

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.

RELIGIOUS ACTIVITIES

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 480/965-3570.

OTHER OPPORTUNITIES FOR STUDENT INVOLVEMENT

Communication Activities: Performances. 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 12 to 14 faculty- and/or student-directed concerts a year. Interested students should attend open auditions, held at the start of each semester. Dance Arizona Repertory Theatre (DART) provides preprofessional experience in a contemporary modern dance model. Opportunities include working with community programs and nationally recognized artists, performing, and learning teaching methodologies. For more information, call 480/965-1891.

Forensics. The ASU Forensic squad, associated with Pi Kappa Delta national forensic honorary association, travels to trophy tournaments across the country. For more information, call the director of Forensics at 480/965-5095.

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 Department of Theatre presents four to six faculty-directed productions and 10 to 15 student-directed productions a year. Auditions are open to all university students, regardless of major. Audition information is available from the Department of Theatre, GHALL 232, 480/965-5337. The department provides community outreach opportunities with schools and connections with local professional theatre companies.

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 "2004–2005 General University 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 80.

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.

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 518.

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 and reserve their classes 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, with the exception of students owing past-due charges. Enrollment in the plan is an available option through the end of the first week of 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 non-refundable, 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 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.

FEES, DEPOSITS, AND OTHER CHARGES

2004–2005 General University Tuition

Hours	Undergraduate Tuition		Postbaccalaureate Tuition ¹		Graduate Tuition	
	Resident ²	Nonresident ²	Resident ²	Nonresident ²	Resident ²	Nonresident ²
1	\$ 207.00	\$ 535.00	\$ 264.00	\$ 565.00	\$ 264.00	\$ 565.00
2	414.00	1,070.00	528.00	1,130.00	528.00	1,130.00
3	621.00	1,605.00	792.00	1,695.00	792.00	1,695.00
4	828.00	2,140.00	1,056.00	2,260.00	1,056.00	2,260.00
5	1,035.00	2,675.00	1,320.00	2,825.00	1,320.00	2,825.00
6	1,242.00	3,210.00	1,584.00	3,390.00	1,584.00	3,390.00
7	1,987.00	3,745.00	2,519.00	3,955.00	2,519.00	3,955.00
8	1,987.00	4,280.00	2,519.00	4,520.00	2,519.00	4,520.00
9	1,987.00	4,815.00	2,519.00	5,085.00	2,519.00	5,085.00
10	1,987.00	5,350.00	2,519.00	5,650.00	2,519.00	5,650.00
11	1,987.00	5,885.00	2,519.00	6,215.00	2,519.00	6,215.00
12 or more	1,987.00	6,414.00	2,519.00	6,779.00	2,519.00	6,779.00

¹ Postbaccalaureate students enrolled in an undergraduate degree program are billed at the undergraduate rate during 2004–2005. Starting fall 2005, all postbaccalaureate students will be billed at the postbaccalaureate rate.

² 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).

Late Registration. The fee assessed for registrations on or after the first day of each session is \$50. A separate fee of \$35 is assessed on registration payments received after the fee payment deadline but processed before the class enrollment purge.

Admission Application. The nonrefundable fee for undergraduate applications is \$25 for residents and \$50 for non-residents.

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 84.

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. The fee for one-half hour of instruction weekly is \$60. The fee for one hour of instruction weekly is \$100.

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 by using the SunDial touch-tone telephone system, 480/350-1500, for motor vehicles parked on campus except in areas where metered parking or visitor lots are available. Photo identification is required. 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. § 15-1627G) during the entire registration period. The fee for this emission inspection is \$27 per vehicle.

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 \$10 to \$100. 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 the provisions of the “**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. An \$85 minimum fee is assessed if impoundment is required. For more information, call 480/965-4527.

Returned Checks. Checks 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 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 paying fees with a check that is subsequently not honored by a financial institution 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. The cost of the Tempe campus housing varies. In 2004–2005 the typical cost for undergraduate students was \$3,600 per academic year. Meal plans are purchased separately. For more information, see “**Residential Life,**” page 45, or call 480/965-3515.

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; monthly and reduced-fare semester passes are available on campus. 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 East 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.

PAYMENT METHODS AND DEADLINES

SunDial and ASU Interactive. The SunDial telephone system at 480/350-1500, and ASU Interactive, on the Web at www.asu.edu/interactive, are the preferred methods for accessing tuition services. Students may enroll in the tuition installment plan, hold classes with financial aid, 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/sbs.

Credit Cards. See the *Schedule of Classes* or the Student Business Services Web site at www.asu.edu/sbs for information about paying by credit card.

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.

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 148, 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 by the deadline dates and times indicated or the registration is voided. 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 East 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, page 56.

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 these circumstances.

FEES, DEPOSITS, AND OTHER CHARGES

Fall and Spring Withdrawal Refunds

Withdrawal Date	Refund
Before first day of the semester	100%*
One through 7 calendar days	80%
8 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.

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.

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 the 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 146.

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



The final 2004 Presidential Debate, held in Gammage Auditorium October 13, focused national media attention on Tempe campus and gave students a firsthand opportunity to participate in the process.

Jessica Slater photo

FEES, DEPOSITS, AND OTHER CHARGES

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.

Teachers and Classroom Aides. If a student is under contract to teach on a full-time basis or is employed as a full-time non-certified classroom aide at a school within a 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.

Financial Aid

The primary responsibility for financing a college education belongs to students and their families (see the “2004–2005 Typical Undergraduate Student Budgets” 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 February 15. 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 read carefully all correspondence received.

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.

TYPES OF FINANCIAL AID AND MAJOR PROGRAMS

ASU students receive financial aid resources totaling more than \$273 million. There are four categories of financial aid: scholarships, grants, loans, and employment.

Scholarships

There are two sources of scholarships at ASU: university-funded scholarships and private donor scholarships. 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 are GPA, leadership qualities, and community service.

The Scholarship Office coordinates all scholarship programs. High school students should contact their high

school counselors or visit the scholarship Web site at www.asu.edu/fa/scholarships to determine the appropriate process for obtaining a variety of 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, which include artistic talent, musical ability, and athletic performance. Students seeking these scholarships should contact the appropriate academic unit directly.

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.

Private Donor Scholarships. Most of these scholarship funds are provided by employers, private individuals, organizations, and corporations. In most cases, the private donor specifies the criteria used by the Scholarship Office to identify candidates for a particular scholarship.

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 2004–2005 academic year was \$4,050 per individual student.

Federal Supplemental Educational Opportunity Grant. The Supplemental Educational Opportunity Grant (SEOG) 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 2004–2005 were \$1,000 per individual student.

FINANCIAL AID

2004–2005 Typical Undergraduate Student Budgets

Item	Dependent		Independent
	At-Home	On/Off Campus	On/Off Campus
Room	\$ 1,120	\$ 4,178	\$ 5,714
Board	1,200	2,396	2,396
Personal/miscellaneous	2,526	2,526	3,236
Transportation	1,200	1,200	1,444
Books/supplies	838	838	838
Total living ¹	\$ 6,884	\$ 11,138	\$ 13,628
Resident tuition	\$ 3,973	\$ 3,973	\$ 3,973
Special fees	91	91	91
Resident total	\$ 10,948	\$ 15,202	\$ 17,692
Nonresident tuition ²		\$ 12,828	\$ 12,828
Special fees		91	91
Nonresident total		\$ 24,057	\$ 26,547

¹ Loan fees are not included in this amount. Total living expense items are estimates. Amounts vary based on personal choice.

² Amounts of nonresident tuition are shown in the “2004–2005 General University Tuition” table, page 54.

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 2004–2005 was \$1,500 per individual student.

Financial Aid Trust Grant. Provided in partnership between ASU students and the state legislature, these funds are provided primarily to resident, undergraduate or under-represented students with high financial need. The maximum grant for 2004–2005 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 non-resident students. The maximum grant awards for 2004–2005 were \$2,000 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.

Stafford Student 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 Loan. 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 2004–2005 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.

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.



Tempe Town Lake's close proximity to campus makes it a prime recreational spot for students and the perfect training area for the ASU Sailing Club.

Megan Keenan photo

Classification of Courses

COURSE INFORMATION

Information about all lower- and upper-division courses offered at the Tempe campus and the East campus 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.

The Tempe campus and the East campus graduate-level courses are described in the *Graduate Catalog*. The West campus courses are described in the *West Campus 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 Prefix Index](#),” page 7, for the location within the catalog of all ASU courses by prefix. See the “[Key to Course Listings](#)” diagram, on this page, for help in understanding listings.

Campus Code. Campus codes are used in the *General Catalog* only for courses in prefixes used by both the East campus and the Tempe campus. Campus codes are used for all courses offered at the Tempe campus (M), East campus (E), 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 92, for an explanation of the General Studies requirement, which applies to students pursuing a bachelor’s degree.

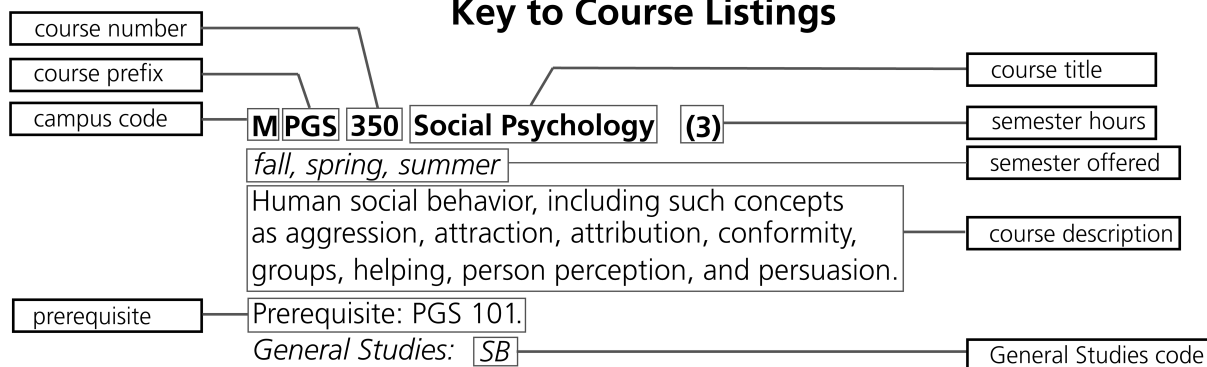
COURSE NUMBERING SYSTEM

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 80.

Key to Course Listings



Michael Martin graphic

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 cumu-

lative 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.

CLASSIFICATION OF COURSES

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 124) 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.

Division of Graduate Studies. Courses with the prefix GRD numbered 791 are reserved for doctoral students participating in the Preparing Future Faculty (PFF) program administered by the Division of Graduate Studies. 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.

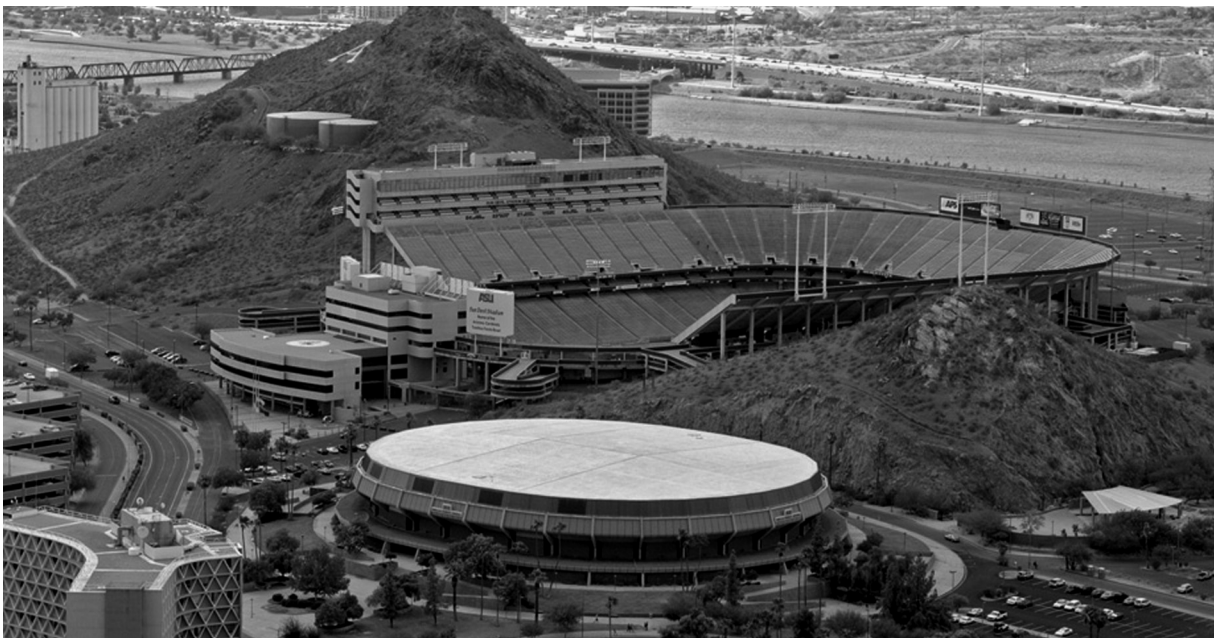
International Programs Overseas. Courses with the prefix IPO numbered 495 and 595 are reserved for International Programs study abroad and exchange programs. For most programs, participating students register for 18 semester hours. After completion, undergraduate students receive credit for the study 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.

IPO courses numbered 494 and 598 may be taken for one semester hour. Students register for these courses under the title "Study Abroad." At the conclusion of the program and following the transfer of overseas courses to students' ASU records, a grade of "Y" is entered for the course.

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.



The north end of Tempe campus features Wells Fargo Arena, Sun Devil Stadium, and "A" Mountain.

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. 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 *Student Code of Conduct*.

The primary purpose for the *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 *Student Code of Conduct* will result in university disciplinary action being taken and appropriate sanctions being imposed for the misconduct. Copies of the *Student Code of Conduct* are available in the Office of 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 55,000 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. The ASU student may live in residence halls, in on-campus housing for sororities

or fraternities, or in one of the many communities in the metropolitan Phoenix area. Each of the 50 states and more than 100 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 East campus at 480/727-3278, the Tempe campus 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 480/965-3355, 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 SunDial telephone registration system at 480/350-1500; the ASU Interactive Web site at www.asu.edu/interactive; or in person at the Records Information counter at the Tempe campus, Registration Services at West campus, or Registration Services at East campus. The Student

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Information System stores academic records and improves the quality of data used in academic advising. The University Registrar's Office coordinates applications for graduation and undergraduate readmission, course changes and scheduling, transcript services, applications for residency, verification of enrollment, and veteran's educational benefits. For more information, call 480/965-4747, 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 semester hours progress toward their academic programs for continued educational benefits, as stated under "Satisfactory Academic Progress," page 85. 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 148. For more information, call 480/965-7723.

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:

East campus: 480/727-3278
Tempe campus: 480/965-7788
West campus: 602/543-8203

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 71, 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 admis-

sion 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/admissions, or by paper.

Application Deadlines 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. Applications for admission (other than for international admission) are accepted after the date, but ASU cannot guarantee that these applications will be processed.

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

Freshman Students. Students who will be freshmen may apply beginning in June before their senior year of high school. Priority dates for freshmen are December 1 for the 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, May 1 for summer, 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 a fall semester. ASU does not accept applications from international students for summer sessions. International students should read the application procedures and admission requirements on page 71, or on the Web 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.

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

* Applications may be accepted after the priority dates, but ASU cannot guarantee that the applications will be processed. International applications are not accepted after the priority dates.

Applicants who have completed an AGEC or an associate's or higher degree need not submit high school transcripts.

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

All high school students and applicants who have not completed an AGEC or associate's degree or higher must submit official ACT or SAT scores.

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

Mailing Addresses. The mailing address for applicants for the East or Tempe campuses is

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

The mailing address for applicants for the West campus is

ADMISSION SERVICES
PO BOX 37100
PHOENIX AZ 85069-7100

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 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 Standards

The Arizona Board of Regents establishes undergraduate admission standards for the university in general. *Particular colleges, divisions, schools, or departments within the university may establish stricter standards, which are given in the respective sections of the catalog and should be noted by students planning to enroll in any of these programs.*

Admission Requirements

To be eligible for admission to ASU, applicants must meet graduation, aptitude, and competency requirements as shown in the "Fall 2005–Spring 2006 Admission Requirements" table, page 68, and the "Competency Requirements" table, page 69. New admission requirements will be in effect for students entering fall 2006. Access the Web site at www.asu.edu/admissions/2006requirements.

Competency Requirements

Competencies may be met with high school courses or acceptable test scores or transferable college courses. See the "Competency Requirements" table, page 69. Applicants with a maximum of one deficiency in no more than two competency areas, provided the areas are not both mathematics and laboratory science, may be admitted subject to removing the deficiencies within two calendar years of university enrollment. Applicants who are 22 years of age or older or 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.

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Fall 2005–Spring 2006 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 <i>or</i> Have completed an Arizona General Education Curriculum (AGEC) or an associate's or higher degree	Must be a high school graduate <i>or</i> Have completed an Arizona General Education Curriculum (AGEC) or an associate's or higher degree
High school aptitude requirement	Meet class rank <i>or</i> test score <i>or</i> GPA Class rank—top 25% of the high school graduating class <i>Applicants in the top 26 to 50% may be admitted with conditions.</i> <i>or</i> ACT Composite—22 <i>or</i> SAT I—1040 <i>or</i> GPA—3.00 (4.00 = A) in competency courses <i>Applicants with a 2.50–2.99 GPA in competency courses may be admitted with conditions.</i>	Meet class rank <i>or</i> test score <i>or</i> GPA Class rank—top 25% of the high school graduating class <i>Applicants in the top 26 to 50% may be admitted with conditions.</i> <i>or</i> ACT Composite—24 <i>or</i> SAT I—1110 <i>or</i> GPA—3.00 (4.00 = A) in competency courses <i>Applicants with a 2.50–2.99 GPA in competency courses may be admitted with conditions.</i>	Meet class rank <i>or</i> test score <i>or</i> 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 <i>Applicants in the top 26 to 50% may be admitted with conditions.</i> <i>or</i> ACT Composite—22 <i>or</i> SAT I—1040 <i>or</i> GPA—3.00 (4.00 = A) in competency courses	Meet class rank <i>or</i> test score <i>or</i> 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 <i>Applicants in the top 26 to 50% may be admitted with conditions.</i> <i>or</i> ACT Composite—24 <i>or</i> SAT I—1110 <i>or</i> GPA—3.00 (4.00 = A) in competency courses
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) <i>Applicants with a cumulative 2.00–2.49 GPA may be admitted with conditions.</i> 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 I Verbal—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 I 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 II subject test score on American History and Social Studies Achievement—560 B. Minimum SAT II subject 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

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

The decision of the board is final, and any conditions set by the board 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;
3. an average score of 500 (50 if taken before 2002) or greater on the General Education Development (GED) examination; or
4. 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

UNDERGRADUATE ENROLLMENT

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 at www.asu.edu/provost/articulation. 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 88.

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 AGECE. 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 AGECE 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 AGECE does not replace articulation agreements developed to enhance the transfer process between specific institutions, e.g., Associate Transfer Partnership Degrees (ATP). Nor does the AGECE 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;
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 rec-

ognized 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 (AECPE) at ASU. Approval by the responsible office at the other institution and/or AECPE 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 professional 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.

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American English and Culture Program

The American English and Culture Program (AECF) 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 AECF is separate from admission to the university. For more information, see “[English as a Second Language](#),” page 707, 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 East or Tempe campus should call 480/965-1234 (voice) or 480/965-9000 (TTY). For more information, access the Web site at www.asu.edu/drs, 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 East 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.

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 Student Health and Wellness Center. *Students are not permitted to register until proof of immunity to measles/rubella is on file with the Student Health and Wellness Center.*

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 Student Health and Wellness Center at 480/965-8914. Verification that the Student Health and Wellness Center 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 Student Health and Wellness Center.

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 Student Health and Wellness Center's Web site at www.asu.edu/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 Student Health and Wellness Center at 480/965-2411 or visit the Student Health and Wellness Center Web site at www.asu.edu/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 76.**

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 74.** CLEP examination credit is *not* given where it duplicates credit previously earned by the student at the uni-

versity 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” table, page 94.**) 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 74.**

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 75.**

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.

UNDERGRADUATE ENROLLMENT

CLEP Credit

Examinations	Semester Hours	Equivalency
American Government	3	POS 110
American History—Early Colonization to 1877	3	HST 109
American History—1865 to the Present	3	HST 110
American Literature	6	ENG 241, 242
Analysis and Interpretation of Literature	3	Elective credit
Calculus with Elementary Functions	4	MAT 270
College Algebra (1993) (replaces College Algebra [1979])	3	MAT 117
College Algebra and Trigonometry	3	MAT 170
College French	4	FRE 101 (Students must score 50–54.)
	8	FRE 101, 102 (Students must score 55–61.)
	12	FRE 101, 102, 201 (Students must score 62–65.)
	16	FRE 101, 102, 201, 202 (Students must score 66 or higher.)
College German	4	GER 101 (Students must score 39–45.)
	8	GER 101, 102 (Students must score 46–50.)
	12	GER 101, 102, 201 (Students must score 51–59.)
	16	GER 101, 102, 201, 202 (Students must score 60 or higher.)
College Mathematics	3	MAT 142
College Spanish	4	SPA 101 (Students must score 50–54.)
	8	SPA 101, 102 (Students must score 55–65.)
	12	SPA 101, 102, 201 (Students must score 66–67.)
	16	SPA 101, 102, 201, 202 (Students must score 68 or higher.)
English Composition	0	With essay qualifies for ENG 105
English Literature	3	Elective credit
Freshman College Composition (replaces College Composition and Freshman English)	0	No credit; not used for placement purposes.
General Biology	8	BIO 187, 188
General Chemistry	9	CHM 113, 115
Human Growth and Development	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
Mathematics	3	MAT 106
Natural Sciences	8	Elective credit
Principles of Accounting	6	Elective credit
Principles of Macroeconomics (replaces Introductory Macroeconomics)	3	ECN 111
Principles of Management	0	No credit
Principles of Marketing	0	No credit
Principles of Microeconomics (replaces Introductory Microeconomics)	3	ECN 112
Social Sciences and History	6	Elective credit
Trigonometry	0	No credit
Western Civilization—Ancient Near East to 1648	6	HST 102, 103
Western Civilization—1648 to the Present	3	HST 104

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
Computer Science	7, 6, 5, or 4	3	CSE 100
Economics	7, 6, or 5 4	6 3	ECN 111, 112 ECN 111
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
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.

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.

UNDERGRADUATE ENROLLMENT

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 100
Computer Science AB	5 or 4	6	CSE 100, 200
Economics—Introductory Macroeconomics	5 or 4	3	ECN 111
Economics—Introductory Microeconomics	5 or 4	3	ECN 112
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 or European	5 or 4	6	HST 109 and 110 <i>or</i> 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
Physics B	5	8	PHY 111, 112, 113, 114
Physics C—Electricity and Magnetism	5 or 4	3	PHY 112
Physics C—Mechanics	5 or 4	3	PHY 111
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
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

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 will not be allowed to register for any course the following semester:*

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 88, 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.

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 verbal tests.

Note: The ACT and SAT scoring systems have been modified. Shown in parentheses are equivalent ACT scores for tests taken before October 1989 and equivalent SAT scores for tests taken before April 1995.

Students who score 18 (16) or below on the ACT English test or 460 (380) or below on the SAT verbal test must enroll

in WAC 101, a basic writing course (see “[Writing Across the Curriculum](#),” page 374). Students who score between 19 (17) and 28 (24) on the ACT English test or between 470 (390) and 650 (580) on the SAT verbal test are eligible to enroll in ENG 101. Students who score 29 (25) or higher on the ACT English test or 660 (590) or higher on the SAT verbal 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 409 and “[Foreign Language Placement](#),” page 409, and “[Credit by Examination](#),” page 73.

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 fym.la.asu.edu/placement.

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

UNDERGRADUATE ENROLLMENT

Academic Advising at Tempe Campus

College	Location	Telephone	Days	Hours ¹	Web Address
Barrett Honors College	MB C100L1	480/965-4033	Mon.–Fri.	8 A.M.–5 P.M. ²	asu.edu/honors
College of Architecture and Environmental Design	ARCH 136	480/965-6384	Mon.–Fri.	9 A.M.–4 P.M. ³	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. ⁴	www.law.asu.edu
College of Liberal Arts and Sciences	FOUND 1120	480/965-6506	Mon.–Fri.	8 A.M.–5 P.M.	clas.asu.edu
College of Nursing	NUR 108	480/965-2987	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. ³	asu.edu/copp/students/advisors.html
Ira A. Fulton School of Engineering	ECG 109	480/965-1726 or 965-1750	Mon.–Fri.	8:30 A.M.– 4:30 P.M. ^{2, 3}	www.fulton.asu.edu
Katherine K. Herberger College of Fine Arts	GHALL 116	480/965-4495	Mon.–Fri.	8 A.M.–5 P.M. ³	herbergercollege.asu.edu
University College Academic Advising Services	UASB 129	480/965-4464	Tues. Other weekdays	9 A.M.–6:00 P.M. 9 A.M.–5 P.M.	www.asu.edu/duas/cas
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 The office is closed from noon to 1 p.m.

⁴ Call for additional hours.

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.

An additional unit, University College Academic Advising Services, is a central advising, referral, and information facility whose staff is available to assist students in their academic careers at ASU. Emphasis is placed on advising services to first-time, prospective, transfer, and visiting students and students in transition, such as those changing majors and those without majors. Bachelor of Interdisciplinary Studies students (BIS or pre-BIS) also receive academic advising in Academic Advising Services. In addition to guidance in the exploration or selection of a major, Academic Advising Services provides general academic information and referrals to all areas of student academic support. For more information, visit Academic Advising Services 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. Advisors may be contacted at the locations and times shown in the “Aca-

ademic Advising at Tempe Campus” table, on this page. For academic advising at the East campus, see the “Academic Advising at East Campus” table, page 528. (See “Building Abbreviations,” page 757, 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

Students must 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, meanwhile, the student has attended another accredited college or university, it is necessary for the student to have on file an official transcript of all academic work taken. 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 deadline. 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, or the applicant may apply for admission to a degree program for fall or spring through Undergraduate Admissions.

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 78.

Proof of Identification. To receive university services, 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 East campus; and through the bookstore, UCB 140, at West campus. See the *Schedule of Classes* or refer to “*Parking Decals*,” page 54.

Registration Fees. Registration fees are due and must be paid in full at the time 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

UNDERGRADUATE ENROLLMENT

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

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 Architecture and Environmental 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. See “[Summer Session Semester Hour Load](#),” on this page, for summer course load information.

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.

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.

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 enroll-

ment 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](#),” on this page.

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, on this page.

Ordinarily the instructor of a course has full discretion in selecting which grades to use and report from the available grading options.

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 not on campus. 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

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	Average	2.00
D	Passing	1.00
E	Failure	0.00
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 a value of 4.33, the cumulative GPA is capped at 4.00.

² This grade is usually given pending completion of courses.

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” (0.00) 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” (0.00). 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.

UNDERGRADUATE ENROLLMENT

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" (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. Consult the academic advisor for detailed information and restrictions. Approval of both the class instructor and the college of the 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. The student must 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 complete withdrawal from the university.

Course Withdrawal

During the second week through the 10th week of a semester or the third day through the third week of a summer session or at 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.

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.

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.

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 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.

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 a value of 4.33, the cumulative GPA is capped at 4.00.

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. Approval for the change is also required by 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" (1.00), "E" (0.00), 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" (2.00) or higher is earned. Undergraduate courses in which grades of "D" (1.00) or "E" (0.00) 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" (1.00) or "E" (0.00) grades received at ASU, the course must be repeated at ASU. Independent Learning courses may not be used to

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repeat “D” (1.00) or “E” (0.00) 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” (1.00) or “E” (0.00) 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” (1.00) in a course in which a “C” (2.00) or higher is required may use the grade from an equivalent course taken elsewhere to demonstrate mastery at the “C” (2.00) 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” (1.00) or “E” (0.00) at midterm receives a midterm report. The midterm “D” (1.00) and “E” (0.00) 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 online 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; and

8. specific mailing address for each transcript ordered;

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 option.

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 87.

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, on this page.

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 as shown in the “[Academic Good Standing](#)” table, page 85.

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.

Meeting Basic Competencies. New students are required to have completed a specific number of courses in the areas of American history, English, laboratory science, mathematics, social science, fine arts and foreign language. Students who are exempt from these requirements include students who have completed an Arizona General Education Curriculum (AGEC) or an associate degree, students admitted by GED, and students who are 22 years of age or older by the first day of the semester of admission. An admitted student who needs to meet competencies in one or more of these areas must satisfy the requirement within two years of the beginning of the student's first semester at ASU. Subject competencies in each area may be met by earning a grade of "D" (1.00) or higher at ASU in an appropriate course(s) as listed in the "Basic Competencies" table, page 86.

Appealing Basic Competencies. A student who has not met all basic competencies at the end of two calendar years after the student's initial date of enrollment is not permitted to continue at ASU. Each student is notified that he or she may not register or, if already registered, that their registration has been canceled.

A student wishing to appeal the dismissal should submit a petition through his or her college. The colleges have three options in reviewing these appeals:

1. extending the student's end semester to allow one additional semester to complete the required course work;
2. allowing the student to substitute a course not currently approved to fulfill a competency area when an error has been made or for other just causes; or
3. denying the petition.

College actions are forwarded to the University Registrar's Office for processing.

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 78.

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 and has a GPA of 2.00 or greater, he or she may submit an Application for Reinstatement to the college into which he or she wishes to transfer. If the student wishes to transfer to a different college and has a GPA below 2.00, he or she must submit the Application for Reinstatement to the Registrar's Recording/Readmission Section (SSV 142). The University Admissions Board then reviews the application.

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.

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Basic Competencies

Area	ASU Courses That May Be Used to Meet Basic Competencies
American history	Any one course: HST 109, 110
English	Any one course: ENG 101, 105, 107; WAC 101, 107
Fine arts	Any one course: ADE 120; any undergraduate three-semester-hour course offered in the Katherine K. Herberger College of Fine Arts; West campus courses: ARS 101; IAP 101, 302, 331; MUS 354, 355; THE 100, 320, 321, 400
Foreign language	Student must complete through the 102, 107, or 111 course level of any foreign language course.
Laboratory science*	
Chemistry	Any one course: CHM 101, 107, 113, 114, 117
Earth sciences	Any numbered selection: 1. ABS 130 2. GLG 101 and 103 3. GLG 105 4. GLG 110 and 111 5. GPH 111
Life sciences	Any one course: BIO 100, 187, 188, 201; PLB 108
Physics	Any numbered selection: 1. AST 111 and 113 2. AST 112 and 114 3. PHS 110 4. PHY 101 5. PHY 111 and 113 6. PHY 112 and 114 7. PHY 121 and 122 8. PHY 131 and 132
Mathematics	Any one course: MAT 117, 119, 142, 170, 210, 260, 270, 290
Social science	Any one course: ASB 102; ECN 111, 112; GCU 102, 121, 141; HST 102, 103, 104; PGS 101; POS 101, 110, 150, 160; SOC 101

* The laboratory science requirement is designed to demonstrate competency in at least two laboratory science areas. For example, if one lab science competency has been met in life sciences through high school course work, the ATP biology achievement test, or college course work, the second or third lab science course must be selected from chemistry, earth sciences, or physics.

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, 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. Copies of this policy are available in the following offices: Reserve sections of Hayden Library and the Noble Science and Engineering Library, the University Registrar’s Office, Undergraduate and Graduate Admissions, and Student Life. The University Registrar’s Office also maintains a directory that lists all education records maintained on students by ASU.



The ASU marching band performs during the Homecoming Parade.

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 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 92.) For General Studies courses, see the “[General Studies Courses](#)” table, page 94, the course descriptions, the *Schedule of Classes*, and the *Summer Sessions Bulletin*.

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 stu-

dents 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 the Composition Office in LL 314.

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

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

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 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

UNIVERSITY GRADUATION REQUIREMENTS

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 89.

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 89.
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 17.
3. Submit the fee receipt to the Graduation Section, SSV 140, 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 requirements at West campus, contact Admission and Enrollment Services, UCB 120.

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 91). 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, divisions, 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 92.

College Requirements. The medium gray circle represents college requirements. Some colleges and schools have additional requirements, especially the College of Liberal Arts and Sciences. It is important to understand the appropriate college’s requirements.

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 on minors, see “Minors, Certificates, and Interdisciplinary Studies,” page 117. 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.

GENERAL GRADUATION INFORMATION

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.

The cumulative GPA determines the designation, as shown in the “Academic Recognition” table below.

Academic Recognition	
Cumulative GPA	Designation
3.40–3.59	<i>cum laude</i>
3.60–3.79	<i>magna cum laude</i>
3.80–4.00	<i>summa cum laude</i>

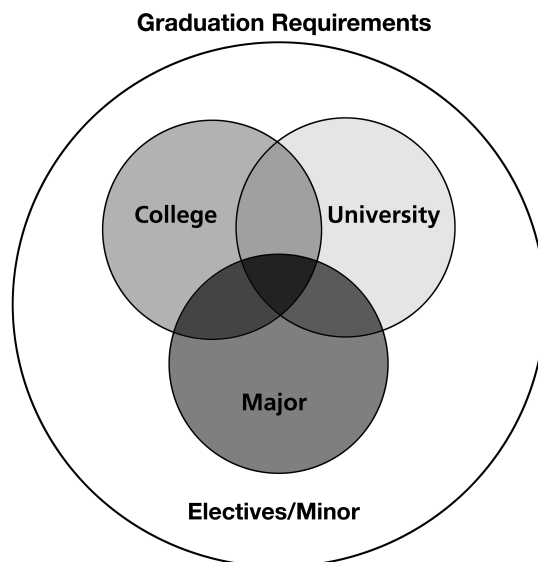
The cumulative GPA for these designations is based on only ASU resident course work. For example, ASU independent learning course grades are not calculated in the honors GPA. All designations of graduation with academic recognition are indicated on the diploma and the ASU transcript. Graduation with 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.

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. See “Division of Graduate Studies,” page 498, and “College of Law,” page 323, for graduate degrees offered and statements of requirements for graduate degrees.



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 Council (for the East and Tempe campuses) for meeting the General Studies requirement are noted in the “[General Studies Courses](#)” table, page 94; in the course descriptions; and in the *Schedule of Classes* each academic term. The courses approved for the West campus can be found in the *West Campus Catalog* and in the *Schedule of Classes*.

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 73. 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.

GENERAL STUDIES

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 AGECEC 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 AGECEC or from other accredited postsecondary institutions, they receive credit for General Studies based on course-by-course equivalency. See “Arizona General Education Curriculum (AGECEC),” page 70.

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 East and Tempe campus courses in the “General Studies Courses” table below, 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 “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 is not used in the catalogs but 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

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									
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									
ACC 430 Taxes and Business Decisions	L									
AES 301 Air Force Leadership Studies I	L									
303 Air Force Leadership Studies II	L									
401 National Security Affairs	L									
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									
AFR 210 Introduction to African American Studies								C		

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(AFR) 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									
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
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					
AIS 180 Introduction to American Indian Studies								C		
280 Indigenous Law and Society								C		
AMT 308 Air Transportation									G	
ANP 236 Introduction to Computer Modeling			CS							
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		
360 Asian Pacific American Experience				HU	SB			C		
450 Asian Pacific American Contemporary Issues					SB			C		
APH 100 Introduction to Environmental Design (Cross-listed as PUP 100)				HU					G	H
200 Introduction to Architecture				HU					G	
300 World Architecture I/Western Cultures				HU					G	
304 American Architecture				HU						
305 Contemporary Architecture				HU						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
441 Ancient Architecture				HU						
444 Baroque Architecture				HU						
446 20th-Century Architecture I				HU						
447 20th-Century Architecture II				HU						
APM 301 Introductory Statistics			CS							
ARA 311 Art Appreciation and Human Development				HU						
488 Understanding Art	L			HU						
ARB 201 Intermediate Arabic									G	
202 Intermediate Arabic									G	
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 Art of Africa, Oceania, and the Americas				HU					G	H
340 Art in America				HU						H

GENERAL STUDIES

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(ARS) 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						
462 Pre-Columbian Art				HU						H
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									
ART 346 3-D Computer Imaging and Animation			CS							
470 Computer Animation Portfolio			CS							
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	
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	
242 Asian American Experiences: An Anthropological Perspective								C		
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	

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(ASB) 355 Shamanism, Healing, and Consciousness				HU	SB					
361 Old World Prehistory I										H
362 Old World Prehistory II										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					
ASC 315 Numeracy in Technology		MA								
325 Physical Sciences in Technology						SQ				
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									
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				
BCH 467 Analytical Biochemistry Laboratory	L									
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			
241 Human Genetics							SG			
302 Cancer and Heart Disease	L									
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)										
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										
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									

GENERAL STUDIES

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
BIS 301 Foundations of Interdisciplinary Studies	L									
402 Senior Seminar	L									
BME 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									
BUS 301 Fundamentals of Management Communication	L									
451 Business Research Methods	L									
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		
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					
CED 111 Exploration of Education					SB					
250 Career Development	L									
CEE 486 Integrated Civil Engineering Design	L									
CET 150 Digital Systems I			CS							
CHE 461 Process Control			CS							
462 Process Design	L									
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						
CHM 101 Introductory Chemistry						SQ				
107 Chemistry and Society						SQ			G	
113 General Chemistry						SQ				
114 General Chemistry for Engineers						SQ				
115 General Chemistry with Qualitative Analysis						SQ				
116 General Chemistry						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				
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									
CIS 200 Computer Applications and Information Technology			CS							
440 Systems Design and Electronic Commerce	L									
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									
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									

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(COM) 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		
357 Communication Technology and Information Diffusion					SB					
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	
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									
CSE 100 Principles of Programming with C++			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							
210 Object-Oriented Design and Data Structures			CS							
423 Capstone Project	L									
438 Systems Programming	L									
CSH 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		
CSS 330 Chicana and Chicano Politics and Policy								C		
331 Policy Issues in the Chicana and Chicano Urban Settings								C		
336 Issues in Immigration and Migration								C		H
432 Issues in Chicana and Chicano Gender								C		
DAH 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						
DAN 423 Dance, Computers, and Multimedia			CS							
DSC 100 Introduction to Environmental Design				HU					G	H
101 Design Awareness				HU					G	
236 Introduction to Computer Modeling			CS							
ECE 100 Introduction to Engineering Design			CS							
200 Elements of Engineering Design			CS							
300 Intermediate Engineering Design	L									
380 Probability and Statistics for Engineering Problem Solving			CS							
400 Engineering Communications	L									
ECN 111 Macroeconomic Principles					SB					
112 Microeconomic Principles					SB					

GENERAL STUDIES

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(ECN) 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									
EDC 340 Writing and the Professional Educator	L									
EDP 303 Human Development	L									
310 Educational Psychology (Three hours must be taken to secure SB credit.)					SB					
454 Statistical Data Analysis in Education			CS							
EDT 321 Computer Literacy			CS							
323 Computer Applications			CS							
EED 498 PS: Language and Learning	L									
EEE 488 Senior Design Laboratory I (if credit also earned in EEE 489)	L									
489 Senior Design Laboratory II (if credit also earned in EEE 488)	L									
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									
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–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						
332 Major American Novels	L			HU						
333 American Ethnic Literature (Cross-listed as AFH 333)	L			HU				C		
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						

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(ENG) 357 Introduction to Folklore				HU						
359 American Indian Literatures	L			HU				C		
360 Western American Literature	L			HU						
361 Silent Film				HU						
362 Sound Film Genres				HU						
363 Chicana and Chicano Literature (Cross-listed as CSH 363)	L			HU				C		
364 Women and Literature				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						
446 Studies in Modernism				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						
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									
480 Methods of Teaching English: Composition	L									
482 Methods of Teaching English: Language	L									
493 Honors Thesis	L									
ETC 100 Languages of Technology			CS							
ETM 428 International Environmental Management									G	
EXW 100 Introduction to Health and Wellness (Cross-listed as HES 100/KIN 100)					SB					
280 Global Issues in Exercise and Wellness									G	
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		
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					

GENERAL STUDIES

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
FIN 456 International Financial Management									G	
461 Financial Cases and Modeling	L									
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	
FMS 340 Contemporary American Film and Popular Culture				HU						
440 Los Angeles: Movies and Culture				HU				C		
450 Technology, Culture, and Media	L			HU						
FRE 201 Intermediate French I									G	
202 Intermediate French II									G	
205 Readings in French Literature									G	
207 French for International Professions II									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						
471 The Literature of Francophone Africa and the Caribbean	L			HU						
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	

General Studies Courses (continued)

		L	MA	CS	HU	SB	SQ	SG	C	G	H
(GCU)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									
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	
GIT 212	Computer-Aided Design and Drafting (CADD)			CS							
312	3-D Computer Graphics Modeling and Representation			CS							
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			
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									
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									G
433	Alpine and Arctic Environments									G	
471	Geographics: Interactive and Animated Cartography and Geovisualization			CS							
473	Geographic Information Science II			CS							
GRA 111	Graphic Design History I				HU						

GENERAL STUDIES

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(GRA)345 Design Rhetoric	L									
GRK 301 Ancient Greek Literature I				HU						
302 Ancient Greek Literature II				HU						
GRN 430 Multidisciplinary Approaches to Gerontology					SB					
HCR 210 Clinical Health Care Ethics				HU						
220 Health Care Organizations (Cross-listed as HSM 220)										H
230 Culture and Health								C	G	
HEB 201 Intermediate Modern Hebrew									G	
202 Intermediate Modern Hebrew									G	
375 Contemporary Culture of Israel				HU					G	
HES 100 Introduction to Health and Wellness (Cross-listed as EXW 100/KIN 100)					SB					
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									
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									
HSM 220 Health Care Organizations (Cross-listed as HCR 220)										H
HST 101 Global History Since 1500									G	H
102 Western Civilization					SB					H
103 Western Civilization					SB					H
104 Western Civilization					SB				G	H
105 Slavic Civilization					SB					H
106 Asian Civilizations					SB				G	H
107 Asian Civilizations					SB				G	H
108 Introduction to Japan					SB				G	H
109 The United States to 1865					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					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
212 American Military 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				SB					H
302 Studies in History					SB					H
303 Studies in Asian History					SB					H
304 Studies in European History					SB					H

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(HST) 305 Studies in Latin American History					SB					H
306 Studies in United States History					SB					H
309 Exploration and Empire	L									H
310 Film as History				HU						
313 American Cultural History to 1865					SB					H
314 American Cultural History Since 1865					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					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					SB					H
350 The Later Middle Ages					SB					H
351 Renaissance Europe	L				SB					H
352 Europe's Reformations	L				SB					H
353 The Old Regime in Europe					SB					H
354 Revolutionary Europe					SB					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					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

GENERAL STUDIES

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(HST) 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
416 Indian History of the Southwest					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					SB					H
452 Chinese Cultural History					SB				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
460 History of Fire	L									H
493 Honors Thesis	L									
498 PS: History Pro-Seminar	L									
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
462 Psychoanalysis and Culture	L			HU	SB					
465 Narrative in the Human Sciences				HU						
498 Pro-Seminar in the Humanities: Theory and Culture	L			HU						
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									
IDN 201 Intermediate Indonesian I									G	

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(IDN) 202 Intermediate Indonesian II									G	
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
IEE 305 Information Systems Engineering			CS							
376 Operations Research Deterministic Techniques/Applications			CS							
385 Introduction to Engineering Probability Models			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									
IND 316 20th-Century Design I				HU						H
317 20th-Century Design II				HU						H
470 Professional Practice for Industrial Design	L									
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						
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	
425 Italian American Culture	L									
430 Italian Literature of the Middle Ages				HU						
441 Dante: <i>Divina Commedia</i>	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	
ITM 440 Introduction to International Business									G	
JMC 201 Journalism Newswriting	L									
202 Radio-Television Writing	L									
301 Reporting	L									
315 Broadcast News Reporting	L									
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	
JUS 100 The Justice System					SB					
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		

GENERAL STUDIES

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(JUS) 329 Domestic Violence					SB					
350 Immigration and Justice					SB			C		
360 Law and Social Control					SB					
375 Crime 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					
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		
400 Teaching Physical Activity Concepts	L									
414 Electromyographic Kinesiology	L									
422 Motor Control in Special Populations (Cross-listed as PSY 422)	L									
441 Physiology of Women in Sport	L									
443 Exercise Endocrinology	L									
448 Applied Sport Psychology	L									
452 Exercise Psychology					SB					
460 Theory of Strength Training	L									
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
LAT 201 Intermediate Latin I				HU						
202 Intermediate Latin II				HU						
421 Roman Literature				HU						
422 Roman Literature				HU						
MAE 453 Computer-Aided Manufacturing and Control (Cross-listed as IEE 463)			CS							
468 Aerospace Systems Design	L									
491 Experimental Mechanical Engineering	L									
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								

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(MAT) 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							
427 Computer Arithmetic			CS							
451 Mathematical Modeling			CS							
MBB 245 Cellular and Molecular Biology (if credit also earned in MBB 246)						SQ				
246 Cellular and Molecular Biology Laboratory (if credit also earned in MBB 245)						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									
MCE 446 Understanding the Culturally Diverse Child								C		
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					
MET 416 Applied Computer-Integrated Manufacturing			CS							
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									
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									
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		
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									
MIS 410 American Defense Policy I					SB					
412 American Defense Policy II					SB					
MKT 302 Fundamentals of Marketing Management	L									
451 Marketing Research	L									
MSE 482 Materials Engineering Design	L									
MTE 402 Service Learning								C		
MUE 381 Music Therapy Research	L									
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
NTR 300 Computer Applications in Nutrition			CS							
344 Nutrition Services Management	L									

GENERAL STUDIES

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(NTR) 348 Cultural Aspects of Food					SB			C		
350 Nutrition Counseling					SB					
448 Community Nutrition	L									
450 Nutrition in the Life Cycle I					SB					
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						
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									
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						
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					
332 19th-Century Philosophy				HU						
335 History of Ethics				HU						
402 Empiricism				HU						
403 Contemporary Analytic Philosophy				HU						
PHS 110 Fundamentals of Physical Science						SQ				

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(PHS) 208 Patterns in Nature (Cross-listed as STE 208)						SQ				
402 Service Learning								C		
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									
PLA 101 Landscape and Society									G	
310 History of Landscape Architecture (Cross-listed as APH 411)										H
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	
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	
414 Plant Pathology	L									
430 Statistical Analyses in Environmental Science			CS							
432 Computer Applications in Biology (Cross-listed as BIO 406)			CS							
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	
POS 101 Political Ideologies					SB					
110 Government and Politics					SB					
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					

GENERAL STUDIES

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(POS) 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	
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									
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									

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
PUP 100				HU					G	H
199				HU	SB				G	
200				HU						H
236			CS							
301	L									
412										H
420				HU						
445								C		
452	L									
485									G	
									(Cross-listed as PLA 485) (Three hours must be taken to secure G credit.)	
QBA 221			CS							
REC 120					SB					
160					SB					
305									G	
330	L									
380					SB					H
458									G	
REL 100				HU					G	
200	L			HU					G	
201	L			HU						
202				HU				C		
203				HU						H
210	L			HU						H
225				HU				C		
240				HU	SB				G	
									(Cross-listed as ASB 240/GCU 240/HST 240/POS 240)	
260				HU					G	
270				HU						
301				HU						
305	L			HU						
310				HU						H
315	L			HU						H
317				HU						H
318				HU	SB			C		
									(Cross-listed as SOC 375)	
320				HU				C		H
321				HU				C		H
322				HU				C		
323				HU				C		
326				HU				C		
330				HU				C		
331	L			HU				C		H
332				HU					G	
343	L			HU					G	H
344				HU					G	
345				HU					G	
350	L			HU					G	
351	L			HU					G	
355	L			HU						H
									(Cross-listed as HUM 310)	
365				HU						H
366				HU					G	H
371				HU						
372				HU						H
374	L			HU						H
									(Cross-listed as HST 361)	
377				HU						H
379				HU					G	
381	L			HU						

GENERAL STUDIES

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(REL) 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	
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
SCA 250 Introduction to Scandinavian Culture				HU					G	H
316 Scandinavian Cinema				HU					G	
450 Masterpieces of Scandinavian Literature	L			HU						
SCM 432 Planning and Control Systems for Supply Chain Management	L									
SHS 367 Language Science					SB					
465 Speech and Language Acquisition					SB					
SLV 304 Computational Linguistics of Slavic Languages			CS							
426 Contemporary East European and Eurasian Literatures	L			HU					G	
440 History of Slavic Languages					SB					
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					
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					
361 Variant Sexuality					SB					
363 Men and Masculinity					SB					
365 Sociology of Mass Communication					SB					

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(SOC) 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					
422 Sociology of Complex Organizations	L				SB					
423 Social Class and Stratification	L				SB					
424 Women and Health	L				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	
456 Political 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					
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						
471 Civilization of the Spanish Southwest				HU						
472 Spanish American Civilization				HU					G	H
473 Spanish Civilization				HU	SB				G	
485 Mexican American Short Story	L									
SPE 311 Orientation to Education of Exceptional Children					SB			C		
SPF 301 Culture and Schooling	L									
STE 208 Patterns in Nature (Cross-listed as PHS 208)						SQ				
STP 220 Conceptual Statistics			CS							
226 Elements of Statistics			CS							
326 Intermediate Probability			CS							
420 Introductory Applied Statistics			CS							
429 Experimental Statistics			CS							
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							

GENERAL STUDIES

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(SWU) 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									
THA 201 Intermediate Thai I									G	
202 Intermediate Thai II									G	
THE 100 Introduction to Theatre				HU						
220 Principles of Dramatic Analysis	L									
300 Film: The Creative Process I				HU						
301 Film: The Creative Process II				HU						
320 History of the Theatre I				HU						H
321 History of the Theatre II				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		
THP 482 Theatre for Social Change								C		
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									
UNI 402 Service Learning								C		
VTN 201 Intermediate Vietnamese I									G	
202 Intermediate Vietnamese II									G	
WSH 413 Lesbian, Gay, and Gender Studies				HU				C		
464 Voices and Visions				HU				C		
470 Women and Popular Culture				HU				C		
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 Contemporary Feminist Theory	L							C		
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		

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 118.

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 120; “[ASU Postbaccalaureate Certificates](#)” table, page 122; and “[ASU Graduate Certificates](#)” table, page 122. 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 124, or “[Interdisciplinary Studies—BIS](#),” page 540.

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 Architecture and Environmental Design, for those pursuing the Master of Architecture degree or the Master of Science degree in Building Design.

Environmental Studies. The International Institute for 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 “[International Institute for Sustainability](#),” page 44.

Film Studies. The Film Studies Program exists not only to provide information and experience but also to serve as a means of creative expression for the student and as a useful subject and tool in teaching. The program is not designed to produce professional filmmakers, but it may provide practical preparation for students desiring further film study at other institutions.

For more information, call the Film Studies coordinator at 480/965-7644.

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 690, call 602/543-6642, or access www.west.asu.edu/chs/grn on the Web. See also “[Gerontology](#),” page 705.

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

MINORS, CERTIFICATES, AND INTERDISCIPLINARY STUDIES

ASU Minors

Minor	Administered By	Campus	Page
African and African American Studies	African and African American Studies Program	Tempe	346
American Indian Studies	American Indian Studies Program	Tempe	348
American Studies	Department of Language, Cultures, and History	West	688
Anthropology	Department of Anthropology	Tempe	351
Applied Biological Sciences	East College	East	541
Applied Psychology	East College	East	548
Architectural Studies	School of Architecture and Landscape Architecture	Tempe	143
Art History	School of Art	Tempe	279
Asian Languages (Chinese/Japanese)	Department of Languages and Literatures	Tempe	407
Astronomy	Department of Physics and Astronomy	Tempe	449
Biochemistry	Department of Chemistry and Biochemistry	Tempe	360
Biological Sciences	School of Life Sciences	Tempe	426
Business ¹	W. P. Carey School of Business	Tempe	167
Chemistry	Department of Chemistry and Biochemistry	Tempe	359
Chicana and Chicano Studies	Department of Chicana and Chicano Studies	Tempe	364
Communication	Hugh Downs School of Human Communication	Tempe	394
Communication Studies	Department of Communication Studies	West	688
Computational Mathematical Sciences	Department of Mathematics and Statistics	Tempe	439
Dance	Department of Dance	Tempe	296
Design Studies	School of Design	Tempe	149
Early Childhood Education	Division of Curriculum and Instruction	Tempe	206
Economics for Students Planning a Career in Law	Department of Economics	Tempe	366
English	Department of Language, Cultures, and History	West	688
English with a Concentration in Linguistics	Department of English	Tempe	368
English with a Concentration in Literature	Department of English	Tempe	368
Ethnic Studies	New College of Interdisciplinary Arts and Sciences	West	688
Family and Human Development	Department of Family and Human Development	Tempe	375
Film and Video Studies	Department of Interdisciplinary Arts and Performance	West	688
Food and Nutrition Management	Department of Nutrition	East	564
French	Department of Languages and Literatures	Tempe	407
General Economics	Department of Economics	Tempe	366
Geography	Department of Geography	Tempe	379
Geological Sciences	Department of Geological Sciences	Tempe	384
German	Department of Languages and Literatures	Tempe	407
Gerontology ²	Gerontology Program	West	688
History	Department of History	Tempe	387
	Department of Language, Cultures, and History	West	688
Human Nutrition	Department of Nutrition	East	564
Interdisciplinary Arts and Performance	Department of Interdisciplinary Arts and Performance	West	688
Interdisciplinary Organizational Studies	Department of Social and Behavioral Sciences	West	688
Interior Design History	School of Design	Tempe	149
Italian	Department of Languages and Literatures	Tempe	407
Justice Studies	School of Justice and Social Inquiry	Tempe	397
Kinesiology	Department of Kinesiology	Tempe	402

¹ This minor is for nonbusiness majors only.

² This university-wide minor is administered by West campus.

MINORS, CERTIFICATES, AND INTERDISCIPLINARY STUDIES

ASU Minors (continued)

Minor	Administered By	Campus	Page
Landscape Studies	School of Architecture and Landscape Architecture	Tempe	143
Life Sciences	Department of Integrated Natural Sciences	West	688
Mass Communication	Walter Cronkite School of Journalism and Mass Communication	Tempe	320
Mathematics	Department of Integrative Studies Department of Mathematics and Statistics	West Tempe	688 439
Music	School of Music	Tempe	307
Philosophy	Department of Integrative Studies Department of Philosophy	West Tempe	688 446
Physics	Department of Physics and Astronomy	Tempe	450
Political Science	Department of Political Science Department of Social and Behavioral Sciences	Tempe West	454 688
Prelaw	College of Human Services	West	688
Psychology	Department of Psychology Department of Social and Behavioral Sciences	Tempe West	459 688
Public Relations and Strategic Communications	Department of Communication Studies	West	688
Recreation Management	School of Community Resources and Development	Tempe	489
Religious Studies	Department of Religious Studies New College of Interdisciplinary Arts and Sciences	Tempe West	462 688
Russian	Department of Languages and Literatures	Tempe	407
Small Business	East College	East	549
Social and Behavioral Sciences	Department of Social and Behavioral Sciences	West	688
Social Welfare	School of Social Work	Tempe	494
Sociocultural Anthropology	Department of Social and Behavioral Sciences	West	688
Sociology	Department of Social and Behavioral Sciences Department of Sociology	West Tempe	688 466
Spanish	Department of Language, Cultures, and History Department of Languages and Literatures	West Tempe	688 408
Special Events Management	Department of Recreation and Tourism Management	West	688
Speech and Hearing Science	Department of Speech and Hearing Science	Tempe	469
Statistics	Department of Mathematics and Statistics	Tempe	439
Theatre	Department of Theatre	Tempe	314
Tourism	School of Community Resources and Development	Tempe	489
Tourism Management	Department of Recreation and Tourism Management	West	688
Urban Planning	School of Planning	Tempe	159
Wellness Foundations	Department of Exercise and Wellness	East	556
Women and Gender Studies	Women and Gender Studies Program	Tempe	472
Women's Studies	Women's Studies Program	West	688

¹ This minor is for nonbusiness majors only.

² This university-wide minor is administered by West campus.

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 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 124.

MINORS, CERTIFICATES, AND INTERDISCIPLINARY STUDIES

ASU Undergraduate Certificates

Certificate	Administered By	Campus	Page
African and African American Studies Certificate	African and African American Studies Program	Tempe	346
American Indian Studies Certificate	American Indian Studies Program	Tempe	348
Asian Pacific American Studies Certificate	Asian Pacific American Studies Program	Tempe	355
Asian Studies Certificate	Center for Asian Studies	Tempe	337
Business English Certificate ¹	College of Extended Education	—	706
Civic Education Certificate	Department of Political Science	Tempe	453
College of Liberal Arts and Sciences Enriched Certificate	College of Liberal Arts and Sciences	Tempe	336
Dealership Management, Certificate in ²	W. P. Carey School of Business	Tempe	172
Early Intervention Certificate	Department of Family and Human Development and School of Social Work	Tempe	494
East Asian Studies Certificate	Center for Asian Studies	Tempe	337
Ethics Certificate	Department of Philosophy	Tempe	446
Ethnic Studies, Certificate in	New College of Interdisciplinary Arts and Sciences	West	688
Film and Video Studies, Certificate in	Department of Interdisciplinary Arts and Performance	West	688
Fire Service Management Certificate ³	Department of Information and Management Technology	East	705
Geographic Information Science Certificate	Department of Geography	Tempe	339
Hazardous Materials and Waste Management Certificate	Department of Information and Management Technology	East	582
Healthcare Organizations and Society	School of Life Sciences and the W. P. Carey School of Business	Tempe	339
Health Physics Certificate	Pre-Health Professions Office	Tempe	339
History and Philosophy of Science Certificate	School of Life Sciences	Tempe	340
Human Performance Improvement Certificate ¹	College of Extended Education and the American Society of Training and Development	—	706
International Business Studies, Certificate in	W. P. Carey School of Business	Tempe	178
International Studies Certificate	Department of Political Science	Tempe	454
Islamic Studies Certificate	Department of Religious Studies	Tempe	462
Jewish Studies Certificate	Jewish Studies Committee	Tempe	340
Latin American Studies Certificate	Latin American Studies Center	Tempe	340
Lesbian, Gay, Bisexual, and Transgender Studies	College of Public Program	Tempe	487
Maintenance Management Certificate ¹	College of Extended Education	—	706
Medieval and Renaissance Studies Certificate	Arizona Center for Medieval and Renaissance Studies	Tempe	341
Multimedia Writing and Technical Communication Certificate	East College	East	561
Nonprofit Youth and Human Service Leadership and Management: American Humanics Certificate	School of Community Resources and Development	Tempe	490
Professional Purchasing Certificate ¹	College of Extended Education	—	706
Public Administration and Public Management Certificate	School of Public Affairs	Tempe	491
Quality Analysis Certificate	W. P. Carey School of Business	Tempe	172
Russian and East European Studies Certificate	Russian and East European Studies Center	Tempe	341
Scandinavian Studies Certificate	Department of Languages and Literatures	Tempe	341
Small Business and Entrepreneurship Certificate ²	W. P. Carey School of Business	Tempe	172

¹ This certificate is not for academic credit.

² This certificate is only for students in the WPCSB.

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

ASU Undergraduate Certificates (continued)

Certificate	Administered By	Campus	Page
Southeast Asian Studies Certificate	Program for Southeast Asian Studies	Tempe	342
Spa Management	Department of Exercise and Wellness	East	557
Supervisory and Management Skills Certificate ¹	College of Extended Education	—	707
Symbolic Systems, Certificate in	Department of Philosophy	Tempe	342
Translation Certificate	Department of Languages and Literatures	Tempe	408
Women and Gender Studies, Certificate in	Women and Gender Studies Program	Tempe	472
Women's Studies, Certificate in	Women's Studies Program	West	688
Writing, Certificate in	Department of Language, Cultures, and History	West	688
	Department of English	Tempe	369

¹ This certificate is not for academic credit.

² This certificate is only for students in the WPCSB.

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

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 343, and “[Department of Military Science](#),” page 444, 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 515, and the *Graduate Catalog*.

MINORS, CERTIFICATES, AND INTERDISCIPLINARY STUDIES

ASU Postbaccalaureate Certificates

Certificate	Administered By	Campus	Page
Accountancy, Postbaccalaureate Certificate in ¹	Department of Accounting and Information Systems Management	West	688
Communication and Human Relations, Postbaccalaureate Certificate in ¹	Department of Communication Studies	West	688
Multimedia Writing and Technical Communication, Postbaccalaureate Certificate in ²	East College	East	561
Professional Accountancy, Postbaccalaureate Certificate in ¹	Department of Accounting and Information Systems Management	West	688

¹ For more information, see the *West Campus Catalog*.

² This program is also offered through the College 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	—
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	690
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	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	Department of Anthropology	Tempe	—
Nonprofit Leadership and Management Certificate	College of Public Programs	Tempe	487
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	509

¹ For more information, see the *Graduate Catalog*.

² This program is also offered through the College of Extended Education.

³ This university-wide certificate program is administered by the West campus.

University College

www.asu.edu/duas

Gail Hackett, PhD, Vice Provost and Dean

Academic Advising Services	123
Academic Community Engagement Services	123
Academic Success Programs	124
General Studies	124
School of Interdisciplinary Studies	124

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 ASU undergraduate 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 students learning experiences that complement those provided by other academic units.

The college includes these units:

- Academic Advising Services
- Academic Community Engagement Services
- Academic Success Programs
- Degree Audit Reporting System
- General Studies
- School of Interdisciplinary Studies

ACADEMIC ADVISING SERVICES

University College Academic Advising Services provides advising for a diverse group of students, including all exploratory/undeclared students, BIS and pre-BIS majors, and students in transition who may be changing majors or transferring to ASU. Academic Advising Services also coordinates academic advising for the ASU/Maricopa Community Colleges Alliance.

Academic advising is a partnership between the student and the advisor. Each has a mutual investment in the advising 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 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.

General advisors are located in UASB 129 and can be reached by phone at 480/965-4464, or by accessing the Web site at www.asu.edu/duas/cas. BIS advisors are located in

UASB 203 and can be reached by phone at 480/965-1970, or by accessing the Web site at www.asu.edu/duas/bis.

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 ASU freshmen through graduate students the opportunity to develop a sense of shared mission and community with their classmates as they provide educational support and enrichment to a diverse group 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

America Reads. 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

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 92.

UNIVERSITY COLLEGE

homework as well as create fun, hands-on activities to exercise academic skills. Tutors also assist preschool children in developing early literacy skills.

America Counts. Through the America Counts program, Federal Work-Study students are paid to work with academically at-risk children (grades 1–3) in the community to increase math scores and comprehension. In these after-school programs, tutors assist children with homework as well as create hands-on activities to teach math concepts in a fun way.

ACADEMIC SUCCESS PROGRAMS

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 interest. Students choose a “cluster” of classes from a wide variety of offerings. Each cluster is limited to a maximum of 25 students who enroll in and attend classes together. All students attend a weekly peer-led 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. Students learn about university resources, policies and procedures, study skills, values and goal setting, human diversity, academic and career planning, and other skills.

ACADEMIC SUCCESS AT THE UNIVERSITY (UNI)

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.

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.

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

UNI 484 Internship. (1–12)

fall, spring, summer

UNI 494 Special Topics. (1–4)

fall and spring

Topics may include the following:

- Science is Magic Internship. (3)
Presents science demonstrations to K–8 children at their schools. Interns are trained by personnel from the Center for Solid State Science. This internship does not follow the format of the others.

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 conjunc-

tion 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 (WAC)

Curriculum Development and Support. WAC Curriculum Development and Support 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.

GENERAL STUDIES

All students enrolled in a baccalaureate degree program must satisfy the General Studies requirement. For more information, see “University Graduation Requirements,” page 88, and “General Studies,” page 92.

SCHOOL OF INTERDISCIPLINARY STUDIES

The Bachelor of Interdisciplinary Studies (BIS) program is intended for the student who has academic interests that are not satisfied with existing majors. Building on two academic concentrations (or one double concentration) 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.

Students must first complete the BIS Cyber Workshop found at www.asu.edu/duas/bis and then meet with an advisor before declaring the BIS major. For more information, visit UASB 203, or call 480/965-1970. For information about the program at East campus, see “Interdisciplinary Studies—BIS,” page 540.

The combination of areas of concentration gives students flexibility in creating a unique program to accomplish individualized academic goals. These combinations illustrate a range of examples:

1. anthropology and religious studies;
2. communication and small business;
3. communication and sociology;
4. dance and wellness foundations;
5. economics and Spanish;
6. justice studies and political science;
7. nonprofit/youth agency administration and theatre;
and
8. psychology and women’s studies.

Basic Requirements

The BIS degree requires 120 semester hours. The major is composed of a 12-semester-hour core and a minimum of 36 semester hours in two concentrations of at least 18 semester hours each or in one double concentration. 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. 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

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 facilitate selecting courses that may apply to both the General Studies requirements and the areas of concentration.

Declaring the BIS Major. Completing the BIS Cyber Workshop (located on the Web at www.asu.edu/duas/bis) and then receiving academic advising from BIS Advising Services are required before being approved to declare the BIS major. In addition, the student must

1. complete at least 56 semester hours of university credit;
2. be in academic good standing;
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.

A student can declare a pre-BIS major before meeting these requirements if he or she is in academic good standing.

Approved Concentrations

Each concentration requires a minimum of 18 semester hours, with a grade of “C” (2.00) or higher. A minimum of 12 of these hours must be in upper-division courses. The concentrations—shown in the “**BIS Concentrations**” table, page 126—are mostly based on existing minors or certificate programs and should represent academic interests that the student wishes to integrate into a meaningful program. Concentrations based on minors or certificates with fewer than 18 hours have additional semester hours required. Complete information on each concentration is available by visiting UASB 203 or by accessing the BIS Web site at www.asu.edu/duas/bis.

A minimum of three semesters is required to complete the core sequence. BIS 301 is taken first and is the prerequisite to BIS 302. BIS 301 and 302 are prerequisites to 401 and 402, which may be taken concurrently; however, BIS 401 is a corequisite or prerequisite for 402. To enroll in BIS

401, a student must apply for the course during the semester before desired enrollment.

BACHELOR OF INTERDISCIPLINARY STUDIES (BIS)

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

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.

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.

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.

Academic Good Standing

For purposes of retention, academic good standing for exploratory/undeclared and pre-BIS/BIS majors is defined in the following “Academic Good Standing” table.

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 on probation has one semester to raise his or her 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 academic good standing as defined above. Students may remain designated as exploratory/undeclared major status until they complete 60 semester hours. Students who have not declared a major by the time they have completed 60 semester hours are placed on administrative hold, which prevents registration for future ASU semesters, until the students have declared a 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 92.

UNIVERSITY COLLEGE

BIS Concentrations

Concentration	College	Campus	Page
African and African American studies	College of Liberal Arts and Sciences	Tempe	346
American Indian studies	College of Liberal Arts and Sciences	Tempe	349
Anthropology	College of Liberal Arts and Sciences	Tempe	351
Applied biological sciences	East College	East	545
Architectural studies	College of Architecture and Environmental Design	Tempe	143
Art history	Katherine K. Herberger College of Fine Arts	Tempe	279
Asian Pacific American studies	College of Liberal Arts and Sciences	Tempe	355
Asian studies	College of Liberal Arts and Sciences	Tempe	337
Astronomy	College of Liberal Arts and Sciences	Tempe	450
Biology ¹	College of Liberal Arts and Sciences	Tempe	427
Business	W. P. Carey School of Business	Tempe	167
Chemistry	College of Liberal Arts and Sciences	Tempe	360
Chicana and Chicano studies	College of Liberal Arts and Sciences	Tempe	364
Chinese	College of Liberal Arts and Sciences	Tempe	408
Classical studies—Greek	College of Liberal Arts and Sciences	Tempe	337
Classical studies—Latin	College of Liberal Arts and Sciences	Tempe	339
Communication	College of Liberal Arts and Sciences	Tempe	394
Computational mathematical sciences	College of Liberal Arts and Sciences	Tempe	439
Dance	Katherine K. Herberger College of Fine Arts	Tempe	296
Design studies	College of Architecture and Environmental Design	Tempe	149
East Asian studies	College of Liberal Arts and Sciences	Tempe	337
Economics	College of Liberal Arts and Sciences	Tempe	366
Economics for students planning a career in law	College of Liberal Arts and Sciences	Tempe	366
Education	College of Education	Tempe	205
English—creative writing ²	College of Liberal Arts and Sciences	Tempe	369
English—linguistics concentration ²	College of Liberal Arts and Sciences	Tempe	369
English—literature concentration ²	College of Liberal Arts and Sciences	Tempe	369
English—writing certificate ²	College of Liberal Arts and Sciences	Tempe	369
Environmental science ^{3, 4}	—	—	—
Ethics	College of Liberal Arts and Sciences	Tempe	339
Exercise and Wellness	East College	East	556
Family studies/child development	College of Liberal Arts and Sciences	Tempe	375
Fire service management	East College	East	582
French	College of Liberal Arts and Sciences	Tempe	408
Geography ⁵	College of Liberal Arts and Sciences	Tempe	379
Geography—environmental geography ⁵	College of Liberal Arts and Sciences	Tempe	379
Geography—geographical information science ⁵	College of Liberal Arts and Sciences	Tempe	379
Geography—geography for business ⁵	College of Liberal Arts and Sciences	Tempe	379
Geography—international geography ⁵	College of Liberal Arts and Sciences	Tempe	379
Geological sciences	College of Liberal Arts and Sciences	Tempe	384

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.

⁶ Although this concentration is administered by West campus, the BIS is available only to students at East and Tempe campuses.

BIS Concentrations (continued)

Concentration	College	Campus	Page
German	College of Liberal Arts and Sciences	Tempe	408
Gerontology ⁶	College of Human Services	West	690
Global family ^{3, 4}	—	—	—
Hazardous materials and waste management	College of Technology and Applied Sciences	East	582
History	College of Liberal Arts and Sciences	Tempe	387
Interior design history	College of Architecture and Environmental Design	Tempe	149
International business studies ³	W. P. Carey School of Business	Tempe	184
Islamic Studies	College of Liberal Arts and Sciences	Tempe	340
Italian	College of Liberal Arts and Sciences	Tempe	408
Japanese	College of Liberal Arts and Sciences	Tempe	408
Jewish studies	College of Liberal Arts and Sciences	Tempe	340
Justice studies	College of Liberal Arts and Sciences	Tempe	398
Kinesiology	College of Liberal Arts and Sciences	Tempe	402
Landscape studies	College of Architecture and Environmental Design	Tempe	143
Latin American studies	College of Liberal Arts and Sciences	Tempe	340
Lesbian, gay, bisexual, and transgender studies	College of Public Programs	Tempe	—
Mass communication	Walter Cronkite School of Journalism and Mass Communication	Tempe	320
Mathematics	College of Liberal Arts and Sciences	Tempe	439
Medieval and Renaissance studies ³	College of Liberal Arts and Sciences	Tempe	341
Microbiology ¹	College of Liberal Arts and Sciences	Tempe	427
Multimedia writing and technical communication	East College	East	561
Music	Katherine K. Herberger College of Fine Arts	Tempe	307
Nonprofit/youth agency administration	College of Public Programs	Tempe	489
Nutrition—food and nutrition management	East College	East	564
Nutrition—human nutrition	East College	East	564
Organizational studies ⁴	—	—	—
Philosophy	College of Liberal Arts and Sciences	Tempe	446
Philosophy—history and philosophy of science	College of Liberal Arts and Sciences	Tempe	446
Philosophy—symbolic systems	College of Liberal Arts and Sciences	Tempe	446
Physics	College of Liberal Arts and Sciences	Tempe	450
Plant biology ¹	College of Liberal Arts and Sciences	Tempe	427
Plant biology—environmental science and ecology ¹	College of Liberal Arts and Sciences	Tempe	427
Plant biology—molecular biosciences/biotechnology ¹	College of Liberal Arts and Sciences	Tempe	427
Political science	College of Liberal Arts and Sciences	Tempe	455
Political science—international studies	College of Liberal Arts and Sciences	Tempe	455
Psychology	College of Liberal Arts and Sciences	Tempe	459
Public administration	College of Public Programs	Tempe	492
Quality analysis	W. P. Carey School of Business	Tempe	172
Recreation management	College of Public Programs	Tempe	489

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.

⁶ Although this concentration is administered by West campus, the BIS is available only to students at East and Tempe campuses.

BIS Concentrations (continued)

Concentration	College	Campus	Page
Religious studies	College of Liberal Arts and Sciences	Tempe	462
Russian	College of Liberal Arts and Sciences	Tempe	408
Russian and East European studies	College of Liberal Arts and Sciences	Tempe	341
Scandinavian studies	College of Liberal Arts and Sciences	Tempe	341
Small business	East College	East	549
Social welfare	College of Public Programs	Tempe	494
Sociology	College of Liberal Arts and Sciences	Tempe	466
Southeast Asian studies—area studies option	College of Liberal Arts and Sciences	Tempe	342
Southeast Asian studies—language option	College of Liberal Arts and Sciences	Tempe	342
Spanish	College of Liberal Arts and Sciences	Tempe	408
Speech and hearing science	College of Liberal Arts and Sciences	Tempe	469
Statistics	College of Liberal Arts and Sciences	Tempe	439
Theatre	Katherine K. Herberger College of Fine Arts	Tempe	314
Tourism	College of Public Programs	Tempe	489
Translation (Spanish/English)	College of Liberal Arts and Sciences	Tempe	408
Urban planning	College of Architecture and Environmental Design	Tempe	159
Women and gender studies	College of Liberal Arts and Sciences	Tempe	472

- 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.
- ⁶ Although this concentration is administered by West campus, the BIS is available only to students at East and Tempe campuses.

Students who wish to declare pre-BIS major status must be in academic good standing as defined above. Students who wish to declare BIS major status must have 56 total semester hours completed and must have a cumulative GPA of 2.00 or higher.

Degree Audit Reporting System (DARS)

DARS is an online tool that provides students with consistent, accurate information regarding their academic 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 to determine how their earned credits would apply if they were to pursue another degree program. Undergraduate students may

obtain a degree audit on the Student Online Services Web site: www.asu.edu/sos. Degree audits are processed every 20 minutes.

COLLEGE OF EXTENDED EDUCATION

The university-wide College 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 “College of Extended Education,” page 703, or access the Web site at www.asu.edu/xed.

The Barrett Honors College

honors.asu.edu

Mark Jacobs, PhD, Dean

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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 East campus, in southeast Mesa, Tempe campus, and the West campus, in northwest Phoenix. 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 seeking 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—18 lower division and 18 upper division.

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 92.

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of studying in several of the most significant and dynamic cities in Europe. The London, Dublin, and Edinburgh program has been offered since 1995, the Paris and Loire Valley program since 1998, and the Athens, Rome, and Dubrovnik program since 2000. 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 480/727-7659.

Events/Programming

Students enrolled in the Barrett Honors College are given special access when important contributors to contemporary thought 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, and playwright Edward Albee, a prominent innovator in modern American drama.

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, and world-renowned astronomer David Levy in 2004.

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 receive transcript recognition for lower-division honors studies. Students who meet all upper-division

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 a separate application to the college.

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. Eighteen semester hours of honors courses must be completed by the time a student completes 60 hours of course work, for a student to remain in good standing. An additional 18 semester hours of upper-division courses and a thesis or creative project must be completed before graduation. Students transferring into the Barrett Honors College with 60 semester hours must complete 21 honors credits and a thesis or creative project.

The GPA requirement for graduation is 3.40 (4.00=A). Students who fall below this standard but are above 3.00 will receive reminders of this requirement. Students who have fallen below a 3.00 GPA after 45 semester hours are placed on probation and must raise their GPA to at least 3.00 to remain in the college.

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 two semesters.

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 non-honors 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 non-honors 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 lower-division or upper-division/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.

Lower Division

As a lower-division honors student, 18 semester hours of honors course work must be completed within 60 earned semester hours with a cumulative ASU GPA greater than or equal to 3.40 (4.00 = A). These must include HON 171 and 172.

Students may apply upper-division honors course work toward lower-division requirements; however, those classes may not also be used to meet the Barrett Honors College upper-division/graduation requirements.

After 60 semester hours, a review of course work and GPA will be completed to determine whether the student may continue in the Barrett Honors College. Lower-division transcript recognition will be posted for those continuing honors students with a GPA of 3.40 or higher.

Upper Division

Upper-division status is attained in one of two ways (1) satisfactory completion of lower-division course and GPA requirements, or (2) transfer into the Barrett Honors College with at least 60 semester hours. Students who enter having completed the lower-division requirements must complete 18 upper-division honors credits. Those who transfer in with 60 or more credits must complete 21 upper-division credits, one of which is an honors seminar (HON 394). All students must complete an honors thesis or creative project. Three to six of the upper-division credits must be honors thesis research (HON 492 optional, HON 493 required). Six of the upper-division honors credits must be outside the major.

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 3.40 (4.00 = A).

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

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 92.

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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 <i>L/HU</i> (3)	
JUS 303 Justice Theory (3)	
PHI 305 Ethical Theory <i>HU</i> (3)	
PHI 307 Philosophy of Law <i>HU</i> (3)	
PHI 309 Social and Political Philosophy <i>HU</i> (3)	
PHI 310 Environmental Ethics <i>HU</i> (3)	
PHI 335 History of Ethics <i>HU</i> (3)	
POS 340 History of Political Philosophy I <i>HU/H</i> (3)	
POS 341 History of Political Philosophy II <i>HU/H</i> (3)	
POS 346 Problems of Democracy <i>HU</i> (3)	
POS 442 American Political Thought <i>HU</i> (3)	
POS 445 Asian Political Thought <i>SB, G</i> (3)	
POS 471 Constitutional Law I <i>SB</i> (3)	
POS 472 Constitutional Law II <i>SB</i> (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

www.asu.edu/honors

480/965-2359

IRISH A121

Mark Jacobs, Dean

Professors: Humphrey, Jacobs, Nelson

Assistant Administrative Professional: Burke

Senior Lecturers: Bruhn, Dalton, Facinelli, Stanford, Susser

Lecturers: Beggs, J. Lynch, J.M. Lynch, McManus, Pickus

HONORS (HON)

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

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

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.

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

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

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.

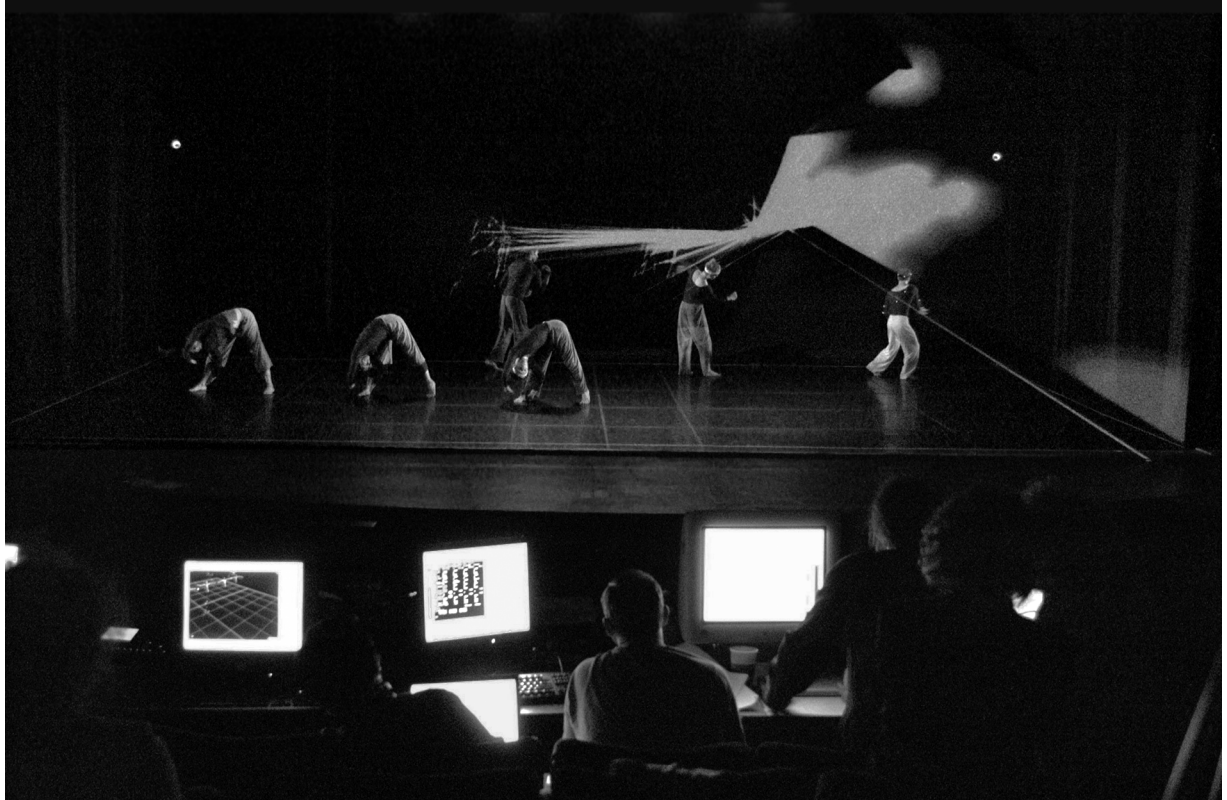
General Studies: L/HU

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



Digital artists and dancers collaborate in the Arts, Media, and Engineering motion project, a performance held in the Galvin Playhouse.

Tim Trumble photo

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

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

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

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

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

HON 394 Special Topics. (3)

fall, spring, summer

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.

HON 484 Internship. (1–6)

selected semesters

HON 485 Biosphere 2—Study Opportunity. (1–18)

fall and spring

For students participating in the ASU-sponsored program at Biosphere 2.

HON 492 Honors Directed Study. (1–12)

selected semesters

Research and preparation for HON 493.

HON 493 Honors Thesis. (1–6)

selected semesters

General Studies: L

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.

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 92.

College of Architecture and Environmental Design

www.asu.edu/caed

Wellington Reiter, MArch, Dean

School of Architecture and Landscape Architecture	139
School of Design	147
School of Planning	158

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 three academic units:

- School of Architecture and Landscape Architecture
- School of Design
- 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. All of the College of Architecture and Environmental 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 30,000 books, periodicals, and reference materials for students, faculty, and the professional community. The library's special collections include archives of Blaine Drake, Victor Olgay, 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 newly renovated Gallery of Design in the College of Architecture and Environmental 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 CAED student projects is located throughout the Architectural and Environmental Design buildings. The gallery is open Monday through Friday from 8 A.M. to 4 P.M. For more information, call 480/965-6384.

Special Facilities. College programs are supplemented by several special laboratories, including 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 Joint Urban Design Program, which also has a studio at the Downtown Center at ASU. 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.

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. Accep-

College of Architecture and Environmental Design Baccalaureate Degrees and Majors

Major	Degree	Concentration	Administered By
Architectural Studies	BSD	—	School of Architecture and Landscape Architecture
Design Science*	BSD	—	School of Design
Graphic Design	BSD	—	School of Design
Housing and Urban Development	BSD	—	School of Planning
Industrial Design	BSD	—	School of Design
Interior Design	BSD	—	School of 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.

tance 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.

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. 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. 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. 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 school’s academic 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 Governance and Grievance 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, Graphic Design, Housing and Urban Development, Industrial Design, and Interior 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 Architecture and Environmental Design Baccalaureate Degrees and Majors,” 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.

GRADUATE PROGRAMS

The faculty in the College of Architecture and Environmental Design offer the National Architectural Accrediting Board-accredited Master of Architecture (MArch) professional degree; Planning Accreditation Board-accredited Master of Environmental Planning (MEP) 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,

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 92.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

College of Architecture and Environmental Design Graduate Degrees and Majors

Major	Degree	Concentration ¹	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	School of Design
Environmental Design and Planning ²	PhD	Design; history, theory, and criticism; or planning	College of Architecture and Environmental Design
Urban and Environmental Planning	MUEP	—	School of Planning

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

² Doctoral courses for these interdisciplinary programs administered by the Tempe campus are also offered at the East campus.

see the “College of Architecture and Environmental 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 143 and “Landscape Studies Minor,” page 143. The faculty in the School of Design offer minors in Design Studies and Interior Design History, see “Minors,” page 149. The faculty in the School of Planning offer a minor in Urban Planning. See “Minor,” page 159, for more information.

COLLEGE OF EXTENDED EDUCATION

The university-wide College 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 “College of Extended Education,” page 703, 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 88.

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 92. Consult an advisor for an approved list of courses. General Studies courses are listed in the “General Studies Courses” table, page 94, in the course descriptions, in the *Schedule of Classes*, and in the *Summer Sessions Bulletin*.

COLLEGE DEGREE REQUIREMENTS

College of Architecture and Environmental 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 Science in Design (BSD), Bachelor of Science in Landscape Architecture (BSLA), or Bachelor of Science in Planning (BSP) degrees in the College of Architecture and Environmental 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 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 91.

ACADEMIC STANDARDS

Lower-Division Retention Standards. A student in one of the college’s lower-division programs is placed on probation when he or she fails to maintain a cumulative GPA of 2.00. 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. Appeals may be made to the college Standards and Appeals Committee; see a college advisor for the necessary appeals forms. For more information, see “Retention and Academic Standards,” page 84.

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 college *Code of Student Responsibilities* 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 84.

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 81.

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 81.

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 Architecture and Environmental 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 off-campus courses are offered by the School of Architecture. The School of Planning and Landscape Architecture offers a summer landscape planning course in Europe.

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, Graphic Design, Industrial Design, or Interior 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 Landscape Architecture, 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 23.

Employment. It is difficult for students in professional programs to carry part-time employment while in school. Acceptance to any of the college’s upper-division programs presumes a commitment of a minimum of eight hours a day

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 92.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

for professional studies. 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 College of Architecture and Environmental Design 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 college. Copies of the *Code of Student Responsibilities* 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 712.

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 Architecture and Environmental Design

Alumni Association. The College of Architecture and Environmental Design Alumni Association encourages graduates to contribute to the college by acting as liaisons among the college community, students, and practicing professionals. The college also calls on the members of the Architecture Guild of Arizona State, the Arizona Design Institute, the Council for Design Excellence, and the Planning Advisory Committee for advice and to promote the goals of the college.

Council for Design Excellence. The Council for Design Excellence has been created to consolidate a partnership between the College of Architecture and Environmental 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 life.

Affiliations. For information on affiliations maintained by the college, see "[Accreditation and Affiliation](#)," page 712.

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:

- American Institute of Architecture Students
- Sigma Phi Zeta
- Student Association of the College of Architecture and Environmental Design
- Student Association of Interior Designers (ASID, IALD, IFDA, IFMA, IIDA)
- Student Chapter/American Planning Association
- Student Chapter/American Society of Landscape Architects
- Student Chapter/Industrial Designers Society of America
- Student Chapter/Society of Environmental Graphic Designers

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/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 Architecture and Landscape Architecture

www.asu.edu/caed/sala

480/965-3536

AED 162

Professors: Brooks, Bryan, Hoffman, McCoy, Meunier, Ozel, Reiter, Rotondi, Underhill, Underwood

Associate Professors: Cook, Ellin, Fish Ewan, Hartman, Loope, Petrucci, Spellman, Van Duzer, Zygus

Assistant Professors: Burnette, Ewan, Hejduk, Innes, Kobayashi, Lerum, Vekstein

Clinical Associate Professor: 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 pro-

gram 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," on this page and "Degree Requirements," page 141. 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 140.

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 an accredited program.

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 school 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.

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 92.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

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 as well as a 3.00 GPA based only on the required lower-division courses or equivalents; and
4. submission of a portfolio (for detailed information about this requirement, see **“Portfolio Format Requirements,”** on this page).

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.

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 2006–2007 upper-division programs.

Upper-Division Application Deadlines. *May 3, 2006 (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 2, 2006. If the spring 2006 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 2. These transcripts may be unofficial copies. A second set of official transcripts must be sent to the university Undergraduate Admissions 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 3, 2006. Acceptance notices are mailed no later than July 3.

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 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 and essay remain the property of the College of Architecture and Environmental 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 1, 2006. 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.

SCHOOL OF ARCHITECTURE AND LANDSCAPE ARCHITECTURE

ADVISING

Advising for the lower-division curriculum is through the college Academic Advising Office. Advising for upper-division curriculum is provided by the school's academic advisor.

DEGREE REQUIREMENTS

The Bachelor of Science in Design degree in Architectural Studies requires a minimum of 120 semester hours of course work. Most lower-division students pursue option A; however, those who intend eventually to seek an advanced degree in either engineering or building science are encouraged to fulfill the requirements outlined in option B. See an advisor in the Academic Advising/Student Services Office (ARCH 115) for information about option B.

Option B students who intend to pursue graduate degrees in an engineering discipline should also consult with the Ira A. Fulton School of Engineering advising office for any additional requirements.

GENERAL STUDIES REQUIREMENT

The following curriculum includes sufficient approved course work to fulfill the General Studies requirement. See "General Studies," page 92, 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, students must meet all university graduation and college degree requirements. See "University Graduation Requirements," page 88, and "College Degree Requirements," page 136.

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—BSD¹ Lower-Division Requirements

First Year

Fall

APH 100 Introduction to Environmental Design <i>HU, G, H</i>	3
or ADE 120 Design Fundamentals I ² (3)	
ENG 101 First-Year Composition	3
MAT 210 Brief Calculus <i>MA</i>	3
SB elective	3
Elective	3
Total	15

Spring

ADE 120 Design Fundamentals I ²	3
or APH 100 Introduction to Environmental Design <i>HU, G, H</i> (3)	
ENG 102 First-Year Composition	3
Elective	3
C elective	3
SB elective	3
Total	15

Second Year

Fall

ADE 221 Design Fundamentals II ²	3
ADE 223 Design Fundamentals II Lecture	1
ANP 236 Introduction to Computer Modeling <i>CS</i>	3
APH 200 Introduction to Architecture <i>HU, G</i>	3
PHY 101 Introduction to Physics <i>SQ</i>	4
Total	14

Spring

ADE 222 Design Fundamentals III ²	3
ADE 224 Design Fundamentals III Lecture	1
ATE 353 Architectural Construction	3
L elective	3
SG or SQ elective	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 the portfolio to the Academic Advising Office, ARCH 115.

Architectural Studies—BSD Upper-Division Requirements

Third Year

Fall

ADE 321 Architectural Studio I	5
APH 313 History of Architecture I <i>L/HU, G, H*</i>	3
ATE 361 Building Structures I	3
Elective*	3
Total	14

Spring

ADE 322 Architectural Studio II	5
APH 314 History of Architecture II <i>L/HU, G, H*</i>	3
ATE 462 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 331 Programming for Design	3
ATE 451 Building Systems I	3
Elective*	3
CAED Professional elective*	3
Total	17

Spring

ADE 422 Architectural Studio IV	5
ATE 452 Building Systems II	3
CAED history elective*	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 92.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

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

ADE 120 Design Fundamentals I ^{1, 2}	3
or APH 100 Introduction to Environmental Design <i>HU, G, H</i> ³ (3)	
ENG 101 First-Year Composition	3
or ENG 105 First-Year Composition if qualified (3)	
MAT 210 Brief Calculus <i>MA</i> ³	3
Social/Behavioral Science Elective <i>SB</i> ³	3
Elective	3
Total	15

Spring

APH 100 Introduction to Environmental Design <i>HU, G, H</i> ³	3
or ADE 120 Design Fundamentals I ^{1, 2} (3)	
ENG 102 First-Year Composition	3
Elective	3
Social/Behavioral Science Elective <i>SB</i> ³	3
Cultural Diversity Elective <i>C</i> ³	3
Total	15

Second Year

Fall

ADE 221 Design Fundamentals II ^{1, 2}	3
ADE 223 Design Fundamentals II Lecture	1
ANP 236 Introduction to Computer Modeling <i>CS</i> ^{1, 2, 3}	3
APH 200 Introduction to Architecture <i>HU, G</i> ^{1, 3}	3
PHY 101 Introduction to Physics <i>SQ</i> ³	4
Total	14

Spring

ADE 222 Design Fundamentals III ^{1, 2}	3
ADE 224 Design Fundamentals III Lecture	1
ATE 353 Architectural Construction	3
Literacy and Critical Inquiry Elective <i>L</i> ³	3
Natural Science Elective with Laboratory <i>SQ</i> or <i>SG</i> ³	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 This course satisfies a general studies requirement. See the course description for specific requirement(s) the course fulfills.

**Landscape Architecture—BSLA
Upper-Division Requirements**

Third Year

Fall

PLA 361 Landscape Architecture III	4
PLA 310 History of Architecture <i>H</i> ¹	3

PLA 242 Landscape Construction I	4
Elective	3
Upper-division elective <i>HU</i> or <i>SB</i>	3
Total	17

Spring

PLA 311 Contemporary Landscape Architecture	3
PLA 344 Landscape Construction II	3
PLA 362 Landscape Architecture IV	4
PLA 363 Landscape Planting Design	4
Total	14

Summer

ARP 484 Clinical Internship	2
Total	2

Fourth Year

Fall

PLA 411 Landscape Architecture Theory and Criticism <i>L</i>	3
PLA 461 Landscape Architecture V	4
PLA 494 ST: Plant Materials	3
PUP 432 Planning and Development Control Law	3
Elective	3
Total	16

Spring

PLA 446 Landscape Construction III	3
PLA 462 Landscape Architecture VI	4
CAED Professional elective ³	3
CAED history elective ³	3
Total	13

Upper Division total	62
BSLA program total	120

- ¹ This course satisfies a general studies requirement. See the course description for specific requirement(s) the course fulfills.
- ² Portfolio review is required for transfer studio work. Submit portfolio to the Academic Advising Office, ARCH 115.
- ³ Professional elective is a 300 or higher level course, taken within CAED (Architecture, Design, and/or Planning). The history elective is a 300 or higher level course also taken within CAED and must have historical/theoretical content.

**Master of Architecture
Graduate-Level Professional Program Requirements**

Fifth Year

Fall

ADE 521 Advanced Architectural Studio I	5
APH 505 Foundation Theory Seminar	3
ATE 553 Building Systems III	3
ATE 563 Building Structures III	3
Total	14

Spring

ADE 522 Advanced Architectural Studio II	5
APH 515 Current Issues and Topics	3
ATE 556 Building Development	3
CAED Professional elective	3
Total	14

Sixth Year

Fall

AAD 551 Architectural Management I	3
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SCHOOL OF ARCHITECTURE AND LANDSCAPE ARCHITECTURE

ADE 621 Advanced Architectural Studio III	5
CAED Professional elective.....	3
CAED Professional elective.....	3
Total	14

Spring

AAD 552 Architectural Management II	3
ADE 622 Advanced Architectural Studio IV	5
Approved elective	3
CAED Professional elective.....	3
Total	14
Graduate division total.....	56

ARCHITECTURAL STUDIES MINOR

The Architectural Studies minor is available to non-architecture 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

APH 200 Introduction to Architecture <i>HU, G</i>	3
APH 300 World Architecture I/Western Cultures <i>HU, G</i>	3
APH 313 History of Architecture I <i>L/HU, G, H</i>	3
APH 314 History of Architecture II <i>L/HU, G, H</i>	3
Total	12

Six additional semester hours of electives in the architectural history and theory concentration, with a course prefix of APH or approved PUP/PLA prefix, must be selected from the following list for a total of 18 semester hours:

ANP 331 Programming for Design*.....	3
APH 304 American Architecture <i>HU</i>	3
APH 394 Special Topics	3
APH 411 History of Landscape Architecture <i>H</i>	3
APH 414 History of the City <i>H</i>	3
APH 446 20th-Century Architecture I <i>HU</i>	3
APH 447 20th-Century Architecture II <i>HU</i>	3
APH 494 Special Topics	3
APH 499 Individualized Instruction*	3
APH 511 Energy Environment Theory.....	3
APH 598 Special Topics	1-4

* 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. Students may petition to have other PLA special topics courses considered as part of the 18 semester hours required.

PLA 101 Landscape and Society.....	3
PLA 310 History of Landscape Architecture <i>H</i>	3

PLA 311 Contemporary Landscape Architecture.....	3
PLA 411 Landscape Architecture Theory and Criticism <i>L</i>	3
PLA 412 Landscape Ecology and Planning	3
PLA 413 Southwest Landscape Interpretation	3
PLA 485 International Field Studies in Planning <i>G</i>	6

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 Landscape Studies must submit a minor verification form to the landscape architecture coordinator in the School of Architecture and Landscape Architecture.

BIS CONCENTRATION

A concentration in architectural 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 124.

INQUIRIES

For more information, contact a college academic advisor at 480/965-3584, e-mail caed.advising@asu.edu, or write

ACADEMIC ADVISING/STUDENT SERVICES
OFFICE
COLLEGE OF ARCHITECTURE AND
ENVIRONMENTAL 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.

Environmental Analysis and Programming. ANP courses develop the ability to analyze and program environmental and human factors as preconditions for architectural design

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 92.

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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.

GRADUATE PROGRAMS

The faculty of the School of 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)

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)

ADE 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 Architecture and Environmental Design.

ADE 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: ADE 120. Corequisite: ADE 223.

ADE 222 Design Fundamentals III. (3)

spring

Applies design fundamentals with an emphasis on architectural issues. Lecture, studio. Prerequisite: APH 200. Prerequisite with a grade of "C" (2.00) or higher: ADE 221. Corequisite: ADE 224.

ADE 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: ADE 221.

ADE 224 Design Fundamentals III Lecture. (1)

spring

History and theory of design fundamentals with an emphasis on architectural issues. Lecture, discussion. Corequisite: ADE 222.

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. Corequisite: ATE 353.

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. Corequisite: ANP 331.

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.

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.

ENVIRONMENTAL ANALYSIS AND PROGRAMMING (ANP)

ANP 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.

General Studies: CS

ANP 331 Programming for Design. (3)

spring

Theory and methods for refracting "constraints" into opportunities for design excellence. Corequisite: ADE 322.

ANP 475 Computer Programming in Architecture. (3)

fall and spring

Computer programming for architectural problems and applications. Lecture, lab.

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)

APH 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 APH 100 or PUP 100.

General Studies: HU, G, H

APH 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

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

APH 304 American Architecture. (3)

selected semesters

Architecture in the United States from earliest colonial times to present.

General Studies: HU

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

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

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

APH 394 Special Topics. (1–4)

selected semesters

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

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 Architecture and Environmental Design junior standing.

General Studies: H

APH 441 Ancient Architecture. (3)

selected semesters

Architecture of the ancient Mediterranean world with selective emphasis on major historical complexes and monumental sites.

Prerequisite: APH 313.

General Studies: HU

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

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

APH 447 20th-Century Architecture II. (3)

spring

Developments in architecture since the international style.

Prerequisite: APH 446.

General Studies: HU

APH 494 Special Topics. (1–4)

once a year

APH 499 Individualized Instruction. (1–3)

selected semesters

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.

APH 509 Foundation Seminar. (3)

summer

Historical, technical, theoretical, environmental, and professional issues in architecture. Lecture, seminar, field trips. Corequisite: ADE 510.

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.

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.

APH 581 Contemporary Urban Design. (3)

spring

Explores contemporary city and urban design issues related to contemporary cities. Seminar, lecture, discussion.

APH 598 Special Topics. (1–4)

fall or spring

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)

ARP 451 Architecture Field Studies. (1–6)

selected semesters

Organized field study of architecture in specified national and international locations. Credit/no credit. May be repeated with approval of director.

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 92.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

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/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 TECHNOLOGY (ATE)

ATE 353 Architectural Construction. (3)

fall

Materials and methods of construction. Aesthetic, code, and cost considerations. Lecture, lab. Corequisite: ADE 321 or 511.

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.

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.

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.

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.

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/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 COMMUNICATION (AVC)

AVC 161 Advanced Freehand Perspective Drawing. (2)

selected semesters

Introduces color media and analytical and design drawing exercises. 4 hours studio. Prerequisite: major in the College of Architecture and Environmental Design.

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/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.

LANDSCAPE ARCHITECTURE (PLA)

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

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.

PLA 194 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Presentation Graphics. (3)

PLA 222 Computers in Landscape Architecture. (3)

fall

Computer applications in landscape architecture, including CAD, GIS, graphics, and visualization. Lab.

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.

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.

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: ADE 120; GPH 111.

PLA 262 Landscape Architecture II. (4)

spring

Reading the landscape: observing, experiencing, and graphically expressing the symbolic and aesthetic significance of natural landscapes. Prerequisites: ADE 120; PLA 261; admission to professional program.

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

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.

PLA 344 Landscape Construction II. (4)

spring

Characteristics of materials and methods used in landscape architectural construction. Studio. Prerequisite: PLA 242 or instructor approval.

PLA 345 Professional Practice Seminar. (1)

spring

Landscape architecture practice, including contracts, project and office management, liability, licensing, and professional development.

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.

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.

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.

PLA 410 Social Factors in Landscape and Urban Planning. (3)

fall

Examines the influence of social factors in landscape architecture and urban planning.

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***PLA 412 Landscape Ecology and Planning. (3)***selected semesters*

Reviews the evolution of landscape ecology and landscape planning and examines use and value.

PLA 413 Southwest Landscape Interpretation. (3)*selected semesters*

Explores methods and implications of landscape interpretation within the American Southwest.

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***PLA 446 Landscape Construction III. (3)***spring*

Landscape construction focusing on low-technology, biotechnical, regional, and experimental techniques or systems. Lecture, studio.

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.

PLA 462 Landscape Architecture VI. (4)*spring*

Advanced landscape architecture: integrative capstone studio with multifaceted design problems. Fee. Prerequisite: PLA 461.

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.

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.)***PLA 494 Special Topics. (1–4)***fall and spring*

Topics may include the following:

- Plant Materials. (3)

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.

School of Design

www.asu.edu/caed/SOD

480/965-4135

AED 154

Jacques Giard, Director**Professors:** Brandt, Giard**Associate Professors:** Bernardi, Cutler, Johnson, McDermott, Patel, Sanft, Witt**Assistant Professors:** Bender, Boradkar, Brungart, Herring, McCoy, Schoenhoff, Shin, Thibeau Catsis**Clinical Associate Professor:** Weed**Adjunct Professors:** Heywood, Kendle, Moore**Faculty Associates:** Clark, Johannes, Jones, Montgomery, Shigo, Sola, Song, White

PURPOSE

The School of Design educates individuals for the profession of graphic design, industrial design, and interior design. The curricula are focused on the skills and knowledge that are necessary in these design professions and are undertaken in a learning environment that bridges the academic milieu to the professional world. This direction is further conditioned by the belief that designers have a responsibility to the public and communities they serve. Consequently, students are exposed to a full breadth of learning experiences, from courses in design history, human factors, and the theories of the profession, to the rigors and demands of the design studio. Students learn to integrate aesthetic values into their designs while considering contextual issues. The goal of the school's academic program is to graduate designers who are accomplished and visually sophisticated and who will continue to evolve in their chosen profession. To this end, the school provides an environment that is conducive to design excellence. It has a faculty of active professionals, excellent facilities and resources, and a network that is international in scope.

For more information, access the Web site at www.asu.edu/caed/SOD or send e-mail to caed.advising@asu.edu.

ORGANIZATION

Programs in the School of Design are organized by the faculty of the school under the direction and administration of the director, 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 92.

DEGREES

The faculty in the School of Design offer the Bachelor of Science in Design degree with three majors: Graphic Design, Industrial Design, and Interior Design. Applications are not being accepted to the major in Design Science. The School of Design is an accredited member of the National Association of Schools of Art and 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 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.

Industrial Design. The program of studies in Industrial Design 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 and culturally 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 graphic 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 packaging. 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.

Interior Design. The four-year Interior Design program focuses on commercial interior design but also offers courses in residential design. Interior design is the study of the interface of people and space as it is influenced by culture, history, and political and economic climates. The professional interior designer applies knowledge of human behavior based on psychological, sociological, physiological, and emotional needs of the occupants of the space. Interior designers often manage or work in teams with architects, engineers, landscape architects, planners, and artisans. The ability to translate the creative design process into a language that is understood by corporate executives and upper management is dependent on the designer's command of visual, verbal, and written communication.

Interior design courses offer opportunities to explore creative expression as well as to develop critical thinking skills. Classes include basic design principles and elements, drawing and drafting, design theory and history, professional development, and environmental systems. Skills and knowledge obtained in these classes are used to solve design problems related to the following environments: large and small residences, hotels, restaurants, corporate offices, retail stores, malls, schools, hospitals, and other types of care facilities. Course work is presented in both lecture and studio formats. Lectures facilitate the thoughtful completion of studio projects. The studio environment provides unique individual and team learning opportunities. National,

regional, and local professional interior designers offer their expertise as lecturers and guest critics. Studio projects involve drawing, sketching, hand and computer drafting, the application of color, materials selection, computer modeling, and the application of technical knowledge. The Interior Design program is in an advantageous program position because of its location within a multidisciplinary college of architecture and design. The close proximity to these other design professions provides a unique opportunity for a comprehensive and holistic educational experience. The Interior Design program is accredited by the Foundation for Interior Design and Education Research. The program provides the educational credentials and knowledge needed for graduates to take required exams for a professional design organization, or for licensure/registration exams required in several states.

MINORS

Design Studies

Students interested in design who do not wish to major in graphic, industrial, or interior design can earn a minor in Design Studies. The courses may also appeal to students not accepted to the upper-division of graphic, industrial, or interior design 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
 DSC 236 Introduction to Computer Modeling *CS*3
 DSC 344 Human Factors in Design3
 DSC 440 Finding Purpose3

Graphic Design

GRA 111 Graphic Design History I *HU*3
 GRA 112 Graphic Design History II3
 GRA 225 Communication/Interaction Design Theory3
 GRA 345 Design Rhetoric *L*3

Industrial Design

IND 236 Introduction to Computer Modeling for Industrial Design3
 IND 242 Materials and Design3
 IND 243 Process and Design3
 IND 316 20th-Century Design I *HU, H*3
 IND 317 20th-Century Design II *HU, H*3
 IND 354 Principles of Product Design3
 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 Environments3
 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 Design3

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 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) 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 is 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 Design3
 Total18

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 coordinator of the Interior Design program within the School of 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 124.

GRADUATE PROGRAMS

The School of Design offers a Master of Science in Design (MSD) degree with concentrations in graphic

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 92.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

design, industrial design, and interior 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, Industrial Design, or Interior Design as a major are admitted to the appropriate 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 upper-division programs in Graphic Design, Industrial Design, or Interior 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 School of Design retain the right to admit any meritorious student who may be deficient in a published school 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 2006–2007 upper-division programs.

Upper-Division Application Deadlines. The following dates and procedures apply to all three majors in the School of Design.

April 14, 2006. Portfolio and application documents are due in the school office by 5 P.M.

June 1, 2006. If the spring 2006 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 Undergraduate Admissions 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 3, 2006. Acceptance notices are mailed no later than July 3.

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 Architecture and Environmental 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.

Industrial and 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. 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.

Page 2. The second page of the application should be visible.

Page 3. Application Essay or Letter of Intent.

Page 4. All college transcripts for both ASU and transfer work should be included through the fall 2005 semester. Copies are acceptable. An academic advisor forwards 2006

ASU transcripts. (Applicants wishing to transfer spring semester 2006 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 5. A certificate of admission to ASU is necessary only for those students who have been newly admitted for fall 2006 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 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 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 1–5) remain the property of the College of Architecture and Environmental 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 1, 2006. 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- and upper-division curricula is through a college academic advisor (ARCH 115).

DEGREE REQUIREMENTS

The Bachelor of Science in Design degree requires a minimum of 120 semester hours for a major in Graphic Design, Industrial Design, and 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.

Graphic Design

The curriculum in Graphic Design is divided into a pre-professional (first and second years) and a professional program (third and fourth years):

Preprofessional program61
 Professional program59
 Total120

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 92, 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 professional degree, students must meet all university graduation and college degree requirements. See **“University Graduation Requirements,”** page 88, and **“College Degree Requirements,”** page 136.

**School of Design
 Graphic Design—BSD
 First Year**

Fall
 DSC 101 Design Awareness *HU, G*3
 ENG 101 First-Year Composition3
 or ENG 105 Advanced First-Year
 Composition if qualified (3)
 GRA 111 Graphic Design History I *HU*3
 GRA 121 Principles for Graphic Design I¹3
 MA elective²3
 Total15

Spring
 ARS 102 Art from Renaissance to Present *HU, H*3
 ENG 102 First-Year Composition3
 or elective if ENG 105 is taken (3)
 GRA 112 Graphic Design History II3
 GRA 122 Principles for Graphic Design II¹3

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 92.

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Computer Science elective ²	3
Total	15

Second Year

Fall	
GRA 220 Design Drawing I.....	3
GRA 221 Letterform ¹	3
GRA 222 Visual Communication I ¹	3
GRA 225 Communication/Interaction Design Theory	3
Literacy and Critical Inquiry elective ²	3
Total	15

Spring	
GRA 223 Typography ¹	3
GRA 224 Visual Communication II ¹	3
PGS 101 Introduction to Psychology <i>SB</i>	3
Natural Science Elective with Laboratory <i>SQ</i> ²	4
Elective ²	3
Total	16
Preprofessional program total	61

Third Year

Fall	
DSC 440 Finding Purpose	3
GRA 321 Technology for Design I	3
GRA 361 Visual Communication III ¹	5
Natural Science Elective with Laboratory <i>SQ, SG</i> ²	4
Total	15

Spring	
GRA 322 Technology for Design II.....	3
GRA 345 Design Rhetoric <i>L</i>	3
GRA 362 Visual Communication IV ¹	5
Social/Behavioral Science Elective (upper division) <i>SB</i> ²	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 ¹	5
Cultural Awareness elective ²	3
Total	14

Spring	
GRA 423 Advanced Interaction Design.....	3
GRA 424 Advanced Media	3
GRA 462 Visual Communication VI ¹	5
Elective ²	3
Total	14
Professional program total	59
BSD minimum total	120

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 A list of courses that fulfill design electives, general studies, and other electives is available from the college academic advisor.

Industrial Design

The curriculum in Industrial Design is divided into a pre-professional (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 92](#), 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, students must meet all university graduation and college degree requirements. See ["University Graduation Requirements," page 88](#), and ["College Degree Requirements," page 136](#).

Industrial Design—BSD Preprofessional Program Requirements¹

First Year

Fall	
DSC 101 Design Awareness <i>HU, G</i>	3
ENG 101 First-Year Composition.....	3
or ENG 105 Advanced First-Year Composition (3) if qualified	
IND 120 Drawing for Industrial Design ¹	3
MAT 170 Precalculus <i>MA</i>	3
Elective.....	3
Total	15

Spring

ENG 102 First-Year Composition.....	3
or elective if ENG 105 is taken (3)	
IND 121 Principles for Industrial Design I ¹	3
IND 122 Principles for Industrial Design II ¹	3
PGS 101 Introduction to Psychology <i>SB</i>	3
PHY 111 General Physics <i>SQ</i> ²	3
PHY 113 General Physics Laboratory <i>SQ</i> 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 <i>HU, H</i>	3
Total	15

Spring

ECN 112 Microeconomic Principles <i>SB</i>	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 <i>HU, H</i>	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.

**Industrial Design—BSD
Professional Program Requirements**

Third Year

Fall

DSC 344 Human Factors in Design.....	3
IND 327 Presentation Graphics	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 <i>L</i>	3
IND 460 Design Project I.....	5
IND 470 Professional Practice for Industrial Design <i>L</i>	3
Elective.....	3
Total	14

Spring

IND 461 Design Project II.....	5
Elective.....	3
C elective.....	3
<i>SQ, SG</i> elective with approved laboratory.....	4
Total	15
Professional program total	59
BSD minimum total	120

Interior Design

The curriculum in Interior Design is divided into a pre-professional program (first and second year) and a professional program (third and fourth year):

Preprofessional program	59
Professional program	61
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 92, 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, students must meet all university graduation and college degree requirements. See “**University Graduation Requirements,**” page 88, and “**College Degree Requirements,**” page 136.

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 92.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

Interior Design—BSD Preprofessional Program Requirements¹

First Year

Fall

DSC 101	Design Awareness <i>HU, G</i>	3
ENG 101	First-Year Composition.....	3
	or ENG 105 Advanced First-Year Composition (3)	
	if qualified	
INT 111	Interior Design Issues and Theories <i>HU</i>	3
INT 121	Introduction to Computer Modeling for Interior Design <i>CS</i> ¹	3
MAT 170	Precalculus <i>MA</i>	3
Total	.....	15

Spring

ENG 102	First-Year Composition.....	3
INT 120	Design Drawing and Media.....	3
INT 131	Design and Human Behavior <i>SB</i>	3
INT 238	Introduction to Computer-Aided Design of Built Environments.....	3
PHY 111	General Physics <i>SQ</i> ²	3
PHY 113	General Physics Laboratory <i>SQ</i> 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 <i>HU, H</i>	3
INT 261	Interior Design Studio I: Residential ¹	3
SQ or SG elective	.....	4
Elective	.....	3
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 211	Concepts for Interior Design*.....	3
INT 310	History of Interior Design I <i>HU, H</i>	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 <i>HU, H</i>	3
INT 351	Lighting for Interior Design.....	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.....	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
L elective (upper division)	.....	3
Elective	.....	3
Total	.....	16

Spring

INT 465	Interior Design Studio V: Institutional Design.....	5
INT 472	Professional Practice for Interior Design.....	2
Elective	.....	3
Elective	.....	3
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, contact 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 ARCHITECTURE AND
ENVIRONMENTAL DESIGN
ARIZONA STATE UNIVERSITY
PO BOX 871905
TEMPE AZ 85287-1905

DESIGN (DSC)

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

DSC 101 Design Awareness. (3)

fall and spring

Survey of cultural, global, and historical context for the design professions.

General Studies: HU, G

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***DSC 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.

DSC 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.

DSC 484 Internship. (1–3)*summer*

Full-time summer internship under supervision of practitioners in the Phoenix area or other locales. Prerequisite: instructor approval.

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/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 DESIGN (GRA)**GRA 286 Visual Communication II. (3)***Effective through fall 2005*

Transition from theoretical to applied problems. Emphasizes refinement of visual skills. 6 hours a week. Fee. Prerequisite: acceptance into Graphic Design professional program.

GRA 383 Typography I. (3)*Effective through fall 2005*

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 286. Corequisite: GRA 386.

GRA 385 Typography II. (3)*Effective through spring 2006*

Problems in composition, choice, and combinations of typefaces, formats, and their application to a variety of design projects. 6 hours a week. Fee. Prerequisite: GRA 383. Corequisite: GRA 387.

GRA 386 Visual Communication III. (3)*Effective through fall 2005*

Problems in specific design applications such as posters, packaging, publications. Emphasizes development of concepts in visual communications. 6 hours a week. Fee. Prerequisite: GRA 286. Corequisite: GRA 383.

GRA 387 Visual Communication IV. (3)*Effective through spring 2006*

Client-oriented projects. Multifaceted problems with emphases on continuity of design in more than one medium and format. 6 hours a week. Fee. Prerequisites: GRA 383, 386. Corequisite: GRA 385.

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. Prerequisites: GRA 385, 387.

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.

GRA 484 Internship: Graphic Design. (1–3)*Effective through summer 2006*

Full-time summer internship under supervision of practitioners in the Phoenix area or other locales. Prerequisite: GRA 387.

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****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***GRA 112 Graphic Design History II. (3)***spring*

Surveys contemporary and 20th-century graphic design. Investigates relationships between graphic design and related disciplines, technological, industrial, and social influences. Prerequisite: GRA 111.

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.

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.

GRA 194 Special Topics. (1–4)*selected semesters***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.

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.

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.

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.

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.

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.

GRA 294 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 92.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

GRA 321 Technology for Design I. (3)

Effective fall 2006

Explores the process of technology in design. Projects interface with GRA 361. Prerequisite: admission to upper-division program. Corequisite: GRA 361.

GRA 322 Technology for Design II. (3)

Effective spring 2007

Emphasizes advanced technology in design problems. Projects interface with GRA 362. Prerequisite: GRA 321. Corequisite: GRA 362.

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*

GRA 361 Visual Communication III. (5)

Effective fall 2006

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.

GRA 362 Visual Communication IV. (5)

Effective spring 2007

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.

GRA 382 Graphic Representation. (3)

fall

Studio practice in drawing with an application toward graphic communication. 6 hours a week. May be repeated once for credit. Fee. Prerequisite: GRA 222.

GRA 394 Special Topics. (1–4)

selected semesters

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.

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.

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.

GRA 424 Advanced Media. (3)

spring

Advanced exploration of digital media for communication. Studio. Prerequisite: GRA 422. Corequisite for Graphic Design majors: GRA 462.

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.

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.

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.

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.

INDUSTRIAL DESIGN (IND)

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.

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.

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.

IND 194 Special Topics. (1–4)

selected semesters

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.

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.

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.

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.

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.

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.

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).

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

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***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.

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.

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. Prerequisite: PHY 111.

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.

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.

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.

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.

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***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.

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.

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.

INTERIOR DESIGN (INT)**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***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.

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***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***INT 194 Special Topics. (1–4)***fall*

Topics may include the following:

- Drafting for Interior Design. (3)

INT 211 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. Prerequisite: INT 121.

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.

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.

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.

INT 238 Introduction to Computer-Aided Design of Built Environments. (3)*spring*

Introduces AutoCAD computer-aided design principles and strategies for designers of the built environment. Lecture, lab.

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.

INT 294 Special Topics. (1–4)*selected semesters*

Topics may include the following:

- AutoCad. (3)

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

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 92.

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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

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.

INT 351 Lighting for Interior Design. (3)

spring

Light as an aspect of interior design. Evaluation of light sources for distribution, color, and cost. Prerequisite: admission to upper-division program. Corequisites: INT 353, 363.

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.

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.

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.

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.

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 School of Design.

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

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.

INT 446 Furniture Design and Production. (3)

fall

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.

INT 451 Ambient Environment. (3)

spring

Surveys environmental control systems, acoustics, and lighting issues in interiors. Lecture, field trips. Prerequisite: admission to upper-division program. Corequisite: INT 465.

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.

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. Corequisite: INT 451.

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.

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.

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.

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.

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/SPLA

480/965-7167

AED 158

Hemalata Dandekar, Director

Professors: Dandekar, Kihl, Lai, Pijawka

Associate Professors: Cameron, Crewe, Guhathakurta, Kim, Yabes

Assistant Professors: Balsas, Lara Valencia

Professor of Practice: Tiger

Faculty Associates: Abele, Adhikari, Boozer, Borushko, Brennan, Cromarty, Dornfield, Dworkin, Gammage, Hartman, Keane, Kulaga, Newcombe, Pearce, Piper, 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 College 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 a minimum of 15 semester hours from the following courses:

PUP 100 Introduction to Environmental Design *HU, G, H*3
 PUP 190 Sustainable Cities *SB, G*3
 PUP 200 The Planned Environment *HU, H*3
 PUP 301 Introduction to Urban Planning *L**3
 PUP 363 History of Planning3
 PUP 420 Theory of Urban Design *HU*3
 PUP 425 Urban Housing Analysis3
 PUP 430 Transportation Planning and the Environment3

PUP 432 Planning and Development Control Law3
 PUP 433 Zoning Ordinances, Subdivision Regulations, and Building Codes3
 PUP 434 Urban Land Economics3
 PUP 442 Environmental Planning3
 PUP 444 Preservation Planning3
 PUP 445 Women and Environments *C*3
 PUP 452 Ethics and Theory in Planning *L*3
 PUP 475 Environmental Impact Assessment3
 PUP 485 International Field Studies in Planning *G*3
 PUP 510 Citizen Participation3

* PUP 301 Introduction to Urban Planning is required.

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.

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 124.

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. Two specializations are offered: community and urban development, and environmental 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. 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

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 92.

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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 and Landscape Architecture 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 14, 2006.* Urban Planning, and Housing and Urban Development application and optional portfolio documents due in the school office by 5 P.M.

June 1, 2006. 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 3, 2006. Acceptance notices are mailed no later than July 3.

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 student coordinator.

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 92,](#) 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, students must meet all university graduation and college degree requirements. See [“University Graduation Requirements,” page 88,](#) and [“College Degree Requirements,” page 136.](#)

Bachelor of Science in Planning, Major in Urban Planning Preprofessional Program Requirements*

First Year

Fall	
ENG 101 First-Year Composition	3
or ENG 105 Advanced First-Year Composition (3)	
PUP 100 Introduction to Environmental Design <i>HU, G, H</i>	3
G electives	6

MA elective.....	3
Total	15
Spring	
ENG 102 First-Year Composition.....	3
or elective if ENG 105 is taken (3)	
C elective.....	3
Elective.....	3
SB elective	3
SQ elective	4
Total	16

Second Year

Fall	
PUP 190 Sustainable Cities <i>HU/SB, G</i>	3
PUP 200 or any HU elective	3
Electives	6
SB elective	3
Total	15
Spring	
PUP 301 Introduction to Urban Planning <i>L</i>	3
or elective	
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 <i>L</i>	3
or Elective (if PUP 301 already taken)	
PUP 361 Introductory Urban Planning Studio.....	4
PUP 424 Planning Methods	4
Approved statistics or quantitative reasoning <i>CS</i>	3
Minimum total	14
Spring	
PUP 363 History of Planning.....	3
PUP 420 Theory of Urban Design <i>HU</i>	3
PUP 436 City Structure and Planning.....	3
Approved program electives*	6
Total	15
Summer	
PUP 484 Internship	3
or PUP 484 Study Abroad (3)	
or PUP 485 International Field Studies in Planning <i>G</i> (3)	
or approved program elective* (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 <i>L</i>	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
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 92, 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 88, and “[College Degree Requirements](#),” page 136.

**Bachelor of Science in Design,
Major in Housing and Urban Development
Preprofessional Program Requirements¹**

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

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 92.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

SB elective	3
SQ elective	4
Total	16

Second Year

Fall

APH 200 Introduction to Architecture <i>HU, G</i>	3
or any CAED history course (3) ²	
CON 252 Building Construction Methods, Materials, and Equipment	3
Elective.....	4
C elective.....	3
CS statistics elective.....	3
Total	16

Spring

ACC 230 Uses of Accounting Information I.....	3
L elective.....	3
SQ or SG elective.....	4
Upper-division HU elective	3
Total	13
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 "CAED 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.

CAED History Courses. These CAED history courses also fulfill HU. See the course listings for prerequisites.

APH 300 World Architecture I/Western Cultures <i>HU, G</i>	3
APH 305 Contemporary Architecture <i>HU, H</i>	3
APH 313 History of Architecture I <i>L/HU, G, H</i>	3
APH 446 20th-Century Architecture I <i>HU</i>	3
DSC 101 Design Awareness <i>HU, G</i>	3
GRA 111 Graphic Design History I <i>HU</i>	3
GRA 112 Graphic Design History II.....	3
IND 316 20th-Century Design I <i>HU, H</i>	3
IND 317 20th-Century Design II <i>HU, H</i>	3
INT 111 Interior Design Issues and Theories <i>HU</i>	3
INT 310 History of Interior Design I <i>HU, H</i>	3
INT 311 History of Interior Design II <i>HU, H</i>	3
INT 412 History of Decorative Arts in Interiors <i>HU</i>	3
PUP 200 The Planned Environment <i>HU, H</i>	3
PUP 420 Theory of Urban Design <i>HU</i>	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 <i>CS</i>	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 <i>CS</i>	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 <i>L</i>	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)	3
Elective.....	3
Total	14
Professional program total	60
BSD-HUD minimum total	120

INQUIRIES

For more information, contact 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 ARCHITECTURE AND
ENVIRONMENTAL DESIGN
ARIZONA STATE UNIVERSITY
PO BOX 871905
TEMPE AZ 85287-1905

HOUSING AND URBAN DEVELOPMENT (HUD)

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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)**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 them. Cross-listed as APH 100. Credit is allowed for only APH 100 or PUP 100.

*General Studies: HU, G, H***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.

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***PUP 200 The Planned Environment. (3)***fall*

Environmental, aesthetic, social, economic, political, and other factors influencing urban development.

*General Studies: HU, H***PUP 236 Introduction to Computer Modeling. (3)***fall and spring*

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 College of Architecture and Environmental Design.

*General Studies: CS***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).

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.

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***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.

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 92.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

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.

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.

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 Architecture and Environmental Design junior standing.

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 Architecture and Environmental Design junior standing.

General Studies: H

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

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.

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.

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.

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.

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.

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.

PUP 436 City Structure and Planning. (3)

spring

Political structure and organization of government as it relates to planning. Prerequisites: PUP 301; junior standing.

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.

PUP 444 Preservation Planning. (3)

spring

History, theory, and principles of historic preservation. Emphasizes legal framework and methods practiced. Prerequisite: junior standing.

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

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

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.

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.

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.

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.

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.)

PUP 494 Special Topics. (1–4)

fall and spring

Topics may include the following:

- Environmental Planning Economics. (3)

Prerequisite: junior standing.

PUP 498 Pro-Seminar. (1–7)

fall

Topics may include the following:

- Senior Pro-Seminar. (1)

PUP 501 The Idea of Planning. (3)

fall

Comprehensive review of planning profession within a political, governmental, multicultural, and gender framework.

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.

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.

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.

PUP 525 Urban Housing Analysis. (3)

fall

Nature, dimensions, and problems of urban housing, government policy environment, and underlying economics of the housing market.

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.

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.

PUP 542 Environmental Administration and Planning. (3)

spring

Environmental administration of policies and their relationship to environmental planning practices. Prerequisite: PUP 442.

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.

PUP 546 Urban Design Policy. (3)

selected semesters

Advanced study of local, state, and federal urban design policy. Prerequisite: PLA 420 or PUP 420.

PUP 561 Urban Design Studio. (4)

selected semesters

Current urban form and urban landscape design problems within the Phoenix-centered region. Studio.

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.

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.

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.

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.

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.

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.

PUP 591 Seminar. (1–12)

fall and spring

Topics may include the following:

- Transportation Systems Pro-Seminar



The College of Architecture and Environmental Design offers seven undergraduate degree programs. John Buchholz photo

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.

PUP 598 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Transportation Planning and the Environment

PUP 599 Thesis. (5)

fall, spring, summer

Creative, scholarly work developed from independent inquiry involving a substantial body of original research. Fee.

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.

PUP 642 Land Economics. (3)

fall

Land use and locational impact of economic activity and the urban real property market. Prerequisite: instructor approval.

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.](#)

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 92.

W. P. Carey School of Business

wpcarey.asu.edu

Robert E. Mittelstaedt Jr., MBA, Dean

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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 25 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
- Business Administration (East College)
- 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 200 Computer Applications and Information Technology CS	3
ECN 111 Macroeconomic Principles SB	3
ECN 112 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 <i>MA</i>	3
MAT 211 Mathematics for Business Analysis	3
QBA 221 Statistical Analysis <i>CS</i>	3
Total	27 or 30

Accountancy and Computer Information Systems majors should refer to their specific requirements under the “[School of Accountancy](#),” page 175, and the “[Department of Information Systems](#),” page 181, 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. 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.

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 Undergraduate Programs, 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. Students are also required to complete the Business Basics online workshop before applying to the professional program.

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 (see page 178).

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 124.

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 East campus. To complete the Business minor, students must obtain the requirements from Undergraduate Programs 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 East 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 (see page 178).

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 194, 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 111 Macroeconomics Principles <i>SB</i>	3
ECN 112 Microeconomic Principles <i>SB</i>	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 92.

W. P. CAREY SCHOOL OF BUSINESS

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 200 Computer Applications and Information Technology CS.....	3

Business. The major teaching field consists of 45 semester hours and six additional hours in teaching methods. A minimum grade of “C” (2.00) 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 200 Computer Applications and Information Technology CS.....	3
ECN 111 Macroeconomic Principles <i>SB</i>	3
ECN 112 Microeconomic Principles <i>SB</i>	3
ENG 301 Writing for the Professions <i>L</i>	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 <i>CS</i>	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

ECN 111 Macroeconomic Principles <i>SB</i>	3
or ECN 112 Microeconomic Principles <i>SB</i> (3)	
ENG 101 First-Year Composition.....	3
or ENG 107 English for Foreign Students (3)	
MAT 210 Brief Calculus <i>MA</i>	3
General Studies.....	3
PGS or SOC course.....	3
Total.....	15

Second Semester

COM 100 Introduction to Human Communication <i>SB</i>	3
or COM 225 Public Speaking <i>L</i> (3)	
or COM 230 Small Group Communication <i>SB</i> (3)	

or COM 259 Communication in Business and the Professions (3)	
ECN 112 Microeconomic Principles <i>SB</i>	3
or ECN 111 Macroeconomic Principles <i>SB</i> (3)	
ENG 102 First-Year Composition.....	3
or ENG 108 English for Foreign Students (3)	
MAT 211 Mathematics for Business Analysis.....	3
Laboratory science <i>SQ</i>	4
Total.....	16

Second Year

Third Semester

ACC 230 Uses of Accounting Information I.....	3
QBA 221 Statistical Analysis <i>CS</i>	3
General Studies.....	3
Laboratory science <i>SQ/SG</i>	4
PGS or SOC course.....	3
Total.....	16

Fourth Semester

ACC 240 Uses of Accounting Information II.....	3
CIS 200 Computer Applications and Information Technology CS.....	3
General Studies.....	9
Total.....	15
Prebusiness program total.....	62

Accountancy and Computer Information Systems majors should refer to their specific course requirements under the “[School of Accountancy](#),” page 175, and the “[Department of Information Systems](#),” page 181, which list course requirement variations. Management majors should refer to their specific course requirements under the “[Department of Management](#),” page 185.

Students are encouraged to have College Algebra (MAT 117) proficiency before registering in ECN 111 and 112. ECN 111 and 112 may 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 COB 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

W. P. Carey School of Business Baccalaureate Degrees and Majors

Major	Degree	Concentration	Administered By
Accountancy	BS	—	School of Accountancy
Business Administration	BS	—	East College
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

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 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, Business Administration (East campus), 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 170. 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*.

COLLEGE OF EXTENDED EDUCATION

The university-wide College 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 “College of Extended Education,” page 703, or access the Web site at www.asu.edu/xed.

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 92.

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 PhD	— Accountancy, computer information systems, finance, health services research, ² management, marketing, or supply chain management	W. P. Carey School of Business W. P. Carey School of Business
Economics	MS, PhD	—	Department of Economics
Health Sector Management	MHSM	—	School of Health Management and Policy
Information Management	MS	—	Department of Information Systems
Public Health ²	MPH	Community health practice or health administration and policy	School of Health Management and Policy
Statistics ³	MS	—	Committee on Statistics
Taxation	MTax	—	School of Accountancy

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 program is administered by the Division of Graduate Studies.

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 88.

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 92. Note that all three General Studies awareness areas are required.

General Studies courses are listed in the “[General Studies Courses](#)” table, page 94, 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.

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 111 and 112 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 111 and 112, 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 119 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 92) 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 111 and 112 and QBA 221.

Additional Graduation Requirements

In addition to completion of courses outlined under “[Major Requirements](#),” page 171, 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 169.

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 prac-

tices 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 200 Computer Applications and Information Technology CS	3
<hr/>	
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

COB 301 Business Forum (first semester).....	1
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
International business course	3
<hr/>	
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 175, and “Department of Information Systems,” page 181, and “Department of Management,” page 185, 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

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 92.

W. P. CAREY SCHOOL OF BUSINESS

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 Undergraduate Programs, 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 Undergraduate Programs, BA 109.

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 Undergraduate Programs, 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 in Dealership Management. The Certificate in Dealership Management 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 dealership 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 new and used car 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:

COB 494 Special Topics	3
MGT 494 ST: Dealership Management	3
or MKT 494 ST: Dealership Management (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 in Dealership Management 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/dealership.

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 Undergraduate Programs, 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 183, 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 124.

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 admitted to Business Honors, students must meet the following criteria:

1. be enrolled in the Barrett Honors College,
2. have a cumulative GPA of 3.40 or higher, and
3. have sufficient time to complete the honors requirements.

Upon acceptance into the program, a valuable learning experience begins. The honors course work consists of HON 171 and 172 The Human Event or HON 394 Special Topics and an additional 18 semester hours of upper-division honors courses, including the following six semester hours:

COB 492 Honors Directed Study.....	2
COB 494 ST: Honors Research	1
Honors Thesis*	3

* See “Honors Courses,” page 63, for an explanation of this course.

The ASU 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. Pre-business students should plan to meet with the honors advisor.

For more information, see “The Barrett Honors College,” page 129, 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.

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 business leaders for the Phoenix metropolitan area and Arizona. The program focuses the energy and intellect of talented ASU business students and their business faculty advisors on a substantial challenge: developing and implementing strategies to assist high-potential, at-risk students in targeted Valley high schools to graduate from ASU.

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, call 480/965-4227, visit BA 109, or meet with faculty advisors in the departments or Career Services, or access the school Web site at wpcarey.asu.edu/up/internship.cfm. Students interested in international internships should contact the W. P. Carey School of Business coordinator of international programs, in BA 114, or access the Web site at wpcarey.asu.edu/up/ipo.cfm.

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. Courses in accounting, economics, finance, insurance, labor relations, and statistics are recommended for any student planning to enter the legal profession.

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.

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 92.

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. Within the W. P. Carey School of Business are faculty members who are lawyers and who serve as advisors for students desiring a prelaw background. In addition to a student's assigned advisor, a prelaw advisor is available in the undergraduate office. More information is available on the prelaw Web site at asu.edu/duas/advising/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 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 (COB)

COB 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.

COB 194 Special Topics. (1–4)

selected semesters

COB 294 Special Topics. (1–4)

selected semesters

COB 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. See COB Note 1. Prerequisite: professional program business student.

COB 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. See COB Note 1. Prerequisites: 2.00 GPA; 47 hours; non-business major.

COB 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. See COB Note 1. Prerequisites: COB 380; 2.00 GPA; 56 hours; non-business major.

COB 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. See COB Note 1. Prerequisites: COB 380; 2.00 GPA; 56 hours; non-business major.

COB 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. See COB Note 1. Prerequisites: COB 380; 2.00 GPA; 56 hours; non-business major.

COB 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. See COB Note 1. Prerequisites: COB 380; 2.00 GPA; 56 hours; non-business major.

COB 394 Special Topics. (1–4)

fall and spring

See COB Note 1.

COB 492 Honors Directed Study. (2)

fall and spring

See COB Note 1.

COB 494 Special Topics. (1–4)

fall and spring

See COB Note 1. Topics may include the following:

- Financial Resources
- Honors Research. (1)
- Human Resources

COB 497 Honors Colloquium. (1–6)

selected semesters

See COB Note 1. 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

James R. Boatsman, Director

Professors: J.R. Boatsman, Christian, Gupta, Johnson, Kaplan, Ohlson, Pany, Pei, Reckers, Schultz

Associate Professors: Golen, Hwang, Regier, Whitecotton

Assistant Professors: Comprix, Lee, O'Donnell, Petersen, Robinson, Rowe, Weiss

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 200.

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. Current admission statistics are available in Undergraduate Programs, BA 109, in the W. P. Carey School of Business.

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 <i>L</i>	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 <i>SB</i> ²	3
or COM 230 Small Group Communication <i>SB</i> ² (3)	
COM 259 Communication in Business and the Professions	3
ECN 306 Survey of International Economics <i>SB, G</i> ³	3
Electives ⁴	9
Total	25

¹ CIS 220 is used in the business core in place of CIS 200.

² COM 230 is recommended over COM 100.

³ ECN 306 is counted in the business core in place of the international business course.

⁴ Electives must be selected from a list approved by the School of Accountancy.

Accountancy majors must complete two CIS courses approved by the School of Accountancy (one of these courses must be CIS 220 Programming Concepts for Accountancy Majors, which is included within the business core).

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 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 88, and "[School Degree Requirements](#)," page 170.

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 92.

ACCOUNTANCY (ACC)

ACC 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.

ACC 230 Uses of Accounting Information I. (3)

fall, spring, summer

Introduces the uses of accounting information focusing on the evolution of the business cycle, including hands-on exposure to enterprise systems. Prerequisite: sophomore standing.

ACC 240 Uses of Accounting Information II. (3)

fall, spring, summer

Introduces the uses of accounting information focusing on the evolution of the business cycle, including hands-on exposure to enterprise systems. Prerequisites: ACC 230; sophomore standing.

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.

ACC 315 Financial Accounting and Reporting. (3)

fall and spring

Accounting theory and practice related to uses of financial statements by external decision makers. See ACC Note 1. Prerequisite: non-Accountancy major. Prerequisites with a grade of "C" (2.00) or higher: ACC 240, 250.

ACC 316 Management Uses of Accounting. (3)

fall and spring

Uses of accounting information for managerial decision making, budgeting, and control. See ACC Note 1. Prerequisites: ACC 240; non-Accountancy major.

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. See ACC Note 1. Prerequisite: professional program business student majoring in Accountancy or Computer Information Systems.

ACC 340 External Reporting I. (3)

fall, spring, summer

Financial accounting theory and practice related to external reporting. See ACC Note 1. Prerequisites: FIN 300; professional program business student majoring in Accountancy. Prerequisite with a grade of "C" (2.00) or higher: ACC 250.

ACC 350 Internal Reporting. (3)

fall, spring, summer

Internal reporting systems for planning, control, and decision making. See ACC Note 1. Prerequisites: SCM 300; professional program business student majoring in Accountancy. Prerequisites with a grade of "C" (2.00) or higher: ACC 250, 330.

ACC 394 Special Topics. (1–4)

fall and spring

See ACC Note 1. Topics may include the following:

- Financial Analysis and Accounting for Small Businesses. (3)

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. See ACC Note 1. 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

ACC 432 Problems in Managerial Accounting. (3)

selected semesters

Cases and computer applications in decision making, planning and control, and capital budgeting. See ACC Note 1. Prerequisite: professional program business student majoring in Accountancy. Prerequisite with a grade of "C" (2.00) or higher: ACC 350.

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. See ACC Note 1.

Prerequisite: professional program business student majoring in Accountancy. Prerequisite with a grade of "C" (2.00) or higher: ACC 340.

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. See ACC Note 1. Prerequisite: professional program business student majoring in Accountancy. Prerequisite with a grade of "C" (2.00) or higher: ACC 440.

ACC 467 Management Advisory Services. (3)

selected semesters

Concepts and methods of providing advisory services with respect to accounting information systems and financial analysis. Administration of consulting practices. See ACC Note 1. Prerequisite: professional program business student majoring in Accountancy. Prerequisite with a grade of "C" (2.00) or higher: ACC 330.

ACC 494 Special Topics. (1–4)

selected semesters

See ACC 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/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 Administration

www.east.asu.edu/ecollege/businessadmin

480/727-1515

SUTTON Third Floor

Roger W. Hutt, Faculty Head

The Business Administration program focuses on the fundamental functions and activities performed in for-profit as well as not-for-profit organizations. The curriculum enables students to gain essential business competencies, knowledge of business disciplines and methods, and appreciation for contemporary business environments and cultures. Students are provided opportunities to gain additional depth in areas of their choosing. Students are prepared for careers in which a broad background and general knowledge in the field of business are requirements. Graduates may choose to enter one of the areas of business or industry for which their emphasis on business fundamentals has prepared them, to start their own businesses, or to pursue careers with local, state, or federal government. Some graduates choose to continue their education by enrolling in graduate programs or law school. Courses are taught at the East campus.

For more information, see "Faculty of Business Administration," page 548.

BUSINESS ADMINISTRATION—BS

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, a three 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 the East campus.

Business Administration Core

E BUA 394 ST: Business Professional Development	1
E FIN 300 Fundamentals of Finance.....	3
E IBS 300 Principles of International Business <i>G</i>	3
E LES 305 Legal, Ethical, and Regulatory Issues in Business	3
E MGT 300 Organizational Management and Leadership.....	3
E MKT 300 Principles of Marketing.....	3
E SCM 300 Global Supply Operations	3
E TWC 447 Business Reports <i>L</i>	3
Total	22

Capstone Course

E MGT 440 Small Business and Entrepreneurship	3
or E MGT 494 ST: Strategic Management (3)	
Total	3

Approved Electives. 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 and focus on career interests.

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 the other courses.

Required Courses

E BUA 380 Small Business Leadership.....	3
E BUA 381 Small Business Accounting and Finance.....	3
E BUA 382 Small Business Sales and Market Development	3
E BUA 383 Small Business Working Relationships.....	3
E 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, offered to Bachelor of Interdisciplinary Studies majors only, are identical to those for the minor in Small Business listed above. For BIS degree requirements, see “[School of Interdisciplinary Studies](#),” page 124.

Department of Economics

wpcarey.asu.edu/ecn

480/965-3531

BAC 659

Arthur E. Blakemore, Chair

Professors: Blakemore, Boyes, Brada, Burdick, Burgess, DeSerpa, Happel, Hoffman, Kingston, Low, Manelli, Mayer, McDowell, McPheters, Melvin, Méndez, Ormiston, Prescott, 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 88, 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. 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

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 92.

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 366.

MAJOR PROFICIENCY REQUIREMENTS

Students must receive a grade of “C” (2.00) or higher in all upper-division courses in 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 the same course 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. Any upper-division course in which a grade lower than “C” (2.00) is earned may be repeated only one time.

GRADUATION REQUIREMENTS

In addition to fulfilling major requirements, students must fulfill university requirements, see “[University Graduation Requirements](#),” page 88, and “[School Degree Requirements](#),” page 170.

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 173.

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 183.

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 172.

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 294 ST: Macroeconomics for ECN 111 and 313 and ECN 294 ST: Microeconomics for ECN 112 and 314. These courses with grades of “C” (2.00) or higher satisfy the prerequisites and/or corequisites for all 400-level economics courses. Students who take six hours of ECN 294 will take six hours of other upper-division economics courses in lieu of ECN 313 and 314.

ECONOMICS (ECN)

ECN Note 1. MAT 210 or 270 with a grade of “C” (2.00) or higher is a prerequisite for all upper-division economics courses except ECN 382 and 384.

ECN Note 2. ECN 313 and 314 with grades of “C” (2.00) or higher are prerequisites or pre- or corequisites for all 400-level economics courses.

ECN 111 Macroeconomic Principles. (3)

fall, spring, summer

Basic macroeconomic analysis. Economic institutions and factors determining income levels, price levels, and employment levels.

General Studies: SB

ECN 112 Microeconomic Principles. (3)

fall, spring, summer

Basic microeconomic analysis. Theory of exchange and production, including the theory of the firm.

General Studies: SB

ECN 294 Special Topics. (1–4)

once a year

Topics may include the following:

- **Macroeconomics. (3)**
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.
- **Microeconomics. (3)**
Introduces modern microeconomic analysis. Theories of consumer behavior, production, and cost. Output and price determination in a variety of market settings. Welfare economics, general equilibrium, externalities, and public goods. Not open to students with credit in ECN 314.

Prerequisite: Barrett Honors College student. Pre- or corequisite: MAT 210 or 270 or AP calculus.

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 111, 112.

General Studies: SB, G

ECN 313 Intermediate Macroeconomic Theory. (3)

fall, spring, summer

Determinants of aggregate levels of employment, output, and income of an economy. See ECN Note 1. Prerequisites: ECN 111, 112.

General Studies: SB

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 111, 112.

General Studies: SB

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 111, 112.

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 111, 112.

General Studies: SB, G

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 111, 112.

General Studies: SB, G

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 111, 112.

*General Studies: SB, G***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 GPA of 2.00; junior standing.

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 GPA of 2.00; junior standing.

*General Studies: SB***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 111, 112.

ECN 404 History of Economic Thought. (3)*once a year*

Development of economic doctrines, theories of mercantilism, physiocracy, classicism, neoclassicism, Marxism, and contemporary economics. See ECN Note 2. Prerequisite: ECN 314. Pre- or corequisite: ECN 313.

*General Studies: SB***ECN 410 Applied Business Forecasting. (3)***once a year*

Applies forecasting techniques in business and institutional environments. Fee. Prerequisite: STP 226 or QBA 221.

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. See ECN Note 2. Prerequisite: ECN 314. Pre- or corequisite: ECN 313.

*General Studies: SB***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. See ECN Note 2. Prerequisites: ECN 314; QBA 221 (or STP 226). Pre- or corequisite: ECN 313.

*General Studies: CS***ECN 436 International Trade Theory. (3)***once a year*

Comparative-advantage doctrine, including practices under varying commercial policy approaches. Economic impact of international disequilibrium. See ECN Note 2. Prerequisite: ECN 314. Pre- or corequisite: ECN 313.

*General Studies: SB, G***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. See ECN Note 2. Prerequisite: ECN 313. Pre- or corequisite: ECN 314.

*General Studies: SB, G***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. See ECN Note 2. Prerequisite: ECN 314. Pre- or corequisite: ECN 313.

*General Studies: SB***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. See ECN Note 2. Prerequisite: ECN 314. Pre- or corequisite: ECN 313.

ECN 453 Government and Business. (3)*once a year*

Development of public policies toward business. Antitrust activity. Economic effects of government policies. See ECN Note 2. Prerequisite: ECN 314. Pre- or corequisite: ECN 313.

ECN 470 Mathematical Economics. (3)*once a year*

Integrates economic analysis and mathematical methods into a comprehensive body of knowledge within contemporary economic theory. See ECN Note 2. Prerequisite: ECN 314. Pre- or corequisite: ECN 313.

ECN 475 Capstone in Economics. (3)*fall and spring*

Capstone course integrating several areas of economics. See ECN Note 2. Prerequisites: ECN 313, 314. Pre- or corequisite: ECN 425.

*General Studies: L***ECN 484 Economics Internship. (3)***fall, spring, summer*

Academic credit for professional work organized through the Internship Program. See ECN Note 2. Prerequisite: minimum cumulative ASU GPA of 3.00. Prerequisites: ECN 313, 314.

ECN 493 Honors Thesis. (3)*fall and spring*

See ECN Note 2.

*General Studies: L***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. See ECN Note 2. Prerequisites: ECN 313, 314.

ECN 498 Pro-Seminar. (3)*selected semesters*

Topics chosen from current area of interest. See ECN Note 2. 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/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)**QBA 221 Statistical Analysis. (3)***fall and spring*

Methods of statistical description. Applies probability theory and statistical inference in business. Fee. Prerequisite: MAT 119 or 271.

*General Studies: CS***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.

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/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 92.

Department of Finance

wpcarey.asu.edu/fin

480/965-3131

BAC 519

Jeffrey L. Coles, Chair

Professors: Booth, Coles, Hertz, Kaufman, Poe, Sushka

Associate Professors: Cesta, Gallinger, Hoffmeister, Wilt

Assistant Professors: Deli, Dieckman, 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 331 and 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 88, and “[School Degree Requirements,](#)” page 170.

FINANCE (FIN)

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.

FIN 300 Fundamentals of Finance. (3)

fall, spring, summer

Theory and problems in financial management of business enterprises. Prerequisites: ACC 240; ECN 112; QBA 221. Pre- or corequisite: SCM 300.

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. See FIN Note 1. Prerequisite: professional program business student majoring in Finance. Prerequisite with a grade of “C” (2.00) or higher: FIN 300.

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. Prerequisite with a grade of “C” (2.00) or higher: FIN 300.

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. See FIN Note 1. Prerequisites: minimum cumulative GPA of 2.00; junior standing; non-Finance major.

FIN 394 Special Topics. (1–4)

selected semesters

See FIN Note 1.

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. See FIN Note 1. Prerequisite: professional program business student majoring in Finance. Prerequisites with a grade of “C” (2.00) or higher: ACC 315; FIN 331, 361.

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. See FIN Note 1. Prerequisite: professional program business student majoring in Finance. Prerequisite with a grade of “C” (2.00) or higher: FIN 421.

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. See FIN Note 1. Prerequisite: professional program business student majoring in Finance. Prerequisites with a grade of “C” (2.00) or higher: ACC 315; FIN 331, 361.

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. See FIN Note 1. 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

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. See FIN Note 1. 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: L

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. See FIN Note 1. Prerequisite: Finance Business Honors program student. Prerequisites with a grade of "C" (2.00) or higher: ACC 315; FIN 331, 361.

FIN 484 Finance Internship. (3)

fall, spring, summer

Academic credit for field work in finance organized through the internship program. See FIN Note 1. Prerequisites: FIN 331, 361; instructor approval.

FIN 494 Special Topics. (1–4)

selected semesters

See FIN 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/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 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

Research Professors: Patton, Warne

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)

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.

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

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

Assistant Professors: Chen, Demirkan, Dowling, Ravindran, Roussinov, Santanam, 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

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 92.

W. P. CAREY SCHOOL OF BUSINESS

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. CSE 181 or its equivalent is taken in place of CIS 200 (check with the department regarding this option).

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. Current admission statistics are available at the Undergraduate Programs Office in the W. P. Carey School of Business.

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 busi-

ness requirement, and CIS 235 Business Information Systems Development, 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 88, and “[School Degree Requirements,](#)” page 170.

COMPUTER INFORMATION SYSTEMS (CIS)

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.

CIS 200 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. Prerequisite: MAT 117 or higher.
General Studies: CS

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.

CIS 235 Business Information Systems Development. (3)

fall, spring, summer
Developing information systems and electronic commerce applications using object-oriented languages (e.g., Java). Introduces business technology and systems analysis. Fee. Prerequisite: MAT 119 or 210. Prerequisite with a grade of “C” (2.00) or higher: CIS 200.

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. See CIS Note 1.

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.

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 Java. 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.

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.

CIS 394 Special Topics. (1–4)

selected semesters

See current *Schedule of Classes* for offerings of courses at East campus. See CIS Note 1.

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. 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.

CIS 430 Networks and Distributed Systems. (3)

fall and spring

Advanced topics such as communications protocols, distributed systems, and client-server systems; applications based on platforms such as 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.

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

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/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.

International Business Studies

wpcarey.asu.edu/up/ipo.cfm

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 multi-national 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 <i>SB, G*</i>	3
	or IBS 306 Survey of International Economics <i>SB, G*</i> (3)	
ECN 331	Alternative Economic Systems <i>SB, G*</i>	3
ECN 360	Economic Development <i>SB, G*</i>	3
ECN 365	Economics of Russia and Eastern Europe <i>SB, G*</i>	3
ECN 436	International Trade Theory <i>SB, G*</i>	3
ECN 438	International Monetary Economics <i>SB, G*</i>	3
FIN 456	International Financial Management <i>G*</i>	3
IBS 300	Principles of International Business <i>G*</i>	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)	

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 92.

W. P. CAREY SCHOOL OF BUSINESS

IBS 400 Cultural Factors in International Business <i>C, G*</i>	3
or MGT 400: Cultural Factors in International Business <i>C, G</i> (3)	
IBS 484 International Business Internship.....	3
IBS 493 International Honors Thesis <i>L*</i>	3
IBS 499 Individualized Instruction of International Business	3
MGT 459 International Management <i>G</i>	3
or IBS 459: International Management <i>G</i> (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 in the United Kingdom, the Netherlands, Austria, Mexico, Spain, Chile, Argentina, France, Italy, Germany, the Czech Republic, Ireland, Turkey, Hong Kong, and Singapore. 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 a W. P. Carey School of Business seminar of at least a six-week duration or in an approved internship abroad of at least eight weeks satisfy six of the nine semester hours.

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/up/ipo.cfm.

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 124.

INTERNATIONAL BUSINESS STUDIES (IBS)

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.

IBS Note 2. MAT 210 or 270 with a grade of “C” (2.00) or higher is a prerequisite for all upper-division economics courses except ECN 382 and 384.

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 112. *General Studies: G*

IBS 306 Survey of International Economics. (3)

fall and spring

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 111, 112. *General Studies: SB, G*

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.

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*

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*

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 GPA of 3.40; minimum ASU business GPA of 3.40.

IBS 493 International Honors Thesis. (3)

fall and spring

See IBS Note 1.

General Studies: L

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)

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

William H. Glick, Chair

Regents' Professor: Gomez-Mejia**Professors:** Ashforth, Cannella, Cardy, Glick, Hershauer, Hom, Hoskisson, Keim, Kinicki, Mittelstaedt, Roberson, Tsui**Associate Professors:** Boyd, Hillman, Keats, Keller, Moorhead, Olivas, Van Hook**Assistant Professor:** Koka**Lecturers:** Beer, Davila

Faculty in the ASU Department of Management are widely recognized for their work in the areas of operations management, 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., 001), 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

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 92.

W. P. CAREY SCHOOL OF BUSINESS

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 <i>L</i>	3
MGT 460 Strategic Leadership <i>L</i>	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 <i>L</i>	3
COM 225 Public Speaking <i>L</i>	3
or COM 259 Communication in Business and the Professions ¹ (3)	
IBS 300 Principles of International Business ² <i>G</i>	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 <i>C, G</i>	3
MGT 440 Small Business and Entrepreneurship	3
MGT 445 Business Plan Development	3
MGT 459 International Management <i>G</i>	3
MGT 484 Management Internship	3
MGT 494 Special Topics	3
MKT 302 Fundamentals of Marketing Management <i>L</i>	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 in Dealership Management (see wpcarey.asu.edu/dealership);
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).

Hot Links to Major in Management. More information, hot 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 88, and “**School Degree Requirements,**” page 170.

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.

Hot Links to Graduate Programs. For additional information, hot links to courses and faculty, and general information about ASU MBA programs, access the Web at wpcarey.asu.edu/mba.

More information, application procedures, hot 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.

MANAGEMENT (MGT)

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.

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.

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).

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).

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. See MGT Note 1. Prerequisites: 2.00 ASU GPA; junior standing.

MGT 394 Special Topics. (3)

selected semesters

See MGT Note 1.

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*

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.

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.

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.

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.

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

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

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

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.

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 494 ST: International Management) or MGT 300 (or 459).
- Dealership Management. (3)
- Strategic Management. (3)

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/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 92.

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

Senior Lecturer: Spiers

Lecturer: Kahler

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 451 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 88, and “[School Degree Requirements,](#)” page 170.

GRADUATE PROGRAMS

The department offers a distinctive MBA curriculum in services marketing and management. For more information, see the *Graduate Catalog*.

MARKETING (MKT)

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.

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 112. Pre- or corequisite: SCM 300.

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.

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. Prerequisite: MKT 300.

General Studies: L

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.

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.

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. See MKT Note 1.

Prerequisites: junior or senior standing; 2.00 ASU GPA.

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)

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.

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.

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.

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.

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.

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.

MKT 451 Marketing Research. (3)

fall, spring, summer

Integrated treatment of methods of market research and analysis of market factors affecting decisions in the organization. See MKT Note 1. Prerequisites with a grade of "C" (2.00) or higher: MKT 302; QBA 221.

General Studies: L

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, 451.

MKT 484 Internship. (3)

fall, spring, summer

See MKT Note 1. Prerequisite with a grade of "B" (3.00) or higher: MKT 302.

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

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/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 Supply Chain Management

wpcarey.asu.edu/scm

480/965-6044

BA 446

Joseph R. Carter, Chair

Professors: J. Carter, P. Carter, Choi, Dooley, Ellram, Guntermann, Jennings, Kirkwood, Pearson, V. Smith-Daniels

Associate Professors: Brooks, Callarman, Davis, Keefer, Krause, Lock, Maltz, Rungtusanatham, Siferd, D. Smith-Daniels, Verdini

Assistant Professors: Barratt, Petersen, Rabinovich

Research Professor: Monczka

Senior Lecturers: Brown, Koretz, Langdon

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

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 92.

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. Thus, 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 88, and “[School Degree Requirements](#),” page 170.

BUSINESS (BUS)

BUS 301 Fundamentals of Management Communication. (3)

fall, spring, summer
Written and oral communication in a management context. Prerequisite: CIS 200. Prerequisite with a grade of “C” or higher: ENG 102.

General Studies: L

BUS 451 Business Research Methods. (3)

selected semesters
Methods of collecting information pertinent to business problem solving, including design, collection, analysis, interpretation, and presentation of primary and secondary data.

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.

LEGAL AND ETHICAL STUDIES (LES)

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.

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.

LES 308 Business and Legal Issues in Professional Sports. (3)

selected semesters
Economic structure of professional sports and application of contract, antitrust, arbitration, and labor laws in the industry. See LES Note 1. Prerequisites: 2.00 GPA; junior standing.

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.

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/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.

SUPPLY CHAIN MANAGEMENT (SCM)

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.

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 200; QBA 221.

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.

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.

SCM 355 Supply Management. (3)

fall and spring
Management of the supply function, including organization, procedures, supplier selection, quality, inventory decisions, and price determination. Fee. See SCM Note 1. Prerequisites: SCM 300; professional program business student majoring in Supply Chain Management.



Edward C. Prescott received the 2004 Nobel Prize in Economics. Prescott is the W. P. Carey School of Business chair in economics.

Tim Trumble photo

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.

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

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.

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.

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.

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.

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. 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.

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 92.

College of Education

Eugene E. Garcia, PhD, Vice President
for University-School Partnerships and Dean

coe.asu.edu

Division of Curriculum and Instruction	206
Division of Educational Leadership and Policy Studies	211
Division of Psychology in Education	212

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 wherein 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 195.

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 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. The Center for Indian Education serves as a service agency to Native American communities, school districts, and students attending ASU. The center also conducts research on Indian education in Arizona and other states with American Indian populations. For more information, call 480/965-6292, or access the Web site at coe.asu.edu/cie.

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.

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 lab's Web site at asu.edu/educ/epsl.

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. 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 (AEP) 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. This center, located in ED 440, conducts, supports, and promotes research, scholarship, and innovative practice in the linguistic education of minority students in public schools. The center's primary focus is on equity aspects of education in Arizona, especially as they relate to nonnative English-speaking children and youth. Research, scholarly discourse, and program development activities, aimed at improving language education for minority students in public schools, serve the purpose of informing public policy in Arizona and the larger U.S. Southwest region. For more information, call 480/965-7134, or access the Web site at asu.edu/educ/sceed.

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,**” page 194.

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 204.

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

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 92.

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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 pre-professional 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. 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. a minimum 2.50 cumulative GPA (ASU GPA and transfer GPA combined) (verified one month before program start date);
3. a minimum 2.50 cumulative ASU GPA by the time the student begins the ITC program (verified one month before program start date);
4. completion of at least 56 semester hours (verified one month before program start date);
5. in progress or completion of the following prerequisites: 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. demonstration of 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; and

7. formal application to the ITC program made 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 that 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.

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 66](#).

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, multi-lingual/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 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 seeking 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.

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 196, 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 11 various 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) (K–8: birth–third grade emphasis);
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);

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 92.

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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/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.

10. Teacher Education and Certification Highway + Masters in Education option (TEACH+ME) (elementary education—postbaccalaureate only); and

11. 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 (ATP). 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 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 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–Third Grade). The early childhood program 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 K–8 certification program. For course requirements, see “[Course Requirements](#),” page 199.

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 200.

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 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 201.

Secondary Education (SED) (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 SED 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 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 202.

Special Education (SPE). The SPE program leads to the BAE degree in Special Education and to certification in K–12 special education for children with learning disabili-

ties, 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 203.

Teacher Education and Certification Highway + Masters in Education option (TEACH+ME). 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 (TEAMS). 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 88.

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 (Elementary Education, Apprentice Teacher Program, Multilingual/Multicultural Education, Early Childhood Education, Secondary Education, and Special Education);
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

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 92.

areas listed under “[Bachelor of Arts in Education](#),” page 195.

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 92. Note that all three General Studies awareness areas are required. General Studies courses are listed in the “[General Studies Courses](#),” page 94, 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 88.

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 their 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 88.

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.

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.

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 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, page 199.

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;

Academic Specializations

Academic Specialization	Page
Art education ¹	281
Biological sciences	427
Business	167
Chemistry	360
Dance education ¹	295
Economics	367
English	369
Family and human development ²	375
French	409
Geography	379
German	409
History	387
Japanese	409
Mathematics	439
Music education ³	301
Physical education	552
Physics	450
Political science	455
Social studies	388
Spanish	409

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.

- complete all ITC courses (with a “C” [2.00] or higher);
- 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
- 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*

ECD 310 Educational Environments: Infants/Toddlers	3
ECD 314 The Developing Child	3
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 requirement	9
Total	30

* A minimum grade of “C” (2.00) is required in all courses.

ITC Program Courses*

Semester I

ECD 400 Inquiry into Teaching and Learning	3
ECD 401 Integrated Curriculum and Assessment: Social Studies and Creative Arts	3
ECD 403 Educational Environments: Preschool/Kindergarten/Primary Grades	3
ECD 496 Field Experience	1
EDT 300 Computers in Education	1
SPF 401 Theory and Practice in Education	1
Total	12

Semester II

ECD 300 Principles of Interprofessional Collaboration	3
ECD 494 ST: Integrated Curriculum Assessment: Math	3
ECD 494 ST: Integrated Curriculum Assessment: Science	3
ECD 496 Field Experience	1
SPE 416 Quality Practices in the Collaborative Classroom	3
Total	13

Semester III

BLE 408 SEI for Linguistically Diverse Learners	3
ECD 315 Classroom Organization and Guidance in the Early Years	2
ECD 404 Teaching Reading and Language Arts in Early Childhood	3
ECD 405 Practicum in Teaching Reading and Language Arts in Early Childhood	2
ECD 496 Field Experience	1
Total	11

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 92.

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Semester IV

EED 478 Student Teaching in the Elementary School	12
ITC program course total	48

* A minimum grade of “C” (2.00) is required in all courses.

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	0–7
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College of Education Requirements*

EDP 303 Human Development <i>L</i>	3
or CDE 232 Human Development <i>SB</i> (3)	
or ECD 314 The Developing Child (3)	
or EDP 313 Childhood and Adolescence (3)	
EDP 310 Educational Psychology <i>SB</i>	3
MCE 446 Understanding the Culturally Diverse Child <i>C</i>	3
MTE 180 Theory of Elementary Mathematics	3
MTE 181 Theory of Elementary Mathematics	3
SPE 311 Orientation to Education	
of Exceptional Children <i>SB, C</i>	3
Total	18

* A minimum grade of “C” (2.00) is required in all courses.

ITC Program Courses*

Semester I

BLE 408 SEI for Linguistically Diverse Learners	3
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	16

Semester II

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	10

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 <i>L</i>	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, day-time 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 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 <i>SB</i>	3
MTE 180 Theory of Elementary Mathematics	3
MTE 181 Theory of Elementary Mathematics	3
SPE 311 Orientation to Education	
of Exceptional Children <i>SB, C</i>	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 <i>L</i>	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 <i>L</i>	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 one of the following to the Office of Student Services before an Institutional Recommendation will be provided to the student:

1. completion of six semester hours of college credits in a single second language (which may include sign language) or the equivalent, from an accredited institution. Credit must be from two different courses, and not a repeat of the same course;
2. documentation of placement by the language department of an accredited institution in a third-semester level second language;

3. documentation of a passing score on the Arizona Classroom Spanish Proficiency Examination; or
4. documentation of proficiency in an American Indian language, verified by an official designated by the appropriate tribe.

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 Requirements¹

EDP 310 Educational Psychology <i>SB</i>	3
EED 334 Children’s Literature and Elementary School Curriculum	3
or RDG 334 Children’s Literature and Elementary School Curriculum (3)	3
MCE 446 Understanding the Culturally Diverse Child <i>C</i>	3
MTE 180 Theory of Elementary Mathematics.....	3
MTE 181 Theory of Elementary Mathematics.....	3
SPE 311 Orientation to Education of Exceptional Children <i>SB, C</i>	3
Fine arts requirements.....	6
Language proficiency ²	0–6
Total	24–30

¹ A minimum grade of “C” (2.00) is required in all courses.

² For information on language proficiency see, “[Language Proficiency](#),” on this page.

ITC Program Courses*

Any Semester in Program

BLE 335 Language Diversity in Classrooms	3
or ENG 213 Introduction to the Study of Language (3)	

Semester I

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
EDT 300 Computers in Education.....	1
SPF 301 Culture and Schooling <i>L</i>	3
SPF 401 Theory and Practice in Education	1
Total	12

Semester II

BLE 408 SEI for Linguistically Diverse Learners	3
BLE 420 Science Methods, Management, and Assessment in BLE/ESL Settings.....	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 92.

COLLEGE OF EDUCATION

BLE 480 Mathematics 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
Total	13

Semester III

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
SPE 416 Quality Practices in the Collaborative Classroom	3
Total	13

Semester IV

BLE 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 (Indigenous Education)—BAE

Course Requirements. Many courses are held at local elementary schools during the regular 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 <i>C</i>	3
MTE 180 Theory of Elementary Mathematics.....	3
MTE 181 Theory of Elementary Mathematics.....	3
SPE 311 Orientation to Education of Exceptional Children <i>SB, C</i>	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 <i>SB</i>	3
EDT 300 Computers in Education.....	1
IED 410 History of American Indian Education <i>SB, C, H</i>	3
IED 455 Social Studies Methods, Management, and Assessment for Indigenous Classrooms <i>C</i>	3

IED 496 Field Experience: Classroom Management and Organization.....	1
SPF 301 Culture and Schooling <i>L</i>	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 <i>C</i>	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 <i>HU/SB, C</i>	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 199.

Course Requirements. All methods courses (including SED 403) must be taken with a field experience. It is recommended that SED 403 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 Requirements¹

SPE 311 Orientation to Education
of Exceptional Children *SB, C*3

Academic Specialization¹

Academic specialization².....30–60

ITC Program Courses¹

BLE 407 SEI for Secondary Students3
 EDP 303 Human Development *L*3
 or EDP 313 Childhood and Adolescence³(3)
 EDP 310 Educational Psychology *SB*3
 EDT 300 Computers in Education.....1
 RDG 301 Literacy and Instruction in the Content Areas3
 SED 403 Middle and Secondary School Principles,
 Curricula, and Methods⁴.....3
 SED 478 Student Teaching in Secondary Schools12
 SED 496 Field Experience1
 SED 496 Field Experience1
 SED 496 Field Experience1
 SPE 417 Inclusion Practices at the Secondary Level.....3
 SPF 301 Culture and Schooling *L*3
 SPF 401 Theory and Practice in Education1
 Methods in Academic Specialization I⁴3
 Methods in Academic Specialization II⁴3
 ITC program course total44

- 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 Studies35–37
 Total41–43
 Electives9–14

College of Education Requirements¹

MTE 180 Theory of Elementary Mathematics.....3
 MTE 181 Theory of Elementary Mathematics.....3
 Fine Arts requirement9
 Total15

ITC Program Courses¹

Semester I

SPE 309 Basic Special Education Curriculum².....3
 SPE 311 Orientation to Education of Exceptional
 Children² *SB, C*3

SPE 315 Introduction to Bilingual/Multicultural Special
 Education and SEI3
 SPE 361 Introduction to Learning Disabilities3
 SPE 496 Field Experience1
 SPF 301 Culture and Schooling *L*3
 Total16

Semester II

EDT 300 Computers in Education.....1
 SPE 312 Mental Retardation.....3
 SPE 336 Behavioral and Emotional Problems in Children3
 SPE 412 Evaluating Exceptional Children3
 SPE 413 Methods in Language, Reading, and Arithmetic for
 Exceptional Children3
 SPE 496 Field Experience1
 Total14

Semester III

SPE 411 Parent Involvement and Regulatory Issues3
 SPE 414 Methods and Strategies in Behavior Management3
 SPE 415 Social Behavior Problems of Exceptional Children3
 SPE 494 ST: Instruction in Content Areas: Science/Social
 Studies.....3
 SPE 496 Field Experience (7.5 hours/week)1
 Total13

Semester IV

SPE 478 Student Teaching in Special Education.....12
 ITC program course total55

- 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.

COLLEGE OF EXTENDED EDUCATION

The university-wide College 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 “College of Extended Education,” page 703, 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.

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 92.

COLLEGE OF EDUCATION

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, curriculum studies, 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
	PhD	Art education, ² curriculum studies, early childhood education, elementary education, English education, exercise and wellness education, ³ language and literacy, mathematics education, physical 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 This concentration is administered in collaboration with the Katherine K. Herberger College of Fine Arts.

³ Doctoral courses for this interdisciplinary program administered by the Tempe campus are offered at the East campus.

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.



The Computing Commons offers students an abundance of resources.

Tim Trumble photo

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 124.

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 204, 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.

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 92.

Division of Curriculum and Instruction

coe.asu.edu/programs

480/965-1644

ED 426

James Middleton, Director

Professors: Appleton, Artilles, Baker, Barone, Bitter, Cannella, Christie, Edelsky, Faltis, Flores, E. Garcia, Gryder, Guzzetti, Hudelson, Ovando, Rutherford, Stahl, Surbeck, Swadener, Tobin, Zucker

Associate Professors: Anijar, Arias, Blumenfeld-Jones, Cohn, Di Gangi, Gomez, MacSwan, McCoy, Middleton, Rader, Smith, Vallejo, Young

Assistant Professors: Baek, Clark, Fischman, Manuelito, Martinez-Roldan, Rolstad, Romero

Clinical Associate Professors: P. Garcia, Lamorey, Mathur

Clinical Assistant Professor: Christine

Lecturers: Atkinson, Cocchiarella, Esch, Fain, Harrison, Kastre, Maderazo, McDaniel-Doran, 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)
- 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 204, and the *Graduate Catalog*.

BILINGUAL EDUCATION (BLE)

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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)

BUE 480 Teaching Business Subjects. (3)

fall and spring

Organization and presentation of appropriate content for business subjects in the secondary school.

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.

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.

CURRICULUM AND INSTRUCTION (DCI)

DCI 396 Field Experience I. (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.

DCI 397 Field Experience II. (0)

fall

Second-semester ITC. Observation and limited participation in a school setting. Focus on observation of development, learning, management, instruction, assessment, and motivation. Requires 6 hours per week. Fee. Corequisite: semester II of the ITC.

DCI 484 Service Learning Internship. (1–12)

fall, spring, summer

Fee.

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/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.

EARLY CHILDHOOD EDUCATION (ECD)

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.

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.

ECD 310 Educational Environments: Infants/Toddlers. (3)

fall, spring, summer

Organizing, planning, and implementing developmentally appropriate educational practices to provide optimal learning environments for infants and toddlers in group settings.

ECD 314 The Developing Child. (3)

fall, spring, summer

Examines all aspects of development of children, birth through age 8, with implications for teachers and parents. Requires classroom observation and participation.

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.

ECD 378 Practicum in Early Childhood Development. (3)

fall and spring

Provides a field-based experience in selected early childhood settings (outside the public schools before student teaching). Prerequisite: ECD 314.

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.

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.

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.

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.

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 92.

COLLEGE OF EDUCATION

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.

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 pre-school, kindergarten, and primary-grade (1–3) levels. Developmentally appropriate strategies to promote young children's speaking, listening, reading, and writing abilities. Prerequisite: ITC admission.

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.

ECD 420 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.

ECD 494 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Integrated Curriculum Assessment: Math. (3)
- Integrated Curriculum Assessment: Science. (3)

ECD 496 Field Experience. (0–3)

fall and spring

Applies course content in a preschool through 3rd grade setting. Emphasizes observation, focus on child-centered curriculum, planning and delivering instruction, and assessment. Fee. Corequisite: ECD 404.

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.

ELEMENTARY EDUCATION (EED)

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.

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.

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.

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.

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.

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.

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.

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.

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/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.

INDIAN EDUCATION (IED)

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.

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.

IED 407 Diné Education Philosophy. (4)

fall

Assists preservice teachers in integrating Navajo educational philosophy Sá'ah Naaghái Bik'eh Hózhóon into educational instruction. Lecture, collaborative activities. Prerequisite: Diné Teacher Education ITC admission.

General Studies: HU, C

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

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.

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.

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.

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

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.

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.

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

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.

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

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

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. Credit is allowed for only IED 460 or 560.

General Studies: HU/SB, C, H

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.

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.

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)

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

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)

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.

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.

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.

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 92.



Laura Hanish, associate professor of Family and Human Development, was recently recognized for her excellent rapport with students.

Tim Trumble photo

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.

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.

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.

SECONDARY EDUCATION (SED)

SED 400 Principles of Effective Instruction in Secondary Education. (3)

fall, spring, summer

Examines different models of education. Develops and applies appropriate teaching practices for each model to secondary school classrooms. Lecture, discussion. Prerequisite: ITC admission.

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.

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.

SED 480 Special Methods of Teaching Social Studies. (3)

fall and spring

Interdisciplinary approaches; production and collection of materials. Prerequisite: ITC admission.

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/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.

SPECIAL EDUCATION (SPE)

SPE 294 Special Topics. (1–4)

selected semesters

SPE 309 Basic Special Education Curriculum. (3)

fall, spring, summer

Introduces curricular practices used in inclusion classrooms.

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

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.

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.

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.

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.

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.

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.

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.

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.

SPE 414 Methods and Strategies in Behavior Management. (3)

fall and spring

Organization and delivery of instruction, including formative evaluation techniques. Techniques of behavior management. Requires daily practicum. Prerequisite: ITC admission.

SPE 415 Social Behavior Problems of Exceptional Children. (3)

fall and spring

Analysis and intervention into social behavior problems of exceptional populations. Requires daily practicum. Prerequisite: ITC admission.

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.

SPE 417 Inclusion Practices at the Secondary Level. (3)

fall and spring

Applies curricular practice and how preservice teachers work with special needs students in middle and secondary levels. Lecture, group activities, field experience. Prerequisites: SPE 311; ITC admission.

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.

SPE 455 Early Childhood and the Handicapped. (3)

fall

Early childhood education as it applies to the handicapped child.

SPE 478 Student Teaching in Special Education. (3–15)

fall and spring

“Y” grade only. Fee. Prerequisite: ITC admission.

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.

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.

SPE 498 Pro-Seminar. (1–7)

fall and spring

Small-group study and research for advanced students in 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/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 Educational Leadership and Policy Studies

coe.asu.edu/programs

480/965-6357

ED 120

Terrence G. Wiley, Director

Regents’ Professors: Berliner, Glass, Smith

Professors: Appleton, Barone, Beaulieu, Fenske, González, McCarty, Molnar, Tobin, Turner, Valverde, Webb, Wiley

Associate Professors: Danzig, Hunnicutt, Margolis, Rund, Wilkinson

Assistant Professors: Begaye, D. 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

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 92.

COLLEGE OF EDUCATION

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 204, 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/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.

SOCIAL AND PHILOSOPHICAL FOUNDATIONS (SPF)

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*

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.

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, Kerr, Kinnier, Klein, Moore, Robinson Kurpius, Santos de Barona, Strom, Sullivan, Tracey

Associate Professors: Arciniega, Brown, Ladd, Nakagawa, Savenye, Wodrich

Assistant Professors: Arzubiaga, Atkinson, Brem, Gorin, Husman, Rayle, Thompson

Clinical Associate Professors: 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 204, and the *Graduate Catalog*.

COUNSELOR EDUCATION (CED)

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

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

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)

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 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 classroom of McClintock Residence Hall. Open to freshmen through senior undergraduates; all majors.

CED 484 Internship. (1–12)

fall and spring

Topics may include the following:

- Leadership Internship
- Leadership Internship and Capstone

CED 493 Honors Thesis. (1–6)

fall and spring

CED 494 Special Topics. (1–4)

fall and spring

Topics may include the following:

- Paraprofessional Training. (3)

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)

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.

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

EDP 310 Educational Psychology. (1–6)

fall and spring

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.)

EDP 313 Childhood and Adolescence. (3)

fall, spring, summer

Principles underlying total development of pre- and early-adolescents. Emphasizes physical, intellectual, social, and emotional development with practical implications for teachers grades 5–9. Prerequisite: admission to College of Education postbaccalaureate program.

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/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)

EDT 300 Computers in Education. (1)

fall, spring, summer

Introduces general computer applications, teacher utility programs, World Wide Web, and evaluation of educational software. Required for majors in the College of Education.

EDT 321 Computer Literacy. (3)

fall, spring, summer

Survey of the role of computers in business and education. Laboratory experience in using word processing, database, and spreadsheet software. 2 hours lecture, 2 hours lab.

General Studies: CS

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

EDT 405 Presentation Technology for Multimedia. (3)

fall

Explores multimedia hardware and software used in creating presentations for educational, corporate, and commercial applications.

EDT 406 Computer Graphics and Animation. (3)

spring

Studies and applies design and animation techniques for use in video or computer-based presentations.

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

Peter E. Crouch, PhD, Dean

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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/studentlife/judicial/integrity.html.

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 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 certifica-

Professional Status Requirements

Student	Program	High School Rank	ABOR GPA	Minimum Scores		Transfer GPA*	
				ACT	SAT	Resident	Nonresident
Resident	Construction	Upper 25%	3.00	23	1140	—	—
	Engineering	Upper 25%	3.00	23	1140	—	—
Nonresident	Construction	Upper 25%	3.00	24	1140	—	—
	Engineering	Upper 25%	3.00	24	1140	—	—
Transfer	Construction	—	—	—	—	2.25	2.50
	Engineering	—	—	—	—	2.50	2.50

* The cumulative GPA is calculated using all credits from ASU as well as all transfer credits from other colleges and universities.

tion 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 technical programs housed in the school are demanding, and success requires good preparation. High school students are expected to have completed a college preparation curriculum including math through precalculus; transfer students are expected to have performed well in their post-secondary work. Students who are not well prepared may be required to enroll in university courses that are not applicable for degree credit. High school 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.

Students eligible for admission to one of the school programs are admitted to either preprofessional or professional status in the program of interest. The processes and standards used to admit students depend on whether the students are first-time freshmen, transfer students from outside of ASU, transfer students from within ASU, or readmission students.

Preprofessional and Professional Status. Students who have a high likelihood of success are admitted with professional status; other students are admitted with preprofessional status. The difference is that preprofessional students are permitted to register for only lower-division (100- and 200-level) classes within the school.

Promotion to professional status is done in one of two ways. Students in the Computer Science or Computer Systems Engineering programs use one method; for more information, see “Department of Computer Science and Engineering,” page 249, or access the Web site at www.eas.asu.edu/cse/students/undergrad/index.php. Promotion for all other students is a two-step process:

1. In consultation with an academic advisor, lower division courses are selected.
2. After completing a minimum of 30 semester hours of required or approved elective course work with a cumulative GPA equivalent to that required of trans-

fer students and corresponding to the chosen major, students may apply for promotion to professional status (see the “Professional Status Requirements” table, on this page). Note: For transfer students, the cumulative GPA includes the transfer GPA.

Admission as First-Time Freshmen. Students other than those interested in Computer Science or Computer Systems Engineering who meet one of the requirements listed in the “Professional Status Requirements” table are admitted to programs within the school with professional status. Students who are not admissible to professional status within the school but are otherwise regularly admissible to ASU are admitted to one of the school’s programs with preprofessional status.

All students interested in Computer Science or Computer Systems Engineering, who meet the university admission requirements as stated in “Office of Undergraduate Admissions,” page 65, are admitted with preprofessional status.

In addition, students who are required to take the Test of English as a Foreign Language (TOEFL) must earn a score of at least 550 on the paper version (230 on the computerized version).

Students admitted to the university after successful completion of the General Education Development examination are admitted as preprofessional students within their major. Professional status is attained by meeting the minimum ACT or SAT score required for admission as listed in the “Professional Status Requirements” table, on this page.

Admission of Transfer Students. As with freshmen, admission of Computer Science and Computer Systems Engineering (CS and CSE) transfer students is different.

1. All non-CS and CSE transfer students who meet the requirements shown in the “Professional Status Requirements” table are admitted with professional status.
2. All non-CS and CSE transfer students who are not admissible to professional status within the school but are otherwise regularly admissible to ASU are

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 92.

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admitted to one of the school's programs with pre-professional status.

3. All CS and CSE transfer students who meet the university admission standards, as stated in "Office of Undergraduate Admissions," page 65, are admitted with preprofessional status.

The academic units may impose additional admission and graduation requirements beyond the minimum specified by the school.

Change of Major Within ASU. Students moving between academic programs within the school or from other colleges or schools within the university are admitted under the same conditions as transfer students.

Readmission. Students reapplying to the school after a one semester absence must meet the following requirements to be considered for readmission: Engineering students are required to have 2.50 or higher cumulative GPA for all courses completed; in-state Construction students must have a 2.25 cumulative GPA for all courses completed. Students with lower GPAs may be denied readmission. Preprofessional students with less than the 2.50 GPA for all courses will be denied readmission.

Computer Science and Computer Systems Engineering students will be readmitted as preprofessionals provided they meet the readmission requirements for engineering students. Students should consult the Computer Science advising office at 480/965-3199 for readmission information to their professional status.

Students seeking readmission should contact the Office of the Associate Dean of Academic Affairs.

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.

ADVISING

Each department in the Fulton School employs one or more professional academic advisors to 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 school's sources of academic support and success. Students may also work with a faculty advisor familiar with the chosen field of specialization. While final responsibility for becoming familiar with and understanding academic degree requirements lies with the student, professional and faculty advisors are available to assist. Students should consult with an advisor before registering each semester.

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.

The Office of the Associate Dean for Academic Affairs in the school is available to assist individual students with many different types of advising issues. Advisors and staff 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; and hear grade grievances and assist with other administrative matters. More information is available from the school Web site.

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. The special permits are not issued until after grades have been posted.

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 72.

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.

Entry into Upper-Division Courses. Before enrolling in courses at the 300 level and above, students must be in good academic standing in professional program status in this school and have the approval of their advisors. A student who is not in good academic standing must secure approval from his or her advisor and the office of the associate dean for academic affairs. Students whose grades in 300-level courses are unsatisfactory may be required to retake one or more courses for which credit has previously been granted.

The academic units have certain additional requirements that must be met in addition to the above school requirements, and students should make sure they are fulfilling all requirements.

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, page 218. 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 219. 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*.

COLLEGE OF EXTENDED EDUCATION

The university-wide College 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 “[College of Extended Education](#),” page 703, 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 88). A well-planned program of study enables students to meet all requirements in a timely fashion. Students are encouraged 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 94, 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 88. 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.

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.

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 92.

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Ira A. Fulton School of Engineering Baccalaureate Degrees and Majors

Major	Degree	Concentration ¹	Administered By
Aerospace Engineering ²	BSE	—	Department of Mechanical and Aerospace Engineering
Bioengineering ²	BSE	—	Harrington Department of Bioengineering
Chemical Engineering ²	BSE	—	Department of Chemical and Materials Engineering
Civil Engineering ²	BSE	Optional: construction engineering or environmental engineering ¹	Department of Civil and Environmental Engineering
Computer Science ²	BS	Optional: software engineering ¹	Department of Computer Science and Engineering
Computer Systems Engineering ²	BSE	—	Department of Computer Science and Engineering
Construction ²	BS	General building construction, heavy construction, residential construction, or specialty construction	Del E. Webb School of Construction
Electrical Engineering ²	BSE	—	Department of Electrical Engineering
Engineering Interdisciplinary Studies ³	BS	—	Ira A. Fulton School of Engineering
Engineering Special Studies ²	BSE	Premedical engineering	Ira A. Fulton School of Engineering and the Harrington Department of Bioengineering
Industrial Engineering ²	BSE	—	Department of Industrial Engineering
Materials Science and Engineering ²	BSE	—	Department of Chemical and Materials Engineering
Mechanical Engineering ²	BSE	—	Department of Mechanical and Aerospace Engineering

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

² This major requires a minimum of 128 semester hours to complete.

³ Applications for this program are not being accepted at this time.

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 track them and ensure they get the necessary help. Students on probation have their course load constrained. These students may also be required to take specific courses to help them gain the skills needed to be successful.

Various conditions can place a student on probation. Some conditions trigger an automatic placement of the stu-

dent on probation whereas others trigger a review of the student's case to determine if probation is warranted. When a probation review is triggered, the final decision and conditions of probation are made by the student's department.

Automatic Probation. These conditions trigger automatic probation:

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; or
3. an ASU Cumulative GPA below 2.00 (for more than 55 semester hours).

Automatic Review. These conditions trigger probation review:

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

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	Optional: executive embedded systems ¹	Ira A. Fulton School of Engineering
	PhD	Optional: materials science and engineering ¹	Ira A. Fulton School of 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.

3. failure to complete any courses appropriate for the degree during each semester.

Disqualification. Students on probation are subject to disqualification if

1. they do not attain a semester GPA of 2.25;
2. their cumulative GPA is below 2.00 at the end of the probationary semester; or
3. they are placed on probation for two consecutive semesters.

Courses completed during the summer sessions may not be used to reevaluate a student's fall semester probationary status.

Students on academic probation are not allowed to register for more than 13 semester hours of course work. Probationary students may not register for the next semester without a special permit from an advisor in the Office of the Associate Dean for Academic Affairs. Special permits are

not given until grades are recorded by the registrar for the current semester.

Disqualification

Students who are on academic probation and fail to meet the retention standards become ineligible to continue working toward a degree within the school. These limitations apply:

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.

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 92.

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3. Students may be eligible to change their major to another college if they have a cumulative GPA of 2.00 or higher.
4. Students may take nonengineering courses during summer and winter sessions.
5. Students who have completed fewer than 25 semester hours with a cumulative GPA of 1.75 or higher may be eligible for study with the University College
6. Students 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 2.50 or higher, and a cumulative GPA of 2.50 or higher for all courses completed.

SPECIAL PROGRAMS

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 admission is determined at the time of admission to the program. For more information, access the Web site at www.fulton.asu.edu/fulton/students/index.php.

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/fulton/students/index.php.

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.

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 BSE degree. Interested students should contact their major department for details.

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 ASE 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 129.

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 www.fulton.asu.edu/fulton/students/index.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. Example: major—Mechanical Engineering; area of study—thermosciences.

Del E. Webb School of Construction

construction.asu.edu

480/965-3615

USE 138

William W. Badger, Director

Professor: Badger

Associate Professors: Ariaratnam, Bashford, Chasey, Erzen, Kashiwagi, Sawhney, Wiezel

Assistant Professors: Fiori, Knutson, Mitropoulos, Sullivan

Visiting Eminent Scholars: Mathews, Schleifer

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 courses on which students may build defined concentrations to suit individual backgrounds, aptitudes, and objectives. These 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.

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 92.

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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, and the Construction Women's Alliance.

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 215; and "Degree Requirements," on this page. A pre-professional category is available for applicants deficient in regular admission requirements. Vocational and craft-oriented courses taught at the community colleges are not accepted for credit toward a bachelor's degree in Construction.

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 Require-

ments," page 88) 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.

Any student not making satisfactory progress is permitted to register for only those courses required to correct any deficiencies.

DEGREE REQUIREMENTS

A minimum of 128 semester hours with at least 50 hours at the upper-division level is required for graduation in general building construction, heavy construction, residential construction, and specialty construction. 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 92, and all university graduation requirements as noted in "University Graduation Requirements," page 88. Note that all three General Studies awareness areas are required. Consult an advisor for an approved list of courses.

SCHOOL COURSE REQUIREMENTS

The school requires that the General Studies requirement be satisfied in the following manner:

<i>Humanities and Fine Arts/Social and Behavioral Sciences</i>	
CON 101 Construction and Culture: A Built Environment <i>HU, G, H</i>	3
ECN 111 Macroeconomic Principles <i>SB</i>	3
ECN 112 Microeconomic Principles <i>SB</i>	3
HU/SB and awareness area course as needed	3
HU/SB (upper division) and awareness area course as needed	3
Total	15
<i>Literacy and Critical Inquiry</i>	
COM 225 Public Speaking <i>L</i>	3
CON 496 Construction Contract Administration <i>L</i>	3
Total	6
<i>Natural Sciences</i>	
PHY 111 General Physics <i>SQ</i> ¹	3
PHY 112 General Physics <i>SQ</i> ²	3
PHY 113 General Physics Laboratory <i>SQ</i> ¹	1
PHY 114 General Physics Laboratory <i>SQ</i> ²	1
Total	8
<i>Mathematical Studies</i>	
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
STP 226 Elements of Statistics <i>CS</i>	3
Total	7

General Studies/school requirements total³36

- 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.
- ³ Because of the school's requirement for MAT 270, the total semester hours exceed the General Studies requirement of 35.

Construction Major Requirements Common to All Concentrations

(Except as Noted)

ACC 230 Uses of Accounting Information I.....	3
or ACC 394 ST: Financial Analysis and Accounting for Small Businesses (3)*	
CEE 340 Hydraulics and Hydrology.....	3
CON 221 Applied Engineering Mechanics: Statics.....	3
CON 223 Strength of Materials.....	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
CON 273 Electrical Construction Fundamentals.....	3
CON 296 Field Internship.....	1
CON 310 Testing of Materials for Construction.....	3
CON 341 Surveying.....	3
CON 345 Mechanical Systems.....	3
CON 371 Construction Management and Safety.....	3
CON 383 Construction Estimating.....	4
CON 389 Construction Cost Accounting and Control CS.....	3
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 494 Special Topics.....	1
CON 495 Construction Planning and Scheduling CS.....	3
ECE 100 Introduction to Engineering Design CS.....	3
LES 305 Legal, Ethical, and Regulatory Issues in Business.....	3
or W LES 306 Business Law (3)	
or LES 380 Consumer Perspective of Business Law (3)	
Physical science elective with lab.....	4
Total common to all concentrations.....	71

* ACC 394 ST: Financial Analysis and Accounting for Small Businesses is recommended.

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 128 semester hours required for the degree.

The course work for the first two years is the same for all concentrations.

First Semester

CON 101 Construction and Culture: A Built Environment HU, G, H.....	3
ECN 111 Microeconomic Principles SB.....	3
ENG 101 First-Year Composition.....	3
MAT 270 Calculus with Analytic Geometry I MA.....	4
PHY 111 General Physics SQ ¹	3
PHY 113 General Physics Laboratory SQ ¹	1
Total.....	17

Second Semester

ECE 100 Introduction to Engineering Design CS.....	3
--	---

ECN 112 Microeconomic Principles SB.....	3
ENG 102 First-Year Composition.....	3
PHY 112 General Physics SQ ²	3
PHY 114 General Physics Laboratory SQ ²	1
HU elective with awareness area as needed.....	3
Total.....	16

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

ACC 230 Uses of Accounting Information I.....	3
or ACC 394 ST: Financial Analysis and Accounting for Small Businesses ³ (3)	
COM 225 Public Speaking L.....	3
CON 223 Strength of Materials.....	3
CON 252 Building Construction Methods, Materials, and Equipment.....	3
Physical science elective with lab.....	4
Total.....	16

- 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.
- ³ ACC 394 ST: Financial Analysis and Accounting for Small Businesses is recommended.

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 472 Development Feasibility Reports L.....	3
CON 483 Advanced Building Estimating.....	3
PUP 432 Planning and Development Control Law.....	3
or PUP 433 Zoning Ordinances, Subdivision Regulations, and Building Codes (3)	
REA 380 Real Estate Fundamentals.....	3
Upper-division elective.....	3
Total.....	15

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,

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 92.

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bridges, canals, sewerage and water works, and mass earth-work.

Requirements

CON 486 Heavy Construction Estimating	3
CON 494 ST: Heavy Construction Project Management.....	3
Upper-division electives.....	9
Total	15

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 377 Residential Construction Production Procedures.....	3
CON 477 Residential Construction Business Practices	3
MKT 382 Advertising and Marketing Communication.....	3
PUP 432 Planning and Development Control Law	3
or PUP 433 Zoning Ordinances, Subdivision Regulations, and Building Codes (3)	
Upper-division elective	3
Total	15

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 468 Mechanical and Electrical Estimating	3
CON 471 Mechanical and Electrical Project Management.....	3
CON 494 ST: Cleanroom Construction	3
Upper-division electives.....	6
Total	15

CONSTRUCTION (CON)

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*

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; PHY 111, 113.

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.

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.

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. Prerequisite: ECE 100.

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."

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. Prerequisites: PHY 112, 114.

CON 296 Field Internship. (1)

summer

Participation as interns on construction projects to observe and experience the daily activities. Internship. Fee.

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.

CON 341 Surveying. (3)

fall, spring, summer

Theory and field work in construction and land surveys. Lecture, lab. Cross-listed as CEE 381. Credit is allowed for only CEE 381 or CON 341. Fee. Prerequisite: MAT 270.

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.

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.

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.

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.

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

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.

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.

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; ECE 112.

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.

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: a combination of CON 273 and 345 and 383 or only instructor approval.

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.

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***CON 477 Residential Construction Business Practices. (3)***fall*

Topics addressed include development, marketing, financing, legal issues, and sales.

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.

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.

CON 486 Heavy Construction Estimating. (3)*fall*

Methods analysis and cost estimation for construction of highways, bridges, tunnels, dams, and other engineering works. May be repeated for credit. Lecture, field trips. Prerequisites: CON 341, 383.

CON 492 Honors Directed Study. (1–6)*selected semesters***CON 493 Honors Thesis. (1–6)***selected semesters***CON 494 Special Topics. (1–4)***fall and spring*

Topics may include the following:

- Cleanroom Construction. (3)
fall
- Heavy Construction Project Management. (3)

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***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 or ECE 300; senior standing.

*General Studies: L***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/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.

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 BSE; and
4. those who wish to take certain electives in engineering while pursuing another program in the university.

ADMISSION

For information regarding requirements for admission, transfer, retention, disqualification, and reinstatement, see “Undergraduate Admission,” page 66; “Admission,” page 215; and “Student Responsibilities,” page 217.

Individuals who are beginning their initial college work in engineering should have completed certain secondary school units in addition to the minimum university admission requirements. Four units are required in mathematics; a course with trigonometry should be included. The laboratory sciences chosen must include at least one unit in physics and one unit in chemistry. Calculus, biology, and computer programming are also recommended. Students who do not meet subject matter requirements may be required to complete additional university course work that may not apply toward an engineering degree. One or more of the courses—CHM 113 General Chemistry, CSE 180 Computer Literacy, CSE 181 Applied Problem Solving with Visual

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 92.



A student and instructor work together in an engineering lab.

Tim Trumble photo

BASIC, MAT 170 Precalculus, and PHY 105 Basic Physics—may be required to satisfy omissions or deficiencies upon admission.

DEGREES

The Bachelor of Science in Engineering (BSE) degree consists of three parts:

1. university requirements (e.g., General Studies, First-Year Composition);
2. an engineering core; and
3. a major.

The BS degree in Computer Science consists 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 and fine arts, social and behavioral sciences, mathematical studies, and

natural sciences (see “General Studies,” page 92). 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 engineering core is an organized body of knowledge that serves as a foundation to engineering and to specialized studies in a particular engineering major.

The courses included in the engineering core are taught in such a manner that they serve as basic background material (1) for all engineering students who will be taking subsequent work in the same and related subject areas; and (2) for those students who may not desire to pursue additional studies in a particular subject area. Thus, subjects within the engineering core are taught with an integrity and quality appropriately relevant to the particular discipline but always with an attitude and concern for both engineering in general and for the particular major(s).

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). With the exception of the Computer Science major, all major courses in the curricula are extensions beyond the engineering core and cover a wide variety of subject areas within each field. 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 study are concerned primarily with general education requirements, English proficiency, and the engineering core. The final two years of study are concerned with the engineering core and the major, with a considerable part of the time being spent on the major.

The semester-by-semester selection of courses varies from one field to another, particularly at the upper-division level, and is determined by the student in consultation with a faculty or professional advisor. See the “Typical Freshman Year” table, page 227, an example for a full-time student; depending on a particular student’s circumstances, many other examples are possible.

Typical Freshman Year

CHM 114 General Chemistry for Engineers <i>SQ</i>	4 or 8
or CHM 113 General Chemistry <i>SQ</i> (4)	
and CHM 116 General Chemistry <i>SQ</i> (4)	
ECE 100 Introduction to Engineering Design <i>CS</i>	3
ECN 111 Macroeconomic Principles <i>SB</i>	3
or ECN 112 Macroeconomic Principles <i>SB</i> (3)	
ENG 101 First-Year Composition.....	3
ENG 102 First-Year Composition.....	3
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
PHY 121 University Physics I: Mechanics <i>SQ</i> *	3
PHY 122 University Physics Laboratory I <i>SQ</i> *.....	1
HU/SB and awareness area course.....	3
Total	31 or 35

* Both PHY 121 and 122 must be taken to secure *SQ* credit.

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 16 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 128 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 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 88), and the literacy and critical inquiry component (see “[Five Core Areas](#),” page 92) 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. *Selected engineering topics.* This area involves courses in engineering science and engineering design. The courses further develop the foundation for the study of engineering and provide the base for specialized studies in a particular engineering discipline. The specific courses are included in the engineering core and in the major. While some departmental choices are allowed, all students are required to take ECE 100 Introduction to Engineering Design and ECE 300 Intermediate Engineering Design as part of the engineering core. These courses, together with other experiences in the engineering core and in the major, serve to integrate the study of design, the “process of devising a system, component, or process to meet desired needs” (ABET), throughout the engineering curricula.
4. *Specific engineering discipline.* This area provides a depth of understanding of a more 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 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.

COURSE REQUIREMENTS

A summary of the degree requirements is as follows:

First-Year Composition.....	6
General Studies/school requirements.....	56
Engineering core*	14–18
Major (including area of study or concentration)*	48–52
Minimum total	128

* The requirements for each of the majors offered are described in the department sections.

Specific course requirements for the BS and BSE degrees follow.

First-Year Composition

Choose among the course combinations below	6
ENG 101 First-Year Composition (3)	
ENG 102 First-Year Composition (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 92.

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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

<i>Humanities and Fine Arts/Social and Behavioral Sciences</i> ¹	
ECN 111 Macroeconomic Principles <i>SB</i>	3
or ECN 112 Microeconomic Principles <i>SB</i> (3)	

HU and awareness area courses	6 or 9
SB and awareness area course(s)	3 or 6
Total	15

Literacy and Critical Inquiry

ECE 300 Intermediate Engineering Design <i>L</i>	3
ECE 400 Engineering Communications <i>L</i>	3
Total	6

Mathematical, Computation, and Quantitative Studies

ECE 100 Introduction to Engineering Design <i>CS</i>	3
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
MAT 274 Elementary Differential Equations <i>MA</i>	3
Department mathematics elective	2
Total	20

Natural Sciences/Basic Sciences

CHM 114 General Chemistry for Engineers <i>SQ</i>	4
or CHM 116 General Chemistry <i>SQ</i> (4)	
PHY 121 University Physics I: Mechanics <i>SQ</i> ²	3
PHY 122 University Physics Laboratory I <i>SQ</i> ²	1
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ³	3
PHY 132 University Physics Laboratory II <i>SQ</i> ³	1
Department basic science elective	3
Total	15
General Studies/school requirements total	56

¹ Engineering students may not use aerospace studies (AES) or military science (MIS) courses to obtain HU or SB requirements. Courses in the awareness areas of global, historical, and cultural diversity in the United States must also be represented in the program of study. One course must be upper-division.

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.

Engineering Core Requirement

In addition to ECE 100 and 300, which also fulfill a portion of the university General Studies requirement, a minimum of five of the following eight courses are required. Courses selected are subject to departmental approval. See department requirements.

ECE 201 Electrical Networks I	4
ECE 210 Engineering Mechanics I: Statics	3
ECE 212 Engineering Mechanics II: Dynamics	3
ECE 214 Engineering Mechanics	4
ECE 313 Introduction to Deformable Solids	3
ECE 334 Electronic Circuits	4
Choose one thermodynamics course below	3 or 4
ECE 340 Thermodynamics (3)	
CHE 342 Introduction to Applied Chemical Thermodynamics (4)	
MSE 430 Thermodynamics of Materials (3)	

Choose one materials course below	3 or 4
ECE 350 Structure and Properties of Materials (3)	
ECE 351 Civil Engineering Materials (3)	
ECE 352 Properties of Electronic Materials (4)	
Choose one microcomputer/microprocessor course below	3 or 4
BME 470 Microcomputer Applications in Bioengineering (4)	
CHE 461 Process Control <i>CS</i> (4)	
CSE 225 Assembly Language Programming and Microprocessors (Motorola) (4)	
or EEE 225 Assembly Language Programming and Microprocessors (Motorola) (4)	
CSE 226 Assembly Language Programming and Microprocessors (Intel) (4)	
or EEE 226 Assembly Language Programming and Microprocessors (Intel) (4)	
IEE 463 Computer-Aided Manufacturing and Control <i>CS</i> (3)	

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, Baltimore, Maryland, 410/347-7700. The BS program in Computer Science is accredited by the Computer Science Accreditation Commission of ABET.

ANALYSIS AND SYSTEMS (ASE)

ASE 100 College Adjustment and Survival. (2)

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.

ASE 194 Special Topics. (1–4)

fall

Topics may include the following:

- MEP Academic Success. (2)
- MEP Computer Basics. (1)

ASE 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.

ASE 490 Project in Design and Development. (2–3)

fall, spring, summer

Individual project in creative design and synthesis. May be repeated for credit. Prerequisite: senior standing.

ASE 496 Professional Seminar. (0)

fall and spring

Topics of interest to students in the engineering special and interdisciplinary 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.

ENGINEERING CORE (ECE)

ECE 100 Introduction to Engineering Design. (3)

fall and spring

Introduces engineering design; teaming; the profession of engineering; computer models in engineering; communication skills; quality and customer satisfaction. Credit is allowed for only ECE 100 or 200. Fee. Prerequisites: high school computing and physics and algebra courses (or their equivalents).

General Studies: CS

ECE 200 Elements of Engineering Design. (3)

fall and spring

Advanced version of ECE 100 for students who transfer to ASU after completion of the stated prerequisites. Credit is allowed for only ECE 200 or 100. Lecture, lab. Prerequisites for engineering majors: ENG 101 (or 105); MAT 270; PHY 121, 122. Prerequisites for Construction majors: ENG 101 (or 105); MAT 270; PHY 111, 113. Pre- or corequisite for engineering majors: CHM 113 or 114 or 116.

General Studies: CS

ECE 201 Electrical Networks I. (4)

fall and spring

Fundamental network theorems for dc and ac analysis. Utilization of SPICE. Design and measurement of linear analog electrical systems. Lecture, lab. Fee. Prerequisites: ECE 100 (or 200); MAT 274 (or 275); PHY 131, 132.

ECE 210 Engineering Mechanics I: Statics. (3)

fall, spring, summer

Force systems, resultants, equilibrium, distributed forces, area moments, fluid statics, internal stresses, friction, energy criterion for equilibrium, and stability. Lecture, recitation. Prerequisites: ECE 100 (or 200); MAT 271 (or 291); PHY 121, 122.

ECE 212 Engineering Mechanics II: Dynamics. (3)

fall, spring, summer

Kinematics and kinetics of particles, translating and rotating coordinate systems, rigid body kinematics, dynamics of systems of particles and rigid bodies, and energy and momentum principles. Lecture, recitation. Prerequisites: ECE 210; MAT 274.

ECE 214 Engineering Mechanics. (4)

fall, spring, summer

Force systems, resultants, moments and equilibrium. Kinematics and kinetics of particles, systems of particles and rigid bodies. Energy and momentum principles. Lecture, recitation. Prerequisites: ECE 100 (or 200); MAT 274; PHY 121, 122.

ECE 300 Intermediate Engineering Design. (3)

fall, spring, summer

Engineering design process concentrating on increasing the ability to prepare well-written technical communication and to define problems and generate and evaluate ideas. Teaming skills enhanced. Fee. Prerequisites: ECE 100 (or 200); ENG 102 (or 105 or 108); at least two other engineering core courses.

General Studies: L

ECE 313 Introduction to Deformable Solids. (3)

fall, spring, summer

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. Prerequisites: ECE 210 (or 214); MAT 274.

ECE 334 Electronic Circuits. (4)

fall, spring, summer

Applies electric network theory to semiconductor circuits. Diodes/transistors/amplifiers/opamps/digital logic gates, and electronic instruments. Lecture, lab. Fee. Prerequisite: ECE 201.

ECE 340 Thermodynamics. (3)

fall, spring, summer

Work, heat, and energy transformations and relationships between properties; laws, concepts, and modes of analysis common to all applications of thermodynamics in engineering. Lecture, recitation. Prerequisites: CHM 114 (or 116); ECE 210 (or 214); PHY 131, 132. Pre- or corequisite: MAT 274.

ECE 350 Structure and Properties of Materials. (3)

fall, spring, summer

Basic concepts of material structure and its relation to properties. Application to engineering problems. Prerequisites: CHM 114 (or 116); PHY 121, 122.

ECE 351 Civil Engineering Materials. (3)

fall and spring

Structure and behavior of civil engineering materials. Laboratory investigations and test criteria. Lecture, lab. Fee. Prerequisite: ECE 313.

ECE 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); MAT 362; PHY 241.

ECE 380 Probability and Statistics for Engineering Problem Solving. (3)

fall and spring

Applications-oriented course with computer-based experience using statistical software for formulating and solving engineering problems. 2 hours lecture, 2 hours lab. Fee. Prerequisite: MAT 271.

General Studies: CS

ECE 384 Numerical Methods for Engineers. (4)

fall and spring

Numerical methods and computational tools for selected problems in engineering. Prerequisites: ECE 100 (or 200); MAT 274; at least two other engineering core courses. Pre- or corequisite: MAT 272.

ECE 400 Engineering Communications. (3)

fall, spring, summer

Planning and preparing engineering publications and oral presentations, based on directed library research related to current engineering topics. Prerequisites: ENG 102 (or 105 or 108); completion of General Studies L requirement (or ECE 300); senior standing in an engineering major.

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.

SOCIETY, VALUES, AND TECHNOLOGY (STE)

STE 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 PHS 208 or STE 208. Prerequisite: a college-level course in science or instructor approval.

General Studies: SQ

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 92.

Harrington Department of Bioengineering

www.fulton.asu.edu/~bme

480/965-3028

ECG 334

Eric J. Guilbeau, Chair

CORE FACULTY

Olin Endowed Professor: Guilbeau

Professors: Garcia, He, Towe

Associate Professors: Abbas, Iasemidis, Joshi, Jung, Massia, Pizziconi, Sweeney

Assistant Professors: Caplan, Muthuswamy, Panitch, Vernon

Research Professors: Brophy, Herman

Associate Research Professor: Singh

Assistant Research Professors: Helms Tillery, Shimansky

Senior Research Professional: Brandon

Research Scientists: Ehteshami, Pauken

Senior Lecturer: Coursen

AFFILIATED FACULTY

Electrical Engineering

Professor: Kozicki

Associate Professor: Kim

Electronics and Computer Engineering Technology (East campus)

Associate Professor: Macia

Kinesiology

Associate Professor: Santello

The faculty in the Harrington Department of Bioengineering offer the BSE degree in Bioengineering. The major builds on a broad base of knowledge within the basic and mathematical sciences and the engineering core. 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 271.

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 med-

icine 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*.

DEGREE REQUIREMENTS

A minimum of 128 semester hours is necessary for the BSE degree in Bioengineering. A minimum of 50 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, students must satisfy all university graduation requirements. See [“University Graduation Requirements,”](#) page 88.

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 below6

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

ECN 111 Macroeconomic Principles <i>SB</i>	3
or ECN 112 Microeconomic Principles <i>SB</i> (3)	
HU/ <i>SB</i> and awareness area courses	12
Total	15

Literacy and Critical Inquiry

BME 413 Biomedical Instrumentation <i>L</i> ¹	3
BME 423 Biomedical Instrumentation Laboratory <i>L</i> ¹	1
ECE 300 Intermediate Engineering Design <i>L</i>	3
Total	7

Natural Sciences/Basic Sciences

CHM 113 General Chemistry <i>SQ</i>	4
CHM 116 General Chemistry <i>SQ</i>	4
PHY 121 University Physics I: Mechanics <i>SQ</i> ²	3
PHY 122 University Physics Laboratory I <i>SQ</i> ²	1
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ³	3
PHY 132 University Physics Laboratory II <i>SQ</i> ³	1
Total	16

Mathematical Studies

ECE 100 Introduction to Engineering Design <i>CS</i>	3
ECE 384 Numerical Methods for Engineers	4
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
MAT 274 Elementary Differential Equations <i>MA</i>	3
Total	22
General Studies/school requirements total.....	60

Engineering Core

ECE 201 Electrical Networks I	4
ECE 214 Engineering Mechanics.....	4
ECE 334 Electronic Circuits	4
ECE 340 Thermodynamics.....	3
ECE 350 Structure and Properties of Materials	3
Total	18

Major

BIO 188 General Biology II <i>SQ</i> ⁴	4
or MBB 245 Cellular and Molecular Biology <i>SQ</i> ⁵ (3) and MBB 246 Cellular and Molecular Biology Laboratory <i>SQ</i> ⁵ (1)	
BME 101 Introduction to Bioengineering	3
BME 235 Physiology for Engineers	4
BME 318 Biomaterials	3
BME 331 Biomedical Transport Phenomena	3
BME 350 Signals and Systems for Bioengineers.....	3
BME 417 Biomedical Engineering Capstone Design I.....	3
BME 470 Microcomputer Applications in Bioengineering.....	4
BME 490 Biomedical Engineering Capstone Design II.....	3
CSE 100 Principles of Programming with C++ <i>CS</i> ⁶	3
ECE 380 Probability and Statistics for Engineering Problem Solving <i>CS</i>	3

Technical electives	8
Total	44

- 1 Both BME 413 and 423 must be taken to secure L credit.
- 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 To fulfill medical school admission requirements, premedical students generally should choose BIO 188. Note that BIO 187 General Biology I is required by many medical schools in addition to BIO 188 and the other degree requirements and cannot generally be used as a technical elective.
- 5 Both MBB 245 and 246 must be taken to secure SQ credit. Students who pursue this major fulfill this GS requirement through other courses.
- 6 CSE 110 Principles of Programming with Java can be substituted for CSE 100 with departmental approval.

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 course:

BME 434 Applications of Bioengineering Transport Phenomena.....	3
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Students should choose additional 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
CHE 476 Bioreaction Engineering	3
CHE 477 Bioreaction Processes.....	3
CHM 331 General Organic Chemistry	3
CHM 332 General Organic Chemistry	3
CHM 335 General Organic Chemistry Laboratory.....	1
CHM 336 General Organic Chemistry Laboratory.....	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,

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 92.

IRA A. FULTON SCHOOL OF ENGINEERING

medical instrumentation, neural engineering, or electrophysiology should consider this area of study. Students should choose technical electives from the following:

BME 419 Biocontrol Systems	3
EEE 302 Electrical Networks II	3
EEE 425 Digital Systems and Circuits.....	4
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 two courses:

MSE 353 Introduction to Materials Processing and Synthesis.....	3
MSE 355 Introduction to Materials Science and Engineering.....	3

Students should choose additional technical electives from the following:

BME 494 ST: Biopolymeric Drug Delivery.....	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 course:

BME 416 Biomechanics.....	3
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Recommended subarea selections are as follows:

Movement Biomechanics

BME 419 Biocontrol Systems	3
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KIN 334 Functional Anatomy and Kinesiology	3
KIN 414 Electromyographic Kinesiology <i>L</i>	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

ECE 313 Introduction to Deformable Solids.....	3
KIN 412 Biomechanics of the Skeletal System.....	3
MAE 404 Finite Elements in Engineering.....	3

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 should choose technical electives from the following or other departmental approved electives:

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 should choose technical electives from the following (or other departmental approved electives):

BME 411 Biomedical Engineering I	3
BME 412 Biomedical Engineering II.....	3
BME 415 Biomedical Transport Processes	3
BME 419 Biocontrol Systems	3
CHE 476 Bioreaction Engineering	3

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 are strongly encouraged to choose from the following courses:

BIO 353 Cell Biology	3
CHM 331 General Organic Chemistry	3

Students should choose additional or alternative 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 <i>L</i>	4
or MBB 343 Genetic Engineering and Society <i>L</i> (4)	
BME 494 ST: Cell Biotechnology Lab	3
BME 494 ST: Introduction to Molecular, Cellular, and Tissue Engineering.....	3
CHE 475 Biochemical Engineering.....	3
or CHE 476 Bioreaction Engineering (3)	
or CHE 477 Bioseparation Processes (3)	
CHM 335 General Organic Chemistry Laboratory.....	1

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. Technical electives must include the following:

CHM 331 General Organic Chemistry	3
CHM 332 General Organic Chemistry	3
CHM 335 General Organic Chemistry Laboratory.....	1
CHM 336 General Organic Chemistry Laboratory.....	1

Additional technical electives should be chosen from any of the course offerings listed for the other bioengineering areas of study listed. Note that, 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

CSE 100 Principles of Programming with C++ <i>CS</i> ¹	3
ECE 100 Introduction to Engineering Design <i>CS</i>	3
ENG 101 First-Year Composition.....	3
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
Total	13

Second Semester

BME 101 Introduction to Bioengineering.....	3
CHM 113 General Chemistry <i>SQ</i>	4
ENG 102 First-Year Composition.....	3
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
PHY 121 University Physics I: Mechanics <i>SQ</i> ²	3
PHY 122 University Physics Laboratory I <i>SQ</i> ²	1
Total	18

Second Year

First Semester

BIO 188 General Biology II <i>SQ</i> ³	4
or MBB 245 Cellular and Molecular Biology <i>SQ</i> ⁴ (3)	
and MBB 246 Cellular and Molecular Biology Laboratory <i>SQ</i> ⁴ (1)	
CHM 116 General Chemistry <i>SQ</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ⁵	3
PHY 132 University Physics Laboratory II <i>SQ</i> ⁵	1
Total	16

Second Semester

BME 235 Physiology for Engineers.....	4
ECE 201 Electrical Networks I.....	4

ECE 350 Structure and Properties of Materials	3
ECN 111 Macroeconomic Principles <i>SB</i>	3
or ECN 112 Microeconomic Principles <i>SB</i> (3)	
MAT 274 Elementary Differential Equations <i>MA</i>	3
Total	17

Third Year

First Semester

BME 318 Biomaterials	3
ECE 214 Engineering Mechanics.....	4
ECE 300 Intermediate Engineering Design <i>L</i>	3
ECE 384 Numerical Methods for Engineers.....	4
HU/SB and awareness area course ⁶	3
Total	17

Second Semester

BME 331 Biomedical Transport Phenomena.....	3
BME 350 Signals and Systems for Bioengineers.....	3
ECE 334 Electronic Circuits	4
ECE 340 Thermodynamics.....	3
HU/SB and awareness area course ⁶	3
Total	16

Fourth Year

First Semester

BME 413 Biomedical Instrumentation <i>L</i> ⁷	3
BME 417 Biomedical Engineering Capstone Design I.....	3
BME 423 Biomedical Instrumentation Laboratory <i>L</i> ⁷	1
ECE 380 Probability and Statistics for Engineering Problem Solving <i>CS</i>	3
HU/SB and awareness area course ⁶	3
Technical elective(s).....	3
Total	16

Second Semester

BME 470 Microcomputer Applications in Bioengineering.....	4
BME 490 Biomedical Engineering Capstone Design II.....	3
HU/SB and awareness area course ⁶	3
Technical electives	5
Total	15
Total degree requirements.....	128

¹ CSE 110 Principles of Programming with Java can be substituted for CSE 100 with departmental approval.

² Both PHY 121 and 122 must be taken to secure SQ credit.

³ To fulfill medical school admission requirements, premedical students generally should choose BIO 188. Note that BIO 187 General Biology I is required by many medical schools in addition to BIO 188 and the other degree requirements and cannot generally be used as a technical elective.

⁴ Both MBB 245 and 246 must be taken to secure SQ credit. Students who pursue this major fulfill this GS requirement through other courses.

⁵ Both PHY 131 and 132 must be taken to secure SQ credit.

⁶ Engineering students may not use aerospace studies (AES) or military science (MIS) courses to fulfill HU and SB requirements.

⁷ Both BME 413 and 423 must be taken to secure L 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 92.

IRA A. FULTON SCHOOL OF ENGINEERING

BIOENGINEERING (BME)

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).

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: ECE 100; ECN 111 (or 112); ENG 102 (or 105).

General Studies: L/HU

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.

BME 318 Biomaterials. (3)

fall and spring

Material properties of natural and artificial biomaterials. Tissue and blood biocompatibility. Uses of materials to replace body parts. Prerequisites: BIO 188; ECE 350.

BME 331 Bioengineering Transport Phenomena. (3)

fall

Transport phenomena with emphasis on momentum, energy, and mass transport in living systems, medical devices, and other therapeutic/diagnostic applications. Prerequisites: ECE 210 (or 214); MAT 274; PHY 131, 132. Pre- or corequisite: ECE 340 recommended.

BME 350 Signals and Systems for Bioengineers. (3)

spring

Applies principles of calculus and ordinary differential equations to analysis and computer processing of biosignals and linear modeling of biosystems. Prerequisites: ECE 201; MAT 272, 274.

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.

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.

BME 413 Biomedical Instrumentation. (3)

fall

Principles of medical instrumentation. Studies of medical diagnostic instruments and techniques for the measurement of physiologic variables in living systems. Prerequisites: ECE 300, 334. Prerequisite with a grade of "C" (2.00) or higher: BME 235. Corequisite: BME 423. *General Studies: L (if credit also earned in BME 423)*

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.

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: ECE 210 or 214. Prerequisite with a grade of "C" (2.00) or higher: BME 318.

BME 417 Biomedical Engineering Capstone Design I. (3)

fall

Technical, regulatory, economic, legal, social, and ethical aspects of medical device systems engineering design. Lecture, field trips. Prerequisites: BME 101; ECE 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, 413, 470; ECE 340, 380.

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. Prerequisites: ECE 201; MAT 274.

BME 423 Biomedical Instrumentation Laboratory. (1)

fall

Laboratory experience with problems, concepts, and techniques of biomedical instrumentation in static and dynamic environments. Lab. Fee. Prerequisites: ECE 300, 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)

BME 434 Applications of Bioengineering Transport Phenomena. (3)

spring

Develops mathematical models of transport phenomena in physiological systems, medical devices, and pharmacokinetic analysis. Prerequisite: ECE 380. Prerequisite with a grade of "C" (2.00) or higher: BME 331.

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.

BME 470 Microcomputer Applications in Bioengineering. (4)

spring

Uses microcomputers for real-time data collection, analysis, and control of experiments involving actual and simulated physiological systems. Lecture, lab. Fee. Prerequisite: ECE 334. Prerequisite with a grade of "C" (2.00) or higher: BME 235. BME 413 and 423 recommended.

BME 490 Biomedical Engineering Capstone Design II. (3–4)

spring

Individual projects in medical systems or medical device design and development. Lecture, lab. Fee. Prerequisite with a grade of "C" (2.00) or higher: BME 417.

BME 492 Honors Directed Study. (1–6)

selected semesters

BME 493 Honors Thesis. (1–6)

selected semesters

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)

BME 496 Professional Seminar. (1–3)

fall and spring

Professional and ethical aspects with a discussion of responsibilities. Lecture, field trips. Prerequisite: instructor approval.

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/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 Chemical and Materials Engineering

www.fulton.asu.edu/~cme

480/965-3313

ECG 202

Subhash Mahajan, Chair

Regents' Professor: Mayer

Professors: Adams, Alford, Dey, Jabbour, Krause, Lin, Mahajan, Newman, Picraux, Raupp, Sieradzki, Van Schilfgaarde, Wang

Associate Professors: Beckman, Burrows, Chawla, Rivera, Sierks

Assistant Professors: Allen, Friesen, Heys, Park

Associate Research Professors: Mitkova, Zenhausern

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.

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 92.

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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.

DEGREE REQUIREMENTS

A minimum of 128 semester hours is necessary for the BSE degree in Chemical Engineering. A minimum of 50 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 88.](#)

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

<i>Humanities and Fine Arts/Social and Behavioral Sciences</i>	
ECN 111 Macroeconomic Principles <i>SB</i>	3
or ECN 112 Microeconomic Principles <i>SB</i> (3)	
HU/SB and awareness area courses ¹	12
Total	15
<i>Literacy and Critical Inquiry</i>	
CHE 462 Process Design <i>L</i>	3
ECE 300 Intermediate Engineering Design <i>L</i>	3
Total	6
<i>Natural Sciences/Basic Sciences</i>	
CHM 113 General Chemistry <i>SQ</i>	4
CHM 116 General Chemistry <i>SQ</i>	4
CHM 331 General Organic Chemistry	3
CHM 335 General Organic Chemistry Laboratory	1
PHY 121 University Physics I: Mechanics <i>SQ</i> ²	3
PHY 122 University Physics Laboratory I <i>SQ</i> ²	1

PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ³	3
Total	19

Mathematical Studies

ECE 100 Introduction to Engineering Design <i>CS</i>	3
ECE 384 Numerical Methods for Engineers	4
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
MAT 274 Elementary Differential Equations <i>MA</i>	3
Total	22
General Studies/school requirements total	62

Engineering Core

CHE 311 Introduction to Chemical Processing	3
CHE 342 Introduction to Applied Chemical Thermodynamics	4
CHE 461 Process Control <i>CS</i>	4
ECE 350 Structure and Properties of Materials	3
ECE Core elective	3
Total	17

Major

CHE 331 Introduction to Transport Phenomena I: Fluids	3
CHE 334 Introduction to Transport Phenomena II: Heat and Mass Transfer	4
CHE 352 Transport Laboratories	2
CHE 432 Principles of Chemical Engineering Design	2
CHE 433 Modern Separations	3
CHE 442 Introduction to Chemical Reactor Design	3
CHE 451 Chemical Engineering Laboratory	2
CHM 332 General Organic Chemistry	3
ECE 380 Probability and Statistics for Engineering Problem Solving <i>CS</i>	3
Technical electives	18
Total	43

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.

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 476 Bioreaction Engineering .....3	
CHE 477 Bioseparation Processes.....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 .....3	

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	
CHE 474 Chemical Engineering Design for the Environment.....3	
CHE 478 Industrial Water Quality Engineering .....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 .....3	
CHE 458 Semiconductor Material Processing .....3	
ECE 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 336 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 474 Chemical Engineering Design for the Environment.....3	
CHE 478 Industrial Water Quality Engineering .....3	
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 .....1-4	
ECE 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	
CHM 113 General Chemistry <i>SQ</i> .....4	
ECE 100 Introduction to Engineering Design <i>CS</i> .....3	
ENG 101 First-Year Composition.....3	
MAT 270 Calculus with Analytic Geometry I <i>MA</i>.....4	
Total .....14	

Second Semester	
CHM 116 General Chemistry <i>SQ</i> .....4	
ENG 102 First-Year Composition.....3	
MAT 271 Calculus with Analytic Geometry II <i>MA</i> .....4	
PHY 121 University Physics I: Mechanics <i>SQ</i> ¹.....3	
PHY 122 University Physics Laboratory I <i>SQ</i> ¹ .....1	
Total .....15	

¹L 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 92.

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Second Year

First Semester

CHE 311 Introduction to Chemical Processing	3
ECE 380 Probability and Statistics for Engineering Problem Solving <i>CS</i>	3
ECE core elective	3
ECN 111 Macroeconomic Principles <i>SB</i> or ECN 112 Microeconomic Principles <i>SB</i> (3)	3
MAT 274 Elementary Differential Equations <i>MA</i>	3
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ²	3
Total	18

Second Semester

CHE 331 Introduction to Transport Phenomena I: Fluids	3
ECE 350 Structure and Properties of Materials	3
ECE 384 Numerical Methods for Engineers	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
HU/SB and awareness area course	3
Total	17

Third Year

First Semester

CHE 334 Introduction to Transport Phenomena II: Heat and Mass Transfer	4
CHE 342 Introduction to Applied Chemical Thermodynamics	4
CHM 331 General Organic Chemistry	3
CHM 335 General Organic Chemistry Laboratory	1
ECE 300 Intermediate Engineering Design <i>L</i>	3
Total	15

Second Semester

CHE 352 Transport Laboratories	2
CHE 433 Modern Separations	3
CHE 442 Introduction to Chemical Reactor Design	3
CHM 332 General Organic Chemistry	3
HU/SB and awareness area course	3
Technical elective	3
Total	17

Fourth Year

First Semester

CHE 432 Principles of Chemical Engineering Design	2
CHE 451 Chemical Engineering Laboratory	2
CHE 461 Process Control <i>CS</i>	4
HU/SB and awareness area course	3
Technical electives	6
Total	17

Second Semester

CHE 462 Process Design <i>L</i>	3
HU/SB and awareness area course	3
Technical electives	9
Total	15
Total degree requirements	128

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—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, light-weight 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.

DEGREE REQUIREMENTS

A minimum of 128 semester hours is necessary for the BSE degree in Materials Science and Engineering. A minimum of 50 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 88.

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

<i>Humanities and Fine Arts/Social and Behavioral Sciences</i>	
ECN 111 Macroeconomic Principles <i>SB</i>	3
or ECN 112 Microeconomic Principles <i>SB</i> (3)	
HU, <i>SB</i> , and awareness area courses	12
Total	15

<i>Literacy and Critical Inquiry</i>	
ECE 300 Intermediate Engineering Design <i>L</i>	3
MSE 482 Materials Engineering Design <i>L</i>	3
Total	6

<i>Natural Sciences/Basic Sciences</i>	
CHM 113 General Chemistry <i>SQ</i>	4
CHM 116 General Chemistry <i>SQ</i>	4
PHY 121 University Physics I: Mechanics <i>SQ</i> ¹	3
PHY 122 University Physics Laboratory I <i>SQ</i> ¹	1
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ²	3
PHY 132 University Physics Laboratory II <i>SQ</i> ²	1
Total	16

<i>Mathematical Studies</i>	
ECE 100 Introduction to Engineering Design <i>CS</i>	3
MAT 242 Elementary Linear Algebra	2
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4

MAT 274 Elementary Differential Equations <i>MA</i>	3
Total	20
General Studies/school requirements total	57

Engineering Core

ECE 201 Electrical Networks I	4
ECE 210 Engineering Mechanics I: Statics	3
ECE 313 Introduction to Deformable Solids	3
ECE 350 Structure and Properties of Materials	3
MSE 430 Thermodynamics of Materials	3
Total	16

Major

Select two of the following five courses ³	6
CHM 302 Environmental Chemistry (3)	
CHM 325 Analytical Chemistry (3)	
CHM 331 General Organic Chemistry (3)	
CHM 341 Elementary Physical Chemistry (3)	
PHY 361 Introductory Modern Physics (3)	
Technical electives	12
ECE 380 Probability and Statistics for Engineering Problem Solving <i>CS</i>	3
MSE 111 Challenges in Materials Engineering	1
MSE 353 Introduction to Materials Processing and Synthesis	3
MSE 354 Experiments in Materials Synthesis and Processing	2
MSE 355 Introduction to Materials Science and Engineering	3
MSE 420 Physical Metallurgy	3
MSE 421 Physical Metallurgy Laboratory	1
MSE 440 Mechanical Properties of Solids	3
MSE 450 X-Ray and Electron Diffraction	3
MSE 470 Polymers and Composites	3
MSE 471 Introduction to Ceramics	3
MSE 490 Capstone Design Project	3
Total	49

- 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 To take CHM 341 Elementary Physical Chemistry, CHM 331 Organic Chemistry must be taken as the prerequisite.

Materials Science and Engineering Areas of Study

Technical electives may be selected from one or more of the following areas. A student may, with prior approval of the department, select a general area or a set of courses 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	3
BME 411 Biomedical Engineering I	3
BME 412 Biomedical Engineering II	3
BME 413 Biomedical Instrumentation <i>L</i> *	3
BME 416 Biomechanics	3

* Both BME 413 and 423 must be taken to secure L 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 92.

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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 331 General Organic Chemistry	3
CHM 332 General Organic Chemistry	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 441 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.....	3
IEE 369 Work Analysis and Design.....	3
IEE 431 Engineering Administration	3
IEE 437 Human Factors Engineering	3
IEE 461 Production Control.....	3
IEE 463 Computer-Aided Manufacturing Control <i>CS</i>	3
MAE 422 Mechanics of Materials.....	4
MAE 441 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 415 Vibration Analysis.....	4
MAE 422 Mechanics of Materials.....	4
MAE 441 Principles of Design.....	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 process-

ing 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 331 General Organic Chemistry	3
CHM 332 General Organic Chemistry	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 113 General Chemistry <i>SQ</i>	4
ECE 100 Introduction to Engineering Design <i>CS</i>	3
ENG 101 First-Year Composition.....	3
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
MSE 111 Challenges in Materials Engineering	1
Total	15

Second Semester

CHM 116 General Chemistry <i>SQ</i>	4
ENG 102 First-Year Composition.....	3
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
PHY 121 University Physics I: Mechanics <i>SQ</i> ¹	3
PHY 122 University Physics Laboratory I <i>SQ</i> ¹	1
Total	15

Second Year

First Semester

ECE 210 Engineering Mechanics I: Statics.....	3
ECE 350 Structure and Properties of Materials	3
MAT 242 Elementary Linear Algebra.....	2
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ²	3
PHY 132 University Physics Laboratory II <i>SQ</i> ²	1
Total	16

Second Semester

ECE 201 Electrical Networks I	4
ECE 313 Introduction to Deformable Solids.....	3
ECE 380 Probability and Statistics for Engineering Problem Solving <i>CS</i>	3
MAT 274 Elementary Differential Equations <i>MA</i>	3
Technical elective.....	3
Total	16

Third Year

First Semester

ECE 300 Intermediate Engineering Design <i>L</i>	3
ECN 111 Macroeconomic Principles <i>SB</i>	3
MSE 353 Introduction to Materials Processing and Synthesis	3
MSE 355 Introduction to Materials Science and Engineering.....	3

DEPARTMENT OF CHEMICAL AND MATERIALS ENGINEERING

Advanced science course ³	3
Total	15

Second Semester

MSE 354 Experiments in Materials Synthesis and Processing.....	2
MSE 420 Physical Metallurgy	3
MSE 421 Physical Metallurgy Laboratory	1
MSE 430 Thermodynamics of Materials	3
MSE 450 X-Ray and Electron Diffraction	3
HU/SB and awareness area courses ⁴	3
Advanced science course ³	3
Total	18

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 <i>L</i>	3
Technical electives	3
HU/SB and awareness area course ⁴	3
Total	18

Second Semester

MSE 490 Capstone Design Project.....	3
HU/SB and awareness area course ⁴	6
Technical elective.....	6
Total	15
Total degree requirements	128

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 To take CHM 341 Elementary Physical Chemistry, CHM 331 General Organic Chemistry must be taken as the prerequisite.

⁴ Engineering students may not use aerospace studies (AES) or military science (MIS) courses to fulfill HU and SB requirements.

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)

CHE 311 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.

CHE 331 Introduction to Transport Phenomena I: Fluids. (3)

spring

Transport phenomena, with emphasis on fluid systems. Credit is allowed for only CHE 331 or 501. Prerequisites: CHE 311; MAT 274.

CHE 334 Introduction to Transport Phenomena II: Heat and Mass Transfer. (4)

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 331.

CHE 342 Introduction to Applied Chemical Thermodynamics. (4)

fall

Applies conservation and accounting principles with nonideal property estimation techniques. Lecture, recitation. Credit is allowed for only CHE 342 or 504. Prerequisite: CHE 311; ECE 350. Corequisite: MAT 272.

CHE 352 Transport Laboratories. (2)

spring

Demonstrates transport phenomena principles with experiments in fluid flow, heat, and mass transfer. Fee. Prerequisites: CHE 334; ECE 300.

CHE 432 Principles of Chemical Engineering Design. (2)

fall

Multicomponent distillation, engineering economics, equipment sizing and costs, plant operation economics, and simulation and optimization techniques. Prerequisites: CHE 334, 342.

CHE 433 Modern Separations. (3)

spring

Design of modern separation equipment in chemical engineering other than fractionation. Prerequisites: CHE 334, 342.

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.

CHE 451 Chemical Engineering Laboratory. (2)

fall

Operation, control, and design of experimental and industrial process equipment; independent research projects. 6 hours lab. Fee. Prerequisites: CHE 334, 352; ECE 384.

CHE 458 Semiconductor Material Processing. (3)

selected semesters

Introduces the processing and characterization of electronic materials for semiconductor applications. Prerequisites: CHE 334, 342.

CHE 461 Process Control. (4)

fall

Process dynamics, instrumentation, and feedback applied to automatic process control. Lecture, lab. Fee. Prerequisites: ECE 384; MAT 274.

General Studies: CS

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

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.

CHE 475 Biochemical Engineering. (3)

selected semesters

Applies chemical engineering methods, mass transfer, thermodynamics, and transport phenomena to industrial biotechnology. Prerequisite: instructor approval.

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.

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.

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 92.

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CHE 478 Industrial Water Quality Engineering. (3)

fall

Chemical treatment processing, quality criteria and control, system design, and water pollutants. Prerequisites: CHE 331; senior standing.

CHE 490 Chemical Engineering Projects. (1–5)

fall, spring, summer

Individual projects in chemical engineering operations and design. Prerequisite: instructor approval.

CHE 492 Honors Directed Study. (1–6)

selected semesters

CHE 493 Honors Thesis. (1–6)

selected semesters

CHE 494 Special Topics. (1–4)

fall and spring

Topics may include the following:

- Advanced Process Control. (3)
- Biotechnology Techniques. (3)

CHE 496 Professional Seminar. (1–3)

fall and spring

Professional and ethical aspects with a discussion of responsibilities. Lecture, field trips. Prerequisite: instructor approval.

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)

MSE 111 Challenges in Materials Engineering. (1)

fall

Introduces current issues and concepts of materials engineering, relationship between materials properties, application to engineering problems.

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 ECE 350 and PHY 131 (or their equivalents).

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).

MSE 355 Introduction to Materials Science and Engineering. (3)

fall

Elements of the structure of metals and alloys, measurement of mechanical properties, and optical metallography. Lecture, lab, field trips. Fee. Prerequisite: CHM 114 or 116.

MSE 394 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Computer and Experimental Methods in Materials. (3)
- Computer Modeling
Fee.

MSE 420 Physical Metallurgy. (3)

spring

Crystal structure and defects. Phase diagrams, metallography, solidification and casting, deformation, and annealing. Prerequisite: ECE 350.

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.

MSE 430 Thermodynamics of Materials. (3)

spring

Principles of statistical mechanics, statistical thermodynamics of single crystals, solutions, phase equilibrium, free energy of reactions,

free electron theory, and thermodynamics of defects. Prerequisite: ECE 350.

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: ECE 350.

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. Prerequisite: ECE 350.

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. Prerequisite: ECE 350.

MSE 450 X-Ray and Electron Diffraction. (3)

spring

Fundamentals of x-ray diffraction, transmission electron microscopy, and scanning electron microscopy. Techniques for studying surfaces, internal microstructures, and fluorescence. Lecture, demonstrations. Fee. Prerequisite: ECE 350.

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: ECE 313, 350.

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: ECE 350.

MSE 482 Materials Engineering Design. (3)

fall

Principles of the design process. Feasibility and optimization. Manufacturing processes, materials selection, failure analysis, and economics. Prerequisites: ECE 300; ENG 101 (or 105 or 107); MSE 354, 355.

General Studies: L

MSE 490 Capstone Design Project. (1–3)

fall and spring

For small groups in fundamental or applied aspects of engineering materials; emphasizes experimental problems and design. Fee. Prerequisites: MSE 430, 440, 450.

MSE 492 Honors Directed Study. (1–6)

selected semesters

MSE 493 Honors Thesis. (1–6)

selected semesters

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)
- Growth and Processing of Semiconductors Laboratory. (1)
- Nanomaterials: Synthesis and Evaluation. (3)
- Scanning Probe Microscopy. (3)
- Vacuum Systems Science and Engineering. (3)

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/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 Civil and Environmental Engineering

www.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, Witczak

Associate Professors: Abbaszadegan, Fafitis, Kavazanjian, Muccino, Westerhoff

Assistant Professors: Allen, Kaloush, Peccia

Associate Research Professor: Chen

Assistant Research Professor: El-Basyouny

Faculty Research Associates: Alum, Kabiri-Badr, Zapata

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; and water reuse.

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.

The undergraduate program provides an excellent background for entry to graduate study in engineering.

UNDERGRADUATE OPPORTUNITIES IN CIVIL AND ENVIRONMENTAL ENGINEERING

Students majoring in Civil Engineering have three choices:

1. the major without a 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 92.

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- the major with a concentration in construction engineering; and
- 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 128 semester hours of course work. A minimum of 50 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/school requirements.....	55
Engineering core.....	18–19
Civil Engineering major.....	27
Design courses.....	6
Technical courses.....	15–16
Minimum requirement.....	128

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

<i>Humanities and Fine Arts/Social and Behavioral Sciences</i>	
ECN 111 Macroeconomic Principles SB.....	3
or ECN 112 Microeconomic Principles SB (3)	
HU course(s).....	6–9
SB courses.....	3–6
Minimum total.....	15
<i>Literacy and Critical Inquiry</i>	
ECE 300 Intermediate Engineering Design L.....	3
CEE 486 Integrated Civil Engineering Design L.....	3
Total.....	6
<i>Natural Sciences/Basic Sciences</i>	
CHM 114 General Chemistry for Engineers SQ.....	4
or CHM 116 General Chemistry 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
Basic science elective.....	3
Total.....	15
<i>Mathematical Studies</i>	
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 274 Elementary Differential Equations MA.....	3
ECE 384 Numerical Methods for Engineers.....	4
Total.....	19
General Studies/school requirements total.....	55

Engineering Core

ECE 100 Introduction to Engineering Design CS.....	3
ECE 201 Electrical Networks I.....	4
or ECE 340 Thermodynamics (3)	
ECE 210 Engineering Mechanics I: Statics.....	3
ECE 212 Engineering Mechanics II: Dynamics.....	3
ECE 313 Introduction to Deformable Solids.....	3
ECE 351 Civil Engineering Materials.....	3
Total.....	18–19

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.

Civil Engineering Major

CEE 296 Civil Engineering Systems.....	4
CEE 321 Structural Analysis and Design.....	4
CEE 341 Fluid Mechanics for Civil Engineers.....	4
CEE 351 Geotechnical Engineering.....	4
CEE 361 Introduction to Environmental Engineering.....	4
CEE 372 Transportation Engineering.....	4
ECE 380 Probability and Statistics for Engineering Problem Solving CS.....	3
Total.....	27

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 466 Sanitary Systems Design.....	3

Technical Courses for the Degree Without a Concentration

Fifteen to 16 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 four 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 362 Unit Operations in Environmental Engineering.....	3
CEE 466 Sanitary Systems Design.....	3
CEE 467 Environmental Microbiology.....	4
CHM 231 Elementary Organic Chemistry <i>SQ*</i>	3

* Both CHM 231 and 235 must be taken to secure SQ credit. Students who pursue this major fulfill this GS requirement through other courses.

Geotechnical/Geoenvironmental Engineering

CEE 452 Foundations.....	3
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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 381 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 381 Surveying.....	3
CEE 421 Concrete Structures.....	3
CEE 481 Civil Engineering Project Management.....	3
CEE 483 Highway Materials, Construction, and Quality.....	3
CON 496 Construction Contract Administration <i>L</i>	3
Total.....	15

Design Courses for the Degree with the Environmental Engineering Concentration

CEE 441 Water Resources Engineering.....	3
CEE 466 Sanitary Systems 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 362 Unit Operations in Environmental Engineering.....	3
CEE 440 Engineering Hydrology.....	3
CEE 467 Environmental Microbiology.....	4
Technical elective*.....	3
Total.....	16

* This course is selected from the list of technical courses for the degree without a concentration.

**Civil Engineering Program of Study
A Four-Year Sequence**

First Year

First Semester

CHM 114 General Chemistry for Engineers <i>SQ</i>	4
or CHM 116 General Chemistry <i>SQ</i> (4)	
ECE 100 Introduction to Engineering Design <i>CS</i>	3
ENG 101 First-Year Composition.....	3
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
Total.....	14

Second Semester

CEE 296 Civil Engineering Systems.....	4
ECN 111 Macroeconomic Principles <i>SB</i>	3
or ECN 112 Macroeconomic Principles <i>SB</i> (3)	
ENG 102 First-Year Composition.....	3
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
PHY 121 University Physics I: Mechanics <i>SQ</i> ¹	3
PHY 122 University Physics Laboratory I <i>SQ</i> ¹	1
Total.....	18

Second Year

First Semester

ECE 210 Engineering Mechanics I: Statics.....	3
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
MAT 274 Elementary Differential Equations <i>MA</i>	3
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ²	3
PHY 132 University Physics Laboratory II <i>SQ</i> ²	1
HU/SB and awareness area course ³	3
Total.....	17

Second Semester

ECE 201 Electrical Networks I.....	4
or ECE 340 Thermodynamics (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 92.

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ECE 212 Engineering Mechanics II: Dynamics.....	3
ECE 313 Introduction to Deformable Solids.....	3
ECE 380 Probability and Statistics for Engineering Problem Solving <i>CS</i>	3
Basic science elective.....	3
Total	15-16

Third Year

First Semester

CEE 321 Structural Analysis and Design.....	4
CEE 372 Transportation Engineering.....	4
ECE 300 Intermediate Engineering Design <i>L</i>	3
ECE 351 Civil Engineering Materials.....	3
ECE 384 Numerical Methods for Engineers.....	4
Total	18

Second Semester

CEE 341 Fluid Mechanics for Civil Engineers.....	4
CEE 351 Geotechnical Engineering.....	4
CEE 361 Introduction to Environmental Engineering.....	4
HU/SB and awareness area course ³	3
Total	15

Fourth Year

First Semester

Design elective.....	3
HU/SB and awareness area course ³	3
Technical electives	9
Total	15

Second Semester

CEE 486 Integrated Civil Engineering Design <i>L</i>	3
Design elective.....	3
HU/SB and awareness area course ³	3
Technical electives	6-7
Total	15-16
Minimum total	128

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 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.

Construction Engineering Concentration Program of Study A Four-Year Sequence

First Year

First Semester

CHM 114 General Chemistry for Engineers <i>SQ</i>	4
or CHM 116 General Chemistry <i>SQ</i> (4)	
ECE 100 Introduction to Engineering Design <i>CS</i>	3
ENG 101 First-Year Composition.....	3
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
Total	14

Second Semester

CEE 296 Civil Engineering Systems.....	4
ECN 111 Macroeconomic Principles <i>SB</i>	3
or ECN 112 Macroeconomic Principles <i>SB</i> (3)	
ENG 102 First-Year Composition.....	3
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4

PHY 121 University Physics I: Mechanics <i>SQ</i> ¹	3
PHY 122 University Physics Laboratory I <i>SQ</i> ¹	1
Total	18

Second Year

First Semester

ECE 210 Engineering Mechanics I: Statics.....	3
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
MAT 274 Elementary Differential Equations <i>MA</i>	3
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ²	3
PHY 132 University Physics Laboratory II <i>SQ</i> ²	1
HU/SB and awareness area course ³	3
Total	17

Second Semester

ECE 201 Electrical Networks I.....	4
ECE 212 Engineering Mechanics II: Dynamics.....	3
ECE 313 Introduction to Deformable Solids.....	3
ECE 380 Probability and Statistics for Engineering Problem Solving <i>CS</i>	3
Basic science elective.....	3
Total	16

Third Year

First Semester

CEE 321 Structural Analysis and Design.....	4
CEE 372 Transportation Engineering.....	4
ECE 300 Intermediate Engineering Design <i>L</i>	3
ECE 351 Civil Engineering Materials.....	3
ECE 384 Numerical Methods for Engineers.....	4
Total	18

Second Semester

CEE 341 Fluid Mechanics for Civil Engineers.....	4
CEE 351 Geotechnical Engineering.....	4
CEE 361 Introduction to Environmental Engineering.....	4
HU/SB and awareness area course ³	3
Total	15

Fourth Year

First Semester

CEE 381 Surveying.....	3
CEE 420 Steel Structures.....	3
CEE 452 Foundations.....	3
CEE 481 Civil Engineering Project Management.....	3
HU/SB and awareness area course ³	3
Total	15

Second Semester

CEE 421 Concrete Structures.....	3
CEE 483 Highway Materials, Construction, and Quality	3
CEE 486 Integrated Civil Engineering Design <i>L</i>	3
CON 496 Construction Contract Administration <i>L</i>	3
HU/SB and awareness area course ³	3
Total	15
Graduation requirement total	128

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 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
A Four-Year Sequence**

First Year

First Semester

CHM 114 General Chemistry for Engineers <i>SQ</i>	4
or CHM 116 General Chemistry <i>SQ</i> (4).....	
ECE 100 Introduction to Engineering Design <i>CS</i>	3
ENG 101 First-Year Composition.....	3
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
Total	14

Second Semester

CEE 296 Civil Engineering Systems.....	4
ECN 111 Macroeconomic Principles <i>SB</i>	3
or ECN 112 Microeconomic Principles <i>SB</i> (3).....	
ENG 102 First-Year Composition.....	3
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
PHY 121 University Physics I: Mechanics <i>SQ</i> ¹	3
PHY 122 University Physics Laboratory I <i>SQ</i> ¹	1
Total	18

Second Year

First Semester

ECE 210 Engineering Mechanics I: Statics.....	3
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
MAT 274 Elementary Differential Equations <i>MA</i>	3
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ²	3
PHY 132 University Physics Laboratory II <i>SQ</i> ²	1
HU/SB and awareness area course ³	3
Total	17

Second Semester

CHM 231 Elementary Organic Chemistry <i>SQ</i> ⁴	3
ECE 212 Engineering Mechanics II: Dynamics.....	3
ECE 313 Introduction to Deformable Solids.....	3
ECE 340 Thermodynamics.....	3
ECE 380 Probability and Statistics for Engineering Problem Solving <i>CS</i>	3
Total	15

Third Year

First Semester

CEE 321 Structural Analysis and Design.....	4
CEE 372 Transportation Engineering.....	4
ECE 300 Intermediate Engineering Design <i>L</i>	3
ECE 351 Civil Engineering Materials.....	3
ECE 384 Numerical Methods for Engineers.....	4
Total	18

Second Semester

CEE 341 Fluid Mechanics for Civil Engineers.....	4
CEE 351 Geotechnical Engineering.....	4
CEE 361 Introduction to Environmental Engineering.....	4
HU/SB and awareness area course ³	3
Total	15

Fourth Year

First Semester

CEE 362 Unit Operations in Environmental Engineering.....	3
CEE 440 Engineering Hydrology.....	3
CEE 466 Sanitary Systems Design.....	3
CEE 467 Environmental Microbiology.....	4
HU/SB and awareness area course ³	3
Total	16

Second 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 441 Water Resources Engineering.....	3
CEE 486 Integrated Civil Engineering Design <i>L</i>	3
HU/SB and awareness area course ³	3
Technical elective ⁵	3
Total	15
Graduation requirement total.....	128

- 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 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.
- 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 This course is selected from the list of technical courses for the degree without a concentration.

GRADUATION REQUIREMENTS

Each sequence of mathematics, engineering core, civil engineering major, and the combined design and technical courses must be completed with an average grade of “C” (2.00) or higher. CEE courses, except CEE 296, may not be taken before the engineering core courses are completed. Design and technical courses may not be taken before the civil engineering major courses are completed. CEE 486 is taken in the last semester of course work.

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 college.

In addition to fulfilling school and major requirements, students must satisfy all university graduation requirements. See “[University Graduation Requirements](#),” page 88.

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—BSD¹ Lower-Division Requirements](#),” page 141.

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

^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 92.

IRA A. FULTON SCHOOL OF ENGINEERING

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)

CEE 296 Civil Engineering Systems. (4)

fall and spring

Introduces civil engineering. Problem solving, economics, description of civil engineering systems, design concepts, ethics, professional responsibilities, and computer graphics. Lecture, computer labs, field trips. Fee. Pre- or corequisite: ECE 100.

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. Prerequisites: ECE 212, 313. Pre- or corequisites: ECE 380, 384.

CEE 340 Hydraulics and Hydrology. (3)

fall and spring

Applies hydraulic engineering principles to flow of liquids in pipe systems and open channels; hydrostatics; characteristics of pumps and turbines. Introduces hydrology. Not open to engineering students. Lecture, lab. Fee. Prerequisite: CON 221.

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. 3 hours lecture, 1 hour lab. Fee. Prerequisites: ECE 212, 313. Pre- or corequisites: ECE 380, 384.

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. Lecture, lab. Fee. Prerequisites: ECE 212, 313. Pre- or corequisites: ECE 380, 384.

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 treatment systems designs. Lecture, lab. Fee. Prerequisites: ECE 212, 313. Pre- or corequisites: ECE 380, 384.

CEE 362 Unit Operations in Environmental Engineering. (3)

spring

Design and operation of unit processes for water and wastewater treatment. Prerequisite: CEE 361.

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. Prerequisites: ECE 212, 313. Pre- or corequisites: ECE 380, 384.

CEE 381 Surveying. (3)

fall, spring, summer

Theory and field work in construction and land surveys. Lecture, lab. Cross-listed as CON 341. Credit is allowed for only CEE 381 or CON 341. Fee. Prerequisite: MAT 270.

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; ECE 351.

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.

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.

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.

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.

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.

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.

CEE 452 Foundations. (3)

fall

Applies soil mechanics to foundation systems, bearing capacity, lateral earth pressure, and slope stability. Prerequisite: CEE 351.

CEE 466 Sanitary Systems Design. (3)

fall

Capacity, planning and design of water supply, domestic and storm drainage, and solid waste systems. Prerequisite: CEE 361.

CEE 467 Environmental Microbiology. (4)

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. Lecture, lab. Fee. Prerequisite: CEE 361 or MIC 220.

CEE 474 Transportation Systems Engineering. (3)

fall

Introduces transportation systems and modeling, traffic characteristic analysis, traffic predictions, highway capacity, signal timing, transportation systems management, and transit. Prerequisites: CEE 372; ECE 384.

CEE 475 Highway Geometric Design. (3)

spring

Design of the visible elements of the roadway. Fundamental design controls with application to rural roads, at-grade intersections, freeways, and interchanges. Lecture, computer lab. Fee. Credit is allowed for only CEE 475 or 576. Prerequisite: CEE 372.

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.

CEE 483 Highway Materials, Construction, and Quality. (3)

fall

Properties of highway materials, including aggregates, asphalt concrete, and portland cement concrete; construction practice; material delivery, placement, and compaction; quality control. Lecture, field trips. Credit is allowed for only CEE 483 or 583. Prerequisites: CEE 351, 372; ECE 351.

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

CEE 492 Honors Directed Study. (1–6)

selected semesters

CEE 493 Honors Thesis. (1–6)

selected semesters

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/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 Computer Science and Engineering

cse.asu.edu
480/965-3190
BYENG

Sethuraman Panchanathan, Chair

Professors: Baral, Colbourn, Collofello, Farin, Kambhampati, Lee, Lewis, Nielson, Panchanathan, Tsai, J. Urban, S. Urban, Vrudhula, Yau

Associate Professors: Bazzi, Candan, Dasgupta, Dietrich, Faltz, Gupta, Huey, Liu, Miller, Richa, Sen, Xue

Assistant Professors: Cam, Chatha, Davulcu, Kim, Konjevod, Li, Ryu, Sarjoughian, Sundaram, Syrotiuk, Wonka

Senior Lecturer: DeLiberio

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. Computer science and computer engineering deal with the study, design, development, construction, and application of modern computing machinery. 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.

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. 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. The department strives to maintain a modern learning environment that fosters excellence, cooperation, and scholarship for faculty, students, and staff.

ADMISSION REQUIREMENTS

The 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. The student follows the first- and second-year sequence of courses listed in the curriculum outline for his or her particular major. Included in the first- and second-year schedules are all emphasis courses:

CSE 120	Digital Design Fundamentals.....	3
CSE 200	Concepts of Computer Science CS	3
CSE 210	Object-Oriented Design and Data Structures CS	3
CSE 225	Assembly Language Programming and Microprocessors (Motorola)	4
	or CSE 226 Assembly Language Programming and Microprocessors (Intel) (4)	
CSE 240	Introduction to Programming Languages	3
	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)	
MAT 243	Discrete Mathematical Structures	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

¹L 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 92.

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PHY 131 University Physics II: Electricity and Magnetism *SQ*²...3
 PHY 132 University Physics Laboratory II *SQ*².....1

- 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 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 emphasis courses. All students seeking professional status must have completed or be in the process of completing all the emphasis 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 at cse.asu.edu.

DEGREE REQUIREMENTS

A minimum of 128 semester hours is required for the BS degree in Computer Science and the BSE degree in Computer Systems Engineering. A minimum of 50 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 88.

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 department, call 480/965-3190, 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 concen-

trate 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)	
Total	6

General Studies/Department Requirements

<i>Humanities and Fine Arts/Social and Behavioral Sciences</i>	
HU/SB electives	18
<i>Literacy and Critical Inquiry</i>	
L elective.....	3
ECE 400 Engineering Communications.....	3
or approved CSE L course (3)	
Total	6
<i>Natural Sciences/Basic Sciences</i>	
PHY 121 University Physics I: Mechanics <i>SQ</i> ¹	3
PHY 122 University Physics Laboratory I <i>SQ</i> ¹	1
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ²	3
PHY 132 University Physics Laboratory II <i>SQ</i> ²	1
Science elective ³	4
Total	12
<i>Mathematical Studies</i>	
ECE 380 Probability and Statistics for Engineering Problem Solving <i>CS</i>	3
MAT 243 Discrete Mathematical Structures	3
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
MAT 342 Linear Algebra	3
or MAT 343 Applied Linear Algebra (3)	
Total	21
General Studies/department requirement total.....	57

Computer Science Core

CSE 120 Digital Design Fundamentals.....	3
CSE 200 Concepts of Computer Science <i>CS</i>	3
CSE 210 Object-Oriented Design and Data Structures <i>CS</i>	3
CSE 225 Assembly Language Programming and Microprocessors (Motorola)	4
or CSE 226 Assembly Language Programming and Microprocessors (Intel) (4)	
CSE 240 Introduction to Programming Languages	3
CSE 310 Data Structures and Algorithms	3
CSE 330 Computer Organization and Architecture	3
CSE 340 Principles of Programming Languages.....	3
CSE 355 Introduction to Theoretical Computer Science	3
CSE 360 Introduction to Software Engineering.....	3

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CSE 430 Operating Systems3
 Total computer science core.....34
 400-level CSE computer science breadth requirement⁴18
 Technical electives⁵6
 Unrestricted electives7
 Total31
 Total degree requirements128

- 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 Each student must complete a four-credit laboratory science course that meets major requirements in the discipline of the course selected and satisfies the SQ portion of the General Studies requirement. See an advisor for the approved listing.
- ⁴ 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.
- ⁵ 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 200 Concepts of Computer Science *CS*3
 ENG 101 First-Year Composition3
 MAT 270 Calculus with Analytic Geometry I *MA*4
 HU/SB and awareness area course¹3
 Unrestricted elective3
 Total16

Second Semester
 CSE 120 Digital Design Fundamentals3
 CSE 210 Object-Oriented Design and Data Structures *CS*3
 ENG 102 First-Year Composition3
 MAT 271 Calculus with Analytic Geometry II *MA*4
 Unrestricted elective3
 Total16

Second Year

First Semester
 CSE 240 Introduction to Programming Languages3
 MAT 243 Discrete Mathematical Structures3
 MAT 272 Calculus with Analytic Geometry III *MA*4
 PHY 121 University Physics I: Mechanics *SQ*²3
 PHY 122 University Physics Laboratory I *SQ*²1
 HU/SB and awareness area course¹3
 Total17

Second Semester
 CSE 225 Assembly Language Programming and Microprocessors (Motorola)4
 or CSE 226 Assembly Language Programming and Microprocessors (Intel) (4)
 MAT 342 Linear Algebra3
 or MAT 343 Applied Linear Algebra (3)
 PHY 131 University Physics II: Electricity and Magnetism *SQ*³3

PHY 132 University Physics Laboratory II *SQ*³1
 HU/SB and awareness area course¹3
 L elective3
 Total17

Third Year

First Semester
 CSE 310 Data Structures and Algorithms3
 CSE 330 Computer Organization and Architecture3
 CSE 360 Introduction to Software Engineering3
 HU/SB and awareness area course¹3
 Laboratory Science *SQ*⁴4
 Total16

Second Semester
 CSE 340 Principles of Programming Languages3
 CSE 355 Introduction to Theoretical Computer Science3
 ECE 380 Probability and Statistics for Engineering Problem Solving *CS*3
 HU/SB and awareness area course¹3
 Technical elective3
 Total15

Fourth Year

First Semester
 CSE 430 Operating Systems3
 ECE 400 Engineering Communications3
 or approved CSE L course (3)
 400-level CSE computer science breadth electives9
 Unrestricted elective1
 Total16

Second Semester
 400-level CSE computer science breadth electives9
 HU/SB and awareness area course¹3
 Technical elective3
 Total15

- 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.
- ⁴ Each student must complete a four-credit laboratory science course that meets major requirements in the discipline of the course selected and satisfies the SQ portion of the General Studies requirement. See an advisor for the approved listing.

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 Embedded Systems and Internetworking Consortium. Students who participate in this internship program receive academic credit (CSE 484) that applies to the technical elective

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 92.

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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)	
Total	6

General Studies/Department Requirements

Humanities and Fine Arts/Social and Behavioral Sciences

ECN 111 Macroeconomic Principles <i>SB</i>	3
or ECN 112 Macroeconomic Principles <i>SB</i> (3)	
HU and SB electives	12
Total	15

Literacy and Critical Inquiry

CSE 423 Capstone Project <i>L</i>	3
ECE 300 Intermediate Engineering Design <i>L</i>	3
Total	6

Natural Sciences/Basic Sciences

CHM 114 General Chemistry for Engineers <i>SQ</i>	4
or CHM 116 General Chemistry <i>SQ</i> (4)	
PHY 121 University Physics I: Mechanics <i>SQ</i> ¹	3
PHY 122 University Physics Laboratory I <i>SQ</i> ¹	1
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ²	3
PHY 132 University Physics Laboratory II <i>SQ</i> ²	1
PHY 361 Introductory Modern Physics	3
Total	15

Mathematical Studies

MAT 243 Discrete Mathematical Structures	3
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
MAT 274 Elementary Differential Equations <i>MA</i>	3
or MAT 275 Modern Differential Equations <i>MA</i> (3)	
MAT 342 Linear Algebra	3
or MAT 343 Applied Linear Algebra (3)	
Total	21
General Studies/department requirement total	57

Engineering Core

CSE 200 Concepts of Computer Science <i>CS</i>	3
CSE 225 Assembly Language Programming and Microprocessors (Motorola)	4
ECE 100 Introduction to Engineering Design <i>CS</i>	3
ECE 201 Electrical Networks I	4
ECE 210 Engineering Mechanics I: Statics	3
ECE 334 Electronic Circuits	4
Total	21

Computer Science Core

CSE 120 Digital Design Fundamentals	3
CSE 210 Object-Oriented Design and Data Structures <i>CS</i>	3
CSE 240 Introduction to Programming Languages	3
CSE 310 Data Structures and Algorithms	3
CSE 330 Computer Organization and Architecture	3

CSE 340 Principles of Programming Languages	3
CSE 355 Introduction to Theoretical Computer Science	3
CSE 360 Introduction to Software Engineering	3
CSE 421 Microprocessor System Design I	4
CSE 422 Microprocessor System Design II	4
CSE 430 Operating Systems	3
ECE 380 Probability and Statistics for Engineering Problem Solving <i>CS</i>	3
Technical electives ³	6
Total	44
Degree requirement total	128

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 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 Systems Engineering Program of Study Typical Four-Year Sequence

First Year

First Semester

CSE 200 Concepts of Computer Science <i>CS</i>	3
ECE 100 Introduction to Engineering Design <i>CS</i>	3
or CSE 120 Digital Design Fundamentals (3)	
ECN 111 Macroeconomic Principles <i>SB</i>	3
or ECN 112 Macroeconomic Principles <i>SB</i> (3)	
ENG 101 First-Year Composition	3
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
Total	16

Second Semester

CHM 114 General Chemistry for Engineers <i>SQ</i>	4
CSE 120 Digital Design Fundamentals	3
or ECE 100 Introduction to Engineering Design <i>CS</i> (3)	
CSE 210 Object-Oriented Design and Data Structures <i>CS</i>	3
ENG 102 First-Year Composition	3
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
Total	17

Second Year

First Semester

CSE 225 Assembly Language Programming and Microprocessors (Motorola)	4
MAT 243 Discrete Mathematical Structures	3
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
PHY 121 University Physics I: Mechanics <i>SQ</i> ¹	3
PHY 122 University Physics Laboratory I <i>SQ</i> ¹	1
Total	15

Second Semester

CSE 240 Introduction to Programming Languages	3
ECE 210 Engineering Mechanics I: Statics	3
MAT 274 Elementary Differential Equations <i>MA</i>	3
or MAT 275 Modern Differential Equations <i>MA</i> (3)	
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ²	3
PHY 132 University Physics Laboratory II <i>SQ</i> ²	1
HU/SB and awareness area course ³	3
Total	16

Third Year

First Semester

CSE 310 Data Structures and Algorithms	3
CSE 330 Computer Organization and Architecture	3
CSE 360 Introduction to Software Engineering.....	3
ECE 300 Intermediate Engineering Design L	3
MAT 342 Linear Algebra	3
or MAT 343 Applied Linear Algebra (3)	—
Total	15

Second Semester

CSE 340 Principles of Programming Languages.....	3
CSE 355 Introduction to Theoretical Computer Science	3
CSE 421 Microprocessor System Design I.....	4
ECE 380 Probability and Statistics for Engineering Problem Solving CS	3
HU/SB and awareness area course ³	3
Total	16

Fourth Year

First Semester

CSE 422 Microprocessor System Design II.....	4
CSE 430 Operating Systems	3
ECE 201 Electrical Networks I.....	4
PHY 361 Introductory Modern Physics.....	3
HU/SB and awareness area course ³	3
Total	17

Second Semester

CSE 423 Capstone Project L	3
or CSE 438 Systems Programming L (3)	—
ECE 334 Electronic Circuits	4
HU/SB and awareness area course ³	3
Technical electives	6
Total	16

- 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 Engineering students may not use aerospace studies (AES) or military science (MIS) courses to fulfill HU and SB requirements.

COMPUTER SCIENCE AND ENGINEERING (CSE)

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

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

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.

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

CSE 181 Applied Problem Solving with Visual BASIC. (3)

fall and spring
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

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.

CSE 200 Concepts of Computer Science. (3)

fall and spring
Overview of algorithms, languages, computing systems, theory. Problem solving by programming with a high-level language (Java or other). Lecture, lab. Fee. Prerequisite: CSE 100 or 110 or 1 year of high school programming with Java or C++ or PASCAL.
General Studies: CS

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 200.
General Studies: CS

CSE 225 Assembly Language Programming and Microprocessors (Motorola). (4)

fall and spring
Assembly language programming, including input/output programming and exception/interrupt handling. Register-level computer organization, I/O interfaces, assemblers, and linkers. Motorola-based assignments. Lecture, lab. Cross-listed as EEE 225. Credit is allowed for only CSE 225 or EEE 225. Fee. Prerequisites: CSE 100 (or 110 or 200); CSE 120 or EEE 120.

CSE 226 Assembly Language Programming and Microprocessors (Intel). (4)

fall and spring
CPU/memory/peripheral device interfaces and programming. System buses, interrupts, serial and parallel I/O, DMA, coprocessors. Intel-based assignments. Lecture, lab. Cross-listed as EEE 226. Credit is allowed for only CSE 226 or EEE 226. Fee. Prerequisites: CSE 100 (or 110 or 200); CSE 120 or EEE 120.

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 210.

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. Lecture, lab. Fee. Prerequisites: CSE 210; MAT 243.

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. Prerequisite: CSE 225 (or 226) or EEE 225 (or 226).

CSE 340 Principles of Programming Languages. (3)

fall and spring
Formal syntactic and semantic descriptions, compilation and implementation issues, and theoretical foundations for several

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 92.

IRA A. FULTON SCHOOL OF ENGINEERING

programming paradigms. Prerequisites: either CSE 225 (or 226) or EEE 225 (or 226) and both CSE 240 and 310.

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.

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. Prerequisites: CSE 210, 240.

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.

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.

CSE 420 Computer Architecture I. (3)

once a year

Computer architecture. Performance versus cost tradeoffs. Instruction set design. Basic processor implementation and pipelining. Prerequisite: CSE 330.

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. Prerequisite: CSE 225 or EEE 225.

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.

CSE 423 Capstone Project. (3)

fall and spring

Development process: specification, design, implementation, evaluation, and testing with economic, social, and safety considerations. Written or oral communication skills enrichment. Fee. Prerequisite: CSE 422.

General Studies: L

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.

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 330, 340.

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. Prerequisite: CSE 430.

CSE 434 Computer Networks. (3)

fall and spring

Cryptography fundamentals; data compression; error handling; flow control; multihop routing; network protocol algorithms; network reliability, timing, security; physical layer basics. Prerequisite: CSE 330.

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

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.

CSE 445 Distributed Computing with Java and CORBA. (3)

fall and spring

Frameworks for distributed software components. Foundations of client-server computing and architectures for distributed object systems. Dynamic discovery and invocation. Lecture, projects. Fee. Prerequisite: CSE 360 or instructor approval.

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.

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.

CSE 457 Theory of Formal Languages. (3)

once a year

Theory of grammar, methods of syntactic analysis and specification, types of artificial languages, relationship between formal languages, and automata. Prerequisite: CSE 355.

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.

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.

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. Lecture, lab, oral and written communications. Fee. Prerequisite: CSE 360.

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. Lecture, lab, oral and written communications. Fee. Prerequisite: CSE 461.

CSE 463 Introduction to Human Computer Interaction. (3)

spring

Design, evaluate, and implement interactive software intended for human use. Prerequisite: CSE 310.

CSE 470 Computer Graphics. (3)

fall and spring

Display devices, data structures, transformations, interactive graphics, 3-D graphics, and hidden line problems. Fee. Prerequisites: CSE 310; MAT 342.

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.

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.

CSE 477 Introduction to Computer-Aided Geometric Design. (3)*once a year*

Introduces parametric curves and surfaces, Bezier and B-spline interpolation, and approximation techniques. Prerequisites: CSE 210, 470; MAT 342.

CSE 484 Internship. (1–12)*selected semesters***CSE 492 Honors Directed Study. (1–6)***selected semesters***CSE 493 Honors Thesis. (1–6)***selected semesters***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.

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/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 Electrical Engineering

www.fulton.asu.edu/ee

480/965-3424

ENGR 552

Stephen M. Goodnick, 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, Bakalaglu, Clark, Cochran, Diaz, Duman, El-Sharawy, Holbert, Karam, Kim, Papandreou-Suppappola, Skromme, Tylavsky

Assistant Professors: Abbaspour-Tamijani, Ayyanar, Barnaby, Cao, Joo, Qian, Reisslein, Tepedelenlioglu, Vasileska, J. Zhang

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 the necessary breadth of knowledge, the Electrical Engineering curriculum includes basic (core) engineering courses and courses in networks and electronic 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 the engineering core. Beyond the engineering core, the curriculum includes a number of required electrical engineering and technical elective courses. Approved technical elective courses provide students 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 92.

IRA A. FULTON SCHOOL OF ENGINEERING

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 four backbone courses employing engineering teams: ECE 100 Introduction to Engineering Design (freshman year), ECE 300 Intermediate Engineering Design (junior year), EEE 488 Senior Design Laboratory I, and EEE 489 Senior Design Laboratory II. The integrated experience is strengthened with required courses: EEE 120 Digital Design Fundamentals, EEE 225 Assembly Language Programming and Microprocessors (Motorola), EEE 226 Assembly Language Programming and Microprocessors (Intel), EEE 303 Signals and Systems, and EEE 360 Energy Conversion and Transport. 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.

DEGREE REQUIREMENTS

A minimum of 128 semester hours is necessary for the BSE degree in Electrical Engineering. A minimum of 50 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 following group of courses: CSE 100; ECE 201, 300, 334, 352; all courses with an EEE prefix; and all other courses used as technical electives.

In addition to fulfilling school and major requirements, students must satisfy all university graduation requirements. See “[University Graduation Requirements](#),” page 88.

COURSE REQUIREMENTS

The specific course requirements for the BSE degree in Electrical Engineering follow.

First-Year Composition¹

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)	
Total	6

General Studies/School Requirements

<i>Humanities and Fine Arts/Social and Behavioral Sciences</i>	
ECN 111 Macroeconomic Principles <i>SB</i>	3
or ECN 112 Microeconomic Principles <i>SB</i> (3)	

HU courses	6-9
SB course(s)	3-6
Minimum total	15
<i>Literacy and Critical Inquiry</i>	
ECE 300 Intermediate Engineering Design <i>L</i>	3
EEE 488 Senior Design Laboratory I <i>L</i> ²	2
EEE 489 Senior Design Laboratory II <i>L</i> ²	2
Total	7
<i>Natural Sciences/Basic Sciences</i>	
CHM 114 General Chemistry for Engineers <i>SQ</i>	4
or CHM 116 General Chemistry <i>SQ</i> (4)	
PHY 121 University Physics I: Mechanics <i>SQ</i> ^{1,3}	3
PHY 122 University Physics Laboratory I <i>SQ</i> ^{1,3}	1
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ^{1,4}	3
PHY 132 University Physics Laboratory II <i>SQ</i> ^{1,4}	1
PHY 241 University Physics III ¹	3
Total	15
<i>Mathematical Studies</i>	
ECE 100 Introduction to Engineering Design <i>CS</i>	3
MAT 270 Calculus with Analytic Geometry I <i>MA</i> ¹	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i> ¹	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i> ¹	4
MAT 274 Elementary Differential Equations <i>MA</i> ¹	3
or MAT 275 Modern Differential Equations <i>MA</i> ¹ (3)	
MAT 342 Linear Algebra ¹	3
or MAT 343 Applied Linear Algebra ¹ (3)	
MAT 362 Advanced Mathematics for Engineers and Scientists ¹	3
Total	24
General Studies/school requirements total	61

Engineering Core

ECE 201 Electrical Networks I	4
ECE 214 Engineering Mechanics	4
ECE 334 Electronic Circuits	4
ECE 352 Properties of Electronic Materials	4
EEE 225 Assembly Language Programming and Microprocessors (Motorola)	4
or EEE 226 Assembly Language Programming and Microprocessors (Intel) (4)	
Total	20

¹ A minimum grade of “C” (2.00) is required.

² Both EEE 488 and 489 must be taken to secure L 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.

Electrical Engineering Major

The following courses are required to fulfill the Electrical Engineering major:

CSE 100 Principles of Programming with C++ <i>CS</i> *	3
EEE 120 Digital Design Fundamentals	3
EEE 302 Electrical Networks II	3
EEE 303 Signals and Systems	3
EEE 340 Electromagnetic Engineering I	4
EEE 350 Random Signal Analysis	3
EEE 360 Energy Conversion and Transport	4
Total	23

* 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 18 semester hours of technical electives. With department approval, a maximum of two technical electives may be taken outside electrical engineering. Qualified students may choose from approved courses in business, engineering, mathematics, and the sciences at or above the 300-level, including graduate courses. Students must have a GPA of 3.00 or higher and approval of the dean to enroll in EEE graduate-level courses. To ensure breadth of knowledge, students *must* select courses from at least three of the following seven areas. In addition, to ensure depth, two courses must be taken in the same area.

Communications and Signal Processing

EEE 407 Digital Signal Processing4
 EEE 455 Communication Systems4
 EEE 459 Communication Networks3

Computer Engineering

CSE 330 Computer Organization and Architecture3
 CSE 420 Computer Architecture I3
 CSE 421 Microprocessor System Design I4
 CSE 422 Microprocessor System Design II4

Controls

EEE 480 Feedback Systems4
 EEE 482 Introduction to State Space Methods3

Electromagnetics

EEE 440 Electromagnetic Engineering II4
 EEE 443 Antennas for Wireless Communications3
 EEE 445 Microwaves4
 EEE 448 Fiber Optics4

Electronic Circuits

EEE 405 Filter Design3
 EEE 425 Digital Systems and Circuits4
 EEE 433 Analog Integrated Circuits4

Power Systems

EEE 460 Nuclear Concepts for the 21st Century3
 EEE 463 Electrical Power Plant3
 EEE 470 Electric Power Devices3
 EEE 471 Power System Analysis3
 EEE 473 Electrical Machinery3

Solid-State Electronics

EEE 434 Quantum Mechanics for Engineers3
 EEE 435 Microelectronics3
 EEE 436 Fundamentals of Solid-State Devices3
 EEE 437 Optoelectronics3
 EEE 439 Semiconductor Facilities and Cleanroom Practices3

**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 *SQ* (4)
 ECE 100 Introduction to Engineering Design *CS*¹3
 or EEE 120 Digital Design Fundamentals (3)
 ENG 101 First-Year Composition3
 MAT 270 Calculus with Analytic Geometry I *MA*4
 Total14

Second Semester

EEE 120 Digital Design Fundamentals¹3
 or ECE 100 Introduction to Engineering
 Design *CS* (3)
 ENG 102 First-Year Composition3
 MAT 271 Calculus with Analytic Geometry II *MA*4
 PHY 121 University Physics I: Mechanics *SQ*²3
 PHY 122 University Physics Laboratory I *SQ*²1
 Total14

Second Year

First Semester

CSE 100 Principles of Programming with C++ *CS*³3
 ECN 111 Macroeconomic Principles *SB*3
 or ECN 112 Microeconomic Principles *SB* (3)
 MAT 272 Calculus with Analytic Geometry III *MA*4
 MAT 274 Elementary Differential Equations *MA*3
 or MAT 275 Modern Differential Equations *MA* (3)
 PHY 131 University Physics II: Electricity and
 Magnetism *SQ*⁴3
 PHY 132 University Physics Laboratory II *SQ*⁴1
 Total17

Second Semester

ECE 201 Electrical Networks I4
 EEE 225 Assembly Language Programming and
 Microprocessors (Motorola)4
 or EEE 226 Assembly Language Programming and
 Microprocessors (Intel) (4)
 MAT 362 Advanced Mathematics for Engineers and
 Scientists3
 PHY 241 University Physics III3
 HU/SB and awareness area course⁵3
 Total17

Third Year

First Semester

ECE 334 Electronic Circuits4
 EEE 302 Electrical Networks II3
 EEE 340 Electromagnetic Engineering I4
 MAT 342 Linear Algebra3
 or MAT 343 Applied Linear Algebra (3)
 HU/SB and awareness area course⁵3
 Total17

Second Semester

ECE 300 Intermediate Engineering Design *L*3
 ECE 352 Properties of Electronic Materials4
 EEE 303 Signals and Systems3
 EEE 360 Energy Conversion and Transport4
 HU/SB and awareness area course⁵3
 Total17

Fourth Year

First Semester

ECE 214 Engineering Mechanics4
 EEE 350 Random Signal Analysis3
 EEE 488 Senior Design Laboratory I *L*⁶2
 Technical electives7
 Total16

Second Semester

EEE 489 Senior Design Laboratory II *L*⁶2

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 92.

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HU/SB and awareness area course ⁵	3
Technical electives	11
Total	16

- ¹ Both ECE 100 and EEE 120 are required.
² Both PHY 121 and 122 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 Both PHY 131 and 132 must be taken to secure SQ credit.
⁵ Engineering students may not use aerospace studies (AES) or military science (MIS) courses to obtain HU or SB requirements.
⁶ Both EEE 488 and 489 must be taken to secure L credit.

ELECTRICAL ENGINEERING (EEE)

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.

EEE 225 Assembly Language Programming and Microprocessors (Motorola). (4)

fall and spring

Assembly language programming, including input/output programming and exception/interrupt handling. Register-level computer organization, I/O interfaces, assemblers, and linkers. Motorola-based assignments. Lecture, lab. Cross-listed as CSE 225. Credit is allowed for only CSE 225 or EEE 225. Fee. Prerequisites: CSE 100 (or 110 or 200); CSE 120 or EEE 120.

EEE 226 Assembly Language Programming and Microprocessors (Intel). (4)

fall and spring

CPU/memory/peripheral device interfaces and programming. System buses, interrupts, serial and parallel I/O, DMA, coprocessors. Intel-based assignments. Lecture, lab. Cross-listed as CSE 226. Credit is allowed for only CSE 226 or EEE 226. Fee. Prerequisites: CSE 100 (or 110 or 200); CSE 120 or EEE 120.

EEE 302 Electrical Networks II. (3)

fall and spring

Analyzes linear and nonlinear networks. Analytical and numerical methods. Prerequisite: ECE 201. Pre- or corequisite: MAT 362.

EEE 303 Signals and Systems. (3)

fall and spring

Introduces continuous and discrete time signal and system analysis, linear systems, Fourier, and z-transforms. Prerequisite: EEE 302. Pre- or corequisite: MAT 342 or 343.

EEE 340 Electromagnetic Engineering I. (4)

fall and spring

Static and time varying vector fields; boundary value problems; dielectric and magnetic materials; Maxwell's equations; boundary conditions. Prerequisites: ECE 201; MAT 362; PHY 131, 132.

EEE 350 Random Signal Analysis. (3)

fall and spring

Probabilistic and statistical analysis as applied to electrical signals and systems. Pre- or corequisite: EEE 303.

EEE 360 Energy Conversion and Transport. (4)

fall and spring

Three-phase circuits. Energy supply systems. Magnetic circuit analysis, synchronous generators, transformers, induction and DC machines. Transmission line modeling and design. Lecture, lab. Fee. Prerequisite: EEE 302.

EEE 405 Filter Design. (3)

fall

Principles of active and passive analog filter design, frequency domain approximations, sensitivity and synthesis of filters. Prerequisite: EEE 303.

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. Lecture, lab. Fee. Prerequisites: EEE 303; MAT 342 (or 343).

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: ECE 334.

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: ECE 334.

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: ECE 352; EEE 340.

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.

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: ECE 352.

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.

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.

EEE 440 Electromagnetic Engineering II. (4)

spring

Second half of an introductory course in electromagnetic theory and its application in electrical engineering. Analytical and numerical solution of boundary value problems. Advanced transmission lines; waveguides; antennas; radiation and scattering. Lecture, lab. Fee. Prerequisite: EEE 340.

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 340.

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 340.

EEE 448 Fiber Optics. (4)

fall

Principles of fiber-optic communications. Lecture, lab. Fee. Prerequisites: EEE 303, 340.

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. Lecture, lab. Fee. Prerequisite: EEE 350.

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 350.

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. Prerequisite: PHY 241 or 361.

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: ECE 201, 340 (or PHY 241).

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.

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.

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.

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. Lecture, lab. Fee. Prerequisite: EEE 303.

EEE 482 Introduction to State Space Methods. (3)

fall

Discrete and continuous systems in state space form controllability, stability, and pole placement. Observability and observers. Pre- or corequisite: EEE 480.

EEE 488 Senior Design Laboratory I. (2)

fall and spring

Capstone senior project. Design process: research, concept, feasibility, simulation, specifications, benchmarking, and proposal generation. Technical communications and team skills enrichment. Lecture, lab. Fee. Prerequisites: ECE 300, 334; EEE 303, 340; senior standing. Pre- or corequisite: ECE 352; EEE 360.

General Studies: L (if credit also earned in EEE 489)

EEE 489 Senior Design Laboratory II. (2)

fall and spring

Capstone senior project. Implement, evaluate, and document EEE 488 design. Social, economic, and safety considerations. Technical communications and team skills enrichment. Lecture, lab. Fee. Prerequisite: EEE 488 in the immediately preceding semester.

General Studies: L (if credit also earned in EEE 488)

EEE 492 Honors Directed Study. (1–6)

selected semesters

EEE 493 Honors Thesis. (1–6)

selected semesters

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.

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/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 Industrial Engineering

www.eas.asu.edu/~ie

480/965-3185

GWC 502

Gary L. Hogg, Chair

Professors: Cochran, Fowler, Henderson, Hogg, Hubele, Montgomery, Runger, Shunk, Wolfe, Ye

Associate Professors: Anderson-Rowland, Mackulak, Moor, Villalobos

Assistant Professors: Gel, Keha, Kulahci, Wu

Senior Lecturers: Pfund, Thompson

The industrial engineer (IE) provides leadership for American organizations in establishing and maintaining competitiveness in the global marketplace through system integration and productivity improvement. No challenge can be greater than improving productivity, which is the application of knowledge and skills to provide improved goods and services to enhance the quality of life, both on and off the job. This improvement must be achieved without waste of physical and human resources while maintaining environmental balance. Industrial engineers are the “productivity people” who provide the necessary leadership and skills to integrate technology. This gives IEs a wide range of interests and responsibilities.

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 relates to the total picture of productivity looking at the “big picture” of what makes society perform best—the right combination of human resources, natural resources, synthetic structures, and equipment. An IE bridges the gap between management and operations, dealing with and motivating people as well as determining what tools should be used and how they should be used.

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 92.

IRA A. FULTON SCHOOL OF ENGINEERING

An IE deals with people as well as things. In fact, industrial engineering is often called the “people-oriented profession.” It is a primary function of the IE to integrate people and technology-oriented systems. Therefore, IEs are active in the fields of ergonomics and human factors.

To be competitive in this 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.

The IE’s skills are applicable to every kind of organization. IEs learn how to approach, think about, and solve productivity and integration problems regardless of their settings. IEs work in manufacturing facilities, banks, hospitals, government, transportation, construction, and social services. Within this wide variety of organizations, IEs get involved in projects such as designing and implementing quality control systems, independent work groups, the work flows in all forms of work systems, real-time production control systems, computer-based management information systems, and manufacturing operating systems, to name a few. A unique feature of most industrial engineering assignments is that they involve interdisciplinary teams. For example, the IE might be the leader of a team consisting of electrical and mechanical engineers, accountants, computer scientists, and planners. This IE program gives the student the skills necessary to direct these teams, including team building, brainstorming, group dynamics, and interpersonal relationships.

IEs have a sound background in technology integration, management theory and application, engineering economics, and cost analysis. IEs are well equipped to deal with organizational problems never seen before, making them prime candidates for promotion through the management career path, especially in high-tech organizations. In fact, more than half of all practicing IEs are in management positions. This area of expertise has placed the IE in the leadership role in the establishment of a new field of activity called “management of technology.”

Industrial engineers are well trained in the development and use of analytical tools, and their most distinctive skill is in the area of model building. IEs must quickly learn and understand the problems of their clients. In this context, good people skills and good analytic skills are essential. This industrial engineering program offers both.

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 focused study area electives, enabling each student to focus on a specific career objective.

By successfully completing this curriculum, the student is prepared to embark on a career in industrial engineering or to pursue an advanced education in graduate school.

The 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 Telecommunication 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.
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.

DEGREE REQUIREMENTS

A minimum of 128 semester hours is necessary for the BSE degree in Industrial Engineering. A minimum of 50 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 88. For information concerning admission, degree, course, and graduation requirements for the School of Engineering, see “[Admission](#),” page 225, and subsequent sections.

COURSE REQUIREMENTS

Students take 59 semester hours of university English proficiency and general studies course work, 19 hours of engineering core courses, 35 hours of industrial engineering courses, three hours of industrial engineering electives, and 12 hours of career-focused study area electives. Each career-focused study area has an associated list of recommended study area courses. 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 (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

<i>Humanities and Fine Arts/Social and Behavioral Sciences</i>	
ECN 112 Microeconomic Principles SB	3
or ECN 111 Macroeconomic Principles SB (3)	
HU courses	6-9
SB course(s)	3-6
Minimum total	15
<i>Literacy and Critical Inquiry</i>	
ECE 300 Intermediate Engineering Design L	3

IEE 490 Project in Design and Development <i>L</i>	3
Total	6
<i>Natural Sciences/Basic Sciences</i>	
CHM 114 General Chemistry for Engineers <i>SQ</i>	4
or CHM 116 General Chemistry <i>SQ</i> (4)	
PHY 121 University Physics I: Mechanics <i>SQ</i> ¹	3
PHY 122 University Physics Laboratory I <i>SQ</i> ¹	1
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ²	3
PHY 132 University Physics Laboratory II <i>SQ</i> ²	1
Basic science elective	3
Total	15
<i>Mathematical Studies</i>	
MAT 242 Elementary Linear Algebra	2
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
MAT 274 Elementary Differential Equations <i>MA</i>	3
Total	17
General Studies/school requirements total	53
Engineering Core	
ECE 100 Introduction to Engineering Design <i>CS</i>	3
ECE 201 Electrical Networks I	4
ECE 210 Engineering Mechanics I: Statics	3
ECE 212 Engineering Mechanics II: Dynamics	3
ECE 350 Structure and Properties of Materials	3
IEE 463 Computer-Aided Manufacturing and Control <i>CS</i>	3
Total	19

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.

Industrial Engineering Major

The following courses are required:

CSE 100 Principles of Programming with C++ <i>CS</i>	3
or CSE 110 Principles of Programming with Java (3)	
CSE 200 Concepts of Computer Science <i>CS</i>	3
ECE 380 Probability and Statistics for Engineering Problem Solving <i>CS</i>	3
IEE 210 Applications to Industrial Engineering	3
IEE 300 Economic Analysis for Engineers	3
IEE 360 Manufacturing Processes	3
IEE 368 Facilities Analysis and Design	3
or IEE 369 Work Analysis and Design (3)	
IEE 376 Operations Research Deterministic Techniques/Applications <i>CS</i>	3
IEE 385 Introduction to Engineering Probability Models <i>CS</i>	3
IEE 461 Production Control	3
IEE 474 Quality Control <i>CS</i>	3
IEE 475 Simulating Stochastic Systems <i>CS</i>	3
Total	36

Industrial Engineering Electives Area. Students select two 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 from one of the following five career-focused study areas:

Industrial and Management Systems

IEE 305 Information Systems Engineering <i>CS</i>	3
IEE 431 Engineering Administration	3

Any approved engineering or business elective	3
Any approved engineering elective	3

Information and Telecommunication Systems

CSE 210 Object-Oriented Design and Data Structures <i>CS</i>	3
CSE 240 Introduction to Programming Languages	3
IEE 305 Information Systems Engineering <i>CS</i>	3
IEE 494 ST: Information Systems Development Tools	3

Global Industrial Engineering Leadership

ECN 306 Survey of International Economics <i>SB, G</i>	3
IBS 300 Principles of International Business <i>G</i>	3
IBS 400 Cultural Factors in International Business <i>C, G</i>	3
Any approved international business electives	3

High-Tech Manufacturing¹

ECE 352 Properties of Electronic Materials	4
EEE 435 Microelectronics	3
EEE 436 Fundamentals of Solid-State Devices	3
MSE 355 Introduction to Materials Science and Engineering	3
MSE 441 Analysis of Materials Failures	3
MSE 470 Polymers and Composites	3

Preprofessional and Service Systems^{1, 2}

Focus area courses	12
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¹ Certain focus areas may require more than 12 semester hours due to course prerequisites.
² 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

CHM 114 General Chemistry for Engineers <i>SQ</i>	4
or CHM 116 General Chemistry <i>SQ</i> ¹	
ECE 100 Introduction to Engineering Design <i>CS</i>	3
ENG 101 First-Year Composition	3
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
Total	14

Second Semester

ECN 112 Microeconomic Principles <i>SB</i>	3
or ECN 111 Macroeconomic Principles <i>SB</i> (3)	
ENG 102 First-Year Composition	3
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
PHY 121 University Physics I: Mechanics <i>SQ</i> ²	3
PHY 122 University Physics Laboratory I <i>SQ</i> ²	1
HU/SB elective ³	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 92.

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Second Year

First Semester

CSE 100 Principles of Programming with C++ <i>CS</i>3	
or CSE 110 Principles of Programming with Java <i>CS</i> (3)	
IEE 300 Economic Analysis for Engineers .....3	
MAT 242 Elementary Linear Algebra .....2	
MAT 272 Calculus with Analytic Geometry III <i>MA</i> .....4	
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ⁴ .....3	
PHY 132 University Physics Laboratory II <i>SQ</i> ⁴ .....1	
Total .....16	

Second Semester

CSE 200 Concepts of Computer Science <i>CS</i> .....3	
ECE 350 Structure and Properties of Materials .....3	
ECE 380 Probability and Statistics for Engineering Problem Solving <i>CS</i> .....3	
IEE 210 Industrial Engineering Applications .....3	
MAT 274 Elementary Differential Equations <i>MA</i> .....3	
Basic science elective ⁵ .....3	
Total .....18	

Third Year

First Semester

ECE 201 Electrical Networks I .....4	
ECE 210 Engineering Mechanics I: Statics .....3	
IEE 360 Manufacturing Processes .....3	
IEE 385 Introduction to Engineering Probability Models <i>CS</i> .....3	
IEE 474 Quality Control <i>CS</i> .....3	
Total .....16	

Second Semester

ECE 212 Engineering Mechanics II: Dynamics .....3	
ECE 300 Intermediate Engineering Design <i>L</i> .....3	
IEE 376 Operations Research Deterministic Techniques/Applications <i>CS</i> .....3	
IEE 463 Computer-Aided Manufacturing and Control <i>CS</i> .....3	
Study area elective .....3	
Total .....15	

Fourth Year

First Semester

IEE 368 Facilities Analysis and Design .....3	
or IEE 369 Work Analysis and Design (3)	
IEE 461 Production Control .....3	
IEE 475 Simulating Stochastic Systems <i>CS</i> .....3	
HU/SB elective ³ .....3	
Study area elective .....3	
Industrial engineering elective .....2	
Total .....17	

Second Semester

IEE 490 Project in Design and Development <i>L</i> .....3	
HU/SB elective ³ .....6	

Study area electives .....6	
Total .....15	

¹ Students who have taken no high school chemistry should take CHM 113 and 116.

² Both PHY 121 and 122 must be taken to secure SQ credit.

³ Engineering students may not use aerospace studies (AES) or military science (MIS) courses to satisfy HU or SB requirements.

⁴ Both PHY 131 and 132 must be taken to secure SQ credit.

⁵ This elective must be an earth science or life science course; if physics or chemistry, the course must be of a more advanced level than CHM 114 or 116 or PHY 131.

INDUSTRIAL ENGINEERING (IEE)

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: ECE 100; sophomore standing.

IEE 294 Special Topics. (1–4)

fall and spring

Topics may include the following:

- Industrial Engineering Applications Seminar. (2)

IEE 300 Economic Analysis for Engineers. (3)

fall, spring, summer

Economic evaluation of alternatives for engineering decisions, emphasizing the time value of money. Prerequisites: ECE 100; MAT 270.

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 200.

General Studies: CS

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: ECE 350.

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.

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. Prerequisite: IEE 300.

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. Prerequisite: IEE 300.

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 200; MAT 242.

General Studies: CS

IEE 385 Introduction to Engineering Probability Models. (3)

fall, spring, summer

Elements of probability modeling with engineering applications. Topics include probability distributions, properties of distributions, Markov chains, queuing, and reliability. Prerequisite: ECE 380.

General Studies: CS

IEE 394 Special Topics. (1–4)

fall and spring

Covers topics of immediate or special interest to a faculty member and students.

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.

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.

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. Prerequisites: CSE 100 (or 110); IEE 376, 385.

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

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

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. Prerequisites: CSE 200; IEE 385.

General Studies: CS

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

IEE 492 Honors Directed Study. (1–6)

selected semesters

IEE 493 Honors Thesis. (1–6)

selected semesters

IEE 494 Special Topics. (1–4)

fall and spring

Topics may include the following:

- Information Systems Development Tools. (3)

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

www.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: Boyer, Davidson, Fernando, Peck, Roy, Shah, Sieradzki, Squires, Tseng, Van Schilfgaarde, Yao

Associate Professors: Chen, McNeill, Peralta, Phelan,

Assistant Professors: Calhoun, Friesen, Sugar

The Department of Mechanical and Aerospace Engineering is the administrative home for two undergraduate majors: Aerospace Engineering and Mechanical Engineering. Consistent with the department's mission to provide the best possible education to its students, a department goal is to attract and retain—from the metropolitan community, the state, and the country—outstanding and diverse students and to give each the opportunity to become competent in contemporary subjects that bear on an engineering career.

The Aerospace Engineering major provides students with an education in technological areas critical to the design and development of aerospace vehicles and systems. Aerospace Engineering graduates are typically employed in aerospace industries or at government laboratories (e.g., NASA). The Mechanical Engineering major is one of the most broadly applicable programs in engineering, providing education for a wide variety of employment opportunities.

The two majors can serve as entry points to immediate professional employment or to graduate study. The emphasis in all fields is on the development of fundamental knowledge that will have long-lasting utility in a rapidly changing technical society.

AEROSPACE ENGINEERING—BSE

The goal of the Aerospace Engineering program is to provide students with an education in technological areas critical to the design and development of aerospace vehicles 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 92.

IRA A. FULTON SCHOOL OF ENGINEERING

systems. The program emphasizes aeronautical engineering with topics in required courses covering aerodynamics, aerospace materials, aerospace structures, propulsion, flight mechanics, aircraft performance, and stability and control. Astronautics topics such as orbital mechanics, attitude dynamics, spacecraft control, and rocket propulsion are also covered in required courses.

The aerospace engineering curriculum is designed to accomplish four objectives:

1. *Our graduates will be technically competent engineers.* Graduates will show basic understanding of the fundamental principles of mathematics, physics, and chemistry and will use them to model and predict the behavior of aerospace engineering systems.
2. *Our graduates will have the ability to design a system appropriate to the field of aerospace engineering.* Graduates will perform conceptual and preliminary design of aircraft and/or spacecraft systems or subsystems, and will include life-cycle cost and environmental impact in the design process.
3. *Our graduates will communicate effectively.* Graduates will make effective oral and written technical presentations and will document analysis and design processes.
4. *Our graduates will have the professional attributes necessary for success in the current work environment.* Graduates will be prepared for modern engineering practice by effectively working in teams, recognizing the need for maintaining technical currency, and having an understanding of related global, ethical, environmental, and societal issues.

Design is integrated throughout the curriculum beginning with ECE 100 Introduction to Engineering Design and followed later by ECE 300 Intermediate Engineering Design, both of which focus on basic design theory as well as professional practice. These required courses are followed by topic-specific design content in aerospace engineering courses in the junior and senior years. The senior capstone design course integrates design and analysis topics from the earlier courses and completes the required design sequence. This sequence includes a minimum of one-half year of required design. In addition, many of the aerospace technical electives have design content.

Laboratory experience is provided in the areas of aerodynamics, aerospace structures, and vibrations. Laboratory facilities include three wind tunnels, a mechanical-testing laboratory, a measurements and controls laboratory, and a vibrations laboratory.

DEGREE REQUIREMENTS

A minimum of 128 semester hours of course work is necessary for the BSE degree in Aerospace Engineering, including a minimum of 50 upper-division semester hours. All students must satisfy the university First-Year Composition requirement and General Studies requirement. The Fulton School of Engineering does not permit the use of pass/fail classes 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.

GRADUATION REQUIREMENTS

A student must earn a grade of “C” (2.00) or higher in all lower-division mathematics, physics, and chemistry courses and in the engineering core. A student must attain 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 specific course requirements for the BSE degree in Aerospace Engineering are as follows:

First-Year Composition¹

Choose among the course combinations below	6
ENG 101 First-Year Composition (3)	
ENG 102 First-Year Composition (3)	
————— <i>or</i> —————	
ENG 105 Advanced First-Year Composition (3)	
Approved elective (3)	
————— <i>or</i> —————	
ENG 107 English for Foreign Students (3)	
ENG 108 English for Foreign Students (3)	
Total	6

General Studies/School Requirements²

<i>Humanities and Fine Arts/Social and Behavioral Sciences</i>	
ECN 111 Macroeconomic Principles SB	3
or ECN 112 Microeconomic Principles SB (3)	
HU courses.....	6–9
SB course(s)	3–6
Minimum total	15
<i>Literacy and Critical Inquiry</i>	
ECE 300 Intermediate Engineering Design L	3
MAE 468 Aerospace Systems Design L.....	3
Total	6

Mathematical Studies¹

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 275 Modern Differential Equations MA.....	3
MAT 343 Applied Linear Algebra.....	3
Total	18

Natural Sciences/Basic Sciences

CHM 114 General Chemistry for Engineers SQ ¹	4
or CHM 116 General Chemistry SQ ¹ (4)	
PHY 121 University Physics I: Mechanics SQ ^{1,3}	3
PHY 122 University Physics Laboratory I SQ ^{1,3}	1
PHY 131 University Physics II: Electricity and Magnetism SQ ^{1,4}	3
PHY 132 University Physics Laboratory II SQ ^{1,4}	1
PHY 361 Introductory Modern Physics.....	3
or AST 321 Introduction to Planetary and Stellar Astrophysics SQ ⁵ (3)	
Total	15

General Studies school requirements total.....	54
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Engineering Core⁶

ECE 100 Introduction to Engineering Design CS	3
ECE 201 Electrical Networks I	4
ECE 214 Engineering Mechanics.....	4
ECE 313 Introduction to Deformable Solids.....	3
ECE 340 Thermodynamics.....	3

DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING

ECE 350 Structure and Properties of Materials	3
Total	20

Aerospace Engineering Major⁷

ECE 384 Numerical Methods for Engineers	4
MAE 101 Introduction to Aerospace Engineering ⁸	2
MAE 317 Dynamic Systems and Control	3
MAE 319 Measurements and Data Analysis	3
MAE 361 Aerodynamics I	3
MAE 413 Aircraft Dynamics and Control	3
MAE 415 Vibration Analysis	4
MAE 425 Aerospace Structures	4
MAE 444 Fundamentals of Aerospace Design	3
MAE 460 Gas Dynamics	3
MAE 462 Space Vehicle Dynamics and Control	3
MAE 463 Propulsion	3
MAE 464 Aerospace Laboratory	3
Design technical elective (Select at least one)	3
MAE 426 Design of Aerospace Structures (3)	
MAE 465 Rocket Propulsion (3)	
MAE 466 Rotary Wing Aerodynamics and Performance (3)	
MAE 469 Projects in Astronautics or Aeronautics (3)	
Technical elective(s)	4
Total	48
Total for the program	128

- ¹ A minimum grade of "C" (2.00) is required.
- ² The General Studies requirement is divided into five core and three awareness areas. A student must include within his or her program at least two courses that cover the three awareness areas. It is recommended that students consult an academic advisor to ensure the completion of the Humanities and Fine Arts (HU), Social and Behavior Sciences (SB), and awareness areas (C, G, H).
- 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.
- ⁵ Both AST 113 and 321 must be taken to secure SQ credit.
- ⁶ A student must attain a minimum grade of "C" to receive prerequisite credit for engineering core courses that are prerequisite to any course in the Aerospace Engineering major.
- ⁷ A "C" (2.00) average or higher is required for all classes listed under the major plus MAE 468.
- ⁸ This course is required for incoming first-year students. Transfer students with sophomore status should not register for MAE 101 but must take an additional two semester hours of approved technical electives.

Aerospace Engineering Areas of Study

The technical elective(s) may be selected from among any of the courses on the following list. A student may, with prior approval of the advisor and department chair, select a course not listed that would support a specific career objective. Graduate-level courses are permitted provided the student has at least a 3.00 GPA and approval of the instructor, advisor, and the school dean.

IEE 300 Economic Analysis for Engineers	3
IEE 385 Introduction to Engineering Probability Models CS	3
IEE 463 Computer-Aided Manufacturing and Control CS	3
MAE 341 Mechanism Analysis and Design	3
MAE 351 Manufacturing Processes	3
MAE 372 Fluid Mechanics	3
MAE 388 Heat Transfer	3
MAE 404 Finite Elements in Engineering	3
MAE 406 CAD/CAM Applications in MAE	4
MAE 417 Control System Design	3

MAE 434 Internal Combustion Engines	3
MAE 435 Turbomachinery	3
MAE 447 Robotics and Its Influence on Design	3
MAE 455 Polymers and Composites	3
MAE 461 Aerodynamics II	3
MAE 471 Computational Fluid Dynamics	3
MAT 421 Applied Computational Methods CS	3
MAT 423 Numerical Analysis I CS	3
MAT 425 Numerical Analysis II CS	3
MSE 440 Mechanical Properties of Solids	3
MSE 441 Analysis of Material Failures	3

TYPICAL FOUR-YEAR SEQUENCE

The first two years are usually devoted to the General Studies and engineering core requirements. A typical schedule is given below.

Aerospace 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 SQ (4)	
ECE 100 Introduction to Engineering Design CS	3
ENG 101 First-Year Composition	3
MAE 101 Introduction to Aerospace Engineering	2
MAT 270 Calculus I MA	4
Total	16

Second Semester

ENG 102 First-Year Composition	3
MAT 271 Calculus with Analytic Geometry II MA	4
MAT 275 Modern Differential Equations MA	3
PHY 121 University Physics I: Mechanics SQ ¹	3
PHY 122 University Physics Laboratory I SQ ¹	1
HU/SB electives ²	3
Total	17

Second Year

First Semester

ECE 214 Engineering Mechanics	4
MAT 272 Calculus with Analytic Geometry III MA	4
MAT 343 Applied Linear Algebra	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

ECE 201 Electrical Networks I	4
ECE 313 Introduction to Deformable Solids	3
ECE 340 Thermodynamics	3
ECE 350 Structure and Properties of Materials	3
ECE 384 Numerical Methods for Engineers	4
Total	17

Third Year

First Semester

ECE 300 Intermediate Engineering Design L	3
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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 92.

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MAE 317 Dynamic Systems and Control.....	3
MAE 319 Measurements and Data Analysis	3
MAE 361 Aerodynamics I.....	3
MAE 425 Aerospace Structures	4
Total	16

Second Semester

MAE 413 Aircraft Dynamics and Control.....	3
MAE 444 Fundamentals of Aerospace Design.....	3
MAE 460 Gas Dynamics	3
PHY 361 Introductory Modern Physics.....	3
or AST 321 Introduction to Planetary and Stellar Astrophysics SQ ⁴ (3)	
HU/SB elective ²	3
Total	15

Fourth Year

First Semester

MAE 415 Vibration Analysis.....	4
MAE 462 Space Vehicle Dynamics and Control	3
MAE 463 Propulsion	3
MAE 464 Aerospace Laboratory	3
HU/SB elective ²	3
Total	16

Second Semester

MAE 468 Aerospace Systems Design L.....	3
HU/SB elective ²	6
Required design elective	3
Technical electives	4
Total	16

¹ Both PHY 121 and 122 must be taken to secure SQ credit.

² Engineering students may not use aerospace studies (AES) or military science (MIS) courses to obtain HU or SB requirements.

³ Both PHY 131 and 132 must be taken to secure SQ credit.

⁴ Both AST 113 and 321 must be taken to secure SQ credit.

MECHANICAL ENGINEERING —BSE

Mechanical engineering is a creative discipline that draws upon a number of basic sciences to design the devices, machines, processes, and systems that involve mechanical work and its conversion from and into other forms. It includes the conversion of thermal, chemical, and nuclear energy into mechanical energy through various engines and power plants; the transport of energy via devices such as heat exchangers, pipelines, gears, and linkages; and the use of energy to perform a variety of tasks for the benefit of society, such as in transportation vehicles of all types, manufacturing tools and equipment, and household appliances. Furthermore, 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 undergraduate curriculum includes the study of the principles governing the use of energy; the principles of design, instruments, and control devices; and the application of these studies to the creative solution of practical, modern problems.

The curriculum is designed to accomplish the following four objectives:

1. *Technical Competency.* Graduates are able to model and predict the behavior of engineering systems by applying the fundamental principles from mathematics, physics, and chemistry and by using modern computational and experimental tools.
2. *Product Realization Ability.* Graduates are able to design components or systems at the conceptual and embodiment design level, including the issues of production, manufacturability, and cost.
3. *Communication Skills.* Graduates can present and document effectively, using both oral and written communication, their work and ideas to a diverse audience.
4. *Professionalism.* Graduates are prepared for modern engineering practice by working in teams, keeping technologically abreast, and having an understanding of related ethical, environmental, and societal issues.

Design is integrated throughout the curriculum, beginning with ECE 100 Introduction to Engineering Design and followed later by ECE 300 Intermediate Engineering Design, both of which focus on basic design theory as well as professional practice. These required courses are followed by topic specific design content in mechanical engineering courses in the junior and senior years. The senior capstone design course combines the design topics from the earlier courses and completes the required design sequence. In addition, many of the mechanical technical electives have design content.

Laboratory experience is provided in the areas of thermofluid systems, mechanics of materials, and controls. Laboratory facilities include a thermal systems laboratory, a mechanical-testing laboratory, a measurements and controls laboratory, and a manufacturing laboratory.

DEGREE REQUIREMENTS

A minimum of 128 semester hours is necessary for the BSE degree in Mechanical Engineering, including a minimum of 50 upper-division semester hours. All students must satisfy the university First-Year Composition requirement and General Studies requirement. The Fulton School of Engineering does not permit the use of pass/fail classes 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.

GRADUATION REQUIREMENTS

A student must earn a grade of “C” (2.00) or higher in all lower-division mathematics, physics, and chemistry courses, and in the engineering core. A student must attain a

DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING

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 specific course requirements for the BSE degree in Mechanical Engineering are as follows:

First-Year Composition¹

Choose among the course combinations below	6
ENG 101 First-Year Composition (3)	
ENG 102 First-Year Composition (3)	
— <i>or</i> —	
ENG 105 Advanced First-Year Composition (3)	
Approved elective (3)	
— <i>or</i> —	
ENG 107 English for Foreign Students (3)	
ENG 108 English for Foreign Students (3)	
Total	6

General Studies/School Requirements²

<i>Humanities and Fine Arts/Social and Behavioral Sciences</i>	
ECN 111 Macroeconomic Principles <i>SB</i>	3
or ECN 112 Microeconomic Principles <i>SB</i> (3)	
HU courses.....	6-9
SB course(s).....	3-6
Minimum total	15

<i>Literacy and Critical Inquiry</i>	
ECE 300 Intermediate Engineering Design <i>L</i>	3
MAE 491 Experimental Mechanical Engineering <i>L</i>	3
Total	6

<i>Mathematical Studies¹</i>	
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
MAT 275 Modern Differential Equations <i>MA</i>	3
MAT 343 Applied Linear Algebra.....	3
Total	18

<i>Natural Sciences/Basic Sciences</i>	
CHM 114 General Chemistry for Engineers <i>SQ</i> ¹	4
or CHM 116 General Chemistry <i>SQ</i> ¹ (4)	
PHY 121 University Physics I: Mechanics <i>SQ</i> ^{1,3}	3
PHY 122 University Physics Laboratory I <i>SQ</i> ^{1,3}	1
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ^{1,4}	3
PHY 132 University Physics Laboratory II <i>SQ</i> ^{1,4}	1
PHY 361 Introductory Modern Physics.....	3
Total	15
General Studies school requirements total.....	54

Engineering Core⁵

ECE 100 Introduction to Engineering Design <i>CS</i>	3
ECE 201 Electrical Networks I	4
ECE 214 Engineering Mechanics.....	4
ECE 313 Introduction to Deformable Solids.....	3
ECE 340 Thermodynamics.....	3
ECE 350 Structure and Properties of Materials	3
Total	20

Mechanical Engineering Major⁶

ECE 384 Numerical Methods for Engineers.....	4
MAE 317 Dynamic Systems and Control.....	3
MAE 319 Measurements and Data Analysis	3
MAE 371 Fluid Mechanics.....	3

MAE 388 Heat Transfer.....	3
MAE 422 Mechanics of Materials.....	4
MAE 441 Principles of Design.....	3
MAE 488 Mechanical Engineering Design I.....	3
MAE 489 Mechanical Engineering Design II	3
Computer-aided engineering (three modules)	1
Mechanical systems design (select one)	3-4
MAE 341 Mechanism Analysis and Design (3)	
MAE 442 Mechanical Systems Design (4)	
MAE 447 Robotics and Its Influence on Design (3)	
Thermal systems design (select one)	3
MAE 382 Thermodynamics (3)	
MAE 433 Air Conditioning and Refrigeration (3)	
MAE 434 Internal Combustion Engines (3)	
MAE 435 Turbomachinery (3)	
MAE 446 Thermal Systems Design (3)	
Technical electives	11-12
Total	48
Total for the program	128

- ¹ A minimum grade of "C" (2.00) or higher is required.
- ² The General Studies requirement is divided into five core and three awareness areas. A student must include within his or her program at least two courses that cover the three awareness areas. It is recommended that students consult an academic advisor to ensure completion of the Humanities and Fine Arts (HU), Social and Behavioral Sciences (SB), and awareness areas (C, G, H).
- 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.
- ⁵ A minimum grade of "C" (2.00) or higher is required for engineering core courses that are prerequisite to any course in the Mechanical Engineering major. A student must attain a minimum grade of "C" in order to receive prerequisite credit.
- ⁶ A GPA of 2.00 or higher is required for all classes listed under the major plus MAE 488 and 489.

Mechanical Engineering Areas of Study. Technical electives may be selected from among any of the following courses. The courses are grouped to assist a student in identifying areas of specialization. Students preferring a broader technical background may choose courses from different areas. Generally no more than two technical elective courses from outside the department area are allowed. Furthermore, only one project course may be used for a technical elective. Graduate-level classes may be used provided the student's GPA is at least 3.00 and the student has permission from the course instructor, department advisor, and the Fulton School of Engineering dean. Credit for courses not on the list requires prior approval of the student's advisor and department.

Aerospace

MAE 413 Aircraft Dynamics and Control.....	3
MAE 415 Vibration Analysis.....	4
MAE 426 Design of Aerospace Structures	3
MAE 455 Polymers and Composites.....	3
MAE 460 Gas Dynamics	3
MAE 461 Aerodynamics II.....	3
MAE 463 Propulsion	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 92.

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MAE 465 Rocket Propulsion.....	3
MAE 466 Rotary Wing Aerodynamics and Performance.....	3
MAE 469 Projects in Astronautics or Aeronautics.....	3

Biomechanical

BME 411 Biomedical Engineering I.....	3
BME 412 Biomedical Engineering II.....	3
BME 416 Biomechanics.....	3
BME 419 Biocontrol Systems.....	3
EEE 302 Electrical Networks II.....	3
EEE 434 Quantum Mechanics for Engineers.....	3

Computer Methods

CSE 310 Data Structures and Algorithms.....	3
CSE 422 Microprocessor System Design II.....	4
CSE 428 Computer-Aided Processes.....	3
IEE 385 Introduction to Engineering Probability Models CS.....	3
IEE 463 Computer-Aided Manufacturing and Control CS.....	3
IEE 475 Simulating Stochastic Systems CS.....	3
MAE 404 Finite Elements in Engineering.....	3
MAE 406 CAD/CAM Applications in MAE.....	4
MAE 471 Computational Fluid Dynamics.....	3
MAT 421 Applied Computational Methods CS.....	3
MAT 423 Numerical Analysis I CS.....	3
MAT 425 Numerical Analysis II CS.....	3

Control and Dynamic Systems

CSE 428 Computer-Aided Processes.....	3
EEE 360 Energy Conversion and Transport.....	4
EEE 480 Feedback Systems.....	4
EEE 482 Introduction to State Space Methods.....	3
IEE 463 Computer-Aided Manufacturing and Control CS.....	3
MAE 413 Aircraft Dynamics and Control.....	3
MAE 417 Control System Design.....	3
MAE 462 Space Vehicle Dynamics and Control.....	3

Design

MAE 341 Mechanism Analysis and Design.....	3
MAE 351 Manufacturing Processes.....	3
MAE 404 Finite Elements in Engineering.....	3
MAE 406 CAD/CAM Applications in MAE.....	4
MAE 413 Aircraft Dynamics and Control.....	3
MAE 417 Control System Design.....	3
MAE 434 Internal Combustion Engines.....	3
MAE 435 Turbomachinery.....	3
MAE 442 Mechanical Systems Design.....	4
MAE 446 Thermal Systems Design.....	3
MAE 447 Robotics and Its Influence on Design.....	3
MAE 462 Space Vehicle Dynamics and Control.....	3

Energy Systems

EEE 360 Energy Conversion and Transport.....	4
MAE 372 Fluid Mechanics.....	3
MAE 382 Thermodynamics.....	3
MAE 434 Internal Combustion Engines.....	3
MAE 435 Turbomachinery.....	3
MAE 436 Combustion.....	3
MAE 446 Thermal Systems Design.....	3

Engineering Mechanics

MAE 341 Mechanism Analysis and Design.....	3
MAE 404 Finite Elements in Engineering.....	3
MAE 413 Aircraft Dynamics and Control.....	3
MAE 415 Vibration Analysis.....	4
MAE 426 Design of Aerospace Structures.....	3
MAE 442 Mechanical Systems Design.....	4
MAE 460 Gas Dynamics.....	3
MAE 461 Aerodynamics II.....	3
MAE 471 Computational Fluid Dynamics.....	3
MAT 421 Applied Computational Methods CS.....	3
MAT 423 Numerical Analysis I CS.....	3

MSE 440 Mechanical Properties of Solids.....	3
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Manufacturing

CSE 428 Computer-Aided Processes.....	3
IEE 300 Economic Analysis for Engineers.....	3
IEE 461 Production Control.....	3
IEE 463 Computer-Aided Manufacturing and Control CS.....	3
IEE 474 Quality Control CS.....	3
MAE 341 Mechanism Analysis and Design.....	3
MAE 351 Manufacturing Processes.....	3
MAE 404 Finite Elements in Engineering.....	3
MAE 442 Mechanical Systems Design.....	4
MAE 447 Robotics and Its Influence on Design.....	3
MAE 455 Polymers and Composites.....	3
MSE 355 Introduction to Materials Science and Engineering.....	3
MSE 420 Physical Metallurgy.....	3
MSE 431 Corrosion and Corrosion Control.....	3
MSE 440 Mechanical Properties of Solids.....	3

Stress Analysis, Failure Prevention, and Materials

MAE 341 Mechanism Analysis and Design.....	3
MAE 404 Finite Elements in Engineering.....	3
MAE 426 Design of Aerospace Structures.....	3
MAE 447 Robotics and Its Influence on Design.....	3
MAE 455 Polymers and Composites.....	3
MSE 355 Introduction to Materials Science and Engineering.....	3
MSE 420 Physical Metallurgy.....	3
MSE 431 Corrosion and Corrosion Control.....	3
MSE 440 Mechanical Properties of Solids.....	3
MSE 450 X-Ray and Electron Diffraction.....	3

Thermosciences

MAE 372 Fluid Mechanics.....	3
MAE 382 Thermodynamics.....	3
MAE 433 Air Conditioning and Refrigeration.....	3
MAE 434 Internal Combustion Engines.....	3
MAE 435 Turbomachinery.....	3
MAE 436 Combustion.....	3
MAE 446 Thermal Systems Design.....	3
MAE 460 Gas Dynamics.....	3
MAE 463 Propulsion.....	3
MAE 471 Computational Fluid Dynamics.....	3

TYPICAL FOUR-YEAR SEQUENCE

The first two years are usually devoted to the General Studies and engineering core requirements. A typical schedule is given below.

Mechanical Engineering Program of Study Typical Four-Year Sequence

First Year

First Semester

CHM 114 General Chemistry for Engineers <i>SQ</i>	4
or CHM 116 General Chemistry <i>SQ</i> (4).....	
ECE 100 Introduction to Engineering Design <i>CS</i>	3
ENG 101 First-Year Composition.....	3
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
HU/SB elective ¹	3
Total.....	17

Second Semester

ENG 102 First-Year Composition.....	3
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
MAT 275 Modern Differential Equations <i>MA</i>	3
PHY 121 University Physics I: Mechanics <i>SQ</i> ²	3
PHY 122 University Physics Laboratory I <i>SQ</i> ²	1
HU/SB elective ¹	3
Total.....	17

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Second Year

First Semester

ECE 214 Engineering Mechanics.....	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
MAT 343 Applied Linear Algebra.....	3
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ³	3
PHY 132 University Physics Laboratory II <i>SQ</i> ³	1
Total	15

Second Semester

ECE 201 Electrical Networks I.....	4
ECE 313 Introduction to Deformable Solids.....	3
ECE 340 Thermodynamics.....	3
ECE 350 Structure and Properties of Materials	3
ECE 384 Numerical Methods for Engineers.....	4
Total	17

Third Year

First Semester

ECE 300 Intermediate Engineering Design <i>L</i>	3
MAE 317 Dynamic Systems and Control.....	3
MAE 319 Measurements and Data Analysis	3
MAE 371 Fluid Mechanics.....	3
MAE 394 ST: Computer-Aided Engineering	1
MAE 422 Mechanics of Materials.....	4
Total	17

Second Semester

MAE 388 Heat Transfer.....	3
MAE 441 Principles of Design.....	3
HU/SB elective ¹	3
Technical electives	6
Total	15

Fourth Year

First Semester

MAE 488 Mechanical Engineering Design I.....	3
MAE 491 Experimental Mechanical Engineering <i>L</i>	3
HU/SB elective ¹	6
Technical electives	3
Total	15

Second Semester

MAE 489 Mechanical Engineering Design II	3
PHY 361 Introductory Modern Physics.....	3
HU/SB elective ³	3
Technical electives	6
Total	15

- ¹ Engineering students may not use aerospace studies (AES) or military science (MIS) courses to obtain 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.

MECHANICAL AND AEROSPACE ENGINEERING (MAE)

MAE 101 Introduction to Aerospace Engineering. (2)

fall

Careers in aerospace engineering, problem solving, computer usage in aerospace engineering, contemporary issues of the aerospace industry, the aerospace engineering curriculum. Prerequisites: high school physics and algebra. Pre- or corequisite: ECE 100.

MAE 317 Dynamic Systems and Control. (3)

fall and spring

Modeling and representations of dynamic physical systems, including transfer functions, block diagrams, and state equations. Transient response. Principles of feedback control and linear system analysis,

including root locus and frequency response. Prerequisite: ECE 212. Pre- or corequisite: ECE 384.

MAE 319 Measurements and Data Analysis. (3)

fall and spring

Theory of measurement systems, sensors, digital data acquisition, signal processing and statistical analysis. Computer simulations and real-time experiments designed to illustrate these topics. Lecture, lab. Fee. Prerequisite: ECE 201. Pre- or corequisite: MAE 317.

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: ECE 212.

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 IEE 360 or MAE 351. Fee. Prerequisite: ECE 350.

MAE 361 Aerodynamics I. (3)

fall

Fluid statics, conservation principles, stream function, velocity potential, vorticity, inviscid flow, Kutta-Joukowski, thin-airfoil theory, and panel methods. Prerequisites: ECE 212, 340.

MAE 371 Fluid Mechanics. (3)

fall and spring

Introductory concepts of fluid motions; fluid statics; control volume forms of basic principles; viscous internal flows. Prerequisites: ECE 212, 340.

MAE 372 Fluid Mechanics. (3)

once a year

Applies basic principles of fluid mechanics to problems in viscous and compressible flow. Prerequisites: ECE 384; MAE 361 (or 371).

MAE 382 Thermodynamics. (3)

once a year

Applied thermodynamics; gas mixtures, psychrometrics, property relationships, power and refrigeration cycles, and reactive systems. Prerequisite: ECE 340.

MAE 388 Heat Transfer. (3)

fall and spring

Steady and unsteady heat conduction, including numerical solutions; thermal boundary layer concepts and applications to free and forced convection. Thermal radiation concepts. Prerequisites: ECE 384; MAE 361 (or 371).

MAE 394 Special Topics. (1–4)

selected semesters

Topics may include the following:
• Computer-Aided Engineering. (1)

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: ECE 313; MAT 242 (or 342).

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. 3 hours lecture, 3 hours lab. Fee. Prerequisites: ECE 384; MAE 422, 441 (or 444).

MAE 413 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 317, 361.

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 92.

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MAE 415 Vibration Analysis. (4)

fall

Free and forced response of single and multiple degree of freedom systems, continuous systems; applications in mechanical and aerospace systems numerical methods. Lecture, lab. Fee. Prerequisites: ECE 212; MAE 319, 422 (or 425); MAT 242 (or 342).

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 317.

MAE 422 Mechanics of Materials. (4)

fall and spring

Theory of stress and strain, generalized Hooke's Law, plasticity, energy methods, finite elements, stress concentrations, fracture and fatigue. Lecture, lab. Fee. Prerequisites: ECE 313; MAT 242 (or 342). Pre- or corequisite: ECE 384.

MAE 425 Aerospace Structures. (4)

fall

Stability, energy methods, finite element methods, torsion, unsymmetrical bending and torsion of multicelled structures, design of aerospace structures. Lecture, lab. Fee. Prerequisites: ECE 313; MAT 242 (or 342).

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 422 or 425.

MAE 433 Air Conditioning and Refrigeration. (3)

once a year

Air conditioning processes; environmental control; heating and cooling loads; psychrometry; refrigeration cycles. Prerequisite: MAE 388 or MET 432 or instructor approval.

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. Lab. Fee. Prerequisite: MAE 388.

MAE 435 Turbomachinery. (3)

once a year

Design and performance of turbomachines, including steam, gas and hydraulic turbines, centrifugal pumps, compressors, fans, and blowers. Pre- or corequisite: MAE 361 or 371.

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 388.

MAE 441 Principles of Design. (3)

fall and spring

Conceptual and embodiment design of mechanical elements; form synthesis; material selection, failure modes, manufacturability tolerances, common mechanisms, and machine elements. Lecture, lab (project). Fee. Prerequisites: ECE 300, 350. Pre- or corequisites: MAE 319, 422 (or 425).

MAE 442 Mechanical Systems Design. (4)

spring

Applies design principles and techniques to the synthesis, modeling, and optimization of mechanical, electromechanical, and hydraulic systems. Lecture, lab. Fee. Prerequisites: MAE 317, 441 (or 444).

MAE 444 Fundamentals of Aerospace Design. (3)

spring

Design theory and design tools applied to aerospace engineering. Engineering drawings, solid modeling, RFP's, Federal Aviation Regulations and military specifications, aircraft sizing, rapid prototyping. Lab, projects. Fee. Prerequisites: ECE 300, 350; MAE 361, 425. Pre- or corequisite: MAE 413.

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: ECE 300; MAE 388.

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 317.

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

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: ECE 313, 350.

MAE 460 Gas Dynamics. (3)

spring

Compressible flow at subsonic and supersonic speeds; duct flow; normal and oblique shocks, perturbation theory, and wind tunnel design. Prerequisites: ECE 384; MAE 361 (or 371).

MAE 461 Aerodynamics II. (3)

once a year

Transonic/hypersonic flows, wing theory, Navier-Stokes, laminar/turbulent shear flows, pressure drop in tubes, separation, drag, viscous/inviscid interaction, and wing design. Prerequisite: MAE 460.

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 317.

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: ECE 384; MAE 382 (or 460).

MAE 464 Aerospace Laboratory. (3)

fall

Aerodynamic flow parameters; flow over airfoils and bodies of revolution; flow visualization; computer-aided data acquisition and processing; boundary layer theory. 1 hour lecture, 4 hours lab. Fee. Prerequisites: ECE 384; MAE 319, 460.

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 382 or 460.

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. Prerequisites: both ECE 384 and MAE 361 or only instructor approval.

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. Prerequisites: MAE 413, 444. Pre- or corequisite: MAE 463.

General Studies: L

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.

MAE 471 Computational Fluid Dynamics. (3)

once a year

Numerical solutions for selected problems in fluid mechanics. Fee. Prerequisites: ECE 384; MAE 361 (or 371).

MAE 488 Mechanical Engineering Design I. (3)

fall and spring

Conceptual and embodiment design; modeling; rapid prototyping. Team project. MAE 488 and 489 must be taken in consecutive semesters. Lecture, discussion. Prerequisites: MAE 319, 371, 441.

MAE 489 Mechanical Engineering Design II. (3)

fall and spring

Detail design; fabrication and testing. Team project. MAE 488 and 489 must be taken in consecutive semesters. Lecture, discussion. Prerequisite: MAE 488.

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. 6 hours lab. Fee. Prerequisites: MAE 319, 388.

General Studies: L

MAE 492 Honors Directed Study. (1–6)

selected semesters

MAE 493 Honors Thesis. (1–6)

selected semesters

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.

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/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.

**Programs in Engineering
Special Studies**

480/965-1726

Ronald J. Roedel, Director

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.

The BSE degree in Engineering Special Studies is designed primarily for students intending to pursue engineering careers at a professional level in industry or graduate studies.

ENGINEERING SPECIAL STUDIES—BSE

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.

DEGREE REQUIREMENTS

A minimum of 128 semester hours is necessary for the BSE degree in Engineering Special Studies with a concentration in Premedical Engineering. A minimum of 50 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 88.

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*

Choose among the course combinations below6

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)

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 92.

IRA A. FULTON SCHOOL OF ENGINEERING

ENG 108 English for Foreign Students (3)	—
Total	6

* A minimum grade of “C” (2.00) is required.

General Studies/School Requirements

Humanities and Fine Arts/Social and Behavioral Sciences

ECN 111 Macroeconomic Principles <i>SB</i> ¹	3
or ECN 112 Microeconomic Principles <i>SB</i> ¹ (3)	
HU/SB and awareness area courses ²	12
Total	15

Literacy and Critical Inquiry

BME 413 Biomedical Instrumentation <i>L</i> ³	3
BME 423 Biomedical Instrumentation Laboratory <i>L</i> ³	1
ECE 300 Intermediate Engineering Design <i>L</i>	3
Total	7

Natural Sciences

PHY 121 University Physics I: Mechanics <i>SQ</i> ⁴	3
PHY 122 University Physics Laboratory I <i>SQ</i> ⁴	1
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ⁵	3
PHY 132 University Physics Laboratory II <i>SQ</i> ⁵	1
Total	8

Mathematical Studies

ECE 100 Introduction to Engineering Design <i>CS</i>	3
ECE 384 Numerical Methods for Engineers	4
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4

MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
MAT 274 Elementary Differential Equations <i>MA</i>	3
Total	22
General Studies/school requirements total	52

Engineering Core

ECE 201 Electrical Networks I	4
ECE 214 Engineering Mechanics	4
ECE 334 Electronic Circuits	4
ECE 340 Thermodynamics	3
ECE 350 Structure and Properties of Materials	3
Total	18

Engineering Special Studies Program Major—Premedical Engineering Concentration⁶

BIO 188 General Biology II <i>SQ</i>	4
BME 101 Introduction to Bioengineering	3
BME 235 Physiology for Engineers	4
BME 318 Biomaterials	3
BME 331 Biomedical Transport Phenomena	3
BME 350 Signals and Systems for Bioengineers	3
BME 417 Biomedical Engineering Capstone Design I	3
BME 470 Microcomputer Applications in Bioengineering	4
BME 490 Biomedical Engineering Capstone Design II	3
CHM 113 General Chemistry <i>SQ</i>	4
CHM 116 General Chemistry <i>SQ</i>	4
CHM 331 General Organic Chemistry	3
CHM 332 General Organic Chemistry	3
CHM 335 General Organic Chemistry Laboratory	1
CHM 336 General Organic Chemistry Laboratory	1



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

PROGRAMS IN ENGINEERING SPECIAL STUDIES

CSE 100 Principles of Programming with C++ CS ⁷	3
ECE 380 Probability and Statistics for Engineering Problem Solving CS	3
Total	52

- ¹ ECN 111 or 112 must be included to obtain HU and SB requirements.
- ² Engineering students may not use aerospace studies (AES) or military science (MIS) courses to obtain HU or SB requirements.
- ³ Both BME 413 and 423 must be taken to secure L credit.
- ⁴ Both PHY 121 and 122 must be taken to secure SQ credit.
- ⁵ Both PHY 131 and 132 must be taken to secure SQ credit.
- ⁶ To fulfill medical school admission requirements, premedical students generally should choose BIO 188. Note that BIO 187 General Biology I is required by many medical schools in addition to BIO 188 and the other degree requirements and cannot generally be used as a technical elective.
- ⁷ CSE 110 Principles of Programming with Java can be substituted for CSE 100 with departmental approval.

**Premedical Engineering
Program of Study
Typical Four-Year Sequence**

First Year

First Semester

CSE 100 Principles of Programming with C++ CS ¹	3
ECE 100 Introduction to Engineering Design CS	3
ENG 101 First-Year Composition.....	3
MAT 270 Calculus with Analytic Geometry I MA.....	4
Total	13

Second Semester

BME 101 Introduction to Bioengineering.....	3
CHM 113 General Chemistry SQ.....	4
ENG 102 First-Year Composition.....	3
MAT 271 Calculus with Analytic Geometry II MA.....	4
PHY 121 University Physics I: Mechanics SQ ²	3
PHY 122 University Physics Laboratory I SQ ²	1
Total	18

Second Year

First Semester

BIO 188 General Biology II SQ.....	4
CHM 116 General Chemistry SQ.....	4
MAT 272 Calculus with Analytic Geometry III MA.....	4
PHY 131 University Physics II: Electricity and Magnetism SQ ³	3
PHY 132 University Physics Laboratory II SQ ³	1
Total	16

Second Semester

BME 235 Physiology for Engineers.....	4
---------------------------------------	---

ECE 201 Electrical Networks I.....	4
ECE 350 Structure and Properties of Materials	3
ECN 111 Macroeconomic Principles SB	3
or ECN 112 Microeconomic Principles SB (3)	
MAT 274 Elementary Differential Equations MA.....	3
Total	17

Third Year

First Semester

BME 318 Biomaterials.....	3
CHM 331 General Organic Chemistry.....	3
CHM 335 General Organic Chemistry Laboratory.....	1
ECE 214 Engineering Mechanics.....	4
ECE 300 Intermediate Engineering Design L.....	3
ECE 384 Numerical Methods for Engineers.....	4
Total	18

Second Semester

BME 331 Biomedical Transport Phenomena.....	3
BME 350 Signals and Systems for Bioengineers.....	3
CHM 332 General Organic Chemistry.....	3
CHM 336 General Organic Chemistry Laboratory.....	1
ECE 334 Electronic Circuits.....	4
ECE 340 Thermodynamics.....	3
Total	17

Fourth Year

First Semester

BME 413 Biomedical Instrumentation L ⁴	3
BME 417 Biomedical Engineering Capstone Design I.....	3
BME 423 Biomedical Instrumentation Laboratory L ⁴	1
ECE 380 Probability and Statistics for Engineering Problem Solving CS	3
HU/SB and awareness area courses ⁵	6
Total	16

Second Semester

BME 470 Microcomputer Applications in Bioengineering.....	4
BME 490 Biomedical Engineering Capstone Design II.....	3
HU/SB and awareness area course ⁵	6
Total	13
Total degree requirements.....	128

- ¹ CSE 110 Principles of Programming with Java can be substituted for CSE 100 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 BME 413 and 423 must be taken to secure L credit.
- ⁵ Engineering students may not use aerospace studies (AES) or military science (MIS) courses to satisfy HU or SB 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 92.

The Katherine K. Herberger College of Fine Arts

herbergercollege.asu.edu

J. Robert Wills, PhD, Dean

School of Art.....	279
Department of Dance.....	294
School of Music.....	299
Department of Theatre.....	312

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 Department of Theatre. 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 69. Transfer students are encouraged to contact their department or school or the Katherine K. Herberger College of Fine Arts Undergraduate 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 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 attention, each academic unit establishes its own graduation advising procedures. Students are encouraged to make appointments through the Herberger Student Academic Services central office. For more information, call 480/965-4495.

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
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	Guitar, jazz, keyboard, music theatre, orchestral instrument, piano accompanying, or voice	School of Music
Theatre	BA	Optional: acting or scenography ¹	Department of Theatre
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.

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 92, 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 193.

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 276, 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 88.

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 92. All three General Studies awareness areas are required. Consult with an advisor for an approved list of courses. General Studies courses are listed in “[General Studies](#),” page 94, 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

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 92.

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

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
Performance	MM	Music theatre/opera musical direction, music theatre/opera performance, performance, performance pedagogy, or piano accompanying	School of Music
Theatre	MA	—	Department of Theatre
	MFA	Directing, interdisciplinary digital media, performance, performance design, or theatre for youth	Department of Theatre
	PhD	Optional: theatre and performance of the Americas or theatre for youth ¹	Department of Theatre

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.

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 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.

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 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 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 program.

Bachelor of Fine Arts (BFA) Degree. The BFA degree requires 52 to 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. Specific information can be obtained through the department’s Advisement Office.

Bachelor of Music (BM) Degree. The BM degree requires 79 semester hours for the major. 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 275, 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 84. 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, 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, digital art, film, neon, video, computer animation, and foundry. In addition, internships are available in galleries and museums throughout the Phoenix area. The 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 organized and curated by students. 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

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 92.

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

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, 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.

Department of Theatre. The Department of Theatre's BA degree features a broad liberal arts education. The program's mission is to educate imaginative, knowledgeable, skilled, and responsible artists, teachers, scholars, audience members, and advocates for the theatre of the future. Special strengths of the department include internationally acclaimed programs in theatre for youth; an outstanding playwriting area that infuses each specialization with new script work; multicultural courses; an acting concentration that allows work with nationally acclaimed directors and acting coaches; and a design and production area that provides for further specialization in costume, lighting, scene design, and theatre technology.

Production is at the core of ASU theatre and the quality of the faculty, student body, and facilities attracts professionals to ASU. Four to six subscription series plays are produced annually in the 496-seat Galvin Playhouse and the smaller Lyceum Theatre. Additional student-directed shows are presented in the Prism Theatre and studios.

Theatre-for-youth artists, students, and scholars are attracted to ASU by the opportunities to work on national K–12 theatre curricula and research projects, participate in theatre tours to area schools, and teach on and off campus. The Child Drama Special Collection in Hayden Library, which includes rare books, plays, and personal and national association archives, is the most complete and extensive collection of its kind in the English-speaking world and also contributes to the international recognition of the theatre-for-youth faculty.

Institute for Studies in the Arts. The Institute for Studies in the Arts (ISA) is an interdisciplinary research and education center in the Katherine K. Herberger College of Fine Arts. The ISA has established the Arts, Media, and Engi-

neering Graduate Research and Education (AME) program. The program is cosponsored by the Ira A. Fulton School of Engineering and the Katherine K. Herberger College of Fine Arts. Graduate degrees with concentrations in media and arts are offered collaboratively through AME by the Departments of Electrical Engineering, Computer Science and Engineering, Dance, and the Schools of Theatre, Art, and Music. 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.

COLLEGE OF EXTENDED EDUCATION

The university-wide College 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 “College of Extended Education,” page 703, 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)

CFA 194 Special Topics. (1–4)

fall

Topics may include the following:

- Academic Balance for the Fine Arts Major. (1)

CFA 484 Internship. (1–12)

fall and spring

CFA 494 Special Topics. (3)

fall and spring

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.

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

Jon W. Sharer, Director

Regents' Professors: Klett, Weiser

Professors: Alquist, Bates, Britton, Codell, Duncan, Eckert, Erickson, Fahlman, Fronske, Gillingwater, Hajicek, Magenta, Marc, Maxwell, Meissinger, Pile, Pittsley, Risseeuw, Schmidt, Schoebel, Sharer, Stokrocki, Sweeney, Versteegen, White, Young

Associate Professors: Brown, Collins, Gully, Jenkins, McIver, Newport, Pessler, Schleif, Schutte, Segura, Serwint, Umberger, Wolfthal

Assistant Professors: Hood, Mesch, Schneider

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 in the School of Art Undergraduate Advising Center.

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 in the following concentrations must be accepted through portfolio review into upper-division classes (300 and 400 levels) in these programs: BA in Art with a concentration in digital art; BFA in art with a concentration in drawing, intermedia, painting, or photography. The minimum GPA required is 2.70 overall and 3.00 for art classes. Portfolio deadlines are March 15 for admission to fall semester upper-division classes and October 15 for spring classes. Transfer students are encouraged to apply a semester before attending ASU.

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 work for a group exhibition, a portfolio of 10 to 15 slides, and an artist's statement that are acceptable to the faculty sponsor in their area of concentration.

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, and includes the requirements listed on this page for each 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 88, and "[College Degree Requirements](#)," page 276.

Art History

This concentration consists of a minimum of 45 to 61 semester hours. It requires 33 semester hours of art history, 12 semester hours of related study, and 16 semester hours of foreign language (101, 102, 201, and 202) or a demonstrated proficiency in one foreign language which is equivalent to the completion of two years of language at the college level. At least 27 of the 45 semester hours must be upper-division credit. Satisfactory completion of ARS 480 Research Methods is required before the senior year.

Art History Requirements

ARS 101 Art from Prehistory Through Middle Ages <i>HU, H</i>	3
ARS 102 Art from Renaissance to Present <i>HU, H</i>	3
ARS 480 Research Methods <i>L</i>	3
ARS 498 PS: Art History	3
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
Any ARS courses	6

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

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 92.

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their career goals. For more information, see “[School of Interdisciplinary Studies](#),” page 124.

Related Subject Field. Select three courses (nine semester hours) from those with the prefix APH, ARA, ARE, or from the following:

ART 111 Drawing I	3
ART 112 2-D Design	3
ART 113 Color	3
ART 115 3-D Design	3
ART 201 Photography I	3
ART 274 Wood I	3
ART 294 Special Topics	3

Also required is an approved upper-division elective. Six semester hours of ART courses are recommended.

Foreign Language. Sixteen semester hours of 101, 102, 201, and 202 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 404. (SHS courses are not acceptable.)

Digital Art

Sixty-nine semester hours are required for the concentration in digital art. It requires 18 semester hours of core curriculum, 18 semester hours of course work with a digital art emphasis, nine semester hours of art history, and 24 semester hours of related study. The faculty in the student’s declared emphasis must approve course work in the digital art concentration and the related subject field. A senior exhibition is also required. Guidelines for the portfolio and exhibition are available in the Art Building (room 151) or by accessing the Web site at art.asu.edu/undergraduate/undergrad_advising.html.

Portfolio Review. Admission to digital art upper-division courses requires a portfolio review, a minimum cumulative GPA of 2.70, and a School of Art GPA of 3.00. Students must also declare an emphasis in three-dimensional imaging and animation, digital photography, or video. The portfolio deadlines are October 15 for spring classes and March 15 for fall classes.

Core Curriculum. See “[Studio Art](#),” page 280, for courses that make up the core curriculum.

Specialization. Select 18 semester hours (including 12 semester hours of upper-division study) from the following:

ART 294 ST: Digital Art	3
or ART 394 ST: Digital Art (3)	
ART 308 Digital Photographic Images I	3
ART 345 Visualization and Prototyping I	3
ART 346 3-D Computer Imaging and Animation CS	3
ART 348 Animation Motion Studies	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 494 ST: Digital Photographic Images II	3
or ART 494 ST: Visualization and Prototyping II (3)	
or any ART 494 digital art course (3)	

For descriptions of these digital art classes, see the [Inter-media course listings on page 290](#).

Related Subject Area. Select 23 semester hours of course work outside of the specialization. This may include courses in the School of Art, the Katherine K. Herberger College of Fine Arts, and throughout the university that further students’ fine arts goals in digital media and aid them in preparation for the senior exhibition. One semester hour of ART 494 ST: Senior Exhibition and Portfolio is also required.

Museum Studies

A minimum of 67 hours is required for the museum studies concentration. This concentration is an interdisciplinary program, which involves courses in the School of Art, Department of Anthropology, W. P. Carey School of Business, American Humanics/Department of Recreation Management, and the Department of Languages and Literatures.

Specialization

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
ARS 480 Research Methods L	3
ARS 484 Internship: Museum	3

Also required is at least one 300- or 400-level art history (ARS) course from each of the following areas:

ART 409 Photographic Exhibition	3
or ARA 460 Gallery Exhibitions (3)	
ASB 471 Introduction to Museums L	3
or ARS 494 ST: Introduction to Museums (3)	
Ancient	3
Any ARS courses	6
Medieval	3
Modern/contemporary	3
Non-Western	3
Renaissance/Baroque	3

Related Study

ACC 394 ST: Accounting and Financial Analysis	3
MGT 380 Management and Strategy for Nonmajors	3
MKT 382 Advertising and Marketing Communication	3
REC 300 Fund Raising	3
REC 310 Volunteerism	3
REC 430 Managing Nonprofit Organizations	3

Free Electives. Students must select a minimum of 12 semester hours of free electives. Recommended courses include REC 300 or 310; art history, anthropology, history, and/or business courses.

Foreign Language. Sixteen semester hours of 101, 102, 201, and 202 language courses are required 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. For specific courses, see the “[Department of Languages and Literatures](#),” page 404. (SHS courses are not acceptable.)

Studio Art

Core Curriculum. The following courses make up the core curriculum:

ARS 101 Art from Prehistory Through Middle Ages <i>HU, H</i>	3
ARS 102 Art from Renaissance to Present <i>HU, H</i>	3
ART 111 Drawing I.....	3
ART 112 2-D Design.....	3
ART 113 Color.....	3
ART 115 3-D Design.....	3
Total.....	18

Specialization. Eighteen semester hours are required, including nine semester hours of 2-D classes from drawing, painting, photography, and printmaking; and nine hours of 3-D classes from ceramics, fibers, intermedia, metals, printmaking, and sculpture. Nine hours must be in the upper division.

Art History. Nine semester hours of ARS courses are required, which must include three semester hours of non-Western art. At least six semester hours must be upper-division ARS courses.

Related Subject Area. The related subject area includes courses outside the area of specialization in the School of Art, the Katherine K. Herberger College of Fine Arts, and the university. Course selection must be related to the student’s professional goals in art and approved by area of specialization faculty and an academic advisor. A minimum of 24 hours is required, of which 18 hours must be of upper-division study.

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 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 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 <i>HU, H</i>	3
ARS 102 Art from Renaissance to Present <i>HU, H</i>	3
ARS 201 Art of Asia <i>HU, G, H</i>	3
ARS 202 Art of Africa, Oceania, and the Americas <i>HU, G, H</i>	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 major in Art consists of 75 semester hours, with a concentration in one area selected on the basis of the student’s interests. The following concentrations are available: art education, ceramics, drawing, fibers, intermedia, metals, painting, photography, printmaking, and sculpture. A port-

folio review is required for admission to courses in the specialization for drawing, intermedia, painting, or photography. A senior portfolio and exhibition are required for all BFA programs except Art Education. Guidelines for the portfolio and exhibition are available in the Art Building (room 151) and on the Web at art.asu.edu/undergraduate/undergrad_advising.html.

BFA Core Curriculum. All students in this degree program follow the same core curriculum in art for the first two semesters:

ARS 101 Art from Prehistory Through Middle Ages <i>HU, H</i>	3
ARS 102 Art from Renaissance to Present <i>HU, H</i>	3
ART 111 Drawing I.....	3
ART 112 2-D Design.....	3
ART 113 Color.....	3
ART 115 3-D Design.....	3
Total.....	18

At least 30 upper-division semester hours must be earned within the major, with a minimum of 12 semester hours within the concentration.

All course work counted in the major must be completed with a “C” (2.00) or higher. The specific requirements for each concentration are recommended by the faculty advisors of the area and are listed on School of Art check sheets.

Courses from other departments, when approved by the advisor and the School of Art, may be applied to the major if deemed appropriate to the student’s program of study. Art courses that do not have the same title and description as ASU catalog courses must have the approval of the School of Art Standards Committee.

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 88, and “[College Degree Requirements](#),” page 276.

Art Education

Core Curriculum. See “[BFA Core Curriculum](#),” on this page for the courses that make up the core curriculum.

Specialization. The following courses make up the specialization:

ARE 370 Teaching Visual Culture.....	3
ARE 440 Disciplines of Art Education.....	3
ARE 450 Teaching Inquiry in Art.....	3
ARE 482 Teaching Art Processes.....	3
ARE 486 Art Education: Strategies and Applications.....	3
ARE 494 Special Topics.....	3
ARE 496 Methods and Assessment of Learning in Art.....	3
Total.....	21

Area of Proficiency. Twenty-one semester hours are required with a minimum of 15 semester hours in two-dimensional or three-dimensional studio art, or art history.

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 92.

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Twelve of these semester hours must be upper-division credits.

Art History. Six semester hours of ARS upper-division courses are required. One course must be a 20th-century ARS course. Non-Western art is recommended for the second course.

Additional Requirements. The following courses are additional requirements:

ART 201	Photography I.....	3
ART 223	Painting I.....	3
	or ART 211 Drawing II (3)	
	or ART 253 Introduction to Printmaking (3)	
	or 300-level printmaking	
ART 231	Sculpture I.....	3
	or ART 261 Ceramic Survey (3)	
	or ART 272 Jewelry I (3)	
	or ART 274 Wood I (3)	
	or ART 276 Fibers I (3)	
Total	.....	9

The concentration in art education consists of 75 semester hours with 21 semester hours in art education and 21 semester hours in an art proficiency approved by an art education advisor. The art proficiency courses must include a minimum of 15 semester hours in a specific area of studio art or art history. Twelve of these semester hours must be upper-division credits. The art proficiency can be in art history, ceramics, drawing, fibers, intermedia, metals, painting, photography, printmaking, or sculpture. Teaching experience is provided in the Children's Art Workshop, which is an on-campus program based in studio art and art history for children ages five to 15. Participation in the workshop is part of the requirements for ARE 486 Art Education: Strategies and Applications. ARE 486 meets the state certification requirements for the elementary methods class, and ARE 496 Methods and Assessment of Learning in Art meets the requirements for the secondary methods class in the subject area. Both of these courses have prerequisites.

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 450	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. Acceptance is based on a 2.50 GPA, completion of foundations courses (ART 111, 112, 113, and 115), completion of 12 semester hours of art history courses (ARS 101 and 102 and two upper-division courses), and a “B” (3.00) or higher in ARE 440 and 450. 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 198. 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

Core Curriculum. See “[BFA Core Curriculum](#),” page 281, for the courses that make up the core curriculum.

Specialization. The following courses make up the specialization:

ART 231	Sculpture I.....	3
ART 261	Ceramic Survey	3
ART 360	Ceramic Throwing	3
ART 364	Ceramic Handbuilding I.....	3
ART 365	Ceramic Handbuilding II	3
ART 460	Ceramic Clay	3
ART 463	Ceramic Glaze.....	3
ART 466	Special Problems in Ceramics	6
Total	.....	27

Art History. Six semester hours of upper-division ARS courses, including a 20th-century and a non-Western ARS course, are required.

Additional Requirements. One of the following four courses is required:

ART 211	Drawing II.....	3
ART 214	Life Drawing I.....	3
ART 227	Watercolor I.....	3
ART 443	Intermedia	3

Two of the following three courses (six semester hours) are required:

ART 272	Jewelry I.....	3
ART 274	Wood I.....	3

ART 276 Fibers I.....3
 One semester hour of ART 494 ST: Senior Exhibition and Portfolio is also required.

Art Electives. Fourteen semester hours of ARA, ARE, ARS, and ART courses are required.

Drawing

Core Curriculum. See “BFA Core Curriculum,” page 281, for the courses that make up the core curriculum.

Portfolio Review. Admission to the upper-division courses listed below requires a portfolio review, a minimum overall GPA of 2.70, and a School of Art GPA of 3.00. The portfolio deadlines are October 15 for spring classes and March 15 for fall classes.

Specialization. The following courses make up the specialization:

ART 211 Drawing II.....	3
ART 214 Life Drawing I.....	3
ART 223 Painting I.....	3
ART 227 Watercolor I.....	3
ART 311 Drawing III.....	3
ART 314 Life Drawing II.....	3
ART 315 Life Drawing III.....	3
ART 411 Advanced Drawing.....	3
Total	24

Also required are six semester hours of ART 411, 414, or 494 drawing, painting, or printmaking (three semester hours).

Art History. Nine semester hours, including six semester hours of upper-division and three semester hours of non-Western ARS courses, are required.

Additional Requirements. Two of the following six courses (six semester hours) are required:

ART 201 Photography I.....	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

One semester hour of ART 494 ST: Senior Exhibition and Portfolio is also required.

Art Electives. Eight semester hours of ARA, ARE, ARS, or ART courses are required.

Fibers

Core Curriculum. See “BFA Core Curriculum,” page 281, for the courses that make up the core curriculum.

Specialization. The following courses make up the specialization:

ART 276 Fibers I.....	3
ART 376 Woven Structures I.....	3
ART 377 Surface Design.....	3
ART 476 Woven Structures II.....	6
ART 477 Printed Textiles.....	6
Total	21

Art History. Six semester hours of upper-division ARS courses are required, including a 20th-century elective and a non-Western elective.

Additional Requirements. Three of the following six courses (nine semester hours) are required:

ART 201 Photography I.....	3
ART 231 Sculpture I.....	3
ART 261 Ceramic Survey.....	3
ART 272 Jewelry I.....	3
ART 274 Wood I.....	3

One semester hour of ART 494 ST: Senior Exhibition and Portfolio is also required.

Art Electives. Twenty semester hours of ARA, ARE, ARS, and ART courses are required.

Intermedia

Core Curriculum. See “BFA Core Curriculum,” page 281, for the courses that make up the core curriculum.

Portfolio Review. Admission to the upper-division courses listed below requires a portfolio review, a minimum overall GPA of 2.70, and a School of Art GPA of 3.00. Students must also declare an emphasis in mixed media, three-dimensional imaging and animation, or video. The portfolio deadlines are October 15 for spring classes and March 15 for fall classes.

Specialization. Eighteen to 19 semester hours are required. Students must select three semester hours of nonelectronic media and three hours of digital imaging. The remaining 12 to 13 hours are completed in either nonelectronic media or digital imaging, depending on the emphasis selected.

Nonelectronic. Select 15 hours from the following nonelectronic media courses:

ART 439 Mixed Media*.....	3
ART 443 Intermedia*.....	3
ART 494 ST: Mixed Media.....	3

* This course can be repeated for credit.

Electronic. Select 15 to 16 hours from the following electronic media courses (based on emphasis):

ART 345 Visualization and Prototyping I.....	3
ART 346 3-D Computer Imaging and Animation CS.....	3
ART 348 Animation Motion Studies.....	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 494 ST: Digital.....	3
ART 494 ST: Intermedia.....	3

* This course can be repeated for 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 92.

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Nonelectronic. Select three to four semester hours from electronic courses above.

Electronic. Select three semester hours from nonelectronic courses above.

Intermedia-Related Study

Two of the following two-dimensional courses (six semester hours) are required:

ART 201 Photography I.....	3
ART 211 Drawing II.....	3
ART 214 Life Drawing I.....	3
ART 223 Painting I.....	3
ART 227 Watercolor I.....	3
ART 351 Intaglio I.....	3
ART 352 Lithography I.....	3
ART 354 Screen Printing I.....	3
ART 355 Photo Process for Printmaking I.....	3

Two of the following three-dimensional courses (six semester hours) are required:

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 History. Nine semester hours, including three hours of non-Western, and six hours of 20th-century and/or contemporary art history (ARS) classes are required. Six hours must be in the upper division.

Art Electives. Seventeen semester hours of ARA, ARE, ARS, and ART courses are required. One semester hour of ART 494 ST: Senior Exhibition and Portfolio is also required.

The deadline for submitting review materials to enroll in computer animation courses is March 15 for fall semester and October 15 for spring semester.

Metals

Core Curriculum. See “BFA Core Curriculum,” page 281, for the courses that make up the core curriculum.

Specialization. The following courses make up the specialization:

ART 272 Jewelry I.....	3
ART 372 Jewelry II.....	3
ART 373 Metalworking I.....	3
ART 472 Advanced Jewelry.....	6
ART 473 Advanced Metalworking.....	6
ART 494 ST: Metals.....	3
Total.....	24

Art History. Six semester hours of upper-division ARS courses are required, including a 20th-century elective.

Additional Requirements. Three of the following six courses (nine semester hours) are required:

ART 201 Photography I.....	3
ART 223 Painting I.....	3
ART 231 Sculpture I.....	3
ART 261 Ceramic Survey.....	3
ART 274 Wood I.....	3

ART 276 Fibers I.....	3
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Art Electives. Seventeen semester hours of ARA, ARE, ARS, and ART courses are required. One semester hour of ART 494 ST: Senior Exhibition and Portfolio is also required.

Painting

Core Curriculum. See “BFA Core Curriculum,” page 281, for the courses that make up the core curriculum.

Portfolio Review. Admission to the courses listed below requires a portfolio review, a minimum overall GPA of 2.70, and a School of Art GPA of 3.00. The portfolio deadlines are October 15 for spring classes and March 15 for fall classes.

Specialization. The following courses make up the specialization:

ART 211 Drawing II.....	3
ART 214 Life Drawing I.....	3
ART 223 Painting I.....	3
ART 227 Watercolor I.....	3
ART 311 Drawing III.....	3
ART 314 Life Drawing II.....	3
ART 323 Painting II.....	3
ART 324 Painting III.....	3
or ART 327 Watercolor II (3)	
ART 325 Figure Painting.....	3
ART 423 Advanced Painting.....	3
or ART 427 Advanced Watermedia (3)	
Total.....	30

One of the following six courses (three semester hours) is required:

ART 324 Painting III.....	3
ART 327 Watercolor II.....	3
ART 411 Advanced Drawing.....	3
ART 423 Advanced Painting.....	3
ART 425 Advanced Figure Painting.....	3
ART 427 Advanced Watermedia.....	3
ART 494 ST: Drawing.....	3
or ART 494 ST: Painting (3)	

Art History. Nine semester hours of ARS courses are required, including three hours of a non-Western elective. Six hours must be upper-division ARS courses.

Additional Requirements. Two of the following six courses (six semester hours) are required:

ART 201 Photography I.....	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 Electives. Eight semester hours of ARA, ARE, ARS, and ART courses are required. One semester hour of ART 494 ST: Senior Exhibition and Portfolio is also required.

Photography

Core Curriculum. See “BFA Core Curriculum,” page 281, for the courses that make up the core curriculum.

Portfolio Review. Admission to the upper-division courses listed below requires a portfolio review, a minimum overall GPA of 2.70, and a School of Art GPA of 3.00. The portfolio deadlines are October 15 for spring classes and March 15 for fall classes.

Specialization. The following courses make up the specialization:

ARA 202 Understanding Photographs	3
ART 201 Photography I.....	3
ART 204 Photography II	3
ART 304 Advanced Photography	3
Total	12

Three of the following 10 courses (nine semester hours) are required:

ART 305 Color Photography I.....	3
ART 308 Digital Photographic Images.....	3
ART 401 Nonsilver Photography	3
ART 403 Senior Photographic Projects.....	3
ART 404 Portraiture Photography	3
ART 405 Advanced Color Photography	3
ART 406 Photo Techniques	3
ART 407 View Camera.....	3
ART 409 Photographic Exhibition	3
ART 494 ST: Photo.....	3

Art History. Twelve semester hours are required, including ARS 250 History of Photography and a non-Western art history course. Six hours must be upper-division.

Additional Requirements. Select one of the following courses:

ART 211 Drawing II.....	3
ART 214 Life Drawing I.....	3
ART 223 Painting I.....	3
ART 227 Watercolor I.....	3

One of the following five courses (three hours) is required:

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 Electives. Seventeen semester hours of ARA, ARE, ARS, and ART courses are required. One semester hour of ART 494 ST: Senior Exhibition and Portfolio is also required.

Printmaking

Core Curriculum. See “BFA Core Curriculum,” page 281, for the courses that make up the core curriculum.

Specialization. The following courses make up the specialization:

ART 211 Drawing II.....	3
or ART 214 Life Drawing I (3)	
ART 351 Intaglio I.....	3
ART 352 Lithography I.....	3
ART 354 Screen Printing I	3
Total	12

Three of the following 10 courses (nine semester hours) are required:

ART 253 Introduction to Printmaking.....	3
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

Two of the following five courses (six semester hours) are required:

ART 214 Life Drawing I.....	3
ART 311 Drawing III.....	3
ART 314 Life Drawing II	3
ART 315 Life Drawing III.....	3
ART 411 Advanced Drawing	3

Art History. Six semester hours of upper-division ARS courses are required.

Additional Requirements. Two of the following eight courses (six semester hours) are required:

ART 201 Photography I.....	3
ART 223 Painting I.....	3
ART 227 Watercolor I.....	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

One semester hour of ART 494 ST: Senior Exhibition and Portfolio is also required.

Art Electives. Seventeen semester hours of ARA, ARE, ARS, and ART courses are required.

Sculpture

Core Curriculum. See “BFA Core Curriculum,” page 281, for the courses that make up the core curriculum.

Specialization. The following courses make up the specialization:

ART 223 Painting I.....	3
ART 231 Sculpture I.....	3
ART 274 Wood I.....	3
ART 331 Sculpture II.....	3
ART 332 Sculpture III	3
ART 431 Special Problems in Sculpture	3
Total	18

Four of the following nine courses (12 semester hours) are required (note that all are repeatable except ART 333):

ART 333 Foundry Casting Methods.....	3
ART 374 Wood II	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 92.

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ART 431 Special Problems in Sculpture	3
ART 432 Neon Sculpture.....	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 ST: Special Topics in Sculpture	3

Art History. Six semester hours of upper-division ARS courses are required.

Additional Requirements. Two of the following three courses are required:

ART 261 Ceramic Survey.....	3
ART 272 Jewelry I.....	3
ART 276 Fibers I.....	3

One semester hour of ART 494 ST: Senior Exhibition and Portfolio is also required.

Art Electives. Fourteen semester hours of ARA, ARE, ARS, and ART courses are required.

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)

ARA 202 Understanding Photographs. (3)

once a year

Slide lecture course in understanding photography as a fine art form.

ARA 311 Art Appreciation and Human Development. (3)

fall

Foundations of art for children and young adults. Emphasis on learning, development, and understanding art in historical and cultural contexts. Lecture, discussion. Fee (online only). Prerequisites: ENG 101, 102; junior standing.

General Studies: HU

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.

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

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)

ARE 301 Studio Art and Human Development. (3)

once a year

Study of human development in studio art from early childhood to adult years.

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. Prerequisite: ARE 440 or instructor approval.

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. Prerequisites: a combination of ARS 101 and 102 and ART 113 and 115 or only instructor approval.

ARE 450 Teaching Inquiry in Art. (3)

fall and spring

Designing inquiry-based curriculum units built on developmental levels of art making and art understanding. 2 hours lecture, 2 hours applied practice. Prerequisites: ARS 101, 102.

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. Prerequisite: ARE 450.

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.

ARE 494 Special Topics. (3)

once a year

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/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.

ART HISTORY (ARS)

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 students who have completed ARS 101 or 102 or 300.

General Studies: HU

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

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

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

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***ARS 250 History of Photography. (3)***once a year*

History of photography from the 19th century to the present.

*General Studies: HU***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***ARS 302 Art of Africa, Oceania, and the Americas. (3)***once a year*

History of art of Africa, Oceania, and the New World. Meets non-Western art history requirement. Credit is allowed for only ARS 302 or 202. Prerequisites: ARS 101, 102.

*General Studies: HU, G, H***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.

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***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.

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***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***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***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***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***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***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***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***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.

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***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***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***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***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***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

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 92.

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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

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

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

ARS 435 The Pre-Raphaelites. (3)

fall

Looks at visual and literary works by Victorian Pre-Raphaelites as works in themselves and through relations between images and texts. Lecture, discussion. Pre- or corequisite: ARS 102 or ENG 221 or HST 104.

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

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

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

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

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

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.

ARS 462 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

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

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

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

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

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

ARS 473 Art of Japan. (3)

once a year

Japanese art from the Jomon period to the present. Meets non-Western art history requirement. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU

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

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

ARS 484 Internship. (1–12)

selected semesters

Topics may include the following:

- Museum

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

ARS 494 Special Topics. (1–4)

fall and spring

Topics may include the following:

- History of Photography. (3)
- Introduction to Museums. (3)

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.

ART (ART)**Studio Core Curriculum****ART 111 Drawing I. (3)***fall, spring, summer*

Fundamental, technical, and perceptual skills using common drawing media and their application to pictorial organization. 6 hours a week.

ART 112 2-D Design. (3)*fall, spring, summer*

Fundamentals of pictorial design. 6 hours a week.

ART 113 Color. (3)*fall, spring, summer*

Principles of color theory as related to the visual arts. 6 hours a week.

Prerequisites: ART 111, 112.

ART 115 3-D Design. (3)*fall, spring, summer*

Fundamentals of 3-D form. 6 hours a week. Fee. Prerequisites: ART 111, 112.

ART 294 Special Topics. (3)*fall and spring***Ceramics****ART 261 Ceramic Survey. (3)***fall, spring, summer*

Handforming methods, throwing on the wheel, decorative processes, and glaze application. 6 hours a week. Fee. Prerequisites: ART 112, 115.

ART 360 Ceramic Throwing. (3)*fall and spring*

Design analysis and production of functional pottery. Emphasis on throwing techniques, surface enrichment, and glaze application. 6 hours a week. May be repeated once for credit. Fee. Prerequisites: ARS 101, 102.

ART 364 Ceramic Handbuilding I. (3)*fall*

Search for form using handbuilding techniques. Kiln firing and related problems. Fee. Prerequisites: a combination of ARS 101 and 102 and ART 113 and 115 and 261 or only instructor approval.

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.

ART 394 Special Topics. (1–4)*selected semesters*

Topics may include the following:

- Ceramics
Fee.
- Turning
Fee.

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.

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.

ART 466 Special Problems in Ceramics. (3)*fall, spring, summer*

Emphasis on personal expression within structure of seminars, critiques, and studio work. Professional methods of presentation/documentation of work. 6 hours a week. May be repeated for credit. Fee. Prerequisite: ART 364 or instructor approval.

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**ART 211 Drawing II. (3)***fall, spring, summer*

Continued development of technical and perceptual skills. Emphasis on materials and pictorial content. 6 hours a week. Prerequisites: ART 113, 115.

ART 214 Life Drawing I. (3)*fall, spring, summer*

Development of skill and expressiveness in drawing the basic form, construction, and gesture from the human figure. 6 hours a week. Fee. Prerequisites: ART 113, 115.

ART 311 Drawing III. (3)*fall and spring*

Emphasis on composition, exploration of drawing media. 6 hours a week. Prerequisites: a combination of ARS 101 and 102 and ART 214 or only instructor approval.

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. Prerequisites: a combination of ARS 101 and 102 and ART 214 or only instructor approval.

ART 315 Life Drawing III. (3)*fall and spring*

The human figure as the subject for drawing. Emphasis on conceptual alternatives and management of materials. 6 hours a week. Fee. Prerequisites: a combination of ARS 101 and 102 and ART 314 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 92.

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ART 411 Advanced Drawing. (3)

fall and spring

Visual and intellectual concepts through problem solving and independent study. Emphasis on the individual creative statement. 6 hours a week. May be repeated for credit. Prerequisites: ART 311; instructor approval.

ART 414 Advanced Life Drawing. (3)

fall and spring

Various media and techniques on an advanced level. The human figure as an expressive vehicle in various contexts. 6 hours a week. May be repeated for credit. Fee. Prerequisite: ART 315 or instructor approval.

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. Prerequisite: ART 214.

ART 494 Special Topics. (1–4)

fall and spring

Topics may include the following:

- Drawing. (3)

Fibers

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. Prerequisites: both ART 113 and 115 or only instructor approval.

ART 294 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Fibers for Nonmajors
Fee.

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. Prerequisites: a combination of ARS 101 and 102 and ART 276 or only instructor approval.

ART 377 Surface Design. (3)

fall and spring

Application of dyes and pigments on cloth exploring techniques, formal issues, and content. Cyanotype, monoprinting, painting on silk, resists, stenciling. Fee. Prerequisites: a combination of ARS 101 and 102 and ART 276 or only instructor approval.

ART 394 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Fibers Design for Nonmajors
Fee.

ART 476 Woven Structures II. (3)

fall and spring

Emphasizes personal expression and continues technical exploration in woven structures. Fee. Prerequisite: ART 376 or instructor approval.

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.

ART 478 Advanced Surface Design. (3)

spring in odd years

Emphasis on 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.

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

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. Prerequisites: a combination of ARS 101 and 102 and a General Studies CS course or only instructor approval.

ART 346 3-D Computer Imaging and Animation. (3)

fall and spring

3-D modeling and animation. Emphasis on concepts and fine arts applications. Studio. Fee. Prerequisites: a combination of ARS 101 and 102 and ART 113 and 115 and junior standing or only instructor approval.

General Studies: CS

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.

ART 439 Mixed Media. (3)

fall and spring

Exploring visual effects by combining traditional and nontraditional methods, techniques, and concepts. 6 hours a week. May be repeated for credit. Studio. Prerequisites: a combination of ART 113 and 115 and 6 hours additional studio requirements or only instructor approval.

ART 440 New Media Concepts. (3)

fall and spring

Continued experiments with new media and interdisciplinary concerns in art. 6 hours a week. May be repeated for credit. Fee. Prerequisite: ART 443. Corequisite: ART 441.

ART 441 Video Art. (1)

fall and spring

Utilizing video and audio equipment essential to the production of broadcast quality video art. 2 hours a week. May be repeated for credit. Corequisite: ART 440.

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.

ART 443 Intermedia. (3)

fall and spring

Experimental, conceptual, and interdisciplinary studio art with emphasis on new media and technologies. 6 hours a week. May be repeated once for credit. Prerequisites: both ART 113 and 115 or only instructor approval.

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.

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.

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

ART 484 Internship. (1–12)

selected semesters

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.

ART 499 Individualized Instruction. (1–3)*selected semesters***Metals****ART 272 Jewelry I. (3)***fall and spring*

Emphasis on fabrication in jewelry making. Basic techniques of cutting and piercing, forging and soldering, and forming. Not open to seniors. 6 hours a week. Fee.

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. Prerequisites: a combination of ARS 101 and 102 and ART 113 and 115 and 272 or only instructor approval.

ART 373 Metalworking I. (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.

ART 472 Advanced Jewelry. (3)*fall and spring*

Jewelry making with emphasis on developing personal statements and craftsmanship. 6 hours a week. May be repeated for credit. Fee. Prerequisites: ART 372; instructor approval.

ART 473 Advanced Metalworking. (3)*once a year*

Forging and forming techniques in individualized directions. 6 hours a week. May be repeated for credit. Fee. Prerequisites: ART 373; instructor approval.

ART 494 Special Topics. (1–4)*fall and spring*

Topics may include the following:

- Metals. (3)
- Senior Exhibition and Portfolio

Painting**ART 223 Painting I. (3)***fall, spring, summer*

Fundamental concepts and materials of traditional and experimental painting media. Emphasis on preparation of painting supports, composition, and color. 6 hours a week. Prerequisites: ART 113, 115.

ART 227 Watercolor I. (3)*fall and spring*

Fundamental concepts, materials, and techniques of watercolor. Emphasis on problem solving, basic skills, composition, and color. 6 hours a week. Fee. Prerequisites: ART 113, 115.

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. Prerequisites: a combination of ARS 101 and 102 and ART 223 or only instructor approval.

ART 324 Painting III. (3)*fall and spring*

Continuation of ART 323. 6 hours a week. Prerequisites: a combination of ARS 101 and 102 and ART 323 or only instructor approval.

ART 325 Figure Painting. (3)*fall and spring*

The human figure clothed and nude as the subject for painting in selected media. 6 hours a week. Fee. Prerequisites: a combination of ARS 101 and 102 and ART 314 and 323 or only instructor approval.

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. Prerequisites: a combination of ARS 101 and 102 and ART 227 or only instructor approval.

ART 423 Advanced Painting. (3)*fall and spring*

Continuation of ART 324. 6 hours a week. May be repeated for credit. Prerequisite: ART 324.

ART 425 Advanced Figure Painting. (3)*fall and spring*

Continuation of ART 325. 6 hours a week. May be repeated for credit. Fee. Prerequisites: ART 315, 324, 325.

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. 6 hours a week. May be repeated for credit. Fee. Prerequisite: ART 327 or instructor approval.

ART 494 Special Topics. (1–4)*fall and spring*

Topics may include the following:

- Painting. (3)
- Senior Exhibition and Portfolio

Photography**ART 201 Photography I. (3)***fall and spring*

Development of skills and techniques of black and white photography. Emphasis on camera work and darkroom procedures. Must be taken with ART 202.

ART 202 Photography I Lab. (0)*fall and spring*

See ART 201. Fee.

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. Prerequisite: ART 201.

ART 294 Special Topics. (1–4)*selected semesters*

Topics may include the following:

- Digital Art. (3)

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. Prerequisites: a combination of ARS 101 and 102 and ART 204 or only instructor approval.

ART 305 Color Photography I. (3)*fall and spring*

Application of color transparencies and prints to photographic art. 6 hours a week. Fee. Prerequisite: ART 204

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 92.

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ART 308 Digital Photographic Images I. (3)

fall and spring

Scanning, manipulation, refinement, and compositing of photographic images on the computer. Lab, studio. Fee. Prerequisite: ART 204.

ART 394 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Digital Art. (3)

ART 401 Nonsilver Photography. (3)

fall and spring

Recognition of the inherent characteristics of nonsilver processes and their use in communicating ideas. 6 hours a week. May be repeated for credit. Fee. Prerequisite: ART 304 or instructor approval.

ART 403 Senior Photographic Projects. (3)

fall and spring

Technical and philosophical refinement of personal aesthetic with various photographic media. 6 hours a week. May be repeated for credit. Fee. Prerequisite: ART 204.

ART 404 Portraiture Photography. (3)

fall and spring

Photographing people. Critical discussions and slide lectures on issues in portraiture. 6 hours a week. May be repeated for credit. Fee. Prerequisite: ART 204.

ART 405 Advanced Color Photography. (3)

fall and spring

Intensive use of subtractive color process in photographic printing. 6 hours a week. May be repeated for credit. Fee. Prerequisite: ART 305 or instructor approval.

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.

ART 407 View Camera. (3)

fall and spring

View camera and darkroom techniques. Studio, lab. Fee. Prerequisite: ART 204.

ART 409 Photographic Exhibition. (3)

once a year

Care of photographic prints, print presentation, and exhibition. Practical experience in gallery operations. 6 hours a week. May be repeated for credit. Prerequisite: ART 304 or instructor approval.

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

ART 498 Pro-Seminar. (1–7)

selected semesters

Topics may include the following:

- Landscape Photography: Theory
Fee.

Printmaking

ART 253 Introduction to Printmaking. (3)

once a year

Introduction to basic monotype, intaglio, relief, and related techniques. Studio. Fee. Prerequisite: ART 113.

ART 351 Intaglio I. (3)

fall and spring

Introduces contemporary and traditional developmental techniques for black and white prints. 6 hours a week. Fee. Prerequisites: a combination of ARS 101 and 102 and ART 113 and 115 or only instructor approval.

ART 352 Lithography I. (3)

fall and spring

Monochromatic and color planographic printmaking utilizing stone and aluminum plate processes. 6 hours a week. Fee. Prerequisites: a combination of ARS 101 and 102 and ART 113 and 115 or only instructor approval.

ART 354 Screen Printing I. (3)

fall and spring

Introduces paper, direct, and photographic stencil techniques. 6 hours a week. Fee. Prerequisites: a combination of ARS 101 and 102 and ART 113 and 115 or only instructor approval.

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. Prerequisite: ART 201 (or its equivalent).

ART 394 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Relief Printmaking
Fee.

ART 451 Advanced Intaglio. (3)

fall and spring

Various contemporary and traditional methods of printing to achieve color prints. 6 hours a week. May be repeated for credit. Fee. Prerequisite: ART 351 or instructor approval.

ART 452 Advanced Lithography. (3)

fall and spring

Continuation of ART 352. 6 hours a week. May be repeated for credit. Fee. Prerequisite: ART 352 or instructor approval.

ART 454 Advanced Screen Printing. (3)

once a year

Continuation of ART 354. 6 hours a week. May be repeated for credit. Fee. Prerequisite: ART 354 or instructor approval.

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.

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. Prerequisite: instructor approval.

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.

ART 458 Papermaking. (3)

fall and spring

History, theory, demonstrations, sheet forming, collage treatments, and 3-D approaches. 6 hours a week. May be repeated for credit. Fee. Prerequisite: instructor approval.

ART 459 Monoprinting. (3)

fall and spring

Nonmultiple printed image using a variety of technical approaches. 6 hours a week. May be repeated for credit. Fee. Prerequisites: ART 311, 323 (or any 300-level printmaking class); instructor approval.

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**ART 231 Sculpture I. (3)***fall, spring, summer*

Explores sculptural forms through concepts related to basic materials. Focus on studio production, safety, aesthetic criticism, and history of sculpture. 6 hours a week. Fee. Prerequisites: both ART 113 and 115 or only instructor approval.

ART 274 Wood I. (3)*fall and spring*

Fundamental woodworking techniques to produce creative functional 3-D objects. 6 hours a week. Fee.

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.

Prerequisites: a combination of ARS 101 and 102 and ART 231 or only instructor approval.

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.

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. 6 hours a week. May be repeated for credit. Fee. Prerequisites: a combination of ARS 101 and 102 and ART 332 or only instructor approval.

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. Prerequisites: a combination of ARS 101 and 102 and ART 113 and 115 and 274 or only instructor approval.

ART 394 Special Topics. (1–4)*selected semesters*

Topics may include the following:

- Carving
Fee.

ART 431 Special Problems in Sculpture. (3)*fall and spring*

Development of a personal approach to sculpture. Emphasis on form, individual problems, and related color technology. Professional practices and presentation. 6 hours a week. May be repeated for credit. Fee. Prerequisites: ART 332; instructor approval.

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. 6 hours a week. May be repeated for credit. Fee. Prerequisite: instructor approval.

ART 435 Foundry Research Methods. (3)*fall and spring*

Research in foundry techniques. Studio. Pre- or corequisite: ART 333 or instructor approval.

ART 436 Architectural Sculpture. (3)*selected semesters*

Sculptural concepts as related to architecture and other man-made environments. Scale drawing, models, and relief sculpture. 6 hours a week. May be repeated for credit. Fee. Prerequisite: ART 332 or instructor approval.

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. 6 hours a week. May be repeated for credit. Fee. Prerequisite: instructor approval.

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. 6 hours a week. May be repeated for credit. Fee. Prerequisite: instructor approval.

ART 474 Advanced Wood. (3)*fall and spring*

Extended experience and advanced techniques in the use of wood to create functional works of art. 6 hours a week. May be repeated for credit. Fee. Prerequisites: ART 374; instructor approval.

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

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 92.

Department of Dance

herberger/dance

480/965-5029

PEBE 107A

Professors: Kaplan, Keuter, Murphey

Associate Professors: Jackson, Mooney

Assistant Professors: Fitzgerald, Parrish, Tsukayama, Vissicaro

Associate Research Professional: Mitchell

Senior Lecturer: Schupp

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 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 Dance 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 Dance 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 Department of Dance.

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 88, and [“College Degree Requirements,”](#) page 276.

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 <i>HU, G</i>	3
or DAH 191 First-Year Seminar (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 <i>L/HU</i>	3
DAH 302 Cross-Cultural Dance Studies <i>L/HU, G</i>	3
DAH 401 Dance History <i>HU</i>	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,” page 294.

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 294.

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 356 Methods of Teaching Contemporary Dance Technique and Composition in Secondary Education	4
DAN 364 Choreography and Accompaniment	3
DAN 394 ST: Integrated Approaches in Dance Education	3

DAN 494 ST: Senior Dance Education Project	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 194.

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 294.

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 294.

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

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 92.

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Additional requirements are listed on the check sheet available from the Department of Dance.

MINOR

All students interested in a Dance minor must successfully complete the Audition/Admission. For more information, see “[Audition/Admission](#),” page 294. The department offers a minor in Dance consisting of 18 semester hours of course work, including 12 upper-division hours. A minimum grade of “C” (2.00) is required in all courses. Additional Dance minor requirements include the following:

Performance	3
Technique	6
Theory	6
Elective.....	3

Interested students should contact the Department of Dance for requirements and audition/admission procedures.

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 124.

All students interested in the dance concentration must successfully complete the Audition/Admission. For more information, see “[Audition/Admission](#),” page 294.

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)

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.

DAH 191 First-Year Seminar. (1–3)

selected semesters

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

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

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

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

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

DAH 492 Honors Directed Study. (1–6)

fall and spring

May be repeated for credit. Prerequisite: honors advisor approval.

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.

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)

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.

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.

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.

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
- 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

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.

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.

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.

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.

DAN 230 Dance. (2)*fall, spring, summer*

Intermediate levels. Continuation of DAN 130. May be repeated for credit.

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.

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.

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.

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.

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.

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

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.

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.

DAN 330 Dance. (2)*fall, spring, summer*

Advanced levels. Continuation of DAN 230. May be repeated for credit.

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.

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.

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.

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.

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.

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.

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 92.

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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.

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.

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.

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.

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.

DAN 365 Advanced Choreography. (3)

spring

Investigation and practice of contemporary styles of choreography. Studio. Prerequisites: DAN 264 and 265 (or their equivalents).

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.

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.

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

DAN 423 Dance, Computers, and Multimedia. (3)

fall and spring

Introduces desktop multimedia as it relates to dance creation, education, production, and research. Lecture, lab. Fee.

General Studies: CS

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.

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.

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.

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.

DAN 471 Dance Arizona Repertory Theatre. (3–4)

fall and spring

Preprofessional modern dance company, emphasizing outreach and performance. Opportunity to work with guest artists and community schools and organizations. Lecture, studio. Fee. Prerequisite: instructor approval.

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.

DAN 480 Senior Performance in Dance. (2)

fall

Original choreography for group performance with analysis and critique of problems encountered in production. Must be repeated for a total of 4 semester hours. Prerequisites: DAN 364, 365.

DAN 484 Dance Internship. (1–3)

fall and spring

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.

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.

School of Music

music.asu.edu

480/965-3371

MUSIC E185

Wayne A. Bailey, Director

**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, Shinn, Smith, Solís, Spring, Stauffer, Sunkett, Swaim, Thompson, Williamson, Wytko

Associate Professors: E. Buck, N. Buck, Bush, E. Carpenter, Haefer, Holbrook, Kocour, Kopta, Lyman, May, McLin, Norton, Rio, Rockmaker, Schuring, Wilson

Assistant Professors: Barefield, Bryan, A. Campbell, Cuciurean, Ericson, Feisst, Gentry, Jiang, Landschoot, Lingas, Meir, Mills, Montilla, Province, Schmidt, Sullivan, Swartz

Senior Lecturer: 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 who wish to be Music majors who do not successfully complete the audition are allowed to remain in the preprofessional program for two semesters (excluding summer and winter sessions). Students are allowed to re-audition two times in addition to the initial audition; these additional auditions may take place either during or at the end of each fall or spring semester that the student is enrolled under this program. During these semesters, students are allowed to enroll in music ensembles, concert

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 92.

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attendance, and general studies courses to be chosen through consultation with a School of Music academic advisor. Students are also encouraged to obtain private instruction on their major instrument through either the School of Music preparatory program or with private instructors. These private instructions are not required and do not generate university course credit hours. The recitations 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 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 88](#), and [“College Degree Requirements,” page 276](#).

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 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 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 88](#), and [“College Degree Requirements,” page 276](#).

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. A student pursuing a degree in Music Education may also choose to become certified for teaching music K–12. If certification is selected while pursuing the music education undergraduate degree, additional semester hours are required in the College of Education.

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
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 wish-

ing 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

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 92.

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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 <i>L</i>	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.

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 <i>SG</i>	4
CDE 232 Human Development <i>SB</i>	3
PGS 101 Introduction to Psychology <i>SB</i>	3
PGS 466 Abnormal Psychology <i>SB</i>	3
PSY 230 Introduction to Statistics <i>CS</i>	3
or STP 226 Elements of Statistics <i>CS</i> (3)	
SOC 101 Introductory Sociology <i>SB</i>	3
SPE 311 Orientation to Education of Exceptional Children <i>SB, C</i>	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

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

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 92.

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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 Studio Instruction: Jazz are required.

Improvisation. The following courses are required:

MUP 141 Jazz Fundamentals	1
MUP 142 Jazz Listening Lab	1
MUP 217 Improvisation Workshop	2
MUP 218 Improvisation Workshop	2
MUP 417 Advanced Improvisation	2
MUP 418 Advanced Improvisation	2
Total	10

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
or MTC 428 Advanced Form and Analysis (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 <i>L</i>	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

Harpichord. One semester hour of harpichord 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.

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.

Piano Accompanying 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: Piano Accompanying	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 Piano Accompanying, one semester of MUP 487 Piano Accompanying, and two semesters of ensemble electives (minimum of six different semesters) are required.

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 92.

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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 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 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 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.

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 20 semester hours of course work. A minimum grade of “C” (2.00) is required in all courses.

MHL 341 Music History.....	3
MHL 342 Music History.....	3
MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
Electives*	8
Total	20

* Electives may be chosen from MUS, MHL, MTC, and selected MUP courses. The minor does not include Studio Instruction.

Diagnostic Examination. Students pursuing a minor in music must first take a Theory Diagnostic Exam. This exam may be taken in the Music Building’s Electronic Classroom, room W-225.

Interested students should contact the School of Music for specific requirements and admission procedures.

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 124.

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 276, 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)

MHL 194 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Music and Culture. (3)

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

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.

MHL 342 Music History. (3)

fall and spring

See MHL 341. Prerequisite: MTC 221.

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

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

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

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

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

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

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 92.

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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

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.

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/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 THEORY AND COMPOSITION (MTC)

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.

MTC 125 Basic Music Theory. (3)

fall

Notation, scales, keys, modes, intervals, chords, basic part writing and composition. Development of related aural skills through sight-singing and dictation. Prerequisite: any music major or instructor approval.

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.

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.

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.

MTC 315 Modern Arranging. (2)

fall

Techniques in arranging for the contemporary jazz, radio, television, and studio orchestra. Prerequisite: MTC 223.

MTC 316 Modern Arranging. (2)

spring

Continuation of MTC 315. Prerequisite: MTC 315.

MTC 320 Modal Counterpoint. (2)

fall

Counterpoint based on 16th-century vocal polyphonic style. Prerequisite: MTC 221.

MTC 321 Tonal Counterpoint. (2)

spring

Counterpoint based on 18th-century polyphonic style. Prerequisite: MTC 221.

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.

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.

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.

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.

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.

MTC 429 Canon and Fugue. (2)

fall in odd years

Writing of canons and fugues in tonal style. Prerequisite: MTC 321.

MTC 430 20th-Century Counterpoint. (2)

spring in even years

Counterpoint studies utilizing 20th-century idioms. Prerequisite: MTC 223.

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.

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.

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.

MTC 440 Jazz Theory and Ear Training. (2)

fall

Advanced study of jazz harmonic systems. Daily oral drills. Prerequisite: MTC 223.

MTC 441 Jazz Composition. (2)

fall

Creative writing in the smaller forms and in the idiom of jazz. Prerequisite: MTC 321.

MTC 495 Final Project. (0)

fall and spring

Half recital of compositions or approval of a large-scale composition or a research paper.

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)

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.

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.

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.

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.

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.

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.

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.

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.

MUE 317 Educational Methods for Violin and Viola. (1)*fall and spring*

Teaching and playing skills for music teachers. 3 hours per week.

MUE 318 Educational Methods for Cello and String Bass. (1)*fall and spring*

Teaching and playing skills for music teachers. 3 hours per week.

MUE 327 Educational Methods for Trumpet and Horn. (1)*fall and spring*

Teaching and playing skills for music teachers. 3 hours per week.

MUE 328 Educational Methods for Trombone, Euphonium, and Tuba. (1)*fall and spring*

Teaching and playing skills for music teachers. 3 hours per week.

MUE 335 Educational Methods for Guitar. (1)*fall and spring*

Teaching and playing skills for music teachers. 3 hours per week.

MUE 336 Educational Methods for Percussion. (1)*fall and spring*

Teaching and playing skills for music teachers. 3 hours per week.

MUE 337 Educational Methods for Flute, Clarinet, and Saxophone. (1)*fall and spring*

Teaching and playing skills for music teachers. 3 hours per week.

MUE 338 Educational Methods for Double Reed Instruments. (1)*fall and spring*

Teaching and playing skills for music teachers. 3 hours per week.

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.

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.

MUE 381 Music Therapy Research. (3)*spring*

Statistics and research design appropriate for investigations in music therapy.

*General Studies: L***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.

MUE 385 Therapy Preclinical II. (1)*fall and spring*

Individual placement in ASU Music Therapy Clinic.

MUE 386 Therapy Preclinical III. (1)*fall and spring*

See MUE 385.

MUE 387 Therapy Preclinical IV. (1)*fall and spring*

Individual clinical work in a community mental health facility.

MUE 388 Therapy Preclinical V. (1)*fall and spring*

See MUE 387.

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.

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.

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.

MUE 476 Internship in Music Therapy. (1)*fall and spring*

Full-time, 6-month, off-campus residency in an approved clinical institution.

MUE 480 Choral Methods. (3)*spring*

Methods of instruction, organization, and presentation of appropriate content in choral music classes. Prerequisite: Secondary Education major.

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.

MUE 482 Instrumental Practicum/Methods. (5)*spring*

See MUE 481. Prerequisites: MUE 481 (or 485); Secondary Education major.

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.

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 92.

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

MUSIC PERFORMANCE (MUP)

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.

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.

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.

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.

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.

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.

MUP 132 Class Piano. (1)

spring

See MUP 131.

MUP 133 Class Voice. (1)

fall and spring

4-semester sequence (MUP 134, 233, and 234) open to all students. 2 hours per week. May not be taken for audit.

MUP 134 Class Voice. (1)

fall and spring

See MUP 133. Prerequisite: MUP 133 or instructor approval.

MUP 141 Jazz Fundamentals. (1)

fall

Principles, methods, and theory of jazz performance and pedagogy.

MUP 209 Beginning Choral Conducting. (1)

fall and spring

Essentials of choral conducting techniques. 2 hours per week.

MUP 210 Beginning Instrumental Conducting. (1)

spring

Essentials of instrumental conducting techniques. 2 hours per week.

MUP 217 Applied Jazz Improvisation. (2)

fall and spring

Emphasizes basic jazz literature, chord symbol reading, melodic patterns, ear training, melodic concepts, analysis of improvised solos, and pedagogical issues. May be repeated for credit. Studio. Prerequisites: MUP 117 (2 semesters); placement examination; audition.

MUP 231 Class Piano. (1)

fall

See MUP 131.

MUP 232 Class Piano. (1)

spring

See MUP 131.

MUP 233 Class Voice. (1)

fall and spring

See MUP 133. Prerequisite: MUP 134 or instructor approval.

MUP 234 Class Voice. (1)

fall and spring

See MUP 133. Prerequisite: MUP 233 or instructor approval.

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.

MUP 236 Jazz Piano. (1)

spring

See MUP 235. Prerequisite: MUP 132.

MUP 237 Fretboard Harmony. (1)

fall and spring

Scales, chords, harmony, basic improvisation for the guitar. 2 hours per week.

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.

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.

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.

MUP 311 Studio Instruction. (2)

fall and spring

See MUP 111. Fee.

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.

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.

MUP 321 Studio Instruction. (1)

fall, spring, summer

See MUP 121. Fee.

MUP 327 Studio Instruction. (4)

fall and spring

See MUP 127. Fee.

MUP 337 Studio Instruction: Piano Accompanying. (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 piano accompanying; placement examination.

MUP 339 Choral Conducting. (2)

fall and spring

Elements of choral conducting technique and interpretation. 3 hours per week. Prerequisite: MUP 209.

MUP 340 Instrumental Conducting. (2)*fall*

Fundamentals of score reading and interpretation of instrumental music. 3 hours per week. Prerequisite: MUP 210.

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.

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.

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.

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.

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.

MUP 353 University Choir. (1)*fall and spring*

4 hours per week. May be repeated for credit. Prerequisite: instructor approval.

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.

MUP 357 Women's Chorus. (1)*fall and spring*

2 hours per week. May be repeated for credit. Prerequisite: instructor approval.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

MUP 388 Piano Accompanying. (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 piano accompanying or instructor approval.

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.

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.

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 92.

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

MUP 453 Song Literature. (2)

once a year

Early Italian, English, German, and French art song.

MUP 454 Song Literature. (2)

once a year

American, Russian, Spanish, Scandinavian, and contemporary song.

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.

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 piano accompanying concentration); instructor approval.

MUP 487 Piano Accompanying. (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 keyboard or piano accompanying.

MUP 495 Performance. (0)

fall

For candidates of a BM degree in which 1/2 recital is a requirement. Prerequisite: BM degree candidate.

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/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 (MUS)

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.

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*

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

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. Credit does not apply to major requirements for music degrees. Fee.

General Studies: HU

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

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

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.

Department of Theatre

theatre.asu.edu

480/965-5337

GHALL 232

Linda Essig, Chair

Professors: Barker, Bedard, Eckard, Essig, Giner, Honegger, Knapp, Saldaña, Thomson, Valenti, Wills

Associate Professors: Acker, Edwards, Furr-Soloman, Holloway, Reyes, Riske, Underiner

Assistant Professors: Gharavi, Rivera-Servera, Sterling, Woodson

Senior Lecturer: McMahon

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 Department of Theatre office and on its Web site for the BA degree program.

For eligibility to enroll in theatre courses as majors, incoming freshman and transfer students must submit a one- or two-page, typed, double-spaced letter of intent that answers the questions (1) What is it about theatre and the performing arts that interest and excite you? and (2) What are the qualities you possess that can contribute to the study and creation of theatre at ASU and beyond? and a one-page narrative biography of the applicant's life and artistic experiences. Materials must be delivered by hand to GHALL 232 or mailed to

ACADEMIC ADVISOR
ARIZONA STATE UNIVERSITY
DEPARTMENT OF THEATRE
PO BOX 872002
TEMPE, AZ 85287-2002

Fax and e-mail submissions are not accepted or considered.

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 <i>L</i>	3
THE 320 History of the Theatre I <i>HU, H</i>	3
THE 321 History of the Theatre II <i>HU, H</i>	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 in a different production option is required.

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 developing new work is also required (e.g., playwriting, solo performance, theatre for social change). 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 studies. 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 six semester hours are required:

THP 272 Acting: Introduction to Movement	3
THP 277 Acting: Introduction to Voice	3

One of the following two courses (three semester hours) is also required:

THP 207 Acting: The Creative Imagination	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 appeal in writing to the director of the undergraduate acting program.

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. The following 12 semester hours are required:

THP 340 Scene Design	3
THP 345 Lighting Design	3
THP 430 Costume Design	3
THP 442 Drawing	3

One of the following two courses (three or four semester hours), not taken as part of the core, is also 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 92.

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

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 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 scenography 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. Scenography 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, production participation, and maintenance of a 2.50 GPA.

Eligible students denied admission into the scenography concentration can appeal in writing to the director of the undergraduate scenography program.

GRADUATION REQUIREMENTS

In addition to fulfilling the major requirements, students must meet all university graduation requirements. See “University Graduation Requirements,” page 88.

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 in the same area of concentration. 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 124.

GRADUATE PROGRAMS

The faculty in the Department of Theatre offer programs leading to the MA degree in Theatre; the Master of Fine Arts degree in Theatre with concentrations in performance, scenography, theatre for youth, and interdisciplinary digital media; the PhD degree in Theatre with a concentration in 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.

THEATRE (THE)

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

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 major.

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

THE 300 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

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 300.

General Studies: HU

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.

General Studies: HU, H

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.

General Studies: HU, H

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.

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.

THE 402 Gender Identity in Film. (3)*selected semesters*

Examines the representation of gender in Hollywood cinema with particular focus on films from 1970 to the present. Prerequisite: THE 300.

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***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***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***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***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.

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***THE 424 Trends in Theatre for Youth. (3)***selected semesters*

Surveys the history, literature, and contemporary practices in theatre for youth.

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.

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.

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.

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.

THE 494 Special Topics. (1–4)*selected semesters*

Topics may include the following:

- 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/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.

THEATRE PERFORMANCE AND PRODUCTION (THP)**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.

THP 102 Acting: 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.

THP 113 Techniques of Theatrical Makeup. (3)*selected semesters*

Techniques of the theatrical makeup: age, corrective, masks, and special effects. 1 hour lecture, 2 hours lab. Fee.

THP 207 Acting: The Creative Imagination. (3)*fall*

Develops the actor as an artist, introducing the use of the creative imagination through sensory experience as led by Stanislavski. Studio. Prerequisites: Theatre major; interview. Prerequisite with a grade of “B” (3.00) or higher: THP 101 or 102. Pre- or corequisite: THE 220.

THP 208 Acting: The Reality of Doing. (3)*spring*

Continuation of the inner process, applying the techniques of Sanford Meisner to discover the creativity in the spontaneous experience. Prerequisite: written instructor approval. Prerequisite with a grade of “B” (3.00) or higher: THP 207.

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. 2 hours lecture, 3 hours lab. Fee. Prerequisite: Theatre major.

THP 214 Introduction to Costuming. (3)*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.

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.

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.

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 92.

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

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.

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.

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.

THP 285 Acting: 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.

THP 301 Theatre Production. (1–4)

fall, spring, summer

Participation in university mainstage theatre productions (acting, running crew, etc.). May be repeated for credit. Prerequisites: application; written instructor approval.

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.

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.

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.

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.

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. Prerequisite with a grade of "C" (2.00) or higher: THE 220.

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.

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.

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.

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.

THP 340 Scene Design. (3)

once a year

Studio projects in designing realistic scenery for the contemporary proscenium stage. Fee. Prerequisite: THP 213 or written instructor approval. Prerequisite with a grade of "C" (2.00) or higher: THE 220.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

THP 394 Special Topics. (1–4)

fall and spring

THP 401 Theatre Practicum. (1–3)

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.

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.

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.

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.

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.

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.

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.

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.

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.

THP 441 Scene Painting. (3)*selected semesters*

Studio projects in painting stage scenery. Fee. Prerequisite: THP 340 or written instructor approval.

THP 442 Drawing. (3)*selected semesters*

Techniques in drawing and rendering for scenic, costume, and lighting design. Prerequisite: written instructor approval.

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.

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.

THP 450 Theatre Organization and Management. (3)*once a year*

Overview of nonprofit arts: organizational design, strategic planning, financial management, and leadership. Prerequisite: THE 220.

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.

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.

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.

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***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 207 or 285 or written instructor approval.

THP 484 Internship. (1–4)*selected semesters***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.

THP 494 Special Topics. (1–4)*selected semesters*

Topics may include the following:

- Advanced Screenwriting
- Performance and Technology
- Problems in Directing
- Storytelling
- Student Production Board
- Theory and Practice of Performance

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/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.

Walter Cronkite School of Journalism and Mass Communication

cronkite.asu.edu

Stephen K. Doig, BA, Interim Director

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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 may also 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. All preprofessional students enrolling in courses in the school must complete a minimum of 12 semester hours with a minimum 2.50 GPA 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 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.

WALTER CRONKITE SCHOOL OF JOURNALISM AND MASS COMMUNICATION

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.

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 <i>L</i>	3
MCO 110 Introduction to Mass Communication <i>SB</i>	3
or MCO 120 Media and Society <i>SB</i> (3)	
MCO 302 Media Research Methods.....	3
MCO 402 Mass Communication Law <i>L</i>	3
Total	12



The San Pablo residence hall on Tempe campus

Tim Trumble photo

WALTER CRONKITE SCHOOL OF JOURNALISM AND MASS COMMUNICATION

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 88.

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 92. 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 <i>SB, H</i>	3
MCO 430 International Mass Communication <i>G</i>	3
MCO 435 Emerging Media Technologies.....	3
MCO 450 Visual Communication <i>HU</i>	3
MCO 456 Political Communication <i>SB</i>	3
MCO 460 Race, Gender, and Media <i>C</i>	3
MCO 473 Sex, Love, and Romance in the Mass Media <i>SB</i>	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, stu-

dents 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 124.

COLLEGE OF EXTENDED EDUCATION

The university-wide College 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 “[College of Extended Education](#),” page 703, 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

Stephen K. Doig, Interim Director

Professors: Craft, Cronkite, Doig, Godfrey, Goldstein, Merrill, Sylvester, Watson

Associate Professors: Allen, Barrett, Bramlett-Solomon, Galician, Matera, Russell, Russomanno

Assistant Professors: Gavrilos, Schwalbe, Silcock

Clinical Professors: Itule, Leigh

Lecturer: Casavantes

Senior Administrative Professional: Leigh

JOURNALISM AND MASS COMMUNICATION (JMC)

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.

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

WALTER CRONKITE SCHOOL OF JOURNALISM AND MASS COMMUNICATION

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

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.

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.

JMC 300 Advanced Broadcast Newsriting. (3)

fall and spring

Technique and practice in newsriting for broadcast and cable applications. Fee. Prerequisites: JMC 201; JMC professional status.

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

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.

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

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

JMC 437 Documentary Production. (3)

fall and spring

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.

JMC 440 Magazine Writing. (3)

fall and spring

Writing and marketing magazine articles for publication. Prerequisites for undergraduates: JMC 301; JMC professional status.

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.

JMC 451 Photojournalism II. (3)

fall

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.

JMC 452 Photojournalism III. (3)

spring

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.

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.

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 92.

WALTER CRONKITE SCHOOL OF JOURNALISM AND MASS COMMUNICATION

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.

JMC 472 Media Management. (3)

fall, spring, summer

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.

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.

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)

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

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

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.

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.

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

MCO 418 History of Mass Communication. (3)

fall and spring

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

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.

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

MCO 435 Emerging Media Technologies. (3)

once a year

Surveys new telecommunication technologies in a convergent environment.

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.

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

MCO 453 American Political Film. (3)

fall and spring

Studies the depiction of the American political process, especially the electoral process, through film. Lecture, discussion.

MCO 456 Political Communication. (3)

fall and spring

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

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

MCO 464 Media and Politics: The Fourth Estate. (3)

fall and spring

Understanding and articulation of the place of the press as the Fourth Estate in the political life of the U.S.

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.

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

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

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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 near other colleges on 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 406,000 volumes and microform volume equivalents. The collection includes a broad selection of Anglo-American 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 Sci-

ence and Engineering Library, the Architecture and Environmental Design Library, and the Music Library. The collections maintained in all university libraries comprise more than 3 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 a multidisciplinary research center and 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—28 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 intellectual property, health care law, and environmental law. Externships in the local legal community provide students with hands-on experience under the guidance of skilled practitioners. The center's Technology Transfer 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.

COLLEGE OF LAW

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 six real-client clinics: the Civil Practice Clinic, the Criminal Practice Clinic, the Public Defender Clinic, the Mediation Clinic, the Technology Ventures Clinic, and the Indian Law 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. Finally, students provide legal assistance to tribal communities and governments through the Indian Law Clinic. 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 of Law, 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 to create an arena in which students can compete fairly and confidently. Copies of the *Honor Code* are available from the assistant dean in 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.

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 the degree 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 in 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 more 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 college’s Web site at www.law.asu.edu.

Law

law.asu.edu

480/965-6181

LAW 101

Patricia D. White, Dean

Andrew Askland, 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

Kathlene Rosier, Director,
Indian Legal Program

Judith M. Stinson, Director,
Legal Research and Writing and Academic Success
Programs

Regents’ Professors: Kaye, Murphy

Professors: Bartels, Bender, Berch, Calleros, Clinton, Ellman, Feller, Gorman, Gover, Grey, Guerin, Herrera, Kader, Karjala, Lowenthal, Lynk, Marchant, Nickel, Noreuil, O’Grady, Rose, Saks, Schatzki, Schroeder, Stanton, Strouse, Tsosie, Tucker, Weinstein, M. White, P. White, Winer

Visiting Professors: Barnes, Crimm, Davis, Spritzer

Associate Professors: Brauner, Chodorow, Demaine, Fellmeth, Gopolan, Jinks, Kittrie, Sigler, Sylvester

Clinical Professors: Dallyn, Dauber, Hinshaw

Legal Writing Instructors: Davis, Popko

Senior Instructional Professional: Stinson

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

www.asu.edu/clas

David A. Young, PhD, Vice President and Dean

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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 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 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 www.asu.edu/clas.

ADMISSION

Any entering ASU student who has met the minimum university entrance requirements can be admitted to CLAS. Students with fewer than 50 earned hours of credit can, if they wish, be admitted as “exploratory/undeclared” prelaw or “exploratory/undeclared” premedicine. Students with 50 or more hours must declare a major to be accepted into the college.

Note: Students who wish to enter a program of study that has a rigidly structured curriculum should be aware that delay in choosing a major could result in added time and cost in the completion of requirements.

Any student with a cumulative GPA of at least 2.00 who is currently registered in good standing in another college at ASU and 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. (Students wishing to transfer into the major of Economics must have an ASU cumulative GPA of at least 2.50.) Current ASU students who are changing their majors to CLAS from another ASU college must 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 69. 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 1120, to ensure a smooth transition to CLAS. Students who have transferred courses from institutions other than Arizona community colleges must have their transcripts evaluated by an advisor in FOUND 1120. Students who have attended only Arizona community colleges have evaluations performed in the department of the major.

Courses transferred from two-year (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 a minimum of 45 semester hours of work taken at the university must be upper-division credit (see “**Community Colleges**,” page 70).

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 92, “**University Graduation Requirements**,” page 88, “**CLAS Graduation Requirements**,” page 331, 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 1120, 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 1120 (480/965-6506)
Declared majors	Department of major
Exploratory/undeclared, prelaw	FOUND 1120 (480/965-6506)
Exploratory/undeclared, premedical	Pre-Health Professions, LSC 206C (480/965-2365)

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 who have admissions deficiencies;
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 1120).

Students in the above mandatory advising categories should consult an advisor in the appropriate advising location listed in the previous section. Students with admission deficiencies are carefully monitored to ensure that they take courses that eliminate their deficiencies. Students are

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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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, on this page. 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 eventually select an established major in CLAS or in one of the other colleges.

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
Health physics	Pre-Health Professions, LSC 206C
Law	Office of Undergraduate Programs, FOUND 1120
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.

Pre-Health Professions. Students pursuing 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 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 www.asu.edu/clasworks. To develop a successful internship experience, students are encouraged to meet with the director of CLAS-Works 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 329. 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. 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

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	—	Department of Anthropology
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	BA, 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
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
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	Department of Kinesiology
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

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.

COLLEGE OF LIBERAL ARTS AND SCIENCES

College of Liberal Arts and Sciences Baccalaureate Degrees and Majors (continued)

Major	Degree	Concentration ¹	Administered By
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 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.

minor or the Office of Undergraduate Programs in FOUND 1120.

Refer to the CLAS portion of the “ASU Minors” table, page 118.

Graduate Degrees. See the “College of Liberal Arts and Sciences Graduate Degrees and Majors” table, page 334. Refer to the *Graduate Catalog* for requirements.

COLLEGE OF EXTENDED EDUCATION

The university-wide College 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 “College of Extended Education,” page 703, 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 88.

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 92. 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 94, in the course descriptions, in the *Schedule of Classes*, and in the *Summer Sessions Bulletin*.

COLLEGE DEGREE REQUIREMENTS

CLAS degree requirements are more extensive than the General Studies requirement. Additional course work in the humanities, natural sciences and mathematics, and social and behavioral sciences is required. Students are encouraged to consult with an academic advisor in planning a program to ensure that they meet all necessary requirements.

To graduate from CLAS, a student must satisfy college requirements in addition to university General Studies requirements. These requirements consist of *major requirements* which involve concentrated course work in a selected field; and *CLAS graduation requirements* which ensure that the student demonstrates proficiency in a second language while exposing the student to other liberal arts and sciences outside the major field.

- I. **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 at the Tempe campus.

- 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)
 Chicana and Chicano Studies (CSH)
 English (ENG)
 French (FRE)
 Film and Media Studies (FMS)
 German (GER)
 History (HST)
 Italian (ITA)
 Philosophy (HPS, PHI)
 Religious Studies (REL)
 Russian (Only meets CLAS graduation requirements in humanities if at least two upper-division literature or civilization courses are taken.) (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, AFS)
 American Indian Studies (AIS)
 Anthropology (ASB)
 Chicana and Chicano Studies (CSS)
 Communication (COM)
 Economics (ECN)

Family and Human Development (CDE, FAS)
 Geography (GCU)
 Global Studies (SGS)
 Justice and Social Inquiry (JUS)
 Political Science (POS)
 Sociology (SOC)
 Women and Gender Studies (WSH, WST)

II. CLAS Graduation Requirements. The purpose of the CLAS graduation requirements is to ensure that the student is introduced to disciplines outside the division of the major. A list of major fields and their respective divisions is given in section I, subsection C.

Unless the major field notes otherwise in section I, subsection C, students are considered to have fulfilled the CLAS graduation requirements in the division of the major.

Students majoring in African and African American Studies or Chicana and Chicano Studies satisfy the CLAS graduation requirements in either the humanities or the social and behavioral sciences, depending upon their concentrations; that is, these students fill the CLAS requirements within the concentration of their major only. They may not use courses in the department to fill the CLAS requirements outside their major concentration.

Students majoring in Women and Gender Studies may complete the CLAS Social and Behavioral Sciences distribution area using courses within the major.

Students majoring in Anthropology, Geography, or Psychology may not use ASM courses in the case of Anthropology majors, GPH courses in the case of Geography majors, or PSY courses in the case of Psychology majors to satisfy the CLAS graduation requirements in the natural sciences and mathematics.

Note: Courses used to fill the university General Studies requirement in Humanities and Fine Arts (HU), Social and Behavioral Sciences (SB), or laboratory sciences (SQ or SG) may not be used to fill CLAS graduation requirements in the humanities, social and behavioral sciences, and the natural sciences and mathematics.

- A. Humanities (six semester hours). Each student is required to complete two upper-division courses of at least three semester hours each. Course prefixes are identified in the following section.

Course prefixes for the CLAS graduation requirement in the Humanities:

1. AFH (African and African American Studies Program)
2. CSH (Department of Chicana and Chicano Studies)
3. ENG (Department of English)
4. FMS (Film and Media Studies)

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 92.

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5. CHI, FLA, FRE, GER, GRK, HEB, ITA, JPN, KOR, LAT, POR, RUS, SCA, SPA (Department of Languages and Literatures; literature or “civilization” courses at the 300 level or above that are not also used to meet the minimum language proficiency requirement)
 6. HPS (School of Life Sciences)
 7. HUM (Humanities)
 8. HST (Department of History)
 9. PHI (Department of Philosophy)
 10. REL (Department of Religious Studies; religion, Bible, or theology courses from sectarian institutions may not be used to fill any CLAS Humanities requirement; such courses may be used only for elective credit toward a student’s graduation).
 11. WSH (Women and Gender Studies Program)
- B. Natural sciences and mathematics (six semester hours).** Each student is required to complete two courses of at least three semester hours each.
- Course prefixes for the CLAS graduation requirements in the natural sciences and mathematics:
1. ASM (Department of Anthropology)
 2. BIO (Biology)
 3. BCH, CHM (Department of Chemistry and Biochemistry)
 4. CSE (Department of Computer Science and Engineering)
 5. GPH (Department of Geography)
 6. GLG (Department of Geological Sciences)
 7. MAT, STP (Department of Mathematics and Statistics)
- Note:* Only MAT 119 and 170 or higher may be used to satisfy the CLAS graduation requirements in Natural Sciences and Mathematics.
8. MIC (Microbiology)
 9. AST, PHS, PHY (Department of Physics and Astronomy)
 10. PLB, MBB (Plant Biology)
 11. PSY (Department of Psychology)
- C. Social sciences (six semester hours).** Each student is required to complete two upper-division courses of at least three semester hours each. Course prefixes of approved courses are identified in the following section.
- Course prefixes for the CLAS graduation requirements in the social and behavioral sciences:
1. AFS (African and African American Studies Program)
 2. AIS (American Indian Studies)
 3. APA (Asian Pacific American Studies)
 4. ASB (Department of Anthropology)
 5. CDE/FAS (Department of Family and Human Development)
 6. COM (Hugh Downs School of Human Communication)
 7. CSS (Department of Chicana and Chicano Studies)
 8. ECN (Department of Economics)
 9. GCU (Department of Geography)
 10. JUS (School of Justice and Social Inquiry)
 11. PGS (Department of Psychology)
 12. POS (Department of Political Science)
 13. SGS (School of Global Studies)
 14. SOC (Department of Sociology)
 15. WST (Women and Gender Studies Program)
- Note:* Before the 1999–2000 edition of the *General Catalog*, all Women’s Studies courses were listed as WST. Consult an advisor to verify if an earlier WST course should be considered WSH or WST.
- D. Bridge course requirement (three semester hours).** Each student is required to complete one CLAS bridge course of at least three semester hours. Bridge courses contain substantial content that bridges at least two of the areas of inquiry noted in sections A, B, and C. Bridge courses cannot be double-counted to fill any other CLAS graduation requirement or the HU, SB, SQ, or SG portions of the General Studies requirement. Bridge courses may be double-counted with the major or Literacy and Critical Inquiry, Mathematical Studies, or any of the awareness areas when applicable.
- For a list of currently approved CLAS bridge courses, access the Web site at clas.asu.edu/students/degree/requirements/bridge.htm.
- E. Second Language Requirement.** Each student is required to demonstrate proficiency by completing the courses in a second language 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 Ancient Greek must take both GRK 301 and 302; students completing the requirements 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.
- F. 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.**
- III. 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 1120, 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 1120, 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 81.

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 84, 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 84) 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 with cumulative GPAs of less than 2.00 who leave the university for a semester or more are not automatically readmitted. Such students, as well as all disqualified

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 92.

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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	Department of Anthropology
	PhD	Archaeology, physical anthropology, or social-cultural anthropology	Department of Anthropology
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
Exercise Science ²	PhD	Biomechanics, motor behavior/sport psychology, or physiology of exercise	Committee on Exercise Science
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.

College of Liberal Arts and Sciences Graduate Degrees and Majors (continued)

Major	Degree	Concentration ¹	Administered By
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	School of Justice and Social Inquiry School of Justice and Social Inquiry
Kinesiology	MS	—	Department of Kinesiology
Materials Science ²	MS	—	Committee on the Science and Engineering of Materials
Mathematics	MA, PhD	—	Department of Mathematics and Statistics
Microbiology	MS, PhD	—	School of Life Sciences
Molecular and Cellular Biology	MS, PhD	—	Interdisciplinary Committee on Molecular and Cellular Biology
Natural Science	MNS	Biology, microbiology, or plant biology Chemistry Geological sciences Mathematics Physics	School of Life Sciences Department of Chemistry and Biochemistry Department of Geological Sciences Department of Mathematics and Statistics 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	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 PhD	Comparative literature, language and culture, linguistics, or literature Cultural studies or literature	Department of Languages and Literatures Department of Languages and Literatures
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.

COLLEGE OF LIBERAL ARTS AND SCIENCES

students, should contact the Office of Undergraduate Programs in FOUND 1120, 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.

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 1120, 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 129.

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 www.asu.edu/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 1120.

Learning Communities. These nine, ten, and 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 www.asu.edu/clas/lcsite.

Bachelor of Liberal Studies. Pending the Arizona Board of Regents approval, the College of Liberal Arts and Sciences will offer a 120-semester-hour undergraduate degree completion program in Liberal Studies to Arizona students who have 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 338. 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 1120, or call 480/965-6506.

Asian Studies. An Asian Studies Certificate is offered through the Center for Asian Studies. Students must complete two years (20 semester hours) of an Asian language plus 30 additional hours of Asian-area studies courses selected from core Asian studies courses or courses with a significant focus on Asia chosen in consultation with the Center for Asian Studies advisor. Students whose native language is an Asian language or who have otherwise mastered an Asian language may elect to take four additional Asian studies courses in place of the elementary and intermediate language classes. Language requirements may be selected from Chinese, Indonesian, Japanese, Korean, Thai, and Vietnamese.

An East Asian Studies Certificate is also available. Students must complete two years (20 semester hours) of Chinese, Japanese, or Korean plus 30 additional semester hours of East Asian area studies courses; these courses must be selected from the core East Asian curriculum or must be courses with a 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*.

Note: Students whose native language is Chinese or Japanese or who have otherwise mastered these languages may elect to take four additional East Asian studies courses in place of the elementary and intermediate language courses.

The center houses a comprehensive library and is involved in student and faculty exchange programs with several Asian universities as well as serving as a liaison with various Asian organizations. The center also offers several professional development seminars to K–12 teachers.

For more information, contact the Center for Asian Studies in COOR 6611, or call 480/965-7184.

BIS Concentrations. Concentrations in Asian studies and East Asian studies are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that are not 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 124.

Civic Education. See “[Certificate in Civic Education](#),” page 453.

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.

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 124.

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.....	3
or CDE 437 Infant Family Assessment and Observation <i>L/SB</i> (3)	
SWU 446 Risk and Variation in Child Development.....	3
or CDE 444 Risk and Variation in Child Development (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 92.

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CLAS Certificates

Certificate Program	Administered By	Page
College of Liberal Arts and Sciences Enriched Certificate	CLAS	336
African and African American Studies Certificate	African and African American Studies Program	346
African and African Diaspora Studies, Graduate Certificate in ¹	African American Studies Program	—
American Indian Studies Certificate	American Indian Studies Program	348
Asian Pacific American Studies Certificate	Asian Pacific American Studies Program	354
Asian Studies Certificate ²	Center for Asian Studies	337
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	453
Classical Studies Certificate	Department of Languages and Literatures	337
Early Intervention Certificate	Department of Family and Human Development and School of Social Work	337
East Asian Studies Certificate	Center for Asian Studies	337
Ethics Certificate	Department of Philosophy	339
Geographic Information Science Certificate	Department of Geography	339
Geographic Information Science, Interdisciplinary Certificate in ¹	CLAS and Division of Graduate Studies	—
Healthcare Organizations and Society	School of Life Sciences and the W. P. Carey School of Business	339
Health Physics Certificate	Pre-Health Professions Office	339
History and Philosophy of Science Certificate	School of Life Sciences	340
International Studies Certificate	Department of Political Science	454
Islamic Studies Certificate	Department of Religious Studies	340
Jewish Studies Certificate	Jewish Studies Committee	340
Latin American Studies Certificate ²	Latin American Studies Center	340
Linguistics, Graduate Certificate in ¹	Committee on Linguistics	—
Medieval and Renaissance Studies Certificate	Arizona Center for Medieval and Renaissance Studies (ACMRS)	341
Medieval Studies Certificate ¹	ACMRS	—
Museum Studies Certificate ¹	Department of Anthropology	—
Renaissance Studies Certificate ¹	ACMRS	—
Russian and East European Studies Certificate ²	Russian and East European Studies Center	341
Scandinavian Studies Certificate	Department of Languages and Literatures	341
Scholarly Publishing Certificate ¹	Department of History	—
Southeast Asian Studies Certificate	Program for Southeast Asian Studies	342
Statistics, Certificate in ¹	Committee on Statistics and the Division of Graduate Studies	—
Symbolic Systems, Certificate in	Department of Philosophy	342
Translation Certificate	Department of Languages and Literatures	408
Women and Gender Studies Certificate	Women and Gender Studies Program	342
Writing Certificate	Department of English	369

¹ For more information, see the *Graduate Catalog*.

² Emphases are also available in these programs.

Choose from the following combinations8
 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 3307, 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 124.](#)

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++ CS3
- GCU 495 Quantitative Methods in Geography CS3
- GPH 370 Geographic Information Technologies CS3
- GPH 373 Geographic Information Science I CS4
- GPH 473 Geographic Information Science II CS3
- 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.

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 BAC 150, or call 480/965-8710.

Health Physics. The curriculum of health physics involves work in CLAS and the Ira A. Fulton School of Engineering. The purpose of the concentration is to serve undergraduate students who wish to prepare themselves for careers in health physics. To qualify for professional status, a health physicist needs a BS degree in one of the physical or life sciences and a group of specialized courses in physics, mathematics, chemistry, engineering, and biology.

A Certificate of Concentration in Health Physics is awarded for the successful completion of a BS degree in a physical or life science that follows a prescribed program. For more information, visit the Pre-Health Professions

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 92.](#)

COLLEGE OF LIBERAL ARTS AND SCIENCES

Office in LSC 206C, or call 480/965-2365, where academic advising is available.

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 454.

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 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 124.

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 Anthropology, Economics, Geography, History, Languages and Literatures (Spanish and Portuguese), and Political Science 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 124.

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 37, 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 124.

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 124.

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

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 92.

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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 124.

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 124.

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 200, 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 3307, or call 480/965-3394.

Translation. See “[Translation Certificate \(Spanish/English\),](#)” page 408, 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
Cancer Research Institute
Center for Asian Studies
Center for Biology and Society

Center for Meteorite Studies
 Center for Solid State Science
 Center for the Study of Early Events in
 Photosynthesis
 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 33](#), 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 1120, or call 480/965-6506.

LIBERAL ARTS AND SCIENCES (LIA)

LIA 191 First-Year Seminar. (1–3)
selected semesters

LIA 394 Special Topics. (1–4)
fall and spring

Topics may include the following:
 • Career Management for CLAS Majors. (1–3)

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.

MASTER OF LIBERAL STUDIES (MLS)

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 Aerospace Studies

Air Force ROTC

www.asu.edu/clas/afrotc

480/965-3181

SS 352

Col. David W. Guthrie, Chair

Professor: Guthrie

Assistant Professors: Greensfelder, Kwasnoski, Marks

PURPOSE

The Department of Aerospace Studies curriculum consists of the general military course and history for freshmen and sophomores (AES 101, 103, 201, 203) and the professional officer course for juniors and seniors (AES 301, 303, 401, 403).

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 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

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 92](#).

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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.

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)

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.

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.

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.

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.

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.

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.

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.

AES 204 Leadership Lab. (0)

spring

Continuation of AES 202 with emphasis on preparation for field training. Corequisite: AES 203.

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*

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.

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*

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.

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

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.

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.

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/afamstu

480/965-4399

COWDN 227

Okechukwu Iheduru, Director

CORE FACULTY

Professors: Boulin Johnson, Iheduru, Reyes
Associate Professor: Bontemps
Assistant Professors: Hinds, Robillard, Usman
Clinical Associate Professor: Cox

AFFILIATED FACULTY

Anthropology

Associate Professor: Winkelman

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: DeLamotte
Lecturer: Fuse

History

Associate Professors: Barnes, El Hamel
Assistant Professor: Whitaker

Human Communication

Professors: Jain, Martin
Associate Professors: Davey, Davis

Interdisciplinary Humanities

Assistant Professor: Lund

Journalism and Mass Communication

Associate Professor: Bramlett-Solomon

Justice and Social Inquiry

Professors: Jurik, Romero, Zatz

Music

Professors: Pilafian, Smith, Solís, Sunkett

Political Science

Associate Professor: Mitchell

Psychology in Education

Professor: Hood

Religious Studies

Associate Professor: Moore

Sociology

Professor: Cobas
Associate Professor: Keith
Instructor: Williams

Theatre

Associate Professor: Edwards

Women and Gender Studies

Professor: Rothschild
Assistant Professors: Anderson, Leong

African and African American Studies (AAAS) is interdisciplinary and focuses on people of African descent throughout the world. Current concentrations focus on the diversity of past and present experiences of those who live in the United States as well as in Africa, the Caribbean, South America, and Central America.

The program welcomes and prepares students of all ethnicities to better understand, value, and more effectively participate in an increasingly diverse society. Students combine knowledge of the African diaspora with intellectual and practical training in specific areas for the purpose of creating more effective community and global partnerships. AAAS also provides students with a foundation for advanced studies in a variety of fields. While the program is dedicated to scholarly research, teaching, and creative activities, it also seeks to build partnerships with community-based programs and organizations within Arizona. The program also strives to utilize channels for informing policies

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 92.

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that affect the lives of Africans and people of African descent everywhere.

AFRICAN AND AFRICAN AMERICAN STUDIES—BA

Course Requirements. The major in African and African American Studies 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 majors must take 21 hours in the following core courses:

AFH 353 African American Literature: Beginnings Through the Harlem Renaissance <i>L/HU, C</i>	3
AFH 354 African American Literature: Harlem Renaissance to the Present <i>L/HU, C</i>	3
AFR 210 Introduction to African American Studies <i>C</i>	3
AFR 429 African American Studies Theory and Methods.....	3
AFR 490 Field Studies in the Diaspora	3
or AFR 498 Pro-Seminar (3)	
AFS 363 African American History to 1865 <i>SB, C, H</i>	3
AFS 364 African American History Since 1865 <i>SB, C, H</i>	3

Within the 45 semester hours, AAAS majors must also take 12 semester hours in one of three concentrations: social and behavioral sciences, humanities/arts, or politics and society. These courses are in addition to the required 21 core course semester hours. Of the remaining course work, 12 hours must be taken in related courses (i.e., non-African American Studies prefixes). In addition to course work within the student's chosen concentration, six additional hours are required. Students should consult with an advisor.

In addition, AAAS majors are required to take a minor or a certificate program of a minimum of 18 hours in another academic field.

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 <i>L/HU, C</i>	3
or AFH 354 African American Literature: Harlem Renaissance to the Present <i>L/HU, C</i> (3)	
AFR 210 Introduction to African American Studies <i>C</i>	3
AFR 429 African American Studies Theory and Methods.....	3
AFS 363 African American History to 1865 <i>SB, C, H</i>	3
AFS 364 African American History Since 1865 <i>SB, C, H</i>	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 nine core hours from the following courses:

AFH 353 African American Literature: Beginnings Through the Harlem Renaissance <i>L/HU, C</i>	3
or AFH 354 African American Literature: Harlem Renaissance to the Present <i>L/HU, C</i> (3)	
AFR 210 Introduction to African American Studies <i>C</i>	3
AFS 363 African American History to 1865 <i>SB, C, H</i>	3
or AFS 364 African American History Since 1865 <i>SB, C, H</i> (3)	

In addition, one course from each of three concentrations (i.e., social and behavioral sciences, humanities/arts, politics and society) must be taken. A minimum of 12 semester hours of upper-division courses is required. Courses should be selected in consultation with the major advisor.

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 124.

AFRICAN AND AFRICAN AMERICAN STUDIES HUMANITIES (AFH)

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.

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.

AFH Note 3. English majors and minors are expected to have completed ENG 200 before taking 400-level literature courses.

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

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.

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

AFH 347 Jazz in America. (3)

fall, spring, summer
Current practices employed by contemporary jazz musicians; the historical development of jazz techniques. Credit not applicable toward any Music degree. Lecture, discussion. Cross-listed as MUS 347. Credit is allowed for only AFH 347 or MUS 347. Fee.
General Studies: HU, C

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*

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*

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

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)

AFR 191 First Year Seminar. (1–3)

selected semesters

AFR 194 Special Topics. (1–4)

selected semesters

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*

AFR 294 Special Topics. (1–4)

selected semesters

AFR 298 Honors Directed Study. (1–6)

selected semesters

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

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

AFR 394 Special Topics. (1–4)

selected semesters

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.

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.

AFR 460 Race, Gender, and Media. (3)

spring

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

AFR 484 Internship. (1–12)

selected semesters

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.

AFR 492 Honors Directed Study. (1–6)

selected semesters

AFR 493 Honors Thesis. (1–6)

selected semesters

General Studies: L

AFR 494 Special Topics. (1–4)

selected semesters

AFR 497 Honors Colloquium. (1–6)

selected semesters

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.

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/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.

AFRICAN AND AFRICAN AMERICAN STUDIES SOCIAL SCIENCE (AFS)

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

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

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.

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

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

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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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

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

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

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	Indigenous Law and Society C	3
AIS	370	American Indian Languages and Cultures	3
AIS	380	Contemporary Issues of American Indian Nations	3
AIS	385	Federal Indian Policy	3
AIS	394	ST: Basic Statistical Analysis*	3
AIS	420	American Indian Studies Research Methods	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 92, and “[University Graduation Requirements](#),” page 88. For descriptive information on College of Liberal Arts and Sciences requirements, see “[CLAS Graduation Requirements](#),” page 331.

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 Indigenous Law and Society 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 124.

AMERICAN INDIAN STUDIES (AIS)

- 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
- AIS 194 Special Topics. (1–4)**
fall and spring
- AIS 280 Indigenous Law and Society. (3)**
fall and spring
Examines the sovereign status of American Indians and legal relationships between the tribes and the U.S. government. Lecture, discussion.
General Studies: C
- AIS 294 Special Topics. (1–4)**
selected semesters
- 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.
- 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.
- AIS 385 Federal Indian Policy. (3)**
spring
Historical overview of political and legal frameworks, executive policies, and judicial decisions in the context of Indian affairs. Prerequisite: AIS 180.
- 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)

- AIS 420 American Indian Studies Research Methods. (3)**
fall
Survey of diverse research methods, including statistical, historical, interpretative, and narrative approaches. Prerequisite: AIS 180.
- AIS 484 Internship. (1–12)**
selected semesters
Fee.
- AIS 494 Special Topics. (1–4)**
fall and spring
Topics may include the following:
 - Law, Policy, and American Indians. (3)
- AIS 498 Pro-Seminar. (1–7)**
selected semesters
- 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.

Department of Anthropology

www.asu.edu/clas/anthropology
480/965-6213
ANTH 233

Sander van der Leeuw, Chair
Ben A. Nelson, Associate Chair

Regents’ Professor: Clark

Professors: Barton, Brandt, Carr, Chance, Cowgill, Eder, Falconer, Hegmon, Hudak, Johanson, Kimbel, Kintigh, Marean, Martin, Nash, B. Nelson, M. Nelson, Redman, Spielmann, Stark, van der Leeuw, Williams

Associate Professors: Abbott, Baker, Reed, Rice, Stone, Welsh, Winkelman

Assistant Professors: Haenn, Isaac, Jonsson, Schwartz, Spencer, Steadman

Associate Research Professors: Simon, Sugiyama

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 |
|--|---|

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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

ASB 222 Buried Cities and Lost Tribes: Our Human Heritage <i>HU/SB, G, H</i>	3
or ASB 223 Buried Civilizations of the Americas <i>HU/SB, G, H</i> (3)	
ASM 104 Bones, Stones, and Human Evolution <i>SB/SG</i>	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

Elective

Anthropology.....	2-3
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Related Fields

Statistics.....	3
Total.....	42-43

Consultation with the undergraduate advisor and a faculty mentor in the Department of Anthropology is recommended each semester. The anthropology undergraduate advising office is located in ANTH 208.

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 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 an anthropology 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 <i>SB, G</i>	3
ASB 222 Buried Cities and Lost Tribes: Our Human Heritage <i>HU/SB, G, H</i>	3
or ASB 223 Buried Civilizations of the Americas <i>HU/SB, G, H</i> (3)	
ASM 104 Bones, Stones, and Human Evolution <i>SB/SG</i>	4

Distribution Requirements

Upper-Division Linguistics

One course chosen from the following list*.....	3
ASB 480 Introduction to Linguistics <i>SB</i> (3)	
ASB 481 Language and Culture <i>SB</i> (3)	
ASB 483 Sociolinguistics and the Ethnography of Communication <i>SB</i> (3)	

Sociocultural

Two courses chosen from the following list*.....	6
ASB 202 Ethnic Relations in the United States <i>SB, C, H</i> (3)	
ASB 211 Women in Other Cultures <i>HU/SB, G</i> (3)	
ASB 311 Principles of Social Anthropology <i>SB</i> (3)	
ASB 314 Comparative Religion (3)	
ASB 319 The North American Indian (3)	
ASB 321 Indians of the Southwest <i>L/SB, C, H</i> (3)	
ASB 322 Peoples of Mesoamerica <i>SB, G</i> (3)	
ASB 323 Indians of Latin America <i>SB, G</i> (3)	
ASB 324 Peoples of the Pacific <i>G</i> (3)	
ASB 325 Peoples of Southeast Asia <i>G</i> (3)	
ASB 350 Anthropology and Art (3)	
ASB 351 Psychological Anthropology <i>SB</i> (3)	
ASB 353 Death and Dying in Cross-Cultural Perspective <i>HU/SB, G</i> (4)	
ASB 412 History of Anthropology <i>L/SB</i> (3)	
ASB 416 Economic Anthropology <i>L/SB</i> (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 <i>SG</i> (4)	
ASB 326 Human Impacts on Ancient Environments <i>SB, H</i> (3)	
ASB 330 Principles of Archaeology <i>SB</i> (3)	
ASB 335 Prehistory of the Southwest <i>SB, C, H</i> (3)	
ASB 337 Pre-Hispanic Civilization of Middle America <i>HU/SB, G, H</i> (3)	
ASB 338 Archaeology of North America <i>SB, H</i> (3)	
ASB 361 Old World Prehistory I <i>H</i> (3)	
ASB 362 Old World Prehistory II <i>H</i> (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 <i>SB</i> (3)	
ASM 341 Human Osteology (4)	
ASM 342 Human Biological Variation <i>SG</i> (4)	
ASM 343 Primatology (3)	
ASM 344 Fossil Hominids <i>H</i> (3)	
ASM 345 Disease and Human Evolution (3)	
ASM 348 Social Issues in Human Genetics <i>SB</i> (3)	
ASM 452 Dental Anthropology <i>SG</i> (4)	
ASM 454 Comparative Primate Anatomy (4)	
ASM 455 Primate Behavior Laboratory <i>L</i> (3)	

Geographic Area Courses

<i>Archaeology or Physical Anthropology</i>	
One course chosen from the following list*.....	3
ASB 335 Prehistory of the Southwest <i>SB, C, H</i> (3)	
ASB 337 Pre-Hispanic Civilization of Middle America <i>HU/SB, G, H</i> (3)	
ASB 338 Archaeology of North America <i>SB, H</i> (3)	
ASB 361 Old World Prehistory I <i>H</i> (3)	
ASB 362 Old World Prehistory II <i>H</i> (3)	
ASM 301 Peopling of the World <i>SB</i> (3)	

Ethnographic

One course chosen from the following list*.....	3
ASB 319 The North American Indian (3)	
ASB 321 Indians of the Southwest <i>L/SB, C, H</i> (3)	
ASB 322 Peoples of Mesoamerica <i>SB, G</i> (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

Total42-43

* Consult with an anthropology 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 350](#), 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 an anthropology 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 350](#). 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 340](#).

Certificate in Museum Studies. See the *Graduate Catalog* or contact the Department of Anthropology for more information.

GRADUATE PROGRAM

The faculty in the Department of Anthropology 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 192](#), 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)

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

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

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.

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

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

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 92](#).

COLLEGE OF LIBERAL ARTS AND SCIENCES

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

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

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

ASB 242 Asian American Experiences: An Anthropological Perspective. (3)

fall

Historical and contemporary experiences of Asian Americans in terms of the anthropological concepts of culture, ethnicity, and adaptation. Prerequisite: ENG 101 or 105.

General Studies: C

ASB 252 Anthropology of Sports. (3)

fall and spring

Cross-cultural examination of symbolic and social dimensions of sports past and present.

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

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

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.

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.

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.

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

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

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

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

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

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

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.

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

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

ASB 337 Pre-Hispanic Civilization of Middle America. (3)

spring

Preconquest cultures and civilizations of Mexico. The Aztecs, Mayas, and their predecessors. Prerequisite: instructor approval.

General Studies: HU/SB, G, H

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: instructor approval.

General Studies: SB, H

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.

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

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

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

ASB 361 Old World Prehistory I. (3)*fall*

Biosocial evolution in the Pleistocene, emphasizing technological achievements and the relationship between technology and environment in western Europe, sub-Saharan Africa. Prerequisite: instructor approval.

*General Studies: H***ASB 362 Old World Prehistory II. (3)***spring*

Transition from hunting and collecting societies to domestication economies; establishment of settled village life, emphasizing the Near East, Egypt, Southwest Europe. Prerequisite: ASB 361 or instructor approval.

*General Studies: H***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 allowed for only AFS 366 or ASB 366.

*General Studies: SB, G, H***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***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***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***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.

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***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***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***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***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***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***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.

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/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.

ANTHROPOLOGY (SCIENCE AND MATHEMATICS) (ASM)

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.

*General Studies: SB/SG***ASM 241 Biology of Race. (3)***fall and spring*

Human variation and its interpretation in an evolutionary context.

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.

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.

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

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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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.

ASM 341 Human Osteology. (4)

fall

Osteology, human paleontology, and osteometry. Description and analysis of archaeological and contemporary human populations. 3 hours lecture, 3 hours lab. Prerequisite: ASM 104 or instructor approval.

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

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.

ASM 344 Fossil Hominids. (3)

once a year

Ancient African, Asian, and European human and primate skeletal, dental, and cultural remains. Human biological, behavioral, and cultural evolution. Prerequisite: ASM 104 or instructor approval.

General Studies: H

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.

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

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.

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.

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.

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.

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

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.

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

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.

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/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.

Asian Pacific American Studies Program

www.asu.edu/copp/asianamerican

480/965-9711

AG 352

Thomas K. Nakayama, Director

CORE FACULTY

Professor: Nakayama

Associate Professor: Li

Assistant Professors: de Jesús, Rosa

Academic Associate: Kuo

AFFILIATED FACULTY

Anthropology

Professor: Eder

Community Resources and Development

Professor: Yoshioka

English

Lecturer: Fuse

Human Communication

Associate Professor: Martínez

Justice and Social Inquiry

Professor: Romero

Associate Professor: Menjivar

Languages and Literatures

Associate Professor: Choi

Psychology in Education

Associate Professor: Nakagawa

Social Work

Assistant Professor: Okamoto

Women and Gender Studies

Assistant Professor: Leong

PURPOSE

Asian Pacific American Studies is an interdisciplinary undergraduate program that examines the experiences of Asian Americans and Pacific Islanders within the United States, particularly in the Southwest. The program is designed to help students of all ethnicities to

1. appreciate the diversity of Asian American and Pacific Islander cultures, experiences, and histories;
2. understand the U.S. experience in new ways; and
3. participate more effectively in an increasingly diverse society.

A certificate program offers courses that provide students with opportunities to think critically about interethnic cooperation and conflict. The program integrates teaching, research, and community service.

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 <i>HU/SB, C</i>	3
APA 360 Asian Pacific American Experience <i>HU/SB, C</i>	3
APA 450 Asian Pacific American Contemporary Issues <i>SB, C</i>	3
APA 484 Internship	3
or APA 494 ST: Asian Pacific American Communities (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 ASB 242, 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 124.

ASIAN PACIFIC AMERICAN STUDIES (APA)

APA 194 Special Topics. (1–4)

fall and spring

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

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

APA 294 Special Topics. (1–4)

fall and spring

Open to all students. May be repeated for credit.

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

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

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

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

APA 345 Asian Pacific Americans and Film. (3)

spring

Examines representations of Asian Pacific Americans in narrative, popular, experimental, and documentary film. Lecture, discussion.

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

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

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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

- Asian Pacific American Women Issues and Identities
- Asian Pacific Americans and Politics

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

APA 484 Internship. (1–12)

fall and spring

Fee.

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

APA 498 Pro-Seminar. (1–7)

fall and spring

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

www.asu.edu/clas/chemistry

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

Associate Professors: Anbar, Booksh, Hayes, Richert, Wolf

Assistant Professors: Caudle, Chaput, Chen, Francisco, Ghirlanda, Herckes, Matyushov, Seo, Wachter, Yan

Senior Lecturer: Bauer

Lecturers: Briggs, Lefler, Marks

CHEMISTRY—BA

The BA degree in Chemistry consists of 46 semester hours. Required courses are as follows:

Choose between the course combinations below..... 9 or 8

CHM 113 General Chemistry *SQ* (4)

CHM 115 General Chemistry with Qualitative Analysis *SQ* (5)

or CHM 116 General Chemistry *SQ* (4)

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 317 Organic Chemistry for Majors I* (3)

CHM 318 Organic Chemistry for Majors II* (3)

CHM 319 Organic Chemistry Laboratory for Majors I* (1)

CHM 320 Organic Chemistry Laboratory for Majors II* (1)

———— or ————

CHM 331 General Organic Chemistry (3)

CHM 332 General Organic Chemistry (3)

CHM 335 General Organic Chemistry Laboratory (1)

CHM 336 General Organic Chemistry Laboratory (1)

CHM 325 Analytical Chemistry3

CHM 326 Analytical Chemistry Laboratory1

CHM 341 Elementary Physical Chemistry3

CHM 343 Physical Chemistry Laboratory1

CHM 453 Inorganic Chemistry3

CHM electives.....2

Minimum total29–30

* CHM 117, 118, 317, 318, 319, and 320 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

Total16

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..... 9 or 8

CHM 113 General Chemistry *SQ* (4)

CHM 115 General Chemistry with Qualitative Analysis *SQ* (5)

———— or ————

CHM 113 General Chemistry *SQ* (4)

CHM 116 General Chemistry *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 317 Organic Chemistry for Majors I* (3)

CHM 318 Organic Chemistry for Majors II* (3)

CHM 319 Organic Chemistry Laboratory for Majors I* (1)

CHM 320 Organic Chemistry Laboratory for Majors II* (1)

———— or ————

CHM 331 General Organic Chemistry (3)

CHM 332 General Organic Chemistry (3)

DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

CHM 335 General Organic Chemistry Laboratory (1)	
CHM 336 General Organic Chemistry Laboratory (1)	
Total	16 or 17

* CHM 117, 118, 317, 318, 319, and 320 are strongly recommended for qualified students.

Additional required chemistry courses are as follows:

CHM 240 Introduction to Physical Chemistry <i>CS</i> 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 <i>L</i> ²	1
CHM 349 Physical Chemistry Laboratory II <i>L</i> ²	1
CHM 452 Inorganic Chemistry Laboratory <i>L</i> 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 <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
PHY 121 University Physics I: Mechanics <i>SQ</i> ¹	3
PHY 122 University Physics Laboratory I <i>SQ</i> ¹	1
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ²	3
PHY 132 University Physics Laboratory II <i>SQ</i> 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 Degree Requirements,” page 330.

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</i>	4
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i>	5

Choose between the course combinations below

CHM 317 Organic Chemistry for Majors I* (3)

CHM 318 Organic Chemistry for Majors II* (3)

CHM 319 Organic Chemistry Laboratory for Majors I* (1)	
CHM 320 Organic Chemistry Laboratory for Majors II* (1)	

or

CHM 331 General Organic Chemistry (3)	
CHM 332 General Organic Chemistry (3)	
CHM 335 General Organic Chemistry Laboratory (1)	
CHM 336 General Organic Chemistry Laboratory (1)	

Total	17
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* CHM 117, 118, 317, 318, 319, and 320 are strongly recommended for qualified students.

Additional required chemistry and biochemistry courses are as follows:

CHM 240 Introduction to Physical Chemistry <i>CS</i> ¹	3
CHM 302 Environmental Chemistry	3
CHM 303 Environmental Chemistry Laboratory	2
CHM 327 Instrumental Analysis	3
CHM 328 Instrumental Analysis Laboratory	2
CHM 345 Physical Chemistry I	3
CHM 348 Physical Chemistry Laboratory I <i>L</i> *	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 <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
PHY 121 University Physics I: Mechanics <i>SQ</i> ¹	3
PHY 122 University Physics Laboratory I <i>SQ</i> ¹	1
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ²	3
PHY 132 University Physics Laboratory II <i>SQ</i> ²	1
Related field elective (choose from the courses below)	3
BIO 320 Fundamentals of Ecology (3)	
BIO 426 Limnology <i>L</i> (3)	
GLG 461 Geomicrobiology (3)	
Total	26

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.

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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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..... 9 or 8

CHM 113 General Chemistry *SQ* (4)
 CHM 115 General Chemistry with Qualitative Analysis *SQ* (5)

_____ or _____

CHM 113 General Chemistry *SQ* (4)
 CHM 116 General Chemistry *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 317 Organic Chemistry for Majors I* (3)
 CHM 318 Organic Chemistry for Majors II* (3)
 CHM 319 Organic Chemistry Laboratory for Majors I* (1)
 CHM 320 Organic Chemistry Laboratory for Majors II* (1)

_____ or _____

CHM 331 General Organic Chemistry (3)
 CHM 332 General Organic Chemistry (3)
 CHM 335 General Organic Chemistry Laboratory (1)
 CHM 336 General Organic Chemistry Laboratory (1)

Total 16 or 17

* CHM 117, 118, 317, 318, 319, and 320 are strongly recommended for qualified students.

Additional required chemistry and biochemistry courses are as follows:

BCH 461 General Biochemistry3
 BCH 462 General Biochemistry3
 BCH 467 Analytical Biochemistry Laboratory *L*3
 CHM 302 Environmental Chemistry3
 or CHM 325 Analytical Chemistry (3)
 CHM 341 Elementary Physical Chemistry¹3
 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)

Total21

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 (3)
 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)
 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 *SQ* (4)
 CHM 115 General Chemistry with Qualitative Analysis *SQ* (5)

_____ or _____

CHM 113 General Chemistry *SQ* (4)
 CHM 116 General Chemistry *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 317 Organic Chemistry for Majors I* (3)
 CHM 318 Organic Chemistry for Majors II* (3)
 CHM 319 Organic Chemistry Laboratory for Majors I* (1)
 CHM 320 Organic Chemistry Laboratory for Majors II* (1)

_____ or _____

CHM 331 General Organic Chemistry (3)
 CHM 332 General Organic Chemistry (3)
 CHM 335 General Organic Chemistry Laboratory (1)
 CHM 336 General Organic Chemistry Laboratory (1)

Total 16 or 17

* CHM 117, 118, 317, 318, 319, and 320 are strongly recommended for qualified students.

Additional required chemistry and biochemistry courses are as follows:

BCH 461 General Biochemistry3
 BCH 462 General Biochemistry3
 BCH 463 Biophysical Chemistry3
 BCH 464 Biophysical Chemistry Laboratory2
 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)

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CHM 453 Inorganic Chemistry (3)	
CHM 471 Solid-State Chemistry (3)	
CHM 481 Geochemistry (3)	
CHM 485 Meteorites 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 <i>SG</i>	4
BIO 188 General Biology II <i>SQ</i>	4
BIO 340 General Genetics	4
BIO 353 Cell Biology	3
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
PHY 111 General Physics <i>SQ</i> ¹	3
PHY 112 General Physics <i>SQ</i> ²	3
PHY 113 General Physics Laboratory <i>SQ</i> ¹	1
PHY 114 General Physics Laboratory <i>SQ</i> 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</i> (4)	
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i> (5)	—

or

CHM 113 General Chemistry <i>SQ</i> (4)	
CHM 116 General Chemistry <i>SQ</i> (4)	—

or

CHM 117 General Chemistry for Majors I <i>SQ</i> * (4)	
CHM 118 General Chemistry for Majors II <i>SQ</i> * (4)	—

Choose between the combinations of courses below.....8

CHM 317 Organic Chemistry for Majors I* (3)	
CHM 318 Organic Chemistry for Majors II* (3)	
CHM 319 Organic Chemistry Laboratory for Majors I* (1)	
CHM 320 Organic Chemistry Laboratory for Majors II* (1)	—

or

CHM 331 General Organic Chemistry (3)	
CHM 332 General Organic Chemistry (3)	
CHM 335 General Organic Chemistry Laboratory (1)	
CHM 336 General Organic Chemistry Laboratory (1)	—

Total

* CHM 117, 118, 317, 318, 319, and 320 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 <i>L</i>	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 below4

BIO 187 General Biology I *SG* (4)

or

BIO 188 General Biology II *SQ* (4)

or

MBB 245 Cellular and Molecular Biology *SQ** (3)

MBB 246 Cellular and Molecular Biology Laboratory *SQ** (1)

Total

* Both MBB 245 and 246 must be taken to secure SQ credit.

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 <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
PHY 111 General Physics <i>SQ</i> ²	3
PHY 112 General Physics <i>SQ</i> ³	3
PHY 113 General Physics Laboratory <i>SQ</i> ²	1
PHY 114 General Physics Laboratory <i>SQ</i> 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</i> ¹	4
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i> ¹	5
or CHM 116 General Chemistry <i>SQ</i> ¹ (4)	
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 <i>SQ</i> ² (3)	
CHM 235 Elementary Organic Chemistry Laboratory <i>SQ</i> ² (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 92.

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———— or ————	
CHM 331 General Organic Chemistry (3)	
CHM 332 General Organic Chemistry (3)	
CHM 335 General Organic Chemistry Laboratory (1)	
CHM 336 General Organic Chemistry Laboratory (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</i> (4)	
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i> (5)	
———— or ————	
CHM 113 General Chemistry <i>SQ</i> (4)	
CHM 116 General Chemistry <i>SQ</i> (4)	
———— or ————	
CHM 117 General Chemistry for Majors I <i>SQ</i> ¹ (4)	
CHM 118 General Chemistry for Majors II <i>SQ</i> ¹ (4)	
Choose between the combinations of courses below.....	8
CHM 317 Organic Chemistry for Majors I ¹ (3)	
CHM 318 Organic Chemistry for Majors II ¹ (3)	
CHM 319 Organic Chemistry Laboratory for Majors I ¹ (1)	
CHM 320 Organic Chemistry Laboratory for Majors II ¹ (1)	
———— or ————	
CHM 331 General Organic Chemistry (3)	
CHM 332 General Organic Chemistry (3)	
CHM 335 General Organic Chemistry Laboratory (1)	
CHM 336 General Organic Chemistry Laboratory (1)	
CHM 341 Elementary Physical Chemistry ²	3
Minimum total	25

¹ CHM 117, 118, 317, 318, 319, and 320 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 124.

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 192, 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 “C” (2.00) or higher before applying to the ITC program: CHM 113, 115, 331, and 335. 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 332 and 336.

The academic specialization requires 46 semester hours. Required courses are as follows:

BCH 361 Principles of Biochemistry.....	3
CHM 113 General Chemistry <i>SQ</i>	4
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i>	5
CHM 325 Analytical Chemistry	3
CHM 326 Analytical Chemistry Laboratory	1
CHM 331 General Organic Chemistry	3
CHM 332 General Organic Chemistry	3
CHM 335 General Organic Chemistry Laboratory.....	1
CHM 336 General Organic Chemistry Laboratory.....	1
CHM 341 Elementary Physical Chemistry.....	3
or CHM 345 Physical Chemistry I (3) and CHM 346 Physical Chemistry II (3)	
CHM 453 Inorganic Chemistry.....	3
Total	30

The remaining chemistry courses to complete the specialization are determined by students in consultation with their advisors.

Additional required related field courses are as follows:

MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
PHY 111 General Physics <i>SQ</i> *	3
PHY 112 General Physics <i>SQ</i> *	3
PHY 113 General Physics Laboratory <i>SQ</i> *	1
PHY 114 General Physics Laboratory <i>SQ</i> *	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
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The remaining courses to complete the specialization are determined by students in consultation with their advisors.

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)

BCH 361 Principles of Biochemistry. (3)

fall and 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 or 318 or 332.

BCH 367 Elementary Biochemistry Laboratory. (1)

fall and 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.

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.

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 318 or 332. Corequisite: CHM 341 or 346.

BCH 462 General Biochemistry. (3)

spring

Continuation of BCH 461. Prerequisite: BCH 461 or instructor approval.

BCH 463 Biophysical Chemistry. (3)

spring

Principles of physical chemistry as applied to biological systems. Prerequisite: CHM 341 or 346.

BCH 464 Biophysical Chemistry Laboratory. (2)

fall

Introduces physical methods in modern biochemistry. Prerequisite: BCH 463.

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 461.

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

BCH 484 Internship. (3)

selected semesters

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)

CHM 101 Introductory Chemistry. (4)

fall, spring, summer

Elements of general chemistry. Adapted to the needs of students in nursing, home economics, agriculture, and physical education. Recommended for General Studies credit. Normally followed by CHM 231. Credit is allowed for only CHM 101 or 107 or 113 or 114 or 117. 3 hours lecture, 1 hour discussion, 2 hours lab. Fee. *General Studies: SQ*

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. Credit is allowed for only CHM 107 or 101 or 113 or 114 or 117. 3 hours lecture, 1 hour discussion, 2 hours lab. Fee. *General Studies: SQ, G*

CHM 113 General Chemistry. (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 101 or 107 or 114 or 117. 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 recommended. *General Studies: SQ*

CHM 114 General Chemistry for Engineers. (4)

fall and spring

Emphasis toward engineering. Students without high school chemistry or chemical engineering majors must enroll in the CHM 113, 116 sequence instead of CHM 114. Credit is allowed for only CHM 114 or 101 or 107 or 113 or 117 and for only CHM 114 or 115 or 116 or 118. 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*

CHM 115 General Chemistry with Qualitative Analysis. (5)

fall, spring, summer

Continuation of CHM 113. Equilibrium theory, chemistry of metals, nonmetals, and metalloids; introduces organic chemistry. Laboratory includes qualitative analysis. Credit is allowed for only CHM 115 or 114 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*

CHM 116 General Chemistry. (4)

fall and spring

Continuation of CHM 113. Equilibrium theory, chemistry of metals, nonmetals, and metalloids; introduces organic chemistry. Credit is allowed for only CHM 116 or 114 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*

CHM 117 General Chemistry for Majors I. (4)

fall

Atomic and molecular structure, properties and physical states of matter, thermodynamics, kinetics, acids and bases, chemical analysis, and stoichiometry. Credit is allowed for only CHM 117 or 101 or 107 or 113 or 114. 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*

CHM 118 General Chemistry for Majors II. (4)

spring

Continuation of CHM 117. Credit is allowed for only CHM 118 or 114 or 115 or 116. 3 hours lecture, 1 conference, 2 hours lab. Fee. Prerequisite: CHM 117. Corequisite: MAT 270. *General Studies: SQ*

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 92.

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CHM 231 Elementary Organic Chemistry. (3)

fall and spring

Survey of organic chemistry, with emphasis on the reactivity of basic functional groups. Credit is allowed for only CHM 231 or 317 or 331. Prerequisite with a grade of "B" 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)*

CHM 235 Elementary Organic Chemistry Laboratory. (1)

fall and spring

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)*

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

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 331).

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 331. Pre- or corequisite: CHM 302.

General Studies: L (if credit also earned in CHM 348)

CHM 317 Organic Chemistry for Majors I. (3)

fall

Structures, reaction mechanisms and kinetics, and systematic syntheses of organic compounds. Credit is allowed for only CHM 317 or 231 or 331. Prerequisite: CHM 115 or 118. Corequisite: CHM 319.

CHM 318 Organic Chemistry for Majors II. (3)

spring

Continuation of CHM 317. Credit is allowed for only CHM 318 or 332. Prerequisite: CHM 317. Corequisite: CHM 320.

CHM 319 Organic Chemistry Laboratory for Majors I. (1)

fall

Emphasizes mechanisms, kinetics, and products of organic reactions. Credit is allowed for only CHM 319 or 335. 1 conference, 3 hours lab. Fee. Pre- or corequisite: CHM 317.

CHM 320 Organic Chemistry Laboratory for Majors II. (1)

spring

Continuation of CHM 319. Credit is allowed for only CHM 320 or 336. 1 conference, 3 hours lab. Fee. Prerequisite: CHM 319. Corequisite: CHM 318.

CHM 325 Analytical Chemistry. (3)

fall and summer

Principles and methods of chemical analysis. Prerequisite: CHM 115 or 116.

CHM 326 Analytical Chemistry Laboratory. (1)

fall and summer

Experiments in chemical analysis. 4 hours lab. Fee. Corequisite: CHM 325.

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.

CHM 328 Instrumental Analysis Laboratory. (2)

spring

Experiments in chemical analysis by electroanalytical and optical techniques. 6 hours lab. Fee. Corequisite: CHM 327.

CHM 331 General Organic Chemistry. (3)

fall, spring, summer

Chemistry of organic compounds. Credit is allowed for only CHM 331 or 231 or 317. Prerequisite: CHM 115 or 116 or 118.

CHM 332 General Organic Chemistry. (3)

fall and spring or summer

Continuation of CHM 331. Credit is allowed for only CHM 332 or 318. Prerequisite: CHM 331.

CHM 335 General Organic Chemistry Laboratory. (1)

fall, spring, summer

Microscale organic chemical experiments in separation techniques, synthesis, analysis and identification, and relative reactivity. Credit is allowed for only CHM 335 or 319. 4 hours lab. Fee. Corequisite: CHM 331.

CHM 336 General Organic Chemistry Laboratory. (1)

fall and spring or summer

Continuation of CHM 335. Credit is allowed for only CHM 336 or 320. 4 hours lab. Fee. Prerequisite: CHM 335. Corequisite: CHM 332.

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 331); MAT 271; PHY 112.

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.

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).

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.

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)

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)

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.

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 318 or 332 or 346 or instructor approval.

CHM 431 Qualitative Organic Analysis. (3)

spring

Systematic identification of organic compounds. 1 hour lecture, 6 hours lab. Fee. Prerequisites: both CHM 118 (or 327) and 320 (or 336) or only instructor approval.

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 318 (or 332) and 341 (or 346) or only instructor approval.

CHM 434 Advanced Organic Chemistry II. (3)*spring*

Continuation of CHM 433. Prerequisite: CHM 433 (or CHM 531) or instructor approval.

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 318 (or 332) or only instructor approval.

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)***CHM 453 Inorganic Chemistry. (3)***fall*

Principles and applications of inorganic chemistry. Prerequisite: CHM 341 or 346.

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 318, 346, 453.

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.

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.

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.

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.

CHM 484 Internship. (3)*selected semesters***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.

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/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 Chicana and Chicano Studies

www.asu.edu/clas/chicana

480/965-5091

COOR 6633

Cordelia Candelaria, Chair

Professors: Candelaria, Espinosa

Associate Professors: Bernardi, Escobar, Magaña

Assistant Professors: Danielson, García, Leaños, Szkupinski-Quiroga

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 <i>SB, C, H</i>	.....3
HST 332	Mexican American History Since 1900 <i>SB, C, H</i>	.....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.

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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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 <i>C</i>	3
or CCS 111 Introduction to Chicana and Chicano Culture <i>C</i> (3)	
HST 417 Topics in Mexican American History <i>SB, C, H</i>	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 124.

SECONDARY EDUCATION—BAE

Chicana and Chicano Studies. Applications are not being accepted at this time.

CHICANA AND CHICANO STUDIES (CCS)

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

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

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

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

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.

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)

CSH 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.

CSH Note 2. A term paper or equivalent out-of-class written work is required in all upper-division (300- and 400-level) ENG courses.

CSH 210 Chicana and Chicano Poetry. (3)

fall

Writing seminar on Chicana and Chicano poetics and intensive creative writing workshop. Workshop, seminar.

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.

CSH 310 Chicana and Chicano Folklore. (3)

once a year

Analyzes Chicana and Chicano folk beliefs, traditions, and practices.
General Studies: HU, C

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

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

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 1, 2.
General Studies: L/HU, C

CSH 484 Internship. (3)

selected semesters

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

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)

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.

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

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

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

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

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.

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.

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

480/965-5519

GWC 699

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

The College of Liberal Arts and Sciences offers a Bachelor of Arts (BA) degree and a Bachelor of Science (BS) degree in Economics. The BS degree is designed primarily for students intending to seek employment upon completion of their undergraduate studies. The BA degree is designed primarily for students intending to go on to graduate school or law school. The W. P. Carey School of Business also offers a BS degree in Economics. Faculty, course descriptions, and the major requirements in the W. P. Carey School of Business are described under "Department of Economics," see page 177.

ECONOMICS—BA

The BA is designed to prepare students for graduate programs in economics, business, or law. Concurrent degree programs such as mathematics and physics coordinate well with the BA program in economics.

The requirements for the BA degree in Economics consist of three parts: the university requirements for all students at ASU (see "University Graduation Requirements," page 88); the requirements of the College of Liberal Arts and Sciences (see "College Degree Requirements," page 330); and the requirements of the Department of Economics.

Requirements of the Department of Economics. The program consists of at least 43 semester hours of course work distributed between economics and related fields as shown below. Students must earn grades of "C" (2.00) or higher in all courses in the major. If a student receives a grade below "C" (2.00) in any course in the major, this course must be repeated. Students must meet all prerequisites and course requirements as listed in the catalog. These include

- Mathematics and Statistics: MAT 270, 271, and 272 or MAT 290 and 291; STP 226 or QBA 221; and ECN 470;
- Principles of Economics: ECN 111 and 112;
- Completion of 21 semester hours in economics courses and quantitative business analysis 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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

at the 300 level or above. These 21 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; and
4. economics electives at the 400 level or above to fill out the remaining hours. A maximum of three hours of ECN 484 Economics Internship can be used to satisfy this requirement. ECN 475 and 493 cannot be used to satisfy the requirement.

ECONOMICS—BS

The BS degree is designed to prepare students for employment in the private or public sectors of the economy. This program will provide students with the typical analytical and quantitative skills employers expect of individuals holding economics degrees.

Requirements for the College of Liberal Arts and Sciences BS degree in Economics consist of three parts: the university requirements for all students at ASU (see “[University Graduation Requirements](#),” page 88); the requirements of the College of Liberal Arts and Sciences (see “[College Degree Requirements](#),” page 330); and the requirements of the Department of Economics.

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. Students must earn grades of “C” (2.00) or higher in all courses in the major. If a student receives a grade below “C” (2.00) in any course in the major, this course must be repeated. Students must meet all prerequisites and course requirements as listed in the catalog. These include

- A. Mathematics and Statistics: MAT 210 or 270 or 290; STP 226 or QBA 221;
- B. Principles of Economics: ECN 111 and 112;
- 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 semester 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; and
 4. Economics electives at the 300-level or above to fill out the remaining hours. A maximum of three hours of ECN 484 Economics Internship can be used to satisfy this requirement. ECN 475 and 493 cannot be used to satisfy the requirement.
- D. A total of nine semester hours from the Approved List of Related Field Courses.

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 340, 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 183.

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 172.

MINOR

Minor in General Economics. This minor (and BIS area of concentration) requires 18 semester hours of course work which includes ECN 111 and 112, and 12 semester hours of economics courses at the 300 level or above for which all prerequisites have been met. Students must earn grades of “C” (2.00) or higher in all courses in the minor. If a student receives a grade below “C” (2.00) in any course in the minor, this course must be repeated.

Minor in Economics for Students Planning a Career in Law. This minor requires 18 semester hours of course work that includes ECN 111, 112, 314, 450, 453, and one additional economics course at the 300 level or above for which all prerequisites have been met. Students must earn grades of “C” (2.00) or higher in all courses in the minor. If a student receives a grade below “C” (2.00) in any course in the minor, this course must be repeated.

Honors Students

Students admitted to the Barrett Honors College may substitute ECN 294 ST: Macroeconomics for ECN 111 and 313, and ECN 294 ST: Microeconomics for ECN 112 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 124.

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 192, 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 111 Macroeconomic Principles <i>SB</i>	3
ECN 112 Microeconomic Principles <i>SB</i>	3
ECN 313 Intermediate Macroeconomic Theory <i>SB</i>	3
ECN 314 Intermediate Microeconomic Theory <i>SB</i>	3
MAT 210 Brief Calculus <i>MA</i>	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 111 Macroeconomic Principles <i>SB</i>	3
ECN 112 Microeconomic Principles <i>SB</i>	3
ECN 313 Intermediate Macroeconomic Theory <i>SB</i>	3
ECN 314 Intermediate Microeconomic Theory <i>SB</i>	3
MAT 210 Brief Calculus <i>MA</i>	3
Choose one of the following courses	3
QBA 221 Statistical Analysis <i>CS</i> (3)	
STP 226 Elements of Statistics <i>CS</i> (3)	
Choose one of the following courses	3
ECN 410 Applied Business Forecasting (3)	
ECN 425 Introduction to Econometrics <i>CS</i> (3)	
QBA 321 Applied Quality Analysis I (3)	
Choose one of the following courses	3
ECN 475 Capstone in Economics <i>L</i> (3)	
ECN 493 Honors Thesis <i>L</i> (3)	
Upper-division economics electives.....	12
Related area course*	9
Total	45

* Choose in consultation with an economics advisor.

Teaching Methods

SED 480 Methods of Teaching Social Studies	3
Additional teaching methods course*	3
Total	6

* Choose 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 177.

COURSES

For courses, see “Economics (ECN),” page 178.

Department of English

www.asu.edu/clas/english

480/965-3168

LL 542

Neal A. Lester, Chair

Regents’ Professors: Carlson, Dubie, Ríos

Professors: Adams, Bjork, Boyer, Brack, Candelaria, Crowley, Goldberg, Gutierrez, Helms, Hogue, Horan, Kehl, Lester, Major, Miller, A. Nilsen, D. Nilsen, Rhodes, Roen, Tobin, van Gelderen

Associate Professors: Bates, Bivona, Castle, Corse, DeLamotte, Gerson, M. Goggin, Lussier, Mahoney, McNally, Nelson, Perry, Pritchard, Ramage, Savard, Schwalm, Tohe, Voaden, Webb

Assistant Professors: Bernick, Blasingame, Fox, P. Goggin, Lockard, Milun, Parchesky, Sadowski-Smith, Thompson

Senior Lecturers: Cook, Cooper, Duerden, Dugan, Dwyer, Heenan, Norton, Sudol, Wheeler

Lecturers: Binkley, Duttagupta, Fuse

Academic Associate: 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, literature and language, and rhetoric and composition. Undergraduate degrees include the BA degree in English, with a concentration in linguistics, literature, or creative writing, 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

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 92.

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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 Another Pro-Seminar course.....	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. All students in the major must earn a grade of "C" (2.00) or higher. 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–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–Present HU.....	3
ENG 421 Shakespeare HU.....	3

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 321 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–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–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 124.

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 <i>L</i>	3
or ENG 412 Creative Nonfiction (3)	
ENG 301 Writing for the Professions <i>L</i>	3
ENG 372 Document Production <i>L</i>	3
ENG 472 Rhetorical Studies <i>L</i>	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 192, 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 <i>L/HU</i>	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 <i>L/HU</i>	3
ENG 212 English Prose Style <i>L</i>	3
or ENG 215 Strategies of Academic Writing <i>L</i> (3)	
or ENG 216 Persuasive Writing on Public Issues <i>L</i> (3)	
or ENG 217 Writing Reflective Essays <i>L</i> (3)	
ENG 221 Survey of English Literature <i>HU</i>	3
ENG 222 Survey of English Literature <i>HU, H</i>	3
ENG 241 Literatures of the United States to 1860 <i>HU</i>	3
ENG 242 Literatures of the United States, 1860–Present <i>HU</i>	3
ENG 312 English in Its Social Setting <i>L/HU/SB</i>	3
or ENG 314 Modern Grammar (3)	
ENG 421 Shakespeare <i>HU</i>	3
or ENG 422 Studies in Shakespeare <i>HU</i> (3)	
ENG 471 Literature for Adolescents <i>HU</i>	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 <i>L</i>	3
ENG 482 Methods of Teaching English: Language <i>L</i>	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, poetry, and screenwriting), 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)

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.

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.

ENG Note 3. English majors and minors are expected to have completed ENG 200 before taking 400-level literature courses.

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 77, and “[First-Year Composition Requirement](#),” page 88.

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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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.

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 77, and "First-Year Composition Requirement," page 88.

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.

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.

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).

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

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

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

ENG 204 Introduction to Contemporary Literature. (3)

once a year

Poetry, fiction, drama, and possibly other genres. See ENG Note 1.

General Studies: HU

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.

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

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.

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

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

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

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

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

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

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

ENG 242 Literatures of the United States, 1860–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

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

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

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

ENG 307 Writing Science Fiction. (3)

selected semesters

Writing science fiction, primarily the short story. Lecture, workshop, online supplements. See ENG Notes 1, 2.

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.

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

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***ENG 314 Modern Grammar. (3)***fall and spring*

Modern descriptive models of English grammar. See ENG Notes 1, 2.

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.

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***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.

ENG 326 English Drama 1660–1800. (3)*once a year*

English drama 1660–1800. See ENG Notes 1, 2.

*General Studies: HU***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***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***ENG 330 19th-Century British Poetry. (3)***selected semesters*

Romantic and Victorian poets studied in context. Lecture, discussion. See ENG Notes 1, 2.

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***ENG 332 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***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***ENG 335 American Poetry. (3)***selected semesters*

Themes and developments in American poetry. Lecture, discussion. See ENG Notes 1, 2.

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***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.

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***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***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***ENG 355 European Dramatic Traditions. (3)***selected semesters*

Development of European drama since Aeschylus. See ENG Notes 1, 2.

*General Studies: L/HU***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***ENG 357 Introduction to Folklore. (3)***selected semesters*

Survey of the history, genres, and dynamics of folklore, with emphasis on oral traditions. See ENG Notes 1, 2.

*General Studies: HU***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***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***ENG 361 Silent Film. (4)***fall*

Development of motion pictures from 1850 through 1930. 3 hours lecture, screenings. See ENG Notes 1, 2.

*General Studies: HU***ENG 362 Sound Film Genres. (4)***spring*

Examines the western, the horror film, the comedy, and other genres. 3 hours lecture, screenings. See ENG Notes 1, 2.

*General Studies: HU***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***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

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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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.

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

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.

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

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

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.

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.

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.

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.

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

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.

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

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

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

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

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

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

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

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

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

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

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.

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

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

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.

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

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.

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

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

ENG 446 Studies in Modernism. (3)*selected semesters*

Cultural, historical, and literary problems in American and European modernism. May be repeated for credit when topics vary. Lecture, discussion. See ENG Notes 1, 2, 3. Prerequisite: ENG 222 or 242 or instructor approval.
General Studies: HU

ENG 447 Studies in Postmodernism. (3)*selected semesters*

Literary, social, and cultural issues. Lecture, discussion. See ENG Notes 1, 2, 3. Prerequisite: ENG 222 or 242 or instructor approval.

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

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

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

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

ENG 459 Studies in African American/Caribbean Literatures. (3)*selected semesters*

May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Topics may include the following:

- African American Short Story
 - Studies in African American or Caribbean literatures according to genre, period, theory, or selected authors. Cross-listed as AFH 459. Credit is allowed for only AFH 459 or ENG 459.

General Studies: L

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

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

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.

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

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

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

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

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

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 92.

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

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)

ENG 493 Honors Thesis. (1–6)

selected semesters

General Studies: L

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.

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)

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.

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.

**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, Liu, 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 117 or higher. (Note: MAT 117 does not satisfy the university General Studies MA requirement.)

Family Studies/Child Development

The concentration in family studies/child development consists of the following core courses:

CDE 232 Human Development <i>SB</i>	3
CDE 338 Child Development Practicum	3
CDE 430 Infant/Toddler Development in the Family <i>SB</i>	3
FAS 331 Marriage and Family Relationships <i>SB</i>	3
FAS 361 Introduction to Family/Child Research Methods <i>L</i>	3
FAS 370 Family, Ethnic, and Cultural Diversity <i>SB, C</i>	3
FAS 431 Parent-Adolescent Relationships <i>SB</i>	3
FAS 435 Advanced Marriage and Family Relationships <i>L/SB</i>	3
FAS 440 Fundamentals of Marriage and Family Therapy	3
FAS 484 Internship	3
or FAS 390 Supervised Research Experience (3)	
FAS 498 Pro-Seminar	3
Total	33

In addition, nine semester hours of unrestricted electives must be taken from the following:

CDE 337 Early Childhood Intervention	3
CDE 437 Infant Family Assessment and Observation <i>L/SB</i>	3
CDE 444 Risk and Variation in Child Development	3
CDE 498 Pro-Seminar	3
or FAS 498 Pro-Seminar (3)	
FAS 499 Individualized Instruction	3
or CDE 499 Individualized Instruction (3)	
FAS 301 Introduction to Parenting	3
FAS 330 Personal Growth in Human Relationships <i>SB</i>	3
FAS 332 Human Sexuality <i>SB</i>	3
FAS 390 Supervised Research Experience	1–3
FAS 484 Internship	1–3

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 <i>SB</i>	3
FAS 331 Marriage and Family Relationships <i>SB</i>	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 <i>SB</i>	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 <i>SB, C</i>	3
FAS 431 Parent-Adolescent Relationships <i>SB</i>	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 124.

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)

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

CDE 337 Early Childhood Intervention. (3)

fall

Explores how child development theory affects practice with children and families, emphasizing development of young children and early intervention. Prerequisite: CDE 232 (or its equivalent).

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.

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

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

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).

CDE 498 Pro-Seminar. (1–7)

fall and spring

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)

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).

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

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

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

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 92.

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

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

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.

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

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

FAS 440 Fundamentals of Marriage and Family Therapy. (3)

fall and spring

Introduces the fundamental orientations of marriage and family therapy.

FAS 484 Internship. (1–12)

fall and spring

FAS 498 Pro-Seminar. (1–7)

fall and spring

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.

FAMILY AND HUMAN DEVELOPMENT (FRD)

FRD 451 Field Experience. (1–12)

selected semesters

Supervised field placement in the area of student’s concentration with a community business or agency. Students must make arrangements with instructor 1 semester in advance of enrollment. Prerequisites: completion of 60 hours; instructor approval.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see “[Omnibus Courses](#),” page 63.

Film and Media Studies

Pending Arizona Board of Regents approval, the College of Liberal Arts and Sciences will offer a BA degree in Film and Media Studies. For more information, call the Office of Undergraduate Programs at 480/965-6506.

FILM AND MEDIA STUDIES (FMS)

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.

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.

FMS 110 New Media and New Worlds. (3)

once a year

Explores the cultural effects of new media technologies. Fee. See FMS Note 1.

FMS 200 Film History. (3)

spring

Introduces the technological, aesthetic, social, and economic aspects of international film history. Fee. See FMS Note 1.

FMS 270 Race and Ethnicity in American Cinema. (3)

fall and summer

Explores how Hollywood shapes perceptions of race and ethnicity in American society. Fee. See FMS Note 1.

FMS 294 Special Topics. (1–4)

selected semesters

FMS 300 Media and Cultural Studies. (3)

once a year

The history of media and its cultural impact. Fee. See FMS Notes 1, 2.

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.

FMS 350 Virtual Reality in Film and Media. (3)

fall

Analyzes virtual reality in films, media, and fiction. Fee. See FMS Notes 1, 2.

FMS 351 Digital, Cyberspace, and Information Cultures. (3)

spring

Analyzes modern cultural and digital technologies. Fee. See FMS Notes 1, 2.

FMS 394 Special Topics. (1–4)

selected semesters

FMS 440 Los Angeles: Movies and Culture. (3)

spring

Explores film treatment of the historical culture of Los Angeles. Fee. See FMS Notes 1, 2.

FMS 441 Global Cinema. (3)

fall

Examines how film represents three important dimensions of globalization: its relationship to national culture, terrorism, and immigration. Fee. See FMS Notes 1, 2.

FMS 450 Technology, Culture, and Media. (3)

fall

Studies the socio-political relationships among technology, culture, and media. Fee. See FMS Notes 1, 2.

FMS 460 Masculinity and Film. (3)

spring

Examines the representation of masculinity and the male body in film. Fee. See FMS Notes 1, 2.

FMS 461 Film Theory and Criticism. (3)

spring

Examines the major positions and issues in film theory from an historical perspective. Fee. See FMS Notes 1, 2.

FMS 480 Globalization, Technology, and Culture. (3)

spring

Studies the socio-political relationship between media and the evolution of globalization. Fee. See FMS Notes 1, 2.

FMS 490 Capstone Seminar. (3)

once a year

Capstone seminar. See FMS Note 1. Prerequisites: major in Film and Media Studies; senior standing.

FMS 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.

Department of Geography

geography.asu.edu

480/965-7533

SCOB 330

Richard Aspinall, Chair

Professors: Arreola, Aspinall, Balling, Brazel, Cervený, Dorn, Gober, Ó hUallacháin, Pasqualetti, Zehnder

Associate Professors: Ellis, Fall, Kuby, McHugh, Wentz

Assistant Professors: Edsall, Keys, Li, Lukinbeal, Schmeeckle

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 <i>SB</i>	3
GCU 121 World Geography* <i>SB, G</i>	4
GPH 111 Introduction to Physical Geography <i>SQ</i> or GPH 411 Physical Geography (3)	4
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 <i>CS</i>	3
GCU 496 Geographic Research Methods <i>L</i>	3
GPH 371 Introduction to Cartography and Georepresentation <i>CS</i>	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 <i>SB, C</i> (3)	3
GCU 323 Geography of Latin America <i>SB, G</i> (3)	3
GCU 325 Geography of Europe <i>SB, G</i> (3)	3
GCU 326 Geography of Asia <i>SB, G</i> (3)	3
GCU 327 Geography of Africa <i>SB, G</i> (3)	3
GCU 328 Geography of Middle East and North Africa <i>SB, G</i> (3)	3
GCU 332 Geography of Australia and Oceania <i>SB, G</i> (3)	3
GCU 344 Geography of Hispanic Americans <i>SB, C</i> (3)	3
GCU 421 Geography of Arizona and Southwestern United States <i>SB, C</i> (3)	3
GCU 423 Geography of South America <i>SB, G</i> (3)	3
GCU 424 Geography of Mexico and Middle America <i>SB, G</i> (3)	3
GCU 425 Geography of the Mexican American Borderland <i>L/SB, G</i> (3)	3
GCU 426 Geography of Russia and Surroundings <i>SB, G</i> (3)	3
GCU 433 Geography of Southeast Asia (3)	3
GPH 433 Alpine and Arctic Environments <i>G</i> (3)	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 Emphasis. Students majoring in Geography may elect to pursue an Asian or Southeast Asian emphasis 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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

selected courses of wholly Asian or Southeast Asian content. The Asian program requires 30 semester hours of Asian content courses, selected from the list drawn up by the Center for Asian Studies. Also required is knowledge of an Asian language; this is deemed to be fulfilled by 20 semester hours or equivalent in Chinese, Indonesian, Japanese, Thai, or Vietnamese. The Southeast Asian Studies Certificate is awarded to Geography students who emphasize a regional studies specialization in Geography and one year of Indonesian, Thai, or Vietnamese. For more information, see “Asian Studies,” page 337, and “Southeast Asian Studies,” page 342.

Latin American Studies Emphasis. Students majoring in Geography may elect to pursue a Latin American studies concentration combining courses from the major with 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 340, 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 <i>SB</i>	3
GCU 121 World Geography* <i>SB, G</i>	4
GPH 111 Introduction to Physical Geography <i>SQ</i>	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 <i>CS</i>	3
GCU 496 Geographic Research Methods <i>L</i>	3
GPH 371 Introduction to Cartography and Georepresentation <i>CS</i>	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 <i>CS</i> (4)	
GPH 471 Geographics: Interactive and Animated Cartography and Geovisualization <i>CS</i> (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 <i>SB</i>	3
GCU 121 World Geography* <i>SB, G</i>	4
GCU 495 Quantitative Methods in Geography <i>CS</i>	3
GCU 496 Geographic Research Methods <i>L</i>	3
GPH 111 Introduction to Physical Geography <i>SQ</i>	4
or GPH 411 Physical Geography (3)	
GPH 370 Geographic Information Technologies <i>CS</i>	3
GPH 371 Introduction to Cartography and Georepresentation <i>CS</i>	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 <i>SG</i> *.....	3
GPH 215 Introduction to Climatology Laboratory <i>SG</i> *.....	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 <i>G</i> (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 <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
PHY 121 University Physics I: Mechanics <i>SQ</i> ¹	3
PHY 122 University Physics Laboratory I <i>SQ</i> ¹	1
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ²	3
PHY 132 University Physics Laboratory II <i>SQ</i> 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 <i>SB</i>	3
GCU 121 World Geography* <i>SB, G</i>	4
GCU 495 Quantitative Methods in Geography <i>CS</i>	3

GCU 496 Geographic Research Methods <i>L</i>	3
GPH 111 Introduction to Physical Geography <i>SQ</i>	4
or GPH 411 Physical Geography (3)	
GPH 371 Introduction to Cartography and Georepresentation <i>CS</i>	3
GPH 373 Geographic Information Science I <i>CS</i>	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 <i>SB</i>	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 <i>SB, G</i> (3)	
GCU 357 Social Geography <i>SB</i> (3)	
GCU 364 Energy in the Global Arena <i>SB, G</i> (3)	
GCU 441 Economic Geography <i>SB</i> (3)	
GCU 442 Geographical Analysis of Transportation <i>SB</i> (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 <i>SB, G, H</i> (3)	
GCU 360 Cities of the World II <i>SB, G</i> (3)	
GCU 444 Geographic Studies in Urban Transportation <i>SB</i> (3)	
GCU 494 ST: Geography of Phoenix (3)	

Urban studies total15

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 <i>SB</i>	3
GPH 111 Introduction to Physical Geography <i>SQ</i>	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. Possible courses include: Geographic Information Technologies (GPH 370), Introduction to Cartography and Georepresentation (GPH 371), Air Photo Interpretation (GPH 372), Geographic Field Methods (GPH 491), or a course in Geographic Information Science I (GPH 373). 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++ <i>CS</i>	3
or CSE 110 Principles of Programming with Java <i>CS</i> (3)	
GCU 495 Quantitative Methods in Geography <i>CS</i>	3
GPH 370 Geographic Information Technologies <i>CS</i>	3
GPH 373 Geographic Information Science I <i>CS</i>	4
GPH 473 Geographic Information Science II <i>CS</i>	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 <i>CS</i> (3)	
GCU 361 Urban Geography <i>SB</i> (3)	
GCU 441 Economic Geography <i>SB</i> (3)	
GCU 442 Geographical Analysis of Transportation <i>SB</i> (3)	
GCU 484 Human Geography Internship* (3)	
GPH 371 Introduction to Cartography and Georepresentation <i>CS</i> (3)	
GPH 372 Air Photo Interpretation (3)	
GPH 471 Geographics: Interactive and Animated Cartography and Geovisualization <i>CS</i> (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

* A GIS-based internship may be taken.

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. 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 124.

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 192, 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 92.

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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 <i>SB</i>	3
GCU 121 World Geography <i>SB, G</i>	4
GCU 141 Introduction to Economic Geography <i>SB, G</i>	3
or GCU 351 Population Geography <i>SB, G</i> (3)	
or GCU 361 Urban Geography <i>SB</i> (3)	
GPH 111 Introduction to Physical Geography <i>SQ</i>	4
GPH 210 Society and Environment <i>G</i>	3
or GPH 211 Landform Processes <i>L</i> (3)	
or GPH 212 Introduction to Meteorology <i>SQ</i> ¹ (3)	
and GPH 214 Introduction to Meteorology Lab <i>SQ</i> ¹ (1)	
or GPH 314 Global Change <i>HU, G</i> (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.

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)

GCU 102 Introduction to Human Geography. (3)

fall and spring

Systematic study of human use of the earth. Spatial organization of economic, social, political, and perceptual environments. Fee.

General Studies: SB

GCU 121 World Geography. (4)

fall and spring

Description and analysis of areal variations in social, economic, and political phenomena in major world regions.

General Studies: SB, G

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

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.

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

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

GCU 294 Special Topics. (4)

once a year

Topics include global awareness.

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

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

GCU 325 Geography of Europe. (3)

fall and spring

Broad and systematic overview of Europe, emphasizing physical, economic, and cultural phenomena.

General Studies: SB, G

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

GCU 327 Geography of Africa. (3)

selected semesters

Spatial distribution of relevant physical, economic, and cultural phenomena in Africa.

General Studies: SB, G

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

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

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

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

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

GCU 352 Political Geography. (3)

selected semesters

Relationship between the sociophysical environment and the state.

General Studies: SB, G

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

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

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***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***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***GCU 394 Special Topics. (1–4)***fall and spring***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.

GCU 421 Geography of Arizona and Southwestern United States. (3)*fall and spring*

Geography of the Southwest with an emphasis on Arizona. Divided into physical geography, history, people, and economy.

*General Studies: SB, C***GCU 423 Geography of South America. (3)***selected semesters*

Prerequisite: GCU 323 or instructor approval.

*General Studies: SB, G***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***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***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***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***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.

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***GCU 442 Geographical Analysis of Transportation. (3)***fall*

Networks, modes, economics, and flows at the urban, national, and international scales. Prerequisite: GCU 141 or 441.

*General Studies: SB***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***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.

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***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***GCU 484 Human Geography Internship. (3)***fall and spring***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)

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***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)**GPH 111 Introduction to Physical Geography. (4)***fall and spring*

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***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.

GPH 210 Society and Environment. (3)*fall*

Examines the interaction between social processes, key environmental issues, and nature’s role as a resource at global and regional scales.

General Studies: 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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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

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)

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)

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)

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)

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.

GPH 314 Global Change. (3)

fall

Response of Earth's natural systems (atmosphere, hydrosphere, lithosphere, biosphere) to past environmental change, and effects of potential future changes.

General Studies: HU, G

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.

General Studies: CS

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. Prerequisite: GPH 111.

General Studies: CS

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.

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

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

GPH 394 Special Topics. (1–4)

fall and spring

GPH 401 Topics in Physical Geography. (1–3)

selected semesters

Open to students qualified to pursue independent studies. Possible field trips. Prerequisite: instructor approval.

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

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.

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.

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.

GPH 411 Physical Geography. (3)

once a year

Introduces physiography and the physical elements of the environment. Credit is allowed for only GPH 411 or 111. Field trips.

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.

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.

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

GPH 418 Landforms of the Western United States. (3)

once a year

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

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.

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

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

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

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.

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.

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.

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).

GPH 484 Internship. (1–12)

selected semesters

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.

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.

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Department of Geological Sciences

geology.asu.edu

480/965-5081

PS F686

James A. Tyburczy, Chair

Regents' Professors: Buseck, Christensen, Greeley

Dee and John Whiteman Dean's Distinguished Professor: Leshin

Professors: Burt, Farmer, Fink, Hervig, Holloway, Knauth, Peacock, Reynolds, Sarewitz, Shock, Stump, Tyburczy, S. Williams

Associate Professors: Anbar, Arrowsmith, Sharp

Assistant Professors: Clarke, Fouch, Garnero, 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) <i>SQ</i> ¹ <i>G</i>	3
GLG 102 Introduction to Geology II (Historical) <i>SG</i> ² <i>H</i>	3
GLG 103 Introduction to Geology I—Laboratory <i>SQ</i> ¹	1
GLG 104 Introduction to Geology II—Laboratory <i>SG</i> 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 <i>L</i>	3
GLG 452 Field Geology II <i>L</i>	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

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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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 department may be taken. See “College Degree Requirements,” page 330.

Supporting courses required in related fields include the following:

CHM 113 General Chemistry <i>SQ</i>	4
CHM 116 General Chemistry <i>SQ</i>	4
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
or MAT 274 Elementary Differential Equations <i>MA</i> (3)	
PHY 121 University Physics I: Mechanics <i>SQ</i> ¹	3
PHY 122 University Physics Laboratory I <i>SQ</i> ¹	1
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ²	3
PHY 132 University Physics Laboratory II <i>SQ</i> 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) <i>SQ</i> , ¹ <i>G</i>	3
GLG 102 Introduction to Geology II (Historical) <i>SG</i> , ² <i>H</i>	3
GLG 103 Introduction to Geology I—Laboratory <i>SQ</i> ¹	1
GLG 104 Introduction to Geology II—Laboratory <i>SG</i> 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 124.

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)

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

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

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)

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)

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

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

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)

GLG 294 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Geology of the Planets

Fee.

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.

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.

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).

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.

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.

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.

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

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.

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.

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.

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

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.

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.

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.

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.

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.

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.

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.

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.

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.

GLG 451 Field Geology I. (3)

spring

Geological mapping techniques using topographic maps and aerial photos. Intensive field-based instruction. Lab. Fee. Prerequisites: GLG 310, 321.

General Studies: L

GLG 452 Field Geology II. (3)

summer

Continuation of GLG 451. Lab. Fee. Prerequisite: GLG 451.

General Studies: L

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.

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.

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.

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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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.

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.

GLG 484 Internship. (1-4)

selected semesters

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.

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.

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.

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.

SGS 194 Special Topics. (1-4)

selected semesters

SGS 294 Special Topics. (1-4)

selected semesters

SGS 394 Special Topics. (1-4)

selected semesters

SGS 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.

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, Carroll, El Hamel, Gray,

Gullett, Hirt, Powers, Rush, Smith, Soergel, Stoner,

Thompson, Thornton, VanderMeer, Warren-Findley, Wright

Assistant Professors: Holian, Kaplan, Koopmans,

Manchester, Miller, Pitti, Plotkin, Whitaker, Wilson

Senior Instructional Professional: Luey

AFFILIATED FACULTY

Art

Associate Professor: Brown

Chicana and Chicano Studies

Associate Professor: Escobar

Interdisciplinary Humanities

Assistant Professor: Taylor

Women and Gender Studies

Professor: Rothschild

Assistant Professor: Leong

School of Global Studies

www.asu.edu/clas/globalstudies

480/965-6506

COOR 5634

The School of Global Studies is being established. Access the Web site at www.asu.edu/clas/globalstudies for the latest information about the school.

SCHOOL OF GLOBAL STUDIES (SGS)

SGS 101 Thinking Globally: The Individual and Authority. (3)

fall

Examines the changing notions of the individual and authority over history. Lecture, discussion.

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.

SGS 103 Contemporary Global Trends. (3)

spring

Gives a grounding in patterns of international politics and global social change. Lecture, discussion.

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 History Pro-Seminar are required for all

degree candidates. (Honors students may substitute HST 493 Honors Thesis for HST 498.)

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 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 337, for more information.

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 340, 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 340, 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 341, 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 341, 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 342, 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 342, 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 124.

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 192, 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.

History. The major teaching field consists of 42 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

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 92.

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grade of “C” (2.00) is required in all academic specialization courses. Required major courses are as follows:

HST 300 Historical Inquiry <i>L/SB, H</i>	3
HST 498 PS: History Pro-Seminar <i>L</i>	3
U.S. history courses	15
HST electives* (non-U.S. history courses)	9
Related areas*	12
Total	42

* Choose 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 2.50 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 42-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 192, 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)

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: G, H

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

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: SB, H

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: SB, G, H

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: SB, H

HST 106 Asian Civilizations. (3)

once a year
Civilizations of China, Japan, and India from antiquity to the 17th century.
General Studies: SB, G, H

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

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

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: SB, H

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

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

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

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: SB, H

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

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

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.

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

HST 211 American Jewish History. (3)

selected semesters
Chronological analysis of Jews and Judaism in American history and letters.
General Studies: SB, H

HST 212 American Military History. (3)*selected semesters*

Study of the role of the military in American life during war and peace from colonial times to the present day. 3 hours lecture, conference.

*General Studies: SB, H***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***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.

HST 300 Historical Inquiry. (3)*fall and spring*

Historical methods and critical inquiry related to particular events and processes. May be repeated for credit when topics vary. Required course for majors. Prerequisite for HST 498. Discussion, seminar, lecture. Prerequisites: ENG 102; History major.

*General Studies: L/SB, H***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: SB, H***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***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***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: SB, H***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: SB, H***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.

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, H***HST 310 Film as History. (3)***once a year*

Survey of moving image media as recorder, object, and writer of history.

*General Studies: HU***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***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: SB, H***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***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***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***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***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***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***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***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: SB, C, H***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***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***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

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 92.

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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

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

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

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

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

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

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

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

HST 343 The American Southwest. (3)

once a year

Development of the region from 1848 to the present.

General Studies: L/SB, H

HST 344 Arizona. (3)

fall and spring

Emergence of the state from early times to the present.

General Studies: SB, H

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

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

HST 349 The Early Middle Ages. (3)

fall

Political, socioeconomic, and cultural developments of Western Europe from the 5th through 10th centuries.

General Studies: SB, H

HST 350 The Later Middle Ages. (3)

spring

Political, socioeconomic, and cultural developments of Western Europe from the 11th through 15th centuries.

General Studies: SB, H

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/SB, H

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/SB, H

HST 353 The Old Regime in Europe. (3)

fall

Society and culture of Europe during the 17th and 18th centuries.

General Studies: SB, H

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

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

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

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

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

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

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

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: SB, H

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

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

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***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***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***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***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***HST 375 Colonial Latin America. (3)***fall and spring*

Ancient civilization, exploration and conquerors, and colonial institutions.

*General Studies: SB, H***HST 376 Modern Latin America. (3)***fall and spring*

Nationalistic development of the independent republics since 1821.

*General Studies: SB, H***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***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***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***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***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***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***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***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***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***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***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.

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***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.

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***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***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***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***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***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***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

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 92.



Looking east down Tyler Mall toward the Bateman Physical Sciences Center

Tim Trumble photo

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

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 111 (or 112) or HST 109 (or 110).

General Studies: SB, H

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

HST 416 Indian History of the Southwest. (3)

once a year
Reviews historical events from prehistoric peoples, the Spanish and Mexican periods, and the U.S. period from 1846 to present.

General Studies: SB, C, H

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

HST 423 The Tudor Monarchy. (3)

once a year
Political, cultural, and social foundations of 16th-century England.

General Studies: SB, H

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

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

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

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

HST 429 Modern Germany. (3)

once a year
Germany since 1871.

General Studies: SB, G, H

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

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

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

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

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

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

HST 438 Modern Spain. (3)

selected semesters
Cultural, economic, political, and social development of modern Spain.

General Studies: HU/SB, G, H

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

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

HST 446 Colonial Mexico. (3)

once a year

Political, economic, social, and cultural developments from pre-Columbian times to 1810.

General Studies: SB, H

HST 447 Modern Mexico. (3)

once a year

Political, economic, social, and cultural developments from 1810 to the present.

General Studies: SB, H

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: SB, H

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

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

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

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

HST 460 History of Fire. (3)

fall

Global survey of the natural and cultural history of fire. Lecture, discussion.

General Studies: L, H

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.

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.

HST 484 Internship. (1–6)

selected semesters

HST 492 Honors Directed Study. (1–6)

selected semesters

HST 493 Honors Thesis. (3)

selected semesters

General Studies: L

HST 494 Special Topics. (1–4)

selected semesters

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. Prerequisites: HST 300; History major.

General Studies: L

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/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.

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.

**Hugh Downs School
of Human Communication**

com.pp.asu.edu

480/965-5095

STAUF A412

H. L. "Bud" Goodall Jr., Director

Professors: Alberts, Broome, Canary, Carlson, Corman, Goodall, Guerrero, Jain, Martin, McPhee, Mongeau, Nakayama

Associate Professors: Corey, Davey, Davis, De la Garza, Floyd, Martinez, Mayer, Trethewey

Assistant Professors: Brouwer, Messman, Park-Fuller, Tracy

Instructional Professional: Olson

Assistant Instructional Professional: McDonald

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.

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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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 408, or COM 404 or 407 and one pair of the following courses:

COM 110 Elements of Interpersonal Communication <i>SB</i>.....3 or COM 310 Relational Communication (3)	
COM 410 Interpersonal Communication Theory and Research <i>SB</i>	3
Total	6
— or —	
COM 250 Introduction to Organizational Communication <i>SB</i>.....3	
COM 450 Theory and Research in Organizational Communication <i>SB</i>	3
Total	6
— or —	
COM 241 Introduction to Oral Interpretation <i>L/HU</i>.....3	
COM 441 Performance Studies <i>HU</i>.....3	
Total	6
— or —	
COM 321 Rhetorical Theory and Research <i>L/HU, H</i> .....3 or COM 323 Communication Approaches to Popular Culture <i>C</i> (3)	
COM 421 Rhetoric of Social Issues <i>HU</i>.....3	
Total	6
— or —	
COM 263 Elements of Intercultural Communication <i>SB, C, G</i>.....3	
COM 463 Intercultural Communication Theory and Research <i>SB, G</i>.....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 from the upper division.

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 92, and “University Graduation Requirements,” page 88. See “CLAS Graduation Requirements,” page 331.

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 124.

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)

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

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

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 ASU cumulative GPA of 2.50.

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

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

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

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

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

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.

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

COM 271 Voice Improvement. (3)

selected semesters

Intensive personal and group experience to improve normal vocal usage, including articulation and pronunciation.

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.

COM 294 Special Topics. (3)

fall, spring, summer

Topics may include the following:

- Beyond Words

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 ASU cumulative GPA of 2.00.

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.

COM 308 Advanced Research Methods in Communication. (3)

fall, spring, summer

Advanced communication research methods, including quantitative, qualitative, and critical approaches. Prerequisite: minimum ASU

cumulative GPA of 2.50. Prerequisites with a grade of "C" (2.00) or higher: COM 207; MAT 142 (or higher-level MAT course).

General Studies: L

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 ASU cumulative GPA of 2.50.

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 ASU cumulative GPA of 2.50.

COM 316 Gender and Communication. (3)

fall and spring

Introduces gender-related communication. Examines verbal, nonverbal, and paralinguistic differences and similarities within social, psychological, and historic perspectives. Prerequisite: minimum ASU cumulative GPA of 2.50.

General Studies: SB, C

COM 317 Nonverbal Communication. (3)

fall and spring

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 ASU cumulative GPA of 2.50.

COM 319 Persuasion and Social Influence. (3)

fall, spring, summer

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 ASU cumulative GPA of 2.50. Prerequisite for nonmajors: POS 401 or PSY 230 or QBA 221 or SOC 390 or STP 226.

General Studies: SB

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 ASU cumulative GPA of 2.50.

General Studies: SB

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 ASU cumulative GPA of 2.50.

General Studies: L/HU, H

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 ASU cumulative GPA of 2.50.

General Studies: C

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 ASU cumulative GPA of 2.50.

General Studies: L

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.

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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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 ASU cumulative GPA of 2.50.

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 ASU cumulative GPA of 2.50.

General Studies: HU, C

COM 357 Communication Technology and Information Diffusion. (3)

fall

Studies effects of new communication technology on society, organizations, and individuals. Hands-on experience plus critical analysis of theory and research. Prerequisites: both COM 250 (or MGT 300 or PGS 430 or SOC 301) and CSE 180 (or its equivalent) or only instructor approval; minimum ASU cumulative GPA of 2.50.

General Studies: SB

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 ASU cumulative GPA of 2.50.

General Studies: SB, C, G

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 ASU cumulative GPA; written instructor approval.

COM 394 Special Topics. (1–4)

fall, spring, summer

Prerequisite: minimum ASU cumulative GPA of 2.50.

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 ASU cumulative GPA of 2.00.

General Studies: HU, C

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 ASU cumulative GPA of 2.50; application required.

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 ASU cumulative GPA of 2.50.

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 ASU cumulative GPA of 2.50.

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 ASU cumulative GPA of 2.50.

General Studies: SB

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 ASU cumulative GPA of 2.50.

General Studies: SB

COM 414 Crisis Communication. (3)

selected semesters

Role of communication in crisis development and intervention.

Prerequisite: minimum ASU cumulative GPA of 2.50.

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

COM 422 Advanced Argumentation. (3)

selected semesters

Advanced study of argumentation theories and research as applied to public forum, adversary, scholarly, and legal settings. Prerequisites: COM 222; minimum ASU cumulative GPA of 2.50.

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 ASU cumulative GPA of 2.50.

General Studies: SB

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 ASU cumulative GPA of 2.50.

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 ASU cumulative GPA of 2.50.

General Studies: HU

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 ASU cumulative GPA of 2.50.

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 ASU cumulative GPA of 2.50.

General Studies: HU

COM 446 Performance of Literature Written by Women. (3)

selected semesters

Explores, through performance and critical writing, literature written by women. Prerequisite: minimum ASU cumulative GPA of 2.50.

General Studies: HU, C

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 ASU cumulative GPA of 2.50.

General Studies: SB

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 ASU cumulative GPA of 2.50.

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 ASU cumulative GPA of 2.50.

General Studies: SB, G

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 ASU cumulative GPA of 2.50; instructor approval.

COM 484 Communication Internship. (1–6)

fall, spring, summer

Fee. Prerequisites: COM 225, 308; minimum ASU cumulative GPA of 2.50; application required. Pre- or corequisite: COM 410 or 421 or 441 or 450 or 463.

COM 494 Special Topics. (1–3)

fall, spring, summer

Prerequisite: minimum ASU cumulative GPA of 2.50.

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.](#)

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, Hepburn, Johnson, Jurik, Lauderdale, Provine, Romero, Schneider, Walker, Zatz

Associate Professors: Adelman, Bortner, Lujan, Menjivar

Assistant Professors: Hanson, Kupchik, Lopez, Milun, Monahan

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 meaning of justice and injustice, both descriptive and normative, 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. social justice and inequality;
2. economic justice and globalization; and
3. law, deviance, and social control.

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 taking 400-level JUS resident credit courses.

Justice Studies students may 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)

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 92.](#)

COLLEGE OF LIBERAL ARTS AND SCIENCES

— or —

ENG 105 Advanced First-Year Composition (3)	
JUS 105 Introduction to Justice Studies <i>SB</i>	3
or JUS 305 Principles of Justice Studies <i>SB</i> (3)	
JUS 301 Research in Justice Studies <i>SB</i>	3
JUS 302 Basic Statistical Analysis in Justice Studies <i>CS</i>	3
JUS 303 Justice Theory	3
School's writing competence requirement <i>L</i>	3

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 Justice and Social Inquiry undergraduate may receive the *Undergraduate Advisement Guide* and an evaluation of any transfer work. For more information, call the school at 480/965-7682.

DEGREES

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 124.

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, 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 92 and "*CLAS Graduation Requirements*," page 331. 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 36 semester hours. The following courses are required for all degree candidates. Equivalent courses may be substituted when appropriate.

JUS 105 Introduction to Justice Studies <i>SB</i>	3
or JUS 305 Principles of Justice Studies <i>SB</i> (3)	
JUS 301 Research in Justice Studies <i>SB</i>	3
JUS 302 Basic Statistical Analysis in Justice Studies <i>CS</i>	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)

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 GPA of 2.50 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 GPA of 2.00. Non-Justice Studies students may take JUS 301, 302, and 303 with school approval.

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 GPA of 2.50. 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.

JUS 100 The Justice System. (3)

fall, spring, summer

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

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

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

JUS 294 Special Topics. (1–3)

fall, spring, summer

Topics chosen from various fields of justice studies.

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

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

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.

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

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.

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.

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.

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.

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

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

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

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.

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.

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

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

JUS 365 Substantive Criminal Law. (3)

once a year

Crimes against persons, property, and society; legislative analysis; primary appellate judicial opinions; substantive criminal law issues; trial court determinations. Lecture, discussion. See JUS 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 92.

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JUS 368 Procedural Criminal Law. (3)

once a year

Due process with respect to individual liberty; privacy and government power; emphasizes broad ideas of political and social theory. Lecture, discussion. See JUS Note 1.

JUS 375 Crime and the Mass Media. (3)

once a year

Surveys the impact of mass media and popular culture on crime, police actions, and social policy. Lecture, discussion. See JUS Note 1.
General Studies: SB

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

JUS 394 Special Topics. (1–3)

once a year

Topics chosen from various fields of justice studies. Lecture, discussion. See JUS Note 1.

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

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

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.

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

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

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.

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

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

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

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

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

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

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

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

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

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

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

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

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

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.

JUS 494 Special Topics. (1–3)

once a year

Topics chosen from various fields of justice studies. Lecture, discussion. See JUS Note 2.

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 GPA of 2.75; minimum GPA in JUS courses of 3.00; instructor approval.

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 GPA of 2.75; 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/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 Kinesiology

www.asu.edu/clas/kines

480/965-3875

PEBW 218

Lawrence Mandarin, Chair

Regents' Professor: Daniel Landers

Professors: Darst, Matt, Stelmach

Associate Professors: Etnier, Hinrichs, Santello, Willis

Assistant Professors: Dounskaia, Kulinna, Ringenbach

Senior Lecturer: Donna Landers

Lecturers: Broman, Orłowicz

KINESIOLOGY—BS

The BS degree in Kinesiology consists of 42 semester hours, including 21 semester hours of required KIN core courses (KIN 110 may be repeated for credit). The remaining 21 semester hours of KIN and other courses are prescribed by the specific concentration 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 <i>SG</i>	4
BIO 202 Human Anatomy and Physiology II	4
CHM 101 Introductory Chemistry <i>SQ</i>	4
MAT 170 Precalculus <i>MA</i>	3
or MAT 119 Finite Mathematics <i>MA</i> (3)	
or MAT 210 Brief Calculus <i>MA</i> (3)	

	or a higher level mathematics course	
PGS 101 Introduction to Psychology <i>SB</i>		3
PHY 111 General Physics <i>SQ*</i>		3
Total		21

* Both PHY 111 and 113 must be taken to secure SQ credit.

The required KIN core courses are as follows:

KIN 110 Movement Analysis Laboratory	6
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 <i>SB, C</i>	3
KIN 498 PS: Kinesiology and the Future	1
Total	21

All prerequisite and KIN courses must be completed with a minimum grade of "C" (2.00). The requirements for the specific concentrations are described below.

Majors must elect either the exercise science, movement science, or teacher preparation concentration.

Concentrations

Each concentration requires 21 semester hours.

Exercise Science. This concentration is designed 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.

Choose from among the courses below	9
KIN 334 Functional Anatomy and Kinesiology (3)	
KIN 448 Applied Sport Psychology <i>L</i> (3)	
KIN 484 Internship (6)	
KIN 494 ST: Interpretation of Exercise Performance (3)	
Choose from among the courses below	12
KIN 283 Prevention and Care of Athletic Injuries (3)	
KIN 348 Psychological Skills for Optimal Performance <i>SB</i> (3)	
KIN 370 Advanced First Aid (3)	
KIN 412 Biomechanics of the Skeletal System (3)	
KIN 413 Qualitative Analysis in Sport Biomechanics (3)	
KIN 441 Physiology of Women in Sport <i>L</i> (3)	
KIN 442 Fuel Metabolism (3)	
KIN 444 Metabolic Adaptations to Exercise Training (3)	
KIN 445 Exercise Physiology for Children and Adolescents (3)	
KIN 450 Biopsychosocial Perspectives on Physical Activity and Health (3)	
KIN 460 Theory of Strength Training <i>L</i> (3)	
KIN 485 Advanced Techniques of Athletic Training (3)	
KIN 494 ST: Environmental Exercise Physiology (3)	
KIN 494 ST: Physiological Bases for Exercise and Sport (3)	
KIN 494 ST: Sport and Social Issues (3)	

Other KIN courses may be substituted with advisor 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 92.

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Movement Science. This concentration is designed for students interested in prehealth professions, 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, chiropractic, etc.) will also find this concentration applicable. Additional course work in the sciences must be completed (consult with the department for a list).

Choose from among the courses below	9
KIN 484 Internship (6)	
KIN 492 Honors Directed Study: Research (6)	
KIN 493 Honors Thesis (6)	
KIN 494 ST: Research Methods (3)	
KIN 499 Individualized Instruction (1–6)	
Choose from among the courses below	12
KIN 334 Functional Anatomy and Kinesiology (3)	
KIN 370 Advanced First Aid (3)	
KIN 412 Biomechanics of the Skeletal System (3)	
KIN 414 Electromyographic Kinesiology <i>L</i> (3)	
KIN 421 Human Motor Control (3)	
KIN 422 Motor Control in Special Populations <i>L</i> (3)	
KIN 423 Motor Control and Aging (3)	
KIN 440 Exercise Biochemistry (3)	
KIN 442 Fuel Metabolism (3)	
KIN 443 Exercise Endocrinology <i>L</i> (3)	
KIN 445 Exercise Physiology for Children and Adolescents (3)	
KIN 450 Biopsychosocial Perspectives on Physical Activity and Health (3)	
KIN 452 Exercise Psychology <i>SB</i> (3)	
KIN 494 ST: Muscle Physiology (3)	
KIN 494 ST: Voluntary and Reflex Control of Movement (3)	

MINOR IN KINESIOLOGY

The minor in Kinesiology consists of the core sequence in exercise science and physical education as follows, plus all prerequisite courses:

KIN 110 Movement Analysis Laboratory	4
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 <i>SB, C</i> (3)	
KIN upper-division electives*	6
Total	21

* Excluding KIN 305, 310, 484, 492, and 493

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 124.

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 and with the College of Education and the Division of Graduate Studies in the program leading to the PhD degree in Curriculum and Instruction with a concentration in physical education. See the *Graduate Catalog* for requirements.

HEALTH SCIENCE (HES)

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)

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.

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.

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

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.

KIN 110 Movement Analysis Laboratory. (1–2)

fall, spring, summer

Practical application of biomechanical, physiological, psychological, and learning principles in the analysis of skill acquisition and performance. May be repeated for credit. See KIN Note 1.

- Archery
Fee.
- Fencing
Fee.
- Golf
Fee.

Prerequisites: KIN 105 proficiency; Kinesiology major.

KIN 191 First-Year Seminar. (1–3)

fall and spring

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.

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.

KIN 283 Prevention and Care of Athletic Injuries. (3)

fall and spring

Taping, injury recognition, emergency care, and observation procedures in athletic training. Prerequisites: BIO 201, 202.

KIN 290 Sports Officiating. (3)

fall

Rules and mechanics of officiating used in football, basketball, and volleyball.

KIN 292 Sports Officiating. (3)

spring

Rules and mechanics of officiating used in softball (slow and fast pitch), baseball, and track and field.

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.

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.

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.

KIN 335 Biomechanics. (3)

fall, spring, summer

Basic anatomical and mechanical principles applied to human movement. Emphasis placed on kinematic and kinetic concepts. Lecture, recitation, lab. Fee. Prerequisites: BIO 201; MAT 117; PHY 111.

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.

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.

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

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

KIN 361 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.

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.

KIN 376 Physical Education for the Elementary School. (3)

fall and spring

Scope and values of physical education in the elementary school. Methods, materials, and practice in teaching activities for primary, intermediate, and upper grades.

KIN 382 Adaptive and Inclusive Physical Education. (3)

fall and spring

Teaching individuals with handicapping conditions physical skills and activities.

KIN 400 Teaching Physical Activity Concepts. (3)

fall and spring

Analyzes and critiques teaching concepts, principles, and skills outlined in Arizona Physical Activity Standards. Evaluates national guidelines for promoting physical activity. Prerequisites: ENG 101 (or 107), 102 (or 108); KIN 200 (or its equivalent).
General Studies: L

KIN 412 Biomechanics of the Skeletal System. (3)

fall

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.

KIN 413 Qualitative Analysis in Sport Biomechanics. (3)

spring

Develops systematic approach for detecting and correcting errors in human performance using anatomical and mechanical principles. Lecture, lab. Prerequisite: KIN 335.

KIN 414 Electromyographic Kinesiology. (3)

spring

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

KIN 421 Human Motor Control. (3)

spring

Focuses on understanding how the human central nervous system controls, regulates, and learns movements. Prerequisite: KIN 345 or instructor approval.

KIN 422 Motor Control in Special Populations. (3)

spring

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

KIN 423 Motor Control and Aging. (3)

spring

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.

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 92.

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KIN 440 Exercise Biochemistry. (3)

fall

Study of bioenergetics and metabolism of cellular (skeletal muscle, heart, and liver) organelles and proteins during exercise. Prerequisite: KIN 340.

KIN 441 Physiology of Women in Sport. (3)

fall

Physiological aspects of women engaging in physical activity. Emphasizes factors affecting performance and health throughout life. Prerequisite: KIN 340.

General Studies: L

KIN 442 Fuel Metabolism. (3)

fall

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.

KIN 443 Exercise Endocrinology. (3)

spring

Discusses current research and theory concerning hormonal changes during exercise. Lecture, discussion. Prerequisite: KIN 340 or instructor approval.

General Studies: L

KIN 444 Metabolic Adaptations to Exercise Training. (3)

summer

Examines physiologic adaptations to exercise training as they relate to metabolism and tissue functions. Prerequisite: KIN 340.

KIN 445 Exercise Physiology for Children and Adolescents. (3)

spring

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.

KIN 448 Applied Sport Psychology. (3)

fall, spring, summer

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

KIN 450 Biopsychosocial Perspectives on Physical Activity and Health. (3)

fall

Uses a biopsychosocial perspective to examine the interrelationships on physical activity and health (physical and mental). Prerequisite: KIN 352.

KIN 452 Exercise Psychology. (3)

spring

Contemporary research and theory as related to human behavior and health in an exercise setting. Prerequisite: KIN 352.

General Studies: SB

KIN 460 Theory of Strength Training. (3)

fall

Research and theories on developing muscular strength; programs for developing muscular strength. Lecture, discussion. Prerequisites: KIN 335, 340.

General Studies: L

KIN 478 Student Teaching in Secondary Schools. (3–12)

fall and spring

Practice of teaching. Relationship of practice and theory in teaching. Fee. Prerequisite: two complete semesters of block (or its equivalent).

KIN 480 Methods of Teaching Physical Education. (3)

fall and spring

Methods of instruction, organization, and presentation of appropriate content in elementary and secondary physical education. Prerequisites: KIN 361, 376. Corequisite: student teaching or instructor approval.

KIN 484 Internship. (6)

selected semesters

KIN 485 Advanced Techniques of Athletic Training. (3)

spring

Advanced course in athletic training designed for students seeking NATA certification. Emphasizes therapeutic modalities and rehabilitation procedures. Prerequisites: KIN 283, 370; CPR certification.

KIN 492 Honors Directed Study: Research. (1–6)

selected semesters

KIN 493 Honors Thesis. (1–6)

selected semesters

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)

KIN 498 Pro-Seminar. (1–7)

selected semesters

Topics may include the following:

- Kinesiology and the Future. (1)

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/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 Languages and Literatures

www.asu.edu/languages

480/965-6281

LL 440

Pier R. Baldini, Chair

Regents' Professors: Foster, Keller

Professors: Alexander, Baldini, Ballon-Aguirre, Chambers, Croft, Carlos, Garcia-Fernández, Horwath, B. Lafford, Losse, M. Sanchez, Volek, West, Wetsel, Williams, 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, Duncan, George, Gilfillan, Ginsburg, Gruzinska, Haberman, Owen, Siegel-Valdes

Senior Lecturers: Foard, Hendrickson

Lecturers: Deal, Garcia, Lage, Le, Mango, Martinez, Oh, Pang, Petersen, Poudrier, Shimomura, Siriprakob, Stiffel, Walton-Ramirez, E. Wong, Zhang

Associate Research Professional: P. Lafford

Academic Associate: Glessner-Calkins

Research Associate Professor: Sipka

Distinguished Scholars of Spanish: 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 Degree Requirements,” page 330. 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 <i>G</i>	3
CHI 314 Third-Year Chinese II <i>G</i>	3
CHI 321 Chinese Literature <i>HU</i>	3
CHI 322 Chinese Literature <i>HU, G</i>	3
or FLA 420 Foreign Literature in Translation <i>HU, G</i> (3)	
CHI 413 Introduction to Classical Chinese <i>HU</i>	3
CHI 414 Introduction to Classical Chinese <i>HU</i>	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 <i>L/HU, G</i>	3
JPN 313 Third-Year Japanese I <i>G</i>	3
JPN 314 Third-Year Japanese II <i>G</i>	3
JPN 321 Japanese Literature <i>L/HU, G</i>	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 <i>G</i> (3)	
JPN 312 Japanese Conversation and Composition <i>G</i> (3)	
JPN 321 Japanese Literature <i>L/HU, G</i> (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 <i>G</i>	3
FRE 312 French Composition <i>G</i>	3
FRE 321 French Literature <i>L/HU, H</i>	3
FRE 322 French Literature <i>L/HU</i>	3
Total	12

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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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 <i>G</i>	3
FRE 325	Introduction to French Film	3
FRE 394	Special Topics	1–3
FRE 411	Advanced Spoken French <i>G</i>	3
FRE 412	Advanced Written French <i>G</i>	3
FRE 415	French Civilization I <i>HU</i>	3
FRE 416	French Civilization II <i>HU, G</i>	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 <i>HU</i>	3
FRE 442	French Literature of the 17th Century <i>HU, H</i>	3
FRE 445	French Literature of the 18th Century <i>L/HU</i>	3
FRE 451	French Poetry of the 19th Century	3
FRE 452	French Novel of the 19th Century <i>HU</i>	3
FRE 453	Theater of the 19th Century <i>L/HU</i>	3
FRE 461	Modern Narrative <i>HU</i>	3
FRE 462	Modern Poetry <i>HU</i>	3
FRE 471	The Literature of Francophone Africa and the Caribbean <i>L/HU</i>	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 <i>G</i>	3
	or GER 312 German Conversation <i>G</i> (3)	
GER 313	German Composition <i>G</i>	3
GER 411	Advanced Grammar and Conversation <i>G</i>	3
GER 412	Advanced Grammar and Composition <i>G</i>	3
GER 421	German Literature <i>HU</i>	3
GER 422	German Literature <i>L/HU</i>	3
Choose six semester hours from the courses below		6
GER 319	Business Correspondence and Communication <i>G</i> (3)	
GER 394	Special Topics (1–4)	
GER 415	German Civilization <i>HU, G, H</i> (3)	
GER 416	German Civilization <i>HU, G, H</i> (3)	
GER 494	Special Topics (1–4)	

Total30

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 <i>G</i>	3
ITA 312	Italian Composition and Conversation <i>G</i>	3

ITA 325	Introduction to Italian Literature <i>HU</i>	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:

ITA 314	Advanced Italian <i>G</i>	3
ITA 315	Italian for Business	3
ITA 394	Special Topics	1–4
ITA 415	Italian Civilization <i>HU, G</i>	3
ITA 420	Italian Cinema	3
ITA 425	Italian American Culture <i>L</i>	3
ITA 430	Italian Literature of the Middle Ages <i>HU</i>	3
ITA 441	Dante: <i>Divina Commedia L/HU</i>	3
ITA 443	Italian Literature of the Renaissance <i>HU, H</i>	3
ITA 446	Italian Literature of the 18th and 19th Centuries <i>HU</i>	3
ITA 449	20th-Century Italian Literature <i>HU, G</i>	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 <i>G</i>	3
RUS 212	Basic Russian Conversation <i>G</i>	3
RUS 311	Russian Composition and Conversation <i>G</i>	3
RUS 312	Russian Composition and Conversation <i>G</i>	3
RUS 411	Advanced Composition and Conversation I <i>G</i>	3
	or RUS 412 Advanced Composition and Conversation II <i>G</i> (3)	
RUS 498	PS: Senior Seminar* or SLV 498 PS: Senior Seminar (3)	3
SLV 304	Computational Linguistics of Slavic Languages <i>CS</i>	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 <i>HU, H</i>	3
RUS 322	Great Russian Writers of the 19th Century <i>L/HU</i>	3
RUS 323	Modern Russian Literature and the Soviet Legacy <i>L/HU, G</i>	3
RUS 411	Advanced Composition and Conversation I <i>G</i>	3
RUS 412	Advanced Composition and Conversation II <i>G</i>	3
RUS 417	Applied Russian Phonetics	2
RUS 420	Russian Poetry <i>L/HU</i>	3
RUS 421	Pushkin <i>L/HU</i>	3

RUS 423 Dostoyevsky <i>L/HU</i>	3
RUS 424 Tolstoy <i>L/HU</i>	3
RUS 425 Chekhov <i>L/HU</i>	3
RUS 430 Russian Short Story <i>L/HU</i>	3
RUS 441 Survey of Russian Culture <i>L/HU, G, H</i>	3
RUS 495 Russian for Heritage Speakers.....	3
SLV 426 Contemporary East European and Eurasian Literatures <i>L/HU, G</i>	3
SLV 440 History of Slavic Languages <i>SB</i>	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 <i>G</i>	3
or SPA 315 Spanish Conversation and Composition for Bilinguals (3)	
SPA 314 Spanish Conversation and Composition <i>G</i>	3
or SPA 316 Spanish Conversation and Composition for Bilinguals (3)	
SPA 325 Introduction to Hispanic Literature <i>HU</i>	3
SPA 412 Advanced Conversation and Composition <i>G</i>	3
SPA 425 Spanish Literature <i>HU</i>	3
Choose two courses below.....	6
SPA 426 Spanish Literature <i>HU</i> (3)	
SPA 427 Spanish American Literature <i>L</i> (3)	
SPA 428 Spanish American Literature <i>L, G</i> (3)	
Choose one course below.....	3
SPA 471 Civilization of the Spanish Southwest <i>HU</i> (3)	
SPA 472 Spanish American Civilization <i>HU, G, H</i> (3)	
SPA 473 Spanish Civilization <i>HU/SB, G</i> (3)	
Total.....	24

Electives

Two upper-division (300–400-level) SPA courses.....	6
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Related Fields

POR 101 Elementary Portuguese.....	5
POR 201 Intermediate Portuguese <i>G</i>	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 <i>G</i>	3
CHI 314 Third-Year Chinese II <i>G</i>	3

Consult with the departmental advisor for an additional six hours of Chinese course credit.

French

Required

FRE 311 French Conversation <i>G</i>	3
FRE 312 French Composition <i>G</i>	3
FRE 321 French Literature <i>HU, H</i>	3
or FRE 322 French Literature <i>L/HU</i> (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 <i>G</i>	3
or GER 312 German Conversation <i>G</i> (3)	
GER 313 German Composition <i>G</i>	3
One 400-level GER course.....	3
Upper-division GER course.....	3

Italian

Required

ITA 201 Intermediate Italian <i>G</i>	3
ITA 202 Intermediate Italian <i>G</i>	3
ITA 311 Italian Composition and Conversation <i>G</i>	3
or ITA 312 Italian Composition and Conversation <i>G</i> (3)	
or ITA 315 Italian for Business (3)	
ITA 325 Introduction to Italian Literature <i>HU</i>	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 <i>G</i>	3
JPN 314 Third-Year Japanese II <i>G</i>	3

Consult with the departmental advisor for additional JPN courses.

Russian

Required

RUS 211 Basic Russian Conversation <i>G</i>	3
RUS 212 Basic Russian Conversation <i>G</i>	3
RUS 311 Russian Composition and Conversation <i>G</i>	3
RUS 312 Russian Composition and Conversation <i>G</i>	3

Six semester hours of upper-division RUS courses are also 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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

Spanish

The minor in Spanish requires a minimum of 18 upper-division semester hours.

Required

SPA 313	Spanish Conversation and Composition <i>G</i>	3
	or SPA 315 Spanish Conversation and Composition for Bilinguals (3)	
SPA 314	Spanish Conversation and Composition <i>G</i>	3
	or SPA 316 Spanish Conversation and Composition for Bilinguals (3)	
SPA 325	Introduction to Hispanic Literature <i>HU</i>	3
SPA 412	Advanced Conversation and Composition <i>G</i>	3
SPA 471	Civilization of the Spanish Southwest <i>HU</i>	3
	or SPA 472 Spanish American Civilization <i>HU, G, H</i> (3)	
	or SPA 473 Spanish Civilization <i>HU/SB, G</i> (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 336](#).

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 341](#).

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 Ameri-

can 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.

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 <i>SB</i>	3
	or SPA 400 Introduction to Spanish Linguistics (3) or equivalent	
SPA 494	ST: Lexicography	3

Required

FLA 401	Translation Theory and Practice	3
SPA 412	Advanced Conversation and Composition <i>G</i>	3

In-Service Practicum

FLA 484	Internship	2
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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 407](#), for specific course requirements. For more information, see [“School of Interdisciplinary Studies,” page 124](#).

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 192, 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.

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 LANGUAGES FOR INTERNATIONAL PROFESSIONS

The sequence of two semesters, listed under numbers 107 and 207 in two languages (French and Spanish), integrates an accelerated study, a functional approach to course design, and preparation for international professions (e.g., business, diplomacy, international political economy). It is parallel to the traditional sequence of 101 through 202 and also satisfies the college’s foreign language requirement. The sequence differs from traditional basic language programs in that all aspects of the language—vocabulary, grammar, and skill development—are practiced within the context of authentic communication for social and professional purposes in the target culture. Classes meet eight hours weekly, for eight semester hours in each of two semesters.

Students who have had success in learning one foreign language are encouraged to join this program in a second language. Students should contact the Department of Languages and Literatures before registration.

FOREIGN LANGUAGE REQUIREMENT

The College of Liberal Arts and Sciences requires knowledge of one foreign language equivalent to the completion of two years’ 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.

Ordinarily, no placement or proficiency examination is administered to students who wish to continue studying languages for which high school credits have been earned. 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

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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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)

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.

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.

FLA Note 3. English majors and minors are expected to have completed ENG 200 before taking 400-level literature courses.

FLA 150 Introduction to East Asian Culture. (3)

spring

Introduces the cultures of China, Japan, and Korea.

General Studies: HU, G

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

FLA 394 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Career Development for Language Students
- Introduction to Teaching Foreign Languages

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

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.

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.

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

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

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.

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.

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.

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.

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.

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.

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.

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.

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.

FLA 484 Internship. (1–2)*selected semesters***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.

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)**ARB 101 Elementary Arabic. (4)***fall and summer*

Reading, writing, speaking, and understanding basic Arabic. 4 hours lecture, 1 hour lab. Fee.

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).

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***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)**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.

BCS 102 Elementary Serbo-Croatian. (4)*spring and summer*

See BCS 101. Lecture, lab, group activities. Prerequisite: BCS 101 (or its equivalent).

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).

BCS 202 Intermediate Serbo-Croatian. (4)*spring and summer*

See BCS 201. Lecture, lab, group activities. Prerequisite: BCS 201 (or its equivalent).

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).

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)**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.

CHI 102 First-Year Chinese II. (5)*fall and spring*

See CHI 101. Fee. Prerequisite: CHI 101 (or its equivalent).

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***CHI 202 Second-Year Chinese II. (5)***spring*

See CHI 201. Fee. Prerequisite: CHI 201 (or its equivalent).

*General Studies: G***CHI 205 Chinese Calligraphy. (1)***fall and spring*

Introduces styles and techniques of Chinese writing. Requires no knowledge of Chinese or Japanese.

CHI 309 Chinese Conversation. (2)*fall*

Aural/oral drills using contemporary stories, articles, and essays. For students with lower-level proficiency. Prerequisite: CHI 202.

CHI 310 Chinese Conversation. (2)*spring*

See CHI 309. Prerequisite: CHI 202.

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 92.

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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.

CHI 312 Chinese Conversation. (2)

spring

See CHI 311. Discussion, drill. Prerequisite: CHI 202.

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

CHI 314 Third-Year Chinese II. (3)

spring

Continuation of CHI 313. Prerequisite: CHI 313 (or its equivalent).

General Studies: G

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

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

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.

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

CHI 414 Introduction to Classical Chinese. (3)

spring

Continuation of CHI 413. Prerequisite: CHI 413.

General Studies: HU

CHI 494 Special Topics. (1–4)

selected semesters

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)

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.

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).

FRE 107 French for International Professions I. (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.

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.

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

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

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

FRE 207 French for International Professions II. (8)

spring

Continuation of FRE 107, alternative to FRE 201, 202 sequence. Expansion of communicative proficiency in specific areas of international professions. Fee. Prerequisite: FRE 107 or instructor approval.

General Studies: G

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

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

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).

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

FRE 321 French Literature. (3)

fall and spring

Representative masterpieces and significant movements of French literature of the Middle Ages through the 18th century. Prerequisite: FRE 205 (or its equivalent).

General Studies: L/HU, H

FRE 322 French Literature. (3)

fall and spring

Literature of the 19th and 20th centuries. Prerequisite: FRE 205 (or its equivalent).

General Studies: L/HU

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.

FRE 394 Special Topics. (1–4)

selected semesters

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***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***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***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***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.

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.

FRE 423 French Syntax. (3)*spring*

Analyzes French syntactic structure by contemporary theoretical models. Prerequisite: ASB 480 or ENG 213 or FLA 400.

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.

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***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***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***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.

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***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***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***FRE 462 Modern Poetry. (3)***spring*

Representative authors from Mallarmé to Bonnefoy. Lecture, discussion. Prerequisites: both FRE 322 and 6 hours of 300-level French or only instructor approval.

*General Studies: HU***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***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.

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.

FRE 485 Literary Translation. (3)*spring*

Theory and practice of literary translation with emphasis on application through individual translation project. Prerequisite: FRE 480.

FRE 494 Special Topics. (1–4)*selected semesters***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)****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.

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).

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.

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 92.

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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

GER 202 Intermediate German. (4)

fall, spring, summer

See GER 201. Fee. Prerequisite: GER 201 (or its equivalent).

General Studies: G

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

GER 312 German Conversation. (3)

spring

See GER 311. Prerequisite: GER 202 (or its equivalent).

General Studies: G

GER 313 German Composition. (3)

spring

Intensive practice in writing, emphasizing style and grammar. Prerequisite: GER 202 (or its equivalent).

General Studies: G

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

GER 394 Special Topics. (1–4)

selected semesters

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

GER 412 Advanced Grammar and Composition. (3)

spring

Improvement of writing ability. Prerequisite: GER 313 (or its equivalent).

General Studies: G

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

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

GER 421 German Literature. (3)

fall

From the beginning to Classicism. Prerequisite: 6 hours of 300-level German.

General Studies: HU

GER 422 German Literature. (3)

spring

From Romanticism to the present. Prerequisite: 6 hours of 300-level German.

General Studies: L/HU

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

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.

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.

ANCIENT GREEK (GRK)

GRK 101 Elementary Ancient Greek. (4)

fall

Ancient Greek grammar and vocabulary with an emphasis on developing reading skills. For beginning students only.

GRK 201 Intermediate Ancient Greek. (4)

spring

Continuation of GRK 101. Ancient Greek syntax and grammar. Prerequisite: GRK 101.

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

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)

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.

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).

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

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

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).

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).

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)

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.

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).

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

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)

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.

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).

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

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

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

ITA 312 Italian Composition and Conversation. (3)

fall and spring

See ITA 311. Prerequisite: ITA 202 (or its equivalent).

General Studies: G

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

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.

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

ITA 394 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Commercial Italian. (3)

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

ITA 420 Italian Cinema. (3)

fall

Major trends of Italian cinema from the post-war period to the present.

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

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

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

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

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

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

ITA 494 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Italian/American Culture. (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 92.

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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)

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.

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).

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

JPN 202 Second-Year Japanese II. (5)

fall and spring

Continuation of JPN 201. Fee. Prerequisite: JPN 201 (or its equivalent).

General Studies: G

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.

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.

JPN 310 Intermediate Japanese Conversation. (2)

spring

Continuation of JPN 309. Prerequisite: JPN 309.

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

JPN 312 Japanese Conversation and Composition. (3)

spring

See JPN 311. Prerequisite: JPN 202.

General Studies: G

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

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

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

JPN 394 Special Topics. (1–4)

selected semesters

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.

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).

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).

JPN 494 Special Topics. (1–4)

selected semesters

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.

KOREAN (KOR)

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.

KOR 102 First-Year Korean II. (5)

spring

Continuation of KOR 101. Lecture, recitation. Prerequisite: KOR 101 (or its equivalent).

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

KOR 202 Second-Year Korean II. (5)

spring

Continuation of KOR 201. Lecture, recitation. Prerequisite: KOR 201 (or its equivalent).

General Studies: G

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

KOR 313 Third-Year Korean I. (3)

fall

Continued development of ability to communicate orally and in writing. Exposure to a variety of Korean written styles. Reading, writing, discussion. Prerequisite: KOR 202 (or its equivalent).

KOR 314 Third-Year Korean II. (3)

spring

Continuation of KOR 313. Reading, writing, discussion. Prerequisite: KOR 313 (or its equivalent).

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

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)**LAT 101 Elementary Latin. (4)***fall and spring*

Basic Latin grammar with an emphasis on developing reading skills. For beginning students only.

LAT 102 Elementary Latin. (4)*fall and spring*

Continuation of LAT 101. Prerequisite: LAT 101 (or its equivalent).

LAT 201 Intermediate Latin I. (4)*fall and spring*

Final semester of grammar. Prerequisite: LAT 102 or instructor approval.

General Studies: HU

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

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

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)**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.

MAK 102 Elementary Macedonian. (4)*summer*

See MAK 101. Lecture, lab, group activities. Prerequisite: MAK 101 (or its equivalent).

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).

MAK 202 Intermediate Macedonian. (4)*summer*

See MAK 201. Lecture, lab, group activities. Prerequisite: MAK 201 (or its equivalent).

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).

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).

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).

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).

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)**NOR 101 Elementary Norwegian. (4)***fall*

Reading, writing, speaking, and understanding of basic Norwegian. 4 hours lecture, 1 hour lab. Fee.

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).

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).

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)**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.

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

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

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 92.](#)

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POR 314 Portuguese Composition and Conversation. (3)

spring

Continuation of POR 313. Prerequisite: POR 313 or instructor approval.

General Studies: G

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

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

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)

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.

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.

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.

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.

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)

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.

RUS 102 Elementary Russian. (4)

spring and summer

See RUS 101. Fee. Prerequisite: RUS 101 (or its equivalent).

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

RUS 202 Intermediate Russian. (4)

spring and summer

See RUS 201. Fee. Prerequisite: RUS 201 (or its equivalent).

General Studies: G

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

RUS 212 Basic Russian Conversation. (3)

spring

See RUS 211. Fee. Prerequisite: RUS 102.

General Studies: G

RUS 311 Russian Composition and Conversation. (3)

fall

Develops writing ability and oral expression. Prerequisite: RUS 202.

General Studies: G

RUS 312 Russian Composition and Conversation. (3)

spring

See RUS 311. Prerequisite: RUS 202.

General Studies: G

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. Open to nonmajors. Prerequisite: readings in translation.

General Studies: HU, H

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. Open to nonmajors. Prerequisite: readings in translation.

General Studies: L/HU

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. Open to nonmajors. Prerequisite: readings in translation.

General Studies: L/HU, G

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

RUS 412 Advanced Composition and Conversation II. (3)

spring

See RUS 411. Prerequisite: RUS 312.

General Studies: G

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.

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

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

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

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***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***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***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***RUS 493 Honors Thesis. (1–6)***selected semesters***RUS 494 Special Topics. (1–4)***selected semesters***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.

RUS 498 Pro-Seminar. (1–7)*selected semesters*

Topics may include the following:

- Senior Seminar. (3)

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)**SCA 250 Introduction to Scandinavian Culture. (3)***spring*

Scandinavian identity from an interdisciplinary perspective with historic overview. Lecture, discussion.

*General Studies: HU, G, H***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.

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***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)**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***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***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***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)

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.

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.

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).

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.

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.

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

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 92.

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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

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

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

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

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).

SPA 312 Spanish Conversation. (3)

fall and spring

See SPA 311. See SPA Note 1. Prerequisite: SPA 311 (or its equivalent).

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

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

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.

SPA 316 Spanish Conversation and Composition for Bilinguals. (3)

spring

See SPA 315. See SPA Note 1. Prerequisite: SPA 315 (or its equivalent).

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

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

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).

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

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

SPA 417 Spanish Phonetics and Phonology. (3)

fall

Introduces the theory and practice of Spanish phonetics and phonology. Prerequisite: SPA 412.

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

SPA 421 Spanish in the Southwest. (3)

fall

Discussion and linguistic analysis of Southwest Spanish. Prerequisite: SPA 412.

General Studies: L/SB, C

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.

SPA 425 Spanish Literature. (3)

fall and spring

Surveys Spanish literature from its beginning to 1700. Prerequisite: SPA 325.

General Studies: HU

SPA 426 Spanish Literature. (3)

fall and spring

Surveys Spanish literature from 1700 to the present. Prerequisite: SPA 325.

General Studies: HU

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

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

SPA 429 Mexican Literature. (3)

selected semesters

Selected readings from pre-Columbian writers/poets (e.g., Macuilxóchtli) through the novel of the Revolution to the present. Prerequisite: SPA 325.

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.

SPA 435 Cervantes—*Don Quijote*. (3)

fall

Don Quijote and the development of the novel. Prerequisite: SPA 325.

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.

SPA 456 20th-Century Spanish American Fiction. (3)

spring

Major works and movements. Prerequisite: SPA 325.

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***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***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***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***SPA 474 Mexican Culture. (3)***fall and spring*

Examines diverse aspects of Mexican culture since the 1910 Revolution. Lecture, discussion. Prerequisite: SPA 325.

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***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.

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.

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.](#)

SWEDISH (SWE)**SWE 101 Elementary Swedish. (4)***fall*

Reading, writing, speaking, and understanding of basic Swedish. 4 hours lecture, 1 hour lab. Fee.

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 equivalent).

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 equivalent).

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 equivalent).

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see ["Omnibus Courses," page 63.](#)

THAI (THA)**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.

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).

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 equivalent).

*General Studies: G***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 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)**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.

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).

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***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***VTN 321 Advanced Vietnamese and Literature I. (3)***fall*

Readings from modern, contemporary, and folk literatures and current periodicals. Lecture, discussion, Internet, student presentations, debate. Prerequisite: VTN 202 (or equivalent) or instructor approval.

VTN 322 Advanced Vietnamese and Literature II. (3)*spring*

Continuation of VTN 321. Readings from modern, contemporary, and folk literatures and current periodicals. Lecture, discussion, Internet, student presentations, debate. Prerequisite: VTN 321 (or equivalent) or instructor approval.

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 92.](#)

School of Life Sciences

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 480/727-6277
 LSC 226

Robert E. Page, Director

Ronald L. Rutowski,
Associate Director for Undergraduate Programs

Andrew N. Webber,
Associate Director for Graduate Programs

Willem F. J. Vermaas,
Associate Director for Research Initiatives

Regents' Professors: Alcock, Arntzen, Maienschein, Pyne

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, Misra, Moore, Mossman, Nash, Page, Rutowski, Sarewitz, Schmidt, Smith, Sommerfeld, Trelease, Vermaas, Walsberg, Webber, Wu, Young

Associate Professors: Armendt, Chang, Clark, Escalante, Fewell, Fouquette, Garcia-Pichel, Goldstein, Hoffman, Hogue, Kinzig, Kumar, Mason, McGregor, Neuer, Orchinik, Pigg, Ramakrishna, Rawls, Roberson, Slater, Stout, Stromberg, Szarek, Towill

Assistant Professors: Anderies, Chen, Crook, DeNardo, Gadau, Gerber, Laubichler, Liebig, McGraw, Minter, Mor, Newfeld, Rhoads, Robert, Rosenberg, Sabo, Touchman, Verrelli, Wilson-Rawls, Wojciechowski

Clinical Professors: Downs, Mass

Clinical Associate Professor: Roberts

Clinical Assistant Professor: Lefevre

Research Professors: Bertram, Cardineau, Davidson, Mahoney, Pearson

Associate Research Professors: Lopez, Pettit

Assistant Research Professors: Hope, Hu, 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 17 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 <i>SG</i>	4
BIO 188 General Biology II <i>SQ</i>	4
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)	
MIC 220 Biology of Microorganisms (3)	
and MIC 206 Microbiology Laboratory <i>SG*</i> (1)	
PLB 300 Comparative Plant Diversity <i>L/SG</i> (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 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</i>	4
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i>	5
or CHM 116 General Chemistry <i>SQ</i> (4)	
Choose between the combinations of organic chemistry	
courses below	4 or 8
CHM 231 Elementary Organic Chemistry <i>SQ</i> ¹ (3)	
CHM 235 Elementary Organic Chemistry Laboratory <i>SQ</i> ¹ (1)	
or	
CHM 331 General Organic Chemistry (3)	
CHM 332 General Organic Chemistry (3)	
CHM 335 General Organic Chemistry Laboratory (1)	
CHM 336 General Organic Chemistry Laboratory (1)	
MAT 251 Calculus for Life Sciences <i>MA</i>	3
or MAT 210 Brief Calculus <i>MA</i> (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 <i>SQ</i> (4)	
or	
PHY 111 General Physics <i>SQ</i> ² (3)	
PHY 112 General Physics <i>SQ</i> ² (3)	
PHY 113 General Physics Laboratory <i>SQ</i> ² (1)	
PHY 114 General Physics Laboratory <i>SQ</i> ² (1)	
STP 226 Elements of Statistics <i>CS</i>	3
or STP 294 <i>ST</i> : 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, plus a three-semester-hour mathematics proficiency. 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 <i>SG</i>	4
BIO 188 General Biology II <i>SQ</i>	4
BIO 311 Biology and Society	3
BIO 314 Research Colloquium in Biology and Society I <i>L*</i>	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* <i>L</i>	1
BIO 493 Honors Thesis <i>L</i>	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 <i>MA</i>	3
or MAT 210 Brief Calculus <i>MA</i> (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</i>	4
CHM 231 Elementary Organic Chemistry <i>SQ</i> ¹	3
MIC 205 Microbiology <i>SG</i> ²	3
or MIC 220 Biology of Microorganisms (3)	
MIC 206 Microbiology Laboratory <i>SG</i> 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 <i>SG</i>	4
BIO 188 General Biology II <i>SQ</i>	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 <i>L</i>	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</i>	4
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i>	5
or CHM 116 General Chemistry <i>SQ</i> (4)	
Choose between the combinations of organic chemistry	
courses below	4 or 8
CHM 231 Elementary Organic Chemistry <i>SQ</i> * (3)	
CHM 235 Elementary Organic Chemistry Laboratory <i>SQ</i> * (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 92.

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— or —

CHM 331 General Organic Chemistry (3)	
CHM 332 General Organic Chemistry (3)	
CHM 335 General Organic Chemistry Laboratory (1)	
CHM 336 General Organic Chemistry Laboratory (1)	
MAT 251 Calculus for Life Sciences <i>MA</i>	3
or MAT 210 Brief Calculus <i>MA</i> (3)	
or any other calculus	
STP 226 Elements of Statistics <i>CS</i>	3
or STP 294 ST: Statistics for Biosciences (3)	
Total	19 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 <i>SG</i>	4
BIO 188 General Biology II <i>SQ</i>	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 <i>SQ</i> ¹ (3)	
CHM 235 Elementary Organic Chemistry Laboratory <i>SQ</i> ¹ (1)	
— or —	
CHM 331 General Organic Chemistry (3)	
CHM 332 General Organic Chemistry (3)	
CHM 335 General Organic Chemistry Laboratory (1)	
CHM 336 General Organic Chemistry Laboratory (1)	
MIC 206 Microbiology Laboratory <i>SG</i> ²	1
MIC 220 Biology of Microorganisms	3
MIC 302 Advanced Bacteriology Laboratory <i>L</i> ³	2
MIC 360 Bacterial Physiology	3
MIC 401 Research Paper <i>L</i> 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</i>	4
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i>	5
or CHM 116 General Chemistry <i>SQ</i> (4)	
PHY 111 General Physics <i>SQ</i> *	3
PHY 112 General Physics <i>SQ</i> *	3
PHY 113 General Physics Laboratory <i>SQ</i> *	1
PHY 114 General Physics Laboratory <i>SQ</i> *	1
Total	17

* Both PHY 111 and 113 or PHY 112 and 114 must be taken to secure SQ credit.

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 <i>SQ</i> ¹	3
MBB 246 Cellular and Molecular Biology Laboratory <i>SQ</i> ¹	1
MBB 247 Applied Biosciences: Biotechnology	3
MBB 248 Applied Biosciences: Biotechnology Laboratory	1
MBB 343 Genetic Engineering and Society <i>L</i>	4
MBB 484 Internship	6
or MBB 499 Individualized Instruction (6)	
MBB 490 Capstone: Issues in Biotechnology <i>L</i>	4
MIC 206 Microbiology Laboratory <i>SG</i> ²	1
MIC 220 Biology of Microorganisms	3
Total	30

¹ Both MBB 245 and 246 must be taken to secure SQ credit.

² 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	4
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</i>	4
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i>	5
Choose between the organic chemistry course combinations below.....	4 or 8
CHM 231 Elementary Organic Chemistry <i>SQ</i> ¹ (3)	
CHM 235 Elementary Organic Chemistry Laboratory <i>SQ</i> ¹ (1)	
— or —	
CHM 331 General Organic Chemistry (3)	
CHM 332 General Organic Chemistry (3)	
CHM 335 General Organic Chemistry Laboratory (1)	
CHM 336 General Organic Chemistry Laboratory (1)	
MAT 251 Calculus for Life Sciences <i>MA</i>	3
PHY 111 General Physics <i>SQ</i> ²	3
PHY 112 General Physics <i>SQ</i> ³	3
PHY 113 General Physics Laboratory <i>SQ</i> ²	1
PHY 114 General Physics Laboratory <i>SQ</i> ³	1
Total.....	28–32

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 (3), 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 <i>SQ</i> *.....	3
PLB 201 Biology of Plants Laboratory <i>SQ</i> *.....	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.

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</i>	4
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i>	5
Choose between the organic chemistry course combinations below.....	4 or 8
CHM 231 Elementary Organic Chemistry <i>SQ</i> * (3)	
CHM 235 Elementary Organic Chemistry Laboratory <i>SQ</i> * (1)	
— or —	
CHM 331 General Organic Chemistry (3)	
CHM 332 General Organic Chemistry (3)	
CHM 335 General Organic Chemistry Laboratory (1)	
CHM 336 General Organic Chemistry Laboratory (1)	
MAT 251 Calculus for Life Sciences <i>MA</i>	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 <i>CS</i>	3
or PLB 432 Computer Applications in Biology <i>CS</i> (3)	
or BIO 415 Biometry <i>CS</i> (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) <i>SQ</i> , <i>G</i> ¹ (3)	
GLG 103 Introduction to Geology I—Laboratory <i>SQ</i> ¹ (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 92.

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GLG 110 Geologic Disasters and the Environment <i>SG</i> , <i>G</i> ² (3)	
GLG 111 Geologic Disasters Laboratory <i>SG</i> ² (1)	
— or —	
GPH 111 Introduction to Physical Geology <i>SQ</i> (4)	
PLB 200 Biology of Plants <i>SQ</i> ³	3
PLB 201 Biology of Plants Laboratory <i>SQ</i> 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</i>	4
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i>	5
CHM 231 Elementary Organic Chemistry <i>SQ</i> *	3
CHM 235 Elementary Organic Chemistry Laboratory <i>SQ</i> *	1
MAT 251 Calculus for Life Sciences <i>MA</i>	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 <i>CS</i>	3
or PLB 432 Computer Applications in Biology <i>CS</i> (3)	
or BIO 415 Biometry <i>CS</i> (4)	
or STP 420 Introductory Applied Statistics <i>CS</i> (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 <i>SQ</i> *	3
MBB 246 Cellular and Molecular Biology Laboratory <i>SQ</i> *	1
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

* Both MBB 245 and 246 must be taken to secure SQ credit.

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 <i>L</i> (3)	
CHM 113 General Chemistry <i>SQ</i>	4
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i>	5
CHM 231 Elementary Organic Chemistry <i>SQ</i> ¹	3
CHM 235 Elementary Organic Chemistry Laboratory <i>SQ</i> ¹	1
MAT 251 Calculus for Life Sciences <i>MA</i>	3
PHY 111 General Physics <i>SQ</i> ²	3
PHY 112 General Physics <i>SQ</i> ³	3
PHY 113 General Physics Laboratory <i>SQ</i> ²	1
PHY 114 General Physics Laboratory <i>SQ</i> 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.

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 <i>CS</i>	3
or MAT 351 Mathematical Methods for Genetic Analysis <i>CS</i> (3)	

CERTIFICATE IN HISTORY AND PHILOSOPHY OF SCIENCE

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 a HPS or PHI prefix of which 12 semester hours must be 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.

MINORS

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 and MBB 246 Cellular and Molecular Biology Laboratory 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 and 246.

BIS CONCENTRATIONS

Concentrations in biology, history and philosophy of science, microbiology, molecular biosciences and technology, or plant biology 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 124.

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 (Biological Sciences) have an advisor in the College of Education and an advisor within the School of Life Sciences.

See “[College of Education,](#)” page 192, 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 <i>SG</i>	4
BIO 188 General Biology II <i>SQ</i>	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 <i>SG</i>	4
BIO 188 General Biology II <i>SQ</i>	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 <i>L/SG</i> (4)	
or PLB 310 The Flora of Arizona (4)	
MIC 205 Microbiology <i>SG</i> ¹	3
or MIC 220 Biology of Microorganisms (3)	
MIC 206 Microbiology Laboratory <i>SG</i> 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 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 <i>H</i>	3
or HPS 330 History of Biology: Conflicts and Controversies <i>H</i> (3)	
CHM 113 General Chemistry <i>SQ</i>	4
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i>	5
or CHM 116 General Chemistry <i>SQ</i> (4)	
GLG 102 Introduction to Geology II (Historical) <i>SG</i> , ¹ <i>H</i>	3
or GLG 300 Geology of Arizona (3)	
MAT 170 Precalculus <i>MA</i>	3
PHY 101 Introduction to Physics <i>SQ</i>	4
or PHY 111, 112 General Physics <i>SQ</i> ² (6)	
and PHY 113, 114 General Physics Laboratory <i>SQ</i> ² (2)	
Minimum total	22

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

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 92.

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Chemistry and Biochemistry, with additional faculty from the Departments of Anthropology and Physics and Astronomy.

For more information, contact the director or see the *Graduate Catalog*.

BIOLOGY (BIO)

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

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

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

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

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

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.

BIO 241 Human Genetics. (4)

fall

Introduces basic concepts in genetics as they are applied to human heredity. Cannot be used for major credit in the biological sciences. 3 hours lecture, 3 hours lab. Prerequisite: a course in the life sciences.

General Studies: SG

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.

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.

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

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

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

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.

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).

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)

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

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.

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

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

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.

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

BIO 331 Animal Behavior. (3)

fall

Evolutionary, genetic, physiological, and ecological bases of animal behavior. Prerequisite: BIO 187 (or its equivalent).

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.

BIO 340 General Genetics. (4)*fall, spring, summer*

Science of heredity and variation. 3 hours lecture, 1 hour recitation. Prerequisite: BIO 187.

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).

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.

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 both MBB 245 and 246 or only BIO 188 (or its equivalent).

*General Studies: L***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.

BIO 345 Organic Evolution. (3)*spring*

Processes of adaptive change and speciation in sexual populations. Prerequisite: BIO 187.

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.

BIO 351 Developmental Anatomy. (3)*fall*

General developmental biology (embryology) and comparative structure of organ systems, illustrated mainly by vertebrate examples. Prerequisite: BIO 187.

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.

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.

BIO 360 Animal Physiology. (3)*fall and spring*

Physiological mechanisms of the higher vertebrates. Prerequisites: BIO 187; CHM 115; MAT 117.

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.

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.

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.

BIO 386 General Entomology. (4)*selected semesters*

Form, activities, and classification of insects. 3 hours lecture, 3 hours lab. Fee. Prerequisite: BIO 187.

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.

BIO 394 Special Topics. (2–3)*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

Fee.

Prerequisite: junior standing.

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***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***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.

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.

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)***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***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

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 92.

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integrity. Discussion, student projects. Cross-listed as HPS 410. Credit is allowed for only BIO 416 or HPS 410.

General Studies: L

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).

BIO 420 Field Zoology. (3)

selected semesters

Experience in zoological field techniques. Weekend or longer field trips. Prerequisite: instructor approval.

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.

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.

BIO 425 Animal Ecology. (3)

selected semesters

Physiological and behavioral adaptations of individual animals to both abiotic and biotic environments. Prerequisite: BIO 320.

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

BIO 427 Fire. (3)

spring in odd years

Interdisciplinary survey of fire on Earth—its history, ecology, and management. Prerequisite: BIO 187.

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

BIO 431 Human Development and Fertility. (3)

selected semesters

Global influences of human population development on the human environment, including understanding human fertility and clinical influences on fertility. Discussion, presentation. Prerequisite: general biology.

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.

BIO 441 Cytogenetics. (3)

selected semesters

Chromosomal basis of inheritance. Cross-listed as PLB 412. Credit is allowed for only BIO 441 or PLB 412. Prerequisite: BIO 340.

BIO 442 Cytogenetics Laboratory. (2)

selected semesters

Microscopic analysis of meiosis, mitosis, and aberrant cell division. 6 hours lab. Cross-listed as PLB 413. Credit is allowed for only BIO 442 or PLB 413. Pre- or corequisite: BIO 441 or PLB 412.

BIO 446 Principles of Human Genetics. (3)

once a year

Molecular and cellular analysis of the human genome. Prerequisite: BIO 340.

General Studies: L

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.

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.

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.

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.

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 331); 12 hours in life sciences.

BIO 465 Neurophysiology. (3)

spring in even years

Detailed treatment of cellular and organismal neurophysiology and nervous system function. Prerequisite: BIO 360.

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.

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

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.

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.

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.

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.

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.

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.

BIO 484 Internship. (3)*selected semesters***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.

BIO 493 Honors Thesis. (1–6)*fall, spring, summer**General Studies: L***BIO 494 Special Topics. (1–4)***selected semesters*

Topics may include the following:

- Advanced Study Practicum. (1–3)

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.

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/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.](#)

CLINICAL LABORATORY SCIENCES/ MEDICAL TECHNOLOGY (CLS)

CLS 100 Introduction to Clinical Laboratory Sciences. (1)*fall*

Introduces the field of clinical laboratory sciences. Required for Clinical Laboratory Sciences majors.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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)***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.](#)

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 92.](#)

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HISTORY AND PHILOSOPHY OF SCIENCE (HPS)

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.

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

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

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

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

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

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

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.

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

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).

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

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.

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.

MOLECULAR BIOSCIENCES/BIOTECHNOLOGY (MBB)

MBB 245 Cellular and Molecular Biology. (3)

fall

Concepts that underlie relationships between cellular and subcellular structure and function, and integration of major metabolic and genetic processes. Prerequisite: life science major or preprofessional student in health-related sciences.

General Studies: SQ (if credit also earned in MBB 246)

MBB 246 Cellular and Molecular Biology Laboratory. (1)

fall

Experiments that illustrate relationships between structure, function, and genetic processes at the cellular and molecular level. Lab. Prerequisite: MBB 245.

General Studies: SQ (if credit also earned in MBB 245)

MBB 247 Applied Biosciences: Biotechnology. (3)

spring

Applies concepts of molecular and cellular biology of bacteria, animals, and plants to real-world problems. Prerequisite: MBB 245, 246. Corequisite: MBB 248.

MBB 248 Applied Biosciences: Biotechnology Laboratory. (1)

spring

Applies concepts of molecular and cellular biology of bacteria, animals, and plants to real-world problems. Lab. Fee. Prerequisite: MBB 245, 246. Corequisite: MBB 247.

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 both MBB 245 and 246 or only BIO 188 (or its equivalent).

General Studies: L

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. Prerequisites: preferably both MBB 245 and 246 or only BIO 188 (or its equivalent).

MBB 445 Techniques in Molecular Biology/Genetics. (2)

fall and spring

Molecular genetic principles: plasmid construction, purification, and characterization; PCR; mutagenesis; 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.

MBB 446 Techniques in Molecular Biology/Genetics Lab. (2)

fall and spring

Molecular genetic techniques; plasmid construction, purification, and characterization; PCR; mutagenesis; 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.

MBB 484 Internship. (3)

selected semesters

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)

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)**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)

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)

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.

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)

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.

MIC 380 Medical Parasitology. (3)*fall*

Parasitic diseases of humans, including life cycle events and clinical manifestations. Prerequisite: MIC 205 or 220.

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.

MIC 394 Special Topics. (1–4)*selected semesters*

Topics may include the following:

- HIV Disease and AIDS in America
- Medical Immunology

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)

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.

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 331) and MIC 205 (or 220) or only instructor approval.

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 331 and MIC 302 or only instructor approval.

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.

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.

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.

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.

MIC 445 Techniques in Molecular Biology/Genetics. (2)*fall and spring*

Molecular genetic principles: plasmid construction, purification, and characterization; PCR; mutagenesis; 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.

MIC 446 Techniques in Molecular Biology/Genetics Lab. (2)*fall and spring*

Molecular genetic techniques; plasmid construction, purification, and characterization; PCR; mutagenesis; 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.

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

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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

courses in chemistry and microbiology (or geological sciences); instructor approval.

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.

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.

MIC 484 Internship. (1–12)

fall, spring, summer

MIC 485 General Virology. (3)

fall

Fundamental nature of viruses, their replication, pathogenesis, and ecology. Prerequisites: both BIO 340 and CHM 331 or only instructor approval.

MIC 494 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Clinical Bacteriology Laboratory. (3)
- Service Learning (Bioreach). (3)

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.

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.

PLANT BIOLOGY (PLB)

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

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)

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)

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

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).

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).

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 its equivalent).

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).

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).

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).

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).

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.

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).

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).

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 its equivalent).

PLB 410 Angiosperm Taxonomy. (3)

spring

Principles underlying angiosperm phylogeny. 2 hours lecture, 3 hours lab. Prerequisite: PLB 310 or instructor approval.

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.

PLB 412 Cytogenetics. (3)*selected semesters*

Chromosomal basis of inheritance. Cross-listed as BIO 441. Credit is allowed for only BIO 441 or PLB 412. Prerequisite: BIO 340.

PLB 413 Cytogenetics Laboratory. (2)*selected semesters*

Microscopic analysis of meiosis, mitosis, and aberrant cell division. 6 hours lab. Cross-listed as BIO 442. Credit is allowed for only BIO 442 or PLB 413. Pre- or corequisite: BIO 441 or PLB 412.

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***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.

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.

PLB 498 Pro-Seminar. (1–7)*fall and spring***PLB 499 Individualized Instruction. (3)***selected semesters***Environmental Science and Ecology****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***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.

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).

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).

PLB 422 Plant Geography. (3)*selected semesters*

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.

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***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***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).

Plant Biochemistry and Molecular Biology**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. Prerequisites: preferably both MBB 245 and 246 or only BIO 188 (or its equivalent).

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 331); 12 hours in life sciences.

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/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 92.

**Department of Mathematics
and Statistics**

math.la.asu.edu
480/965-3951
PS A216

Andrew Bremner, Chair

Professors: Armbruster, Barcelo, Bremner, Castillo-Chavez, Gardner, Ihrig, Z. Jackiewicz, Kadell, Kawski, Kierstead, Kostelich, Kuang, Kuiper, Lai, Lohr, Lopez, Mahalov, Mittelman, Nicolaenko, Quigg, Renaut, Ringhofer, Smith, Suslov, Thieme, Young

Associate Professors: Baer, Blount, Carlson, Childress, Farmer, Gelb, Hurlbert, D. Jones, J. Jones, Kaliszewski, McCarter, Moore, Nikitin, Prewitt, Spielberg, Taylor, Welfert

Assistant Professors: Crook, Czygrinow, Oehrman, Zandieh

Senior Lecturers: Abramson, Isom, Kolossa, Miller, Odish, Rody, Ruedemann, Surgent, Trapuzzano, Vaz, Zhu

Lecturers: Arce, Ashbrook, Coombs, D' Alesandro, Downs, E. Jackiewicz, E. Jones, Kellgren, Kim, Maris, Martin, Masilamani, Pecuch-Herrero, Reynolds, 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 <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
MAT 300 Mathematical Structures <i>L</i>	3
or MAT 243 Discrete Mathematical Structures (3)	

MAT 342 Linear Algebra	3
or MAT 343 Applied Linear Algebra (3)	
or both MAT 242 and MAT 294 ST: Sophomore Problem Seminar	
MAT 370 Intermediate Calculus	3
or MAT 371 Advanced Calculus I (3)	
Total	21

Computer Science Requirement

CSE 100 Principles of Programming with C++ <i>CS</i>	3
or CSE 110 Principles of Programming Java <i>CS</i> (3)	
or CSE 200 Concepts of Computer Science <i>CS</i> (3)	
Total	3

Additional Course Work in Mathematics and Statistics¹

Five additional courses in mathematics and statistics are also required.....15

Related Field Course Work²

Course work in mathematics, statistics, or related fields12

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/underprog/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 <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
MAT 300 Mathematical Structures <i>L</i>	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 200 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 Statistics¹

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 Statistics²

Three courses in mathematics and statistics9

MAT 415 Introduction to Combinatorics (3)
MAT 416 Introduction to Graph Theory (3)
MAT 419 Introduction to Linear Programming CS (3)
MAT 423 Numerical Analysis I CS (3)
MAT 425 Numerical Analysis II CS (3)

Related Fields Course Work³

Course work in mathematics, statistics, or related fields10

- 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/underprog/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 362 Advanced Mathematics for Engineers and Scientists (3)
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)
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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 92.

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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 200	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 one of the following sequences		.....8-9
CHM 113	General Chemistry	SQ (4)
CHM 115	General Chemistry with Qualitative Analysis	SQ (5)
	— or —	
CHM 113	General Chemistry	SQ (4)
CHM 116	General Chemistry	SQ (4)
	— or —	
CHM 115	General Chemistry with Qualitative Analysis	SQ ² (5)
CHM 117	General Chemistry for Majors I	SQ ² (4)
	— or —	
CHM 114	General Chemistry for Engineers	SQ ³ (4)
CHM 231	Elementary Organic Chemistry	SQ ⁴ (3)
CHM 235	Elementary Organic Chemistry Laboratory	SQ ⁴ (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 ⁵ (3)
MBB 246	Cellular and Molecular Biology Laboratory	SQ ⁵ (1)
	— or —	
MIC 205	Microbiology	SG ⁶ (3)
MIC 206	Microbiology Laboratory	SG ⁶ (1)
	— or —	
MIC 206	Microbiology Laboratory	SG ⁶ (1)
MIC 220	Biology of Microorganisms	(3)

Physics

Choose one of the following sequences		.....8
PHY 121	University Physics I: Mechanics	SQ ⁷ (3)
PHY 122	University Physics Laboratory I	SQ ⁷ (1)
PHY 131	University Physics II: Electricity and Magnetism	SQ ⁷ (3)
PHY 132	University Physics Laboratory II	SQ ⁷ (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 ⁸ (3)
PLB 201	Biology of Plants Laboratory	SQ ⁸ (1)
	— or —	
MBB 245	Cellular and Molecular Biology	SQ ⁶ (3)
MBB 246	Cellular and Molecular Biology Laboratory	SQ ⁶ (1)

Internship, Research, or Advanced Science Requirement

Choose one of the following courses		.....3
MAT 484	Internship	⁹ (3)
MAT 493	Honors Thesis/Research	¹⁰ (3)
MAT 494	ST: Independent Study/Research	⁹ (3)
One advanced course in science for which a one-year sequence in the same science is required		

- Both AST 113 and 321 or both AST 114 and 322 must be taken to secure SQ credit.
- CHM 115 and 117 are strongly recommended for qualified students.
- Both CHM 231 and 235 must be taken to secure SQ credit.
- 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.
- Both MBB 245 and 246 must be taken to secure SQ credit.
- Both MIC 205 and MIC 206 must be taken to secure SG credit.
- Both PHY 121 and 122 and both PHY 131 and 132 must be taken to secure SQ credit.
- Both PLB 200 and 201 must be taken to secure SQ credit.
- This course requires prior department approval.
- 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 <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
MAT 300 Mathematical Structures <i>L</i>	3
MAT 342 Linear Algebra	3
or MAT 343 Applied Linear Algebra (3)	
MAT 371 Advanced Calculus I	3
STP 420 Introductory Applied Statistics <i>CS</i>	3
STP 421 Probability	3
STP 427 Mathematical Statistics	3
STP 429 Experimental Statistics <i>CS</i>	3
Total	33

Computer Science Requirement

CSE 200 Concepts of Computer Science <i>CS</i>	3
Total	3

Additional Advanced Courses in Mathematics and Statistics

Three courses from the following list	9
MAT 274 Elementary Differential Equations <i>MA</i> (3)	
or MAT 275 Modern Differential Equations <i>MA</i> (3)	
MAT 372 Advanced Calculus II (3)	
MAT 423 Numerical Analysis I <i>CS</i> (3)	
MAT 442 Advanced Linear Algebra (3)	
STP 425 Stochastic Processes (3)	

Required Related Field Course Work

Statistics/probability, mathematics, or related fields*	10
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* For a list of related field course work, see an advisor in PSA 211, or access math.la.asu.edu/~undergrd/underprog/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 <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	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 <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
MAT 300 Mathematical Structures <i>L</i>	3
STP 420 Introductory Applied Statistics <i>CS</i>	3
STP 421 Probability	3
STP 427 Mathematical Statistics	3
or STP 429 Experimental Statistics <i>CS</i> (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 <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
MAT 342 Linear Algebra	3
or MAT 343 Applied Linear Algebra (3)	
MAT 420 Scientific Computing	3
MAT 421 Applied Computational Methods <i>CS</i>	3
MAT 423 Numerical Analysis I <i>CS</i>	3
or MAT 425 Numerical Analysis II <i>CS</i> (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 124.

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 192, 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++ <i>CS</i>	3
or CSE 110 Principles of Programming Java (3)	
or CSE 200 Concepts of Computer Science <i>CS</i> (3)	
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	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 92.

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MAT 300 Mathematical Structures <i>L</i>	3
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 <i>CS</i>	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)

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.

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.

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.

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

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

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

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

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.

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.

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.

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

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

MAT 261 Technical Calculus II. (3)

selected semesters

Continuation of MAT 260. Prerequisite: MAT 260 or instructor approval.

General Studies: MA

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

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

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

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

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

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***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***MAT 291 Calculus II. (5)***selected semesters*

Further applications of calculus, partial differentiation, multiple integrals, and infinite series. Prerequisite: MAT 290 (or its equivalent).

MAT 294 Special Topics. (1–4)*selected semesters*

Topics may include the following:

- Sophomore Problem Seminar. (3)

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***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).

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.

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).

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).

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***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).

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).

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.

MAT 372 Advanced Calculus II. (3)*spring*

Open, closed, compact sets in \mathbb{R}^n continuity, differentiation, partial differentiation, integration in \mathbb{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.

MAT 394 Special Topics. (2–3)*selected semesters*

Topics may include the following.

- Introduction to Computational Molecular Biology

Fee.

Prerequisite: junior standing.

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.

MAT 415 Introduction to Combinatorics. (3)*fall*

Topics include proof techniques, permutations, combinations; counting techniques, including recurrence relations, generating functions, inclusion-exclusion; Ramsey theory and combinatorial designs. Prerequisites: both MAT 300 (or 243) and 342 (or 242 or 343) or only instructor approval.

MAT 416 Introduction to Graph Theory. (3)*spring*

Topics include trees, cycles, matchings, planarity, connectivity, hamiltonicity, colorings, graph algorithms, and other advanced topics. Prerequisites: both MAT 300 (or 243) and 342 (or 242 or 343) or only instructor approval.

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 200 or 210) and MAT 300 (or 243) and 342 (or 242 or 343) or only instructor approval.

*General Studies: CS***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 200 and MAT 274 (or 275) and 342 (or 343) (or their equivalents) or only instructor approval.

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

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 92.

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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

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

MAT 427 Computer Arithmetic. (3)

selected semesters

Number systems, hardware/software arithmetic, overflow, significance, rounding, multiple precision, and automatic error control; impact on languages, architectures, robust programming, and software development. Prerequisite: only CSE 100 (or 200) or both MAT 421 and 423 (or 425) or only instructor approval.

General Studies: CS

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.

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.

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.

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.

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.

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

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.

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.

MAT 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).

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).

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).

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).

MAT 473 Intermediate Real Analysis II. (3)

spring

Analysis in \mathbb{R}^n : implicit function theorem, introduction to manifolds, Lebesgue integration, change of variables formula, convergence theorems for integrals. Prerequisite: MAT 472 or instructor approval.

MAT 475 Differential Equations. (3)

fall

Linear and nonlinear ordinary differential equations, asymptotic behavior of solutions, stability, existence and uniqueness, limit sets, Poincaré-Bendixson theorem. Prerequisites: MAT 242 (or 342 or 343), 274 (or 275), 370 (or 371) (or their equivalents) or instructor approval.

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.

MAT 484 Internship. (1–12)

selected semesters

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).

MAT 493 Honors Thesis/Research. (3)

selected semesters

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/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.

MATHEMATICS EDUCATION (MTE)

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).

MTE 181 Theory of Elementary Mathematics. (3)

once a year

Continuation of MTE 180. Fee. Prerequisite: MTE 180 or instructor approval.

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.

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.

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***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.

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.

MTE 484 Internship. (1–12)*selected semesters***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)**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***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***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).

STP 294 Special Topics. (1–4)*selected semesters*

Topics may include the following:

- Statistics for Biosciences. (3)

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***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***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).

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.

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.

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 92.

Department of Military Science

Army ROTC

www.asu.edu/clas/military

480/965-3318

SS 330

Lieutenant Colonel Herbert M. Chong, Chair

Professor: Chong

Assistant Professors: Caryl, Ramer, Ramsey, Ranalli

Instructors: Ringenoldus, Suiter, Utley

PURPOSE

The Department of Military Science curriculum consists of the basic course (MIS 101, 102, 201, and 202) and the advanced course (MIS 301, 302, 401, and 402). The goal of this professional education curriculum is to prepare students with leadership potential to be commissioned as U.S. Army officers. Objectives include developing the following characteristics in students: leadership and managerial skills, the ability to think creatively, the ability to speak and write effectively, appreciation of the requirements for national security, and an understanding of the nature and functions of the U.S. Army. Upon successful completion of the advanced course and graduation, qualified students receive commissions in the Active Army (on a competitive basis), U.S. Army Reserve, or Army National Guard.

In addition to the military science curriculum, courses in the field of national defense studies are both an integral and parallel source of the department's program. Integrally, they provide MIS courses at all levels with topical intensity and highlight professionally related areas.

GENERAL QUALIFICATIONS

Basic Course. Any student who is enrolled in ASU (or approved by the professor of military science) can enter into military science basic classes. It is strongly recommended that the student be in good physical shape because some of the curriculum requires physical exertion.

Advanced Course. To be enrolled in the advanced course and compete for and obtain a commission in the U.S. Army, students 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 pass the U.S. Army physical fitness test;
3. meet the required professional military educational requirements; and

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.

Only those students in the basic and advanced courses who meet the required standards according to military regulations are eligible to receive financial assistance through the U.S. Army. Faculty of the Department of Military Science are available during normal office hours to answer questions or provide counseling.

The following are various options open to students who wish to obtain a commission in the U.S. Army. Contact the Department of Military Science personnel for more information.

Four-Year Program. Students may enroll in Army ROTC during their freshman year. They take the basic course during the first two years, receiving a total of 12 semester hours of credit for four semesters of study. Upon satisfying the requirements and being approved for continuation by the department, they enter the advanced course, where they earn 12 additional semester hours for four semesters of study. Students are also required to attend a five-week Leadership Development and Assessment Course at Fort Lewis, Washington, between their junior and senior years. All commissioned officers must meet certain Professional Military Education requirements by completing courses in English, mathematics, military history, and computer literacy. Selected majors such as nursing, engineering, and architecture, among others, may require an additional semester or two, or summer school, to complete all requirements for a degree and commission without excessive course overloads. Upon successful completion of the advanced course and requirements for a degree, students are commissioned as second lieutenants in the Active Duty Army, U.S. Army Reserve, or Army National Guard.

Two-Year Program. Students must have at least two academic years of college work remaining, either at the undergraduate or graduate level. The student must also have reached academic junior standing. This program is open to all students with the exception of three- and four-year Army ROTC scholarship winners (see "[Scholarship Programs](#)," page 445). Students seeking enrollment in the two-year program should make application before the semester of the year in which they desire to enter the program. They must also pass the Army physical fitness test. After successfully completing a paid four-week Leaders Training Course (LTC), students may enroll in the advanced course. (The camp is conducted during June and July at Fort Knox, Kentucky.) Students who have previous military experience or who are currently members of the National Guard or Reserves may be admitted directly into the two-year program, provided they are academic juniors. They then follow the same program and meet the same requirements as stated for advanced course students in the four-year program.

Qualifications for Admittance to the Advanced Course.

The following qualifications are required for admittance to the advanced course:

1. successful completion of the basic course for students in the four-year ROTC program; for students

- in the two-year program, selection for and completion of the six-week LTC or prior military service;
2. passing of the Army physical examination;
 3. attainment of a minimum cumulative GPA of 2.00;
 4. attainment of at least junior class standing; and
 5. maintenance of full-time student status.

Pay and Allowances. Each advanced course student receives one-half the pay of a second lieutenant during attendance at the five-week NALC. Uniforms, housing, and meals are provided at camp without cost to students, and they are reimbursed at the current mileage rate for travel to and from the camp. Students who attend LTC receive the pay of an army recruit during attendance at basic camp as well as the current mileage rate for travel to and from the camp. All students in the advanced course, regardless of scholarship status, are paid \$350 per month (junior year) and \$400 per month (senior year).

Simultaneous Membership Program. Under this program, ROTC students may simultaneously be members of the Army Reserve or the National Guard. The combination of advance course allowance and pay for Army Reserve or National Guard participation provides between \$550–\$1,000 per month.

Scholarship Programs. The Army ROTC offers scholarship programs to outstanding young men and women. These scholarships provide 100 percent tuition and fees. In addition, the scholarship pays \$250 per month (freshman year), \$300 per month (sophomore year), \$350 per month (junior year), and \$400 per month (senior year) subsistence allowance and \$350 each semester for textbooks and supplies. A scholarship for four years is available to freshmen who enter the four-year program. Applications must be submitted in accordance with a schedule obtained from high school counselors. Scholarships are also available for three- and two-year periods, commencing with the sophomore and junior years of ROTC respectively. Applications are open to all students in good standing with the university; previous ROTC or military experience is not required for application for three- and two-year scholarships. Selection is made by a review board on campus. Acceptance of any of the three scholarship programs requires a service commitment to serve in the Active Army for a period of up to four years after commissioning and graduation.

Active Duty Requirements. Graduates of Army ROTC may serve as officers in the Active Army, Army National Guard, or Army Reserves. Active duty commitments may vary from four years to as little as three months. Scholarship students have up to a four-year active duty commitment.

Graduate and Professional Studies Programs. A delay of up to four years in call to active duty is available to outstanding students who desire to earn graduate or professional degrees. Special programs for graduate and

professional studies are available to both active Army appointees and Reserve component appointees in the following areas: medicine, osteopathy, and clinical psychology.

MILITARY SCIENCE (MIS)

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.

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.

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.

MIS 202 Introduction to Leadership Dynamics II. (3)

spring

Continuation of MIS 201. 3 hours lecture/conference, 2 hours lab. Prerequisite: MIS 201.

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.

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).

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).

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.

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.

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.

MIS 410 American Defense Policy I. (3)

fall

Evolution, organization, and execution of U.S. national security policy. *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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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

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 3307

Stewart M. Cohen, Chair

Regents' Professor: Murphy

Professors: Cohen, Creath, Fitch, French, Humphrey, White

Associate Professors: Armendt, Blackson, de Marneffe, Guleserian, Kobes, McGregor, Reynolds

Assistant Professor: Devlin

Senior Lecturer: Bolton

PHILOSOPHY—BA

The major in Philosophy consists of 45 semester hours, 33 of which must be upper-division hours. In addition to the 45 semester hours, the mathematics proficiency requirement must be met by completing MAT 117 or higher. 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 <i>L</i>	3
PHI 301 History of Ancient Philosophy <i>HU, H</i>	3
PHI 302 History of Modern Philosophy <i>HU, H</i>	3
PHI 305 Ethical Theory <i>HU</i>	3
or PHI 335 History of Ethics <i>HU</i> (3)	
PHI 312 Theory of Knowledge <i>HU</i>	3
or PHI 314 Philosophy of Science <i>HU</i> (3)	
PHI 316 Metaphysics <i>HU</i>	3
or PHI 317 Philosophy of Mind <i>HU</i> (3)	
PHI 333 Introduction to Symbolic Logic	3
Choose two courses below	6
PHI 401 Rationalism (3)	
PHI 402 Empiricism <i>HU</i> (3)	
PHI 403 Contemporary Analytic Philosophy <i>HU</i> (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 Degree Requirements," page 330. (Note: MAT 117 does not satisfy the university MA General Studies requirement.)

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, 304, 305, 306, 307, 309, 310, 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 200, 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 124.

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)

PHI 101 Introduction to Philosophy. (3)

fall, spring, summer

Explores issues that philosophers have traditionally considered, including morality, reality, and knowledge.

General Studies: HU

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

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

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

PHI 301 History of Ancient Philosophy. (3)

fall

History of Western philosophy from its beginnings through the Hellenistic period.

General Studies: HU, H

PHI 302 History of Modern Philosophy. (3)

spring

History of Western philosophy from the Renaissance through Kant.

General Studies: HU, H

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.

General Studies: HU

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

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

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

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

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

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

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

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

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

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

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

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

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.

General Studies: HU

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

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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

PHI 320 Bioethics. (3)

once a year

Critical examination of moral questions arising in biomedical contexts, particularly due to new technologies and scientific discoveries.

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

PHI 332 19th-Century Philosophy. (3)

selected semesters

History of 19th-century philosophical thought, emphasizing either the German or the British traditions. Prerequisite: PHI 302.

General Studies: HU

PHI 333 Introduction to Symbolic Logic. (3)

once a year

Symbolic techniques, emphasizing deductions and proofs in the propositional and 1st-order predicate calculi.

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

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).

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

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

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.

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.

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.

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/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 Physics and Astronomy

phy.asu.edu

480/965-3561

PS F470

Barry G. Ritchie, Chair

Regents' Professors: Smith, Spence, Starrfield

Professors: Alarcon, Bennett, Burstein, Chamberlin, Comfort, Cowley, Doak, Dow, Hester, Lindsay, Menéndez, Ponce, Rez, Ritchie, Sankey, Schmidt, Thorpe, Tillery, Treacy, Tsen, Tsong, Venables, Windhorst

Associate Professors: Culbertson, Drucker, Herbots, Marzke, Morse, 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 II3

PHY 314 Quantum Physics I.....3

PHY 315 Quantum Physics II.....3

PHY 333 Electronic Circuits and Measurements3

DEPARTMENT OF PHYSICS AND ASTRONOMY

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

- 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.

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 92.

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MINOR IN PHYSICS

The minor in Physics consists of a minimum of 29 semester hours. Required courses are as follows:

Choose between the course combinations below.....	4
PHY 150 Physics I <i>SQ</i> (4)	
— or —	
PHY 121 University Physics I: Mechanics <i>SQ</i> ¹ (3)	
PHY 122 University Physics Laboratory I <i>SQ</i> ¹ (1)	
Choose between the course combinations below.....	4
PHY 151 Physics II <i>SQ</i> (4)	
— or —	
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ² (3)	
PHY 132 University Physics Laboratory II <i>SQ</i> ² (1)	
PHY 201 Mathematical Methods in Physics I <i>CS</i>	3
PHY 252 Physics III <i>SQ</i>	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 124.

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 192, 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 <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4

Choose between the course combinations below.....	8
PHY 150 Physics I <i>SQ</i> (4)	
PHY 151 Physics II <i>SQ</i> (4)	
— or —	
PHY 121 University Physics I: Mechanics <i>SQ</i> ¹ (3)	
PHY 122 University Physics Laboratory I <i>SQ</i> ¹ (1)	
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ² (3)	
PHY 132 University Physics Laboratory II <i>SQ</i> ² (1)	
PHY 201 Mathematical Methods in Physics I <i>CS</i>	3
PHY 252 Physics III <i>SQ</i>	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)

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)

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)

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)

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)

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)

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)

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.

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.

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.

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)**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

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 STE 208. Credit is allowed for only PHS 208 or STE 208. Fee. Prerequisite: a college-level course in science or instructor approval.

General Studies: SQ

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

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)**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

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.

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)

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)

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)

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)

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)

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)

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)

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)

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

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 92.

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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

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.

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

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.

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

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).

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.

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.

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.

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.

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.

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)

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.

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.

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.

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)

PHY 441 Statistical and Thermal Physics I. (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.

PHY 442 Statistical and Thermal Physics II. (3)

spring

Principles and applications of statistical mechanics. Quantum statistics of ideal gases and simple solids. Equilibrium of phases and chemical species. Transport theory. Irreversible processes and fluctuation. Prerequisite: PHY 441.

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.

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.

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.

PHY 466 Advanced Laboratory III. (1-3)

fall and spring

Continuation of PHY 465. Fee. Prerequisite: PHY 465.

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.

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.

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).

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.

PHY 495 Project Research. (1–3)

fall and spring

Supervised project in physics or astrophysics. May be repeated for credit. Prerequisite: instructor approval.

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/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 Political Science

www.asu.edu/clas/polisci

480/965-6551

COOR 6801

Patrick J. Kenney, Chair

Professors: Artibise, Ball, Dagger, Fridkin, Guston, 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, Pantoja

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 Anthropology, Chicana and Chicano Studies, Economics, Geography, History, Psychology, and Sociology; or from the African and African 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 <i>SB</i>	3
POS 110	Government and Politics <i>SB</i>	3
	or POS 310 American National Government <i>SB</i> (3)	
POS 150	Comparative Government <i>SB, G</i>	3
	or POS 160 Global Politics <i>SB, G</i> (3)	
POS 301	Empirical Political Inquiry <i>SB</i>	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. Upper-division courses that count toward the major 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 in the major. See “College Degree Requirements,” page 330. 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 Anthropology, Chicana and Chicano Studies, Economics, Geography, History, Psychology, and Sociology, and the African and African American Studies and the 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 <i>SB</i>	3
POS 110	Government and Politics <i>SB</i>	3
	or POS 310 American National Government <i>SB</i> (3)	
POS 150	Comparative Government <i>SB, G</i>	3
	or POS 160 Global Politics <i>SB, G</i> (3)	
POS 301	Empirical Political Inquiry <i>SB</i>	3
POS 401	Political Statistics <i>CS</i>	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. Upper-division courses that count toward the major 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 in the major. See “College Degree Requirements,” page 330. 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 337, 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.

The certificate does not substitute for degree requirements in any subject, including Political Science; rather, 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 92.

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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 <i>SB</i>	3
POS 346 Problems of Democracy <i>HU</i>	3
POS 442 American Political Thought <i>HU</i>	3
Choose one from the courses below	3
POS 340 History of Political Philosophy I <i>HU, H</i> (3)	
POS 341 History of Political Philosophy II <i>HU, H</i> (3)	
POS 443 Topics in Contemporary Political Theory <i>HU</i> (3)	
Choose one from the courses below	3
POS 110 Government and Politics <i>SB</i> (3)	
POS 150 Comparative Government <i>SB, G</i> (3)	
POS 160 Global Politics <i>SB, G</i> (3)	
POS 270 American Legal System <i>SB</i> (3)	
POS 300 Contemporary Controversies in Global Politics <i>SB, G</i> (3)	
POS 313 The Congress <i>SB</i> (3)	
POS 314 The American Presidency <i>SB</i> (3)	
POS 315 The Supreme Court <i>SB</i> (3)	
POS 330 Contemporary Controversies in Domestic Politics <i>SB</i> (3)	
POS 332 American Political Parties <i>SB</i> (3)	
POS 333 Interest Groups <i>SB</i> (3)	
POS 370 Law and Society <i>SB</i> (3)	
POS 417 The Arizona Political System <i>SB</i> (3)	
POS 435 Women and Politics <i>SB, C</i> (3)	
POS 439 Minority Group Politics in America <i>SB, C</i> (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 <i>SB, G</i> (3)	
POS 160 Global Politics <i>SB, G</i> (3)	
Choose one from the courses below	3
POS 361 American Foreign Policy <i>SB, G</i> (3)	

POS 364 National Security, Intelligence, and Terrorism <i>SB</i> (3)	
Choose two from the courses below	6
POS 300 Contemporary Controversies in Global Politics <i>SB, G</i> (3)	
POS 465 International Organization and Law <i>SB, G</i> (3)	
POS 467 International Security <i>SB, G</i> (3)	
POS 486 International Political Economy <i>SB, G</i> (3)	
Choose one from the courses below	3
POS 350 Comparative Politics <i>SB, G</i> (3)	
POS 355 Russia and Successor States <i>SB, G</i> (3)	
POS 356 European Union <i>SB, G</i> (3)	
POS 357 South Asia Politics <i>SB, G</i> (3)	
POS 358 Southeast Asia <i>SB, G</i> (3)	
POS 359 African Politics and Society <i>SB, G</i> (3)	
POS 360 World Politics <i>SB, G</i> (3)	
POS 451 China, Japan, and the Koreans <i>SB, G</i> (3)	
POS 452 China <i>SB, G</i> (3)	
POS 453 South America <i>SB, G</i> (3)	
POS 454 Mexico <i>SB, G</i> (3)	
POS 455 Central America and the Caribbean <i>SB, G</i> (3)	
POS 459 South and Southern Africa <i>SB, G</i> (3)	
POS 463 Inter-American Relations <i>SB, G</i> (3)	
POS 468 Comparative Asian Foreign Policies <i>SB, G</i> (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 340, 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 <i>SB</i>	3
POS 110 Government and Politics <i>SB</i>	3
or POS 310 American National Government <i>SB</i> (3)	
POS 150 Comparative Government <i>SB, G</i>	3
POS 160 Global Politics <i>SB, G</i>	3

Students who minor in Political Science must have a minimum GPA of 2.00 for all courses that count toward the minor. Upper-division 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 124.

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 192, 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 41–42 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 <i>SB</i>	3
POS 110 Government and Politics <i>SB</i>	3
or POS 310 American National Government <i>SB</i> (3)	
POS 150 Comparative Government <i>SB, G</i>	3
or POS 160 Global Politics <i>SB, G</i> (3)	
POS 301 Empirical Political Inquiry <i>SB</i>	3
POS 311 Arizona Constitution and Government	2
or POS 417 The Arizona Political System <i>SB</i> (3)	
Electives ¹	15
Related area ²	12
Total	41–42

¹ Six hours must be in the upper division.
² Choose 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
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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 192, 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 Political Science offer programs leading to the MA and PhD degrees. See the *Graduate Catalog* for requirements.

POLITICAL SCIENCE (POS)

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

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

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

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

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

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

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

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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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

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

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

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

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

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

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.

POS 313 The Congress. (3)

once a year

Lawmaking process in the U.S. Congress.

General Studies: SB

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

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

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

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

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

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

POS 331 Public Opinion. (3)

once a year

Formation, expression, and influence of individual and organized opinion on political institutions.

General Studies: SB

POS 332 American Political Parties. (3)

once a year

Development of the American party system. Party organization and functions.

General Studies: SB

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

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

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

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

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

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

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

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

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

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

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

POS 359 African Politics and Society. (3)

selected semesters

Comparative analysis of socioeconomic forces, political processes, government institutions, and political novels in Sub-Saharan Africa.

General Studies: SB, G

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

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

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

POS 368 Ethics and Human Rights. (3)

spring

Explores issues of ethics, morality, and human rights in the global community. Lecture, discussion.

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?

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

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

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

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

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

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

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

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

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

POS 439 Minority Group Politics in America. (3)

selected semesters

Role of minority groups in American politics.

General Studies: SB, C

POS 442 American Political Thought. (3)

once a year

Political theories and movements from the colonial period to the present.

General Studies: HU

POS 443 Topics in Contemporary Political Theory. (3)

once a year

Major problems and theories in contemporary political thought.

General Studies: HU

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

POS 451 China, Japan, and the Koreans. (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

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

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

POS 454 Mexico. (3)

once a year

Mexican federal, state, and local governmental institutions.

General Studies: SB, G

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

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

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

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 92.

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

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

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

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

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

POS 484 Internship. (1–12)

selected semesters

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

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

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

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

psych.la.asu.edu

480/965-3326

PSY 237

Keith A. Crnic, Chair

Regents' Professors: Cialdini, Eisenberg, Russo, Sandler

Professors: Aiken, Barrera, Braver, Castro, Chassin, Crnic, Gonzales, Homa, Karoly, Kenrick, Killeen, Knight, Lanyon, Linder, MacKinnon, Millsap, Neisewander, Neuberger, Okun, Parkinson, Presson, Reich, Sadalla, Somerville, Van Orden, West, Wolchik, Zautra

Associate Professors: Alexander, Castaneda, Conrad, Davis, Fabricius, Goldinger, Leshowitz, McBeath, Nagoshi, Nemeroff, Saenz, Stone

Assistant Professors: E. Amazeen, P. Amazeen, Lemery, Luecken

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

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, 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 Degree Requirements,” page 330.](#)

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 124.](#)

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)

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

PGS 194 Special Topics. (1–4)

selected semesters

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

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

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 PSY 230 (or its equivalent).

General Studies: L

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

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

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

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 92.](#)

COLLEGE OF LIBERAL ARTS AND SCIENCES

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; ECD 314 (or PSY 290).

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

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: PGS 101; honors standing; instructor approval.

General Studies: L/SB

PGS 365 Community Psychology. (3)

fall and spring

Mental health and psychological well-being in the community, emphasizing current issues and related research. Prerequisite: PGS 315 or 350.

General Studies: SB

PGS 394 Special Topics. (1–4)

selected semesters

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).

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

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 101, 341.

General Studies: L/SB

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: MGT 300 or PGS 101.

PGS 441 Cognitive Development. (3)

fall and spring

Experimental and theoretical literature in child development and behavior. Prerequisite: PGS 341 or instructor approval.

General Studies: L/SB

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); PSY 290.

General Studies: L/SB

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 101, 341; PSY 290.

General Studies: L

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. Prerequisite: PGS 341.

General Studies: SB

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. Prerequisite: PGS 341.

General Studies: L

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 101, 350.

General Studies: L

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 101, 350; PSY 230.

General Studies: L

PGS 458 Group Dynamics. (3)

fall

Theories and methods of group leadership, group effectiveness, communication within groups, and relations between groups and individual members. Prerequisite: PGS 350.

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. Prerequisite: PGS 350.

General Studies: SB

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.

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.

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: L

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

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: a combination of PGS 315 and 466 and PSY 434 or only instructor approval.

General Studies: L

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.

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.

PGS 472 Clinical Psychology. (3)*fall and spring*

Clinical psychology as a science and profession. Historical development, methods of interviewing, assessment, and therapeutic intervention. Prerequisite: PGS 466.

PGS 484 Internship. (1–12)*selected semesters***PGS 494 Special Topics. (1–4)***selected semesters***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 "Course Prefix Index," or access www.asu.edu/aad/catalogs/courses. The campus designation—E (East), 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 117; 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 laboratory environment. Prerequisite: PSY 290 or instructor approval.

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. Prerequisites: PSY 290 (or 2 courses in biological science); 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. Prerequisite: PSY 320.

General Studies: L

Tempe campus features more than 300 diverse species of trees and plants.

Tim Trumble photo

M PSY 422 Motor Control in Special Populations. (3)*spring*

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. Prerequisite: PSY 325.

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 92.

M PSY 426 Neuroanatomy. (4)

selected semesters

Structure and function of mammalian brain, including sheep brain dissection. 3 hours lecture, 3 hours lab. Prerequisite: PSY 325 (or its equivalent).

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. Prerequisite: PSY 323 or 324 or instructor approval.

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. Prerequisites: both PSY 290 and upper-division standing or only instructor approval.

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 325; 1 semester each of biology and chemistry.

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/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 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, Moore, Schober, Swanson, Woodward

Assistant Professors: Aguilera, Benn, Damrel, 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 12 of which must be in the upper division. Both REL 305 and 405 are 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 124.

CERTIFICATES AND EMPHASES

The following are certificate programs or emphases offered in the Department of Religious Studies. For more information on each, see “[Certificate Programs and Areas of Emphasis](#),” page 336, 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 340.

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 341.

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.

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)

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

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

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

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

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

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

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

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

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

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

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

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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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

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

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

REL 317 Introduction to Rabbinic Judaism. (3)

selected semesters

Historical analysis of the thought, literature, and institutions of rabbinic Judaism.

General Studies: HU, H

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

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

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

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

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

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.

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

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

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

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

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

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

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

REL 346 Chinese Religions. (3)

selected semesters

Examines the history and practices of Chinese religions with particular attention to culture, society, and history.

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

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

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.

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

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

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

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.

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

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

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.

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

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

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

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

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

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.

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.

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

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

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

REL 394 Special Topics. (1–4)

selected semesters

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.

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.

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

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

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

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

REL 460 Studies in Islamic Religion. (3)

selected semesters

Issues in the interpretation and understanding of Islamic texts, history, society, culture, and rituals. Prerequisites: both REL 365 and Religious Studies major or only instructor approval.

General Studies: HU, G

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

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

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

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.

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.

REL 498 Pro-Seminar in Religious Studies. (3)

selected semesters

For students with a major or minor emphasis in Religious Studies.

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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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/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 Sociology

www.asu.edu/clas/sociology

480/965-3546

COOR 5681

Jennie Jacobs Kronenfeld, Chair

Professors: Cobas, Hackett, Jacobson, Kronenfeld, Kulis, Thomas, Weitz

Associate Professors: Agadjanian, Benin, Harlan, Keith, Miller-Loessi, Sullivan

Assistant Professors: Glick, Padilla, Yabiku

Senior Lecturer: Fine

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 <i>SB</i>	3
or SOC 301 Principles of Sociology <i>SB</i> (3)	
SOC 390 Social Statistics I <i>CS</i>	3
SOC 391 Sociological Research <i>SB</i>	3
SOC 483 History of Social Thought <i>SB</i>	3
or SOC 486 Contemporary Theory <i>SB</i> (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 <i>SB</i>	3
or SOC 301 Principles of Sociology <i>SB</i> (3)	
SOC 391 Sociological Research <i>SB</i>	3
or SOC 483 History of Social Thought <i>SB</i> (3)	
or SOC 486 Contemporary Theory <i>SB</i> (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 124.

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)

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

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

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

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

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

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

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

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

SOC 332 Urban Sociology. (3)

selected semesters

Growth, characteristics, and problems of the modern city. Prerequisite: SOC 101 or 301.

General Studies: SB, G

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

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

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

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

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

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

SOC 361 Variant Sexuality. (3)

selected semesters

Sociological research and theories dealing with homosexuality, transvestism, transsexualism, and other variations in sexual orientation and gender identity. Prerequisite: SOC 101 or 301.

General Studies: SB

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

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

SOC 368 Sociology of Everyday Life. (3)

selected semesters

Examines routine everyday behavior as it relates to problems of social order, control, change, identity, and relationships. Prerequisite: SOC 101 or 301 or instructor approval.

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

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

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

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

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

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 92.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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

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

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

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

SOC 422 Sociology of Complex Organizations. (3)

selected semesters

Sociological studies of government agencies, industrial firms, labor unions, military establishments, and other large-scale organizations. Prerequisite: 6 hours in sociology (including SOC 101 or 301) or instructor approval.

General Studies: L/SB

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

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: L/SB

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

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

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

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

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

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

SOC 456 Political Sociology. (3)

selected semesters

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.

General Studies: SB, G

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

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

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

SOC 484 Internship. (1–12)

fall and spring

See Department of Sociology advisor. Topics may include the following:

- Service Learning Fee.

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/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 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: Edgar, Gray, Pittman

Clinical Professors: Mathy, Wiley

Clinical Associate Professors: C. Bacon, Brown

Clinical Assistant Professors: K. Ingram, McBride, Wexler, Woods

Senior Lecturer: Forestal

Lecturers: Barto, 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 <i>SB</i>	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 <i>SB</i>	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 <i>SG</i>	4
MAT 170 Precalculus <i>MA</i>	3
PGS 101 Introduction to Psychology <i>SB</i>	3

PHY 101 Introduction to Physics <i>SQ</i>	4
PSY 230 Introduction to Statistics <i>CS</i>	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 <i>SB</i> (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 <i>SB</i>	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 124.

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)

SHS 101 American Sign Language I. (4)

fall and spring

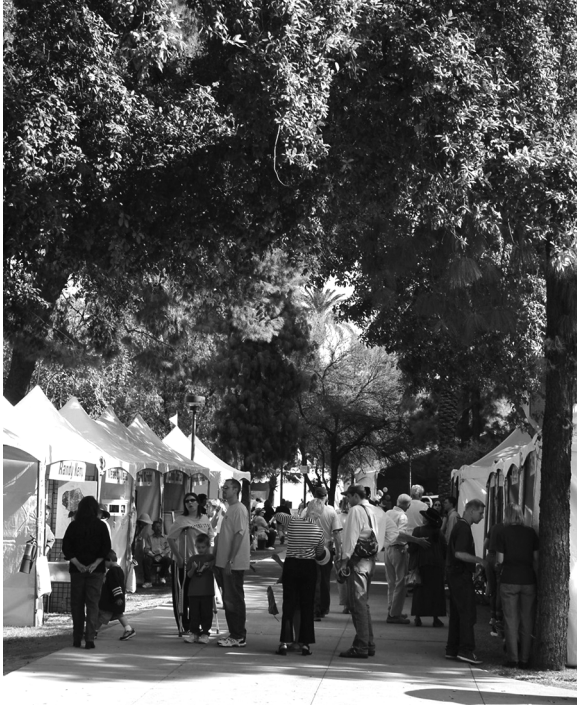
Basic receptive/expressive conversational skills; basic grammar and syntax rules. Orientation to deafness and deaf culture. Lecture, drill, practice, lab.

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.

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 92.



This year's Homecoming Block Party included the second annual art walk.

Tim Trumble photo

SHS 105 Introduction to Human Communication Disorders. (3)

fall and spring

Introduces hearing, language, and speech problems in children and adults. Lecture, demonstration.

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.

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.

SHS 250 Introduction to Phonetics. (3)

fall

Introduces English phonetics with emphasis on phonetic transcription, articulation, phonology, and disorders of speech.

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.

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.

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.

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.

SHS 367 Language Science. (3)

fall

Normative aspects and integration of language structure, comprehension, and production in children and adults.

General Studies: SB

SHS 375 Speech Science. (3)

spring

Normative aspects of speech, hearing, and language. Prerequisites: SHS 310, 311.

SHS 376 Psychoacoustics. (3)

spring

Introduces acoustics, cochlear anatomy and physiology, and the perception of sound. Prerequisite: SHS 311 or instructor approval.

SHS 394 Special Topics. (1-4)

selected semesters

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.

SHS 402 Modifying Communicative Behavior. (3)

fall

Principles and techniques of modifying speech and language behavior. Prerequisite: SHS 250 (or its equivalent).

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).

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.

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

SHS 470 Developmental Language Disorders. (3)

fall

Introduces the nature and treatment of language disorders in children. Prerequisite: SHS 465 or instructor approval.

SHS 485 Acquired Speech and Language Disorders. (3)

spring

Introduces acquired speech and language disorders across the lifespan. Prerequisites: SHS 250, 310.

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.

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/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.

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 Professor: Scheiner
Assistant Professors: Anderson, Katsulis, Leong
Lecturer: McGibbney Vlahoulis

AFFILIATED FACULTY

African and African American Studies

Professor: Reyes

Anthropology

Professor: Brandt

Architecture and Landscape Architecture

Associate Professor: Fish Ewan

Art

Professors: Codell, Fahlman, Magenta
Associate Professors: Schleif, Wolfthal

Asian Pacific American Studies

Assistant Professor: de Jesús

Community Resources and Development

Professor: Allison

Curriculum and Instruction

Professors: Edelsky, Guzzetti

Educational Leadership and Policy Studies

Professor: Turner

English

Professors: Adams, Crowley, Gutierrez, Hogue, Horan,
Nilsen, Rhodes
Associate Professors: DeLamotte, Pritchard, Tohe
Assistant Professors: Fox, Parchesky
Senior Lecturers: Heenan, Norton

Exercise and Wellness (East 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, Martinez
Assistant Professor: Park-Fuller

Interdisciplinary Studies

Senior Lecturer: Nelson
Lecturer: Lattouf

Justice and Social Inquiry

Professors: Jurik, Romero, Zatz
Associate Professors: Adelman, Menjivar

Kinesiology

Professor Emerita: Wells

Languages and Literatures

Regents' Professor: Foster
Professors: Losse, Williams
Associate Professors: Choi, Orlich, Tompkins
Assistant Professors: Duncan, George, Gruzinska

Music

Professor: Williamson
Assistant Professor: Sullivan

Philosophy

Associate Professor: McGregor

Psychology

Regents' Professors: Eisenberg, Russo
Professor: Chassin
Associate Professor: Saenz

Psychology in Education

Professors: Arredondo, Bernstein, Hackett, Kerr, Moore

Religious Studies

Professor: Feldhaus
Associate Professor: Fessenden

Social Work

Professor: Segal
Associate Professors: Brzuzy, Gerdes, Stromwall
Assistant Professor: Larson

Sociology

Professors: Kronenfeld, Kulis, Weitz
Associate Professors: Agadjanian, Benin, Miller-Loessi,
Sullivan

Theatre

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.

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 92.

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 semester hours required for the major must be completed in upper-division courses.

All Women and Gender Studies majors are encouraged to compile a portfolio to leave on file in the Women and Gender Studies Program office upon graduation.

Required Courses. Students must complete these courses:

WST 100 Women and Society <i>SB, C</i>	3
or WST 300 Women in Contemporary Society <i>SB, C</i> (3)	
WST 377 History of American Feminist Thought <i>L, C</i>	3
WST 378 Contemporary Feminist Theory <i>L, C</i>	3
WST 380 Gender, Race, and Class <i>L/SB, C</i>	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 Women and Gender Studies 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 United States. 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 <i>SB, C</i>	3
or WST 300 Women in Contemporary Society <i>SB, C</i> (3)	
WST 377 History of American Feminist Thought <i>L, C</i>	3
or WST 378 Contemporary Feminist Theory <i>L, C</i> (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 342, for a description of the certificate program.

BIS CONCENTRATION

A concentration in women and gender 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 124.

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)

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

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

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

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)

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

WST 191 First-Year Seminar. (1–3)

selected semesters

Restricted to freshmen. Pass/fail. Topics may include the following:

- All About Feminism. (1)

WST 294 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Women and Social Action Fee.

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

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

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

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.

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

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

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

WST 378 Contemporary Feminist Theory. (3)

spring

Contemporary feminist theories and exploration of the intersection of gender, race, ethnicity, and class through critical analysis.

Prerequisite: WST 100 or 300 or instructor approval.

General Studies: L, C

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

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

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

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

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

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.

WST 494 Special Topics. (1–4)

fall and spring

Topics may include the following:

- Women, Science, and Technology

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.

College of Nursing

nursing.asu.edu

Bernadette M. Melnyk, PhD, Dean

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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 is 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 Tempe 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;

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, 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 around two major clinical divisions: adult health/parent-child nursing and community public health/psycho-mental health nursing systems.

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 71);
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;
5. removal of all ASU admission deficiencies; and
6. other required materials.

Professional program courses are offered at the Tempe campus, the East 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.

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. 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 474, 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 474.

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. 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;

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 92.

COLLEGE OF NURSING

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.

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. For complete details, contact an advisor in the Student Services Office at NUR 108, or call 480/965-2987.

ASU Health Requirements. See “[Undergraduate Admission](#),” page 66, and “[Immunization Requirements](#),” page 72.

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 77.

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. Visit NUR 108, or call 480/965-2987 (see “[Student Services](#),” page 480). Advisors assist students with program planning, registration, preparation of needed peti-

tions, 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 prelicensure 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 Tempe campus, the East campus, the West campus, and Mayo Clinic. To be eligible to enroll in the professional courses at any location, students must be admitted to the College of Nursing at the Tempe campus, 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 475.

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 475.

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 or the care of the acutely ill;
2. community health nursing;
3. psychiatric/mental health nursing;
4. family health nursing;
5. women’s health; and
6. parent-child nursing with the tracks in primary or acute care nursing of children, and neonatal programs.

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. 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 501) and contact the College of Nursing Student Services Office.

Nursing—DNS

An innovative DNS 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.

COLLEGE OF EXTENDED EDUCATION

The university-wide College 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 “[College of Extended Education](#),” page 703, or access the Web site at www.asu.edu/xed.

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 92.

COLLEGE OF NURSING

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 88.

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 92. 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](#)” table, page 94, 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](#),” on this page.

BIO 201 Human Anatomy and Physiology I <i>SG</i>	4
BIO 202 Human Anatomy and Physiology II.....	4
CDE 232 Human Development <i>SB</i>	3
CHM 101 Introductory Chemistry <i>SQ</i>	4
ENG 101 First-Year Composition.....	3
ENG 102 First-Year Composition.....	3
HCR 210 Clinical Health Care Ethics <i>HU</i>	3
HCR 220 Health Care Organizations <i>H</i>	3
HCR 230 Culture and Health <i>C, G</i>	3
HCR 240 Human Pathophysiology.....	4
MIC 205 Microbiology <i>SG</i> *.....	3
MIC 206 Microbiology Laboratory <i>SG</i> *.....	1
NTR 241 Human Nutrition.....	3
PGS 101 Introduction to Psychology <i>SB</i>	3
PHI 103 Principles of Sound Reasoning <i>L/HU</i>	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](#),” on this page.

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 <i>L</i>	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 <i>HU</i>	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 <i>SG</i>	4
BIO 202 Human Anatomy and Physiology II.....	4
CDE 232 Human Development <i>SB</i> *.....	3
CHM 101 Introductory Chemistry <i>SQ</i>	4
ENG 101 First-Year Composition.....	3
ENG 102 First-Year Composition.....	3
HCR 240 Human Pathophysiology*.....	4
MIC 205 Microbiology.....	3
NTR 241 Human Nutrition.....	3
NUR 341 Theory I: Health Integrity*.....	4
NUR 342 Theory II: Health Integrity and Alterations*.....	5
NUR 351 Pharmacology in Nursing*.....	3
NUR 361 Professional Development*.....	2
NUR 381 Nursing Practice I*.....	7
NUR 382 Nursing Practice II*.....	8
PGS 101 Introduction to Psychology <i>SB</i>	3
C, H elective.....	3
CS statistics elective.....	3
HU elective.....	3

MA course.....	3
Total prerequisites.....	75

* For alternatives, see an advisor.

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 pre-major Nursing students and are subject to the general standards of academic good standing at the university. 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 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 81, 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 as a professional nurse may be required to complete a health examination and have the results made available to the College Standards Committee. Students whose health, behavior, and/or performance have been questioned are 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’

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 92.

COLLEGE OF NURSING

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, and 482. 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 at NUR 108. Interested students should also call the Barrett Honors College at 480/965-2359.

Continuing and Extended 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 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. Some offerings are multidisciplinary and are open to non-RNs. For descriptions of continuing and extended education offerings, call the Continuing and Extended Education Program, College of Nursing, at 480/965-7431, send e-mail to conceep@asu.edu, or access the program's Web site at nursing.asu.edu/ce.

Academic Nursing Centers. The College of Nursing administers four Academic Nursing Centers: Community Service Health Clinic in Scottsdale; Breaking the Cycle Community Healthcare in Phoenix; and Escalante Health Clinic and Westside Community Health Center 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.

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 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 four locations: the East campus, the West campus, the Community Services Building in Tempe, and NUR 108 on Tempe 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 East, Tempe, and West campuses, and the Community Services Building in Tempe. The LRC materials include nursing course reference materials, selected nursing textbooks, nursing theses and applied projects, audiovisual equipment, videos, models, and other visual aids. 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 is located in the Community Services Building. Exhibits include surgical suites, 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.

College of Nursing

nursing.asu.edu

480/965-3244

NUR 344

Professors: Fleury, Kommenich, Mattson, Melnyk

Associate Professors: Alpers, Baldwin, Brillhart, Cesarotti, Dirksen, Evans, Ismeurt, Killeen, McCarthy, Ruiz, Sousa

Assistant Professors: Chen, Cook, Cooke, Hrabe, McGrath, Pickens, Rosdahl, Shearer, Small, Tann

Clinical Professor: Bell

Clinical Associate Professors: Adams, Armbruster, Fargotstein, Hagler, Jasper, Johnson, Kastenbaum, Link, Morris, Nuñez, Stillwell, White

Clinical Assistant Professors: Benesh, Jarrell, Lersch, Maxwell, Sayles, Wotring

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/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.

HEALTH CARE RELATED (HCR)

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

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

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

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 92.



A student is learning a computer-simulated method of locating and inserting IV needles. Feedback from the machine allows students to learn without discomfort to human subjects.

Tim Trumble photo

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)

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.

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.

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.

NUR 351 Pharmacology in Nursing. (3)

fall and spring

Foundations of pharmacological interventions. Prerequisite: admission to professional Nursing program.

NUR 361 Professional Development. (2)

fall and spring

Introduces professional nursing roles and responsibilities. Prerequisite: admission to professional Nursing program.

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

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.

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.

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.

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***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.

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 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.

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.

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.

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.

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.

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.

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.

NUR 450 School Nursing Practice. (3)*summer*

Role of the professional nurse in planning, implementation, and evaluation of the school health program. Prerequisite: RN license.

NUR 451 Health Assessment of the Child. (3)*summer*

Maintenance of good health in the school-aged child using health assessment and promotion techniques. Lecture, discussion, self study, demonstration. Prerequisite: RN license.

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.

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.

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***NUR 462 Professional Development IV. (2)***fall, spring, summer*

Focuses on role transition to professional nursing. Prerequisite: Senior I.

NUR 464 Professional Development IV for RNs. (3)*fall and summer*

Capstone professional development course for the RN student. Prerequisite: NUR 460.

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.

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.

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.

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.

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/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 92.

College of Public Programs

www.asu.edu/copp

Jeffrey Chapman, PhD, Interim Dean

School of Community Resources and Development	488
School of Public Affairs	491
School of Social Work	492

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 Consortium

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 www.asu.edu/copp.

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. Those who meet the minimum university admission requirements will be admitted to the undergraduate academic unit of the college as a preprofessional in that respective academic unit.

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 88); and
3. the College of Public Programs writing competence, communication, and computer requirements (see **"College Degree Requirements,"** page 486).

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 the section of the catalog and advising documents with reference to their preferred areas of study for specialized departmental retention requirements and/or continued enrollment 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

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*.

(community or junior college) transfers as lower-division credit up to a maximum of 64 semester hours.

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 advising mission for 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 486](#).

For more information on courses, faculty, and programs, see the *Graduate Catalog*.

COLLEGE OF EXTENDED EDUCATION

The university-wide College 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 “[College of Extended Education](#),” [page 703](#), 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

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 92](#).

COLLEGE OF PUBLIC PROGRAMS

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*.

demonstrated. Composition courses transferred from 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 92, 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 94.

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. The course 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 <i>SB</i>	3
COM 225 Public Speaking <i>L</i>	3
COM 230 Small Group Communication <i>SB</i>	3
COM 241 Introduction to Oral Interpretation <i>L/HU</i>	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:

BUS 301 Fundamentals of Management Communication <i>L</i>	3
ENG 215 Strategies of Academic Writing <i>L</i>	3
ENG 216 Persuasive Writing on Public Issues <i>L</i>	3
ENG 217 Writing Reflective Essays <i>L</i>	3
ENG 218 Writing About Literature <i>L/HU</i>	3
ENG 301 Writing for the Professions <i>L</i>	3
JMC 201 Journalism Newswriting <i>L</i>	3
JMC 202 Radio-Television Writing <i>L</i>	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 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 Office of the 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 special classes taught by selected faculty. Honors students receive special advising and priority pre-registration 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 129.

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.

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 specific 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 www.asu.edu/copp.

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 mission of the Center for Nonprofit Leadership and Management is “to improve the quality of life in communities by enhancing the performance of nonprofit organizations.” Varied strategies accomplish this mission and include coordination of educational offerings, selected technical assistance to nonprofits, support for research projects for faculty and students, and the convening of nonprofit leaders and managers through a variety of training opportunities. The center supports the activities of two complementary nonprofit management education programs—the Nonprofit Youth and Human Service Leadership and Management:

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 92.

COLLEGE OF PUBLIC PROGRAMS

American Humanics Certificate (undergraduate) and the Nonprofit Leadership and Management Certificate (graduate). For more information, call 480/965-0607, or access the Web site at www.asu.edu/copp/nonprofit.

NONPROFIT LEADERSHIP AND MANAGEMENT (NLM)

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.

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

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)

CPP 194 Special Topics. (1–4)
selected semesters

CPP 294 Special Topics. (1–4)
selected semesters

CPP 394 Special Topics. (1–4)
selected semesters

CPP 484 Internship. (1–12)
selected semesters

CPP 494 Special Topics. (1–4)
selected semesters

CPP 498 Pro-Seminar. (1–7)
selected semesters

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, Yoshioka

Associate Professors: Ashcraft, Teye, Timothy, Virden

Assistant Professors: Barry, Brown, Budruk, Guo, Pritchard, White

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 resources; 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 agencies, 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 484);
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.

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 <i>SB</i>	3
REC 210 Leisure Delivery Systems	3
REC 330 Programming of Recreation Services <i>L</i>	3

REC 364 Foundations of Therapeutic Recreation	3
REC 440 Recreation Planning and Facility Development.....	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. REC 463 is the final capstone course taken in the department.

Two hundred hours of recreation leadership experience are required before enrollment in REC 463 Senior Internship. 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 and tourism 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 cannot choose recreation management and tourism management as the two concentrations.

A concentration in nonprofit/youth agency administration is available under the Bachelor of Interdisciplinary Studies (BIS) degree.

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 124.

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 92.

COLLEGE OF PUBLIC PROGRAMS

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 several nonprofit organizations, including American Red Cross, Big Brothers/Big Sisters, Boys and Girls Clubs, Boy Scouts, Camp Fire Boys and Girls, 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 in 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.

REC 220 Introduction to Nonprofit Youth and Human Service Organizations	3
REC 300 Fund Raising	3
REC 310 Volunteerism	3
REC 320 Youth and Human Service Workshop*	4
REC 420 American Humanics Institute	2
REC 430 Managing Nonprofit Organizations	3
REC 463 Senior Internship.....	12
Minimum total	30

* REC 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*.

RECREATION MANAGEMENT AND TOURISM (REC)

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

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.

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

REC 210 Leisure Delivery Systems. (3)

fall and spring

Introduces development, management, and organization of the public, not-for-profit, and private sectors of the leisure services profession.

Organized into five modular units that study the delivery of services in the recreation and tourism professions. Lecture, team taught.

Prerequisite: Recreation major. Pre- or corequisite: REC 120.

REC 220 Introduction to Nonprofit Youth and Human Service Organizations. (3)

fall and spring

Introduces the nonprofit youth and human service sector and its role in United States society, the economy, and service delivery systems.

REC 235 Service Learning for Youth Development. (3)

fall and spring

Applies youth development theories and approaches through a community service immersion in collaboration with one or more nonprofit partners. Case studies, small group discussion. Prerequisite: instructor approval.

REC 300 Fund Raising. (3)

fall

Methods, techniques, and directed experience in fund raising for voluntary youth and human services agencies. Budget control and accountability.

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

REC 310 Volunteerism. (3)

spring

Administration of volunteer service programs. Studies and analyzes the volunteer personnel process.

REC 315 Community Recreation Systems. (3)

fall

Explores and assesses community recreation delivery systems in the United States. Prerequisite: REC 210.

REC 320 Youth and Human Service Workshop. (1)

fall and spring

Professional seminar featuring nonprofit executives; variable topics on nonprofit and youth leadership. Forum for exchange between students and professionals. May be repeated for credit. Prerequisite: instructor approval.

REC 325 Tourism Accommodations. (3)

fall

Local, national, and international overview of the lodging and food service industries. Prerequisite: REC 305.

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

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.

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.

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.

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.

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.

REC 372 Tourism Planning. (3)

fall and spring

Applies economic and regional development concepts and theories to destination product development. Prerequisite: REC 305.

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*

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.

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.

REC 415 Tourism Transportation Systems. (3)

spring

Examines the role of various modes of transportation in domestic and international tourism development. Prerequisite: REC 305.

REC 420 American Humanics Institute. (1–2)

fall

National Management Institute for preparation of youth development and nonprofit professionals. Out-of-state conference includes seminars and case studies. May be repeated for credit. Prerequisite: instructor approval.

REC 430 Managing Nonprofit Organizations. (3)

spring

Analyzes administrative structures, decision making, and program delivery within nonprofit youth and human service organizations. Prerequisites: REC 220; senior standing.

REC 440 Recreation Planning and Facility Development. (3)

fall and spring

Provides an understanding of the major principles and procedures associated with the planning and development of park, recreation, sport, and tourism areas and facilities. Prerequisite: Recreation professional status.

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*

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.

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.

REC 463 Senior Internship. (6 or 12)

fall, spring, summer

Supervised guided experience in selected agencies. May be repeated for credit. Fee. Prerequisites: REC 440, 462, 482; Recreation major; senior standing.

REC 470 Environmental Interpretation and Education. (3)

spring

Introduces park interpretation and environmental education that includes theories, principles, and techniques. Prerequisite: REC 370.

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.

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.

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/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 Public Affairs

spa.asu.edu

480/965-3926

WILSN 208

Robert Denhardt, Director

Professors: Alozie, Cayer, Chapman, Coor, Crow, J. Denhardt, R. Denhardt, Hall, Lan, Perry

Associate Professors: Campbell, McCabe

Assistant Professors: Cattelaw, Corley, Peck, Voorhees

Professor of Practice: Blessing

Certificate

The School of Public Affairs offers a 15-semester-hour Public Administration and Public Management Certificate program. The certificate prepares students for citizenship, leadership, 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

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 92.

COLLEGE OF PUBLIC PROGRAMS

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 124.

Graduate Degrees

The school also offers a 42-semester-hour professional Master of Public Administration 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)

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.

PAF 340 Public Management and Policy. (3)

fall and spring

Develops conceptual, critical, and practical understanding of policy, the policy process, and policy analysis.

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.

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.

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.

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.

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/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 Social Work

ssw.asu.edu

480/965-3304

WHALL 135

Leslie Leighninger, Director

Professors: Ashford, LeCroy, Leighninger, MacEachron, Marsiglia, Martinez-Brawley, Moroney, Segal

Associate Professors: Brzuzy, Gerdes, Gustavsson, Montero, Napoli, Nichols, Paz, Risley-Curtiss, Steiner, Stromwall, Waller

Assistant Professors: Bacchus, Holley, Kang, Larson, Niles, Okamoto

Senior Instructional Professional: Gonzalez-Santin

Assistant Administrative Professionals: Knutson-Woods, Rountree

PURPOSE

The purpose of the School of Social Work is to prepare 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 the training of 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 other areas of interest.

ORGANIZATION

The School of Social Work is organized around three program areas:

1. Bachelor of Social Work (BSW);
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). In considering the PAC area of emphasis, students need to be aware that, because of space availability, preference is given to individuals with significant previous experience.

The BSW and MSW degrees are offered at Tempe campus and 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 [“Undergraduate Admission Standards,”](#) page 67.

Applying for Professional Program Status. Students who have completed 56 semester hours or more 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. Fulfilling the College of Public Programs professional program status admissions requirements outlined under [“Professional Status Admission Requirements,”](#) page 484.

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. Failure to request a leave of absence by Social Work majors results in removal from the program.

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 78. 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 69. 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 88.

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 92.

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 88.

General Studies Requirement

All students enrolled in a baccalaureate degree program must satisfy a university requirement for a minimum of 35 semester hours of approved course work in General Studies. See “[General Studies](#),” page 92.

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 94, 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 111 Macroeconomic Principles <i>SB</i>	3
PGS 101 Introduction to Psychology <i>SB</i>	3
or SOC 101 Introductory Sociology <i>SB</i> (3)	
or SOC 301 Principles of Sociology <i>SB</i> (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 88), the College of Public Programs requirements, including the General Studies requirements (see “[General Studies](#),” page 92), 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 <i>SB, H</i>	3
SWU 291 Social Service Delivery Systems	3
SWU 295 Foundations of Social Work Practice <i>SB/C</i>	3
SWU 301 Human Behavior in the Social Environment I <i>L/SB</i>	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 <i>SB</i>	3
SWU 374 Diversity and Oppression in a Social Work Context <i>C</i>	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. Students must have senior standing to participate in the field.

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.

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 92.

COLLEGE OF PUBLIC PROGRAMS

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 establish 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. Courses may be eligible for use in a future graduate program 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. Students are placed on probation automatically when the 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 487, 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 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 (GRADUATE PROGRAM) (SWG)

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.

SOCIAL WORK (UNDERGRADUATE PROGRAM) (SWU)

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

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.

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. Pre- or corequisite: SWU 171.

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. Pre- or corequisites: SWU 171, 291.

General Studies: SB, C

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

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. Lecture, discussion. Pre- or corequisites: SWU 171, 291.

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.

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.

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. Prerequisites: MAT 117, 142. Pre- or corequisite: SWU 320.

General Studies: CS

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 111. Pre- or corequisite: SWU 310.

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

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

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.

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.

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.

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.

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.

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.

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

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.

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.

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).

SWU 493 Honors Thesis. (1-6)

selected semesters

General Studies: L

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.

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 92.

Division of Graduate Studies

www.asu.edu/graduate

Maria T. Allison, PhD, Vice Provost and Dean of Graduate Studies

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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.

This past year, a large number of ASU graduate students were awarded prestigious fellowships and scholarships funded by the National Science Foundation, NASA, the Ford Foundation, Fulbright, 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 Graduate Study

Many students enter graduate 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 graduate 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.

Note: A maximum of nine semester hours taken at ASU as a nondegree graduate student may be applied, at the academic unit's discretion, toward a future ASU master's degree.

For admission information and procedures, access the Web site at www.asu.edu/graduate/admissions.

Clinics on Preparing for Graduate School

Assistance is offered to prospective graduate students through workshops. Topics include the admissions process, program selection, and financial support. For more information, call the Division of Graduate Studies at 480/965-3521, or access the Web site at www.asu.edu/graduate.

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

For more information, see "[Graduate Interdisciplinary Programs](#)," page 509.

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 33.

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 Department of Anthropology.

Library System. The ASU library system is a major research facility (see "[University Libraries and Collections](#)," page 28). 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

DIVISION OF GRADUATE STUDIES

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, individual mentoring for disadvantaged students, financial assistance, orientation sessions, workshops, career seminars, and research conferences. Division of Graduate Studies Student Programs/Services 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.

Diversity Programs. Diversity Programs are designed to increase the number of graduate students from groups underrepresented in certain professions and fields of study. *STEP-UP.* The Division of Graduate Studies STEP-UP (Seeking Talent, Expanding Participation, Unleashing Potential) program is designed to assist academic units in the recruitment and retention of excellent first-year graduate students from underrepresented groups. STEP-UP 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 studies by using a structured approach. The mentor receives an 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.

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 the Graduate Women's Association.

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 master's degrees professional degrees, and doctoral degrees. The Graduate Councils (East, 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/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 floor of Wilson Hall. Division offices are open Monday through Friday, from 8 A.M. to 5 P.M. The Division of Graduate Studies may be called at 480/965-3521. The Web address is 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 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 stud-

ies, 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 or send e-mail to grad-q@asu.edu.

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 and \$50 to apply for nondegree studies. 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 IAP66 (documents needed to obtain a student visa) are issued only after the completed, properly verified Financial Guarantee form and support 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

DIVISION OF GRADUATE STUDIES

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) as follows:

1. The minimum TOEFL requirement for entry into any graduate program is 550 (paper-based) or 213 (computer-based).
2. Individual academic units may have higher TOEFL requirements for their various programs. Consult the department Web sites and this catalog for more information.

The following exceptions apply to the TOEFL requirement:

1. Applicants who have earned a bachelor's degree or higher from a university in the United States are exempt from the TOEFL 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 TOEFL requirement.
3. Applicants who have completed the American English and Culture Program Advanced 2 Level are exempt from the TOEFL 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 qual-

ified 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.

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 considered nondegree hours.

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.

Nondegree Admission. A student not immediately intending to earn a degree may enroll as a nondegree student. The application process is streamlined and does not require submission of transcripts or test scores. For 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 501.

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 upgraded.

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 but may use only one 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.

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. During the second week through the 10th week of a semester or the third day through the third week of a summer session or at 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

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.

Schedule of Classes or the *Summer Sessions Bulletin* for dates of the withdrawal period.

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.

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 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 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, page 505](#) 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 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”

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.

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 courses 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.

DIVISION OF GRADUATE STUDIES

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.

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, members, or extra 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 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.

Foreign Language Requirements

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. Normally, the language is selected from French, German, Russian, or Spanish, although other languages may be recommended when there is adequate justification.

Students who are required to demonstrate proficiency in a foreign language must pass a 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 re-examination but must pass the examination in no more than three attempts.

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 Ph.D. 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



The atrium area in the new Biodesign Institute Building fosters the open exchange of ideas among researchers working on collaborative projects.

Barb Backes photo

DIVISION OF GRADUATE STUDIES

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/format 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 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 Tempe campus Bookstore for binding. 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 "Division of Graduate Studies Calendar," 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. At the end of the semester in which a student applies for graduation, the student is officially notified of any requirements the student 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 the 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 Tempe campus Bookstore for binding. This information is also available on the Web at www.asu.edu/graduate/generalinfo/GradDlIns. 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 the 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 at the Office of the Executive Vice President and Provost of the University, or as part of the *Student Affairs Policies and Procedures Manual*—STA 104-01, at www.asu.edu/aad/manuals/sta/sta104-01.html on the Web.

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.

Graduate Interdisciplinary Programs

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. Creative Writing (MFA);
3. Exercise Science (PhD);
4. Geographic Information Science (certificate);
5. Gerontology (certificate);
6. Materials Science (MS);
7. Science and Engineering of Materials (PhD);
8. Statistics (MS and certificate); and
9. 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 ASU.

Creative Writing—MFA

The interdisciplinary M.F.A. degree in Creative Writing (with options in fiction, nonfiction, playwriting, poetry, and screenwriting) is administered by the Creative Writing Committee. This studio/academic program involves the research, creative activity, and teaching interests of faculty within the Departments of English and Theatre. 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 Ph.D. 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*.

Science and Engineering of Materials—PhD

The interdisciplinary Ph.D. 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/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—MS

The interdisciplinary M.S. degree in Statistics is administered by the Committee on Statistics. The program involves faculty and resources from 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 122).

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*.

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/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.

ASU Graduate Degrees

Graduate degrees, majors, and concentrations offered by the Tempe campus, East campus, and West campus and through College of Extended Education are shown in the “ASU Graduate Degrees” table below, 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 515.

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 Laws (LLM)
 Master of Legal Studies (MLS)
 Master of Urban and Environmental Planning (MUEP)

Master of Fine Arts (MFA)
 Master of Health Sector Management (MHSM)
 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)
 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	East
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	East
Applied Psychology	MS	—	East
Architecture	MArch	—	Tempe
Art	MA	Art education or art history	Tempe
	MFA	Ceramics, digital technology, drawing, fibers, intermedia, metals, painting, photography, printmaking, sculpture, or wood	Tempe

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

² This program is also offered through the College 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 apply to this degree program through the College of Law, not the Division of Graduate Studies.

ASU Graduate Degrees (continued)

Major	Degree	Concentration ¹	Campus
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, computer information systems, finance, health services research, ³ management, marketing, or supply chain management	Tempe
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	—	East
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
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

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

² This program is also offered through the College 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 apply to this degree program through the College of Law, not the Division of Graduate Studies.

ASU GRADUATE DEGREES

ASU Graduate Degrees (continued)

Major	Degree	Concentration ¹	Campus
Curriculum and Instruction (continued)	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	East
	EdD	Bilingual education, curriculum studies, 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
	PhD	Art education, curriculum studies, early childhood education, elementary education, English education, exercise and wellness education, language and literacy, mathematics education, physical education, science education, or special education	Tempe
		Exercise and wellness education	East
Dance	MFA	Optional: interdisciplinary digital media and performance ¹	Tempe
Design	MSD	Graphic design, industrial design, or interior design	Tempe
Economics	MS, PhD	—	Tempe
Educational Administration and Supervision	MEd	—	Tempe ² West
	EdD ³	—	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	Optional: executive embedded systems ¹	Tempe ²
	PhD	Optional: materials science and engineering ¹	Tempe
English	MA	Comparative literature, English linguistics, literature and language, or rhetoric and composition	Tempe
	PhD	Literature or rhetoric/composition and linguistics	Tempe
Environmental Design and Planning	PhD	Design; history, theory, and criticism; or planning	East
			Tempe
Exercise and Wellness	MS	—	East
Exercise Science	PhD	Biomechanics, motor behavior/sport psychology, or physiology of exercise	Tempe
Family and Human Development	MS	Optional: family studies ¹	Tempe
Family Science	PhD	Optional: marriage and family therapy ¹	Tempe

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

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³ Applications are not being accepted at this time.

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⁵ Students apply to this degree program through the College of Law, not the Division of Graduate Studies.

ASU Graduate Degrees (continued)

Major	Degree	Concentration ¹	Campus
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	Asian history, British history, European history, Latin American history, public history, U.S. history, or U.S. Western history	Tempe
	PhD	Asian history, British history, European history, Latin American history, or U.S. history	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	—	Tempe
	PhD	Optional: criminal and juvenile justice; dispute resolution; law, justice, and minority populations; law, policy, and evaluation; or women, law, and justice ¹	Tempe
Kinesiology	MS	—	Tempe
Law ⁵	JD	—	Tempe
Legal Studies	MLS	—	Tempe
Mass Communication	MMC	—	Tempe
Materials Engineering	MS, MSE	—	Tempe
Materials Science	MS	—	Tempe
Mathematics	MA, PhD	—	Tempe
Mechanical Engineering	MS, MSE, PhD	—	Tempe
Microbiology	MS, PhD	—	Tempe
Molecular and Cellular Biology	MS, PhD	—	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
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	Tempe ²
	DNS	—	Tempe

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

² This program is also offered through the College 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 apply to this degree program through the College of Law, not the Division of Graduate Studies.

ASU GRADUATE DEGREES

ASU Graduate Degrees (continued)

Major	Degree	Concentration ¹	Campus
Nutrition	MS	—	East
Performance	MM	Music theatre/opera musical direction, music theatre/opera performance, performance, performance pedagogy, or piano accompanying	Tempe
Philosophy	MA, PhD	—	Tempe
Physical Education	MPE	—	East
Physics	MS, PhD	—	Tempe
Plant Biology	MS, PhD PhD	Optional: ecology or photosynthesis ¹ —	Tempe East
Political Science	MA, PhD	American politics, comparative politics, international relations, or political theory	Tempe
Psychology	PhD	Behavioral neuroscience, clinical psychology, cognitive/behavioral systems, developmental psychology, quantitative research methods, or social psychology	Tempe
Public Administration	MPA PhD	Optional: nonprofit administration ¹ —	Tempe ² Tempe
Public Health ³	MPH	Community health practice or health administration and policy	Tempe
Recreation	MS	—	Tempe
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
Social and Philosophical Foundations of Education	MA	—	Tempe
Social Work	MSW PhD	Advanced direct practice or planning, administration, and community practice Advanced generalist practice —	Tempe ² West Tempe
Sociology	MA, PhD	—	Tempe
Spanish	MA PhD	Comparative literature, language and culture, linguistics, or literature Cultural studies or literature	Tempe Tempe
Special Education	MA MEd	— Gifted, mildly disabled, multicultural exceptional, or severely/multiply disabled Infants and young children	Tempe Tempe 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

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

² This program is also offered through the College 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 apply to this degree program through the College of Law, not the Division of Graduate Studies.

ASU Graduate Degrees (continued)

Major	Degree	Concentration ¹	Campus
Technology	MSTech	Aeronautical engineering technology, aviation management and human factors, computer systems, electronic systems engineering technology, environmental technology management, fire service administration, global technology and development, information technology, instrumentation and measurement technology, management of technology, manufacturing engineering technology, mechanical engineering technology, microelectronics engineering technology, or security engineering technology	East ²
Theatre	MA	—	Tempe
	MFA	Directing, interdisciplinary digital media, performance design, or theatre for youth	Tempe
	PhD	Optional: theatre and performance of the Americas or theatre for youth ¹	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 College 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 apply to this degree program through the College of Law, not the Division of Graduate Studies.

Concurrent and Dual Degrees

Degrees	Administered By
JD/MBA	College of Law/W. P. Carey School of Business
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
MA in Anthropology/MS in Justice Studies	Department of Anthropology/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/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

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

International Programs

ipo.asu.edu

William G. Davey, Ph.D., 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 the 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.

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 undergraduate programs and 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 official 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, 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, see the promotional flier available 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, in return for which students from that institution have a reciprocal opportunity to study at ASU. ASU students 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.



Palacio Nacional, Mexico City

Julie Williams photo

Diverse program locations for students proficient in the host language include Chile, Ecuador, France, Germany, Italy, 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 Education 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 (ASU school, college, or department), are partly administered by that unit in cooperation with IPO, and are available to only students from that academic area. Specialty programs are offered by the West campus College of Human Services (for social work), the College of Education (for student teaching), the College of Law, the Department of Kinesiology, 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, the Russian and

East European Studies Consortium, and Scandinavian Studies. 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. The Ira A. Fulton School of Engineering and the Corporate Leaders Program also actively place students in study programs and internships around the world.

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 one's 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. Before participating in a study abroad or an exchange program, students must register and select a program choice. A list of choices is available on the Web at ipo.asu.edu. 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 most fall and academic year programs. After the application process is completed, students attend predeparture orientations conducted by IPO. These presentations are designed to 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 Tempe Campus, East campus, and West campus, 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 17, 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 78.

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 77.

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, call 480/965-3464, or write

SODEXHO SERVICES
ARIZONA STATE UNIVERSITY
PO BOX 870901
TEMPE AZ 85287-0901

Housing. Air-conditioned residence halls are available for Tempe campus students. For more information, call 480/965-3515, or write

RESIDENTIAL LIFE
ARIZONA STATE UNIVERSITY
PO BOX 870801
TEMPE AZ 85287-0801

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 72.

Parking. A decal is required to park at ASU. For more information, 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*.

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

RON CARLSON

English

PHILLIP R. CHRISTENSEN

Geological Sciences

ROBERT B. CIALDINI

Psychology

GEOFFREY A. CLARK

Anthropology

JOHN M. COWLEY

Physics and Astronomy, Emeritus

NORMAN DUBIE

English

NANCY H. EISENBERG

Psychology

LEROY EYRING

Chemistry and Biochemistry, Emeritus

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

REGENTS' PROFESSORS

MARK C. KLETT

Art

RAYMOND W. KULHAVY

Psychology in Education, Emeritus

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*

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

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

Administrative Personnel

Arizona Board of Regents

Governor of Arizona	Janet Napolitano
Superintendent of Public Instruction	Tom Horne
Student Regent (voting), appointed to June 2005	Wesley McCalley
Student Regent (nonvoting), appointed to June 2006	Benjamin Graff
Regent, appointed to January 2006	Chris Herstam
Regent, appointed to January 2006	Jack Jewett
Regent, appointed to January 2008	Christina Palacios
Regent, appointed to January 2008	Gary L. Stuart
Regent, appointed to January 2010	Fred T. Boice
Regent, appointed to January 2010	Robert B. Bulla
Regent, appointed to January 2012	Ernest Calderón
Regent, appointed to January 2012	Lorraine Frank
Executive Director	Joel Sideman
Counsel to the Board	Paulina Vazquez-Morris

Executive Officers

President	Michael M. Crow
Senior Advisor to the President	James O'Brien
Executive Vice President and Provost of the University	Milton D. Glick
Senior Vice President and Secretary of the University	Christine K. Wilkinson
Senior Vice President and University Planner	Richard Stanley
Chief Financial Officer	<i>To Be Appointed</i>
Vice President for Public Affairs	Virgil Renzulli
Vice President for Research and Economic Affairs	Jonathan Fink
Vice President for Student Affairs	Juan C. Gonzalez
Vice President for University Administration and General Counsel	Paul J. Ward
Vice President for University Undergraduate Initiatives	James A. Rund
Vice President and Provost, ASU at the Downtown Phoenix Campus	Mernoy E. Harrison
Vice President and Provost, ASU at the East Campus	Jerry Jakubowski
Vice President and Provost, ASU at the West Campus	Mark Searle
Executive Director for Athletics	Eugene Smith
President, ASU Foundation	Ira Jackson

President's Office

President	Michael M. Crow
Senior Vice President and Secretary of the University	Christine K. Wilkinson
Senior Vice President and University Planner	Richard Stanley
Executive Director, Institutional Analysis/Data Administration/Strategic Planning	<i>To Be Appointed</i>
Director, Budget Planning and Management	James Sliwicki
Senior Advisor to the President	James O'Brien
Director, Office of the President and Special Assistant to the President	Joyce Smitheran
Executive Director, Office of Sustainability and Special Advisor to the President	James Buizer
Executive Director, Office of University Initiatives and Special Advisor to the President	Kimberly Loui
Director, Office of Pan-American Initiatives and Special Advisor to the President	Jorge De Los Santos
Director, Strategic Projects and Special Assistant to the President	Mariko Silver
Advisor to the President on American Indian Affairs	Peterson Zah
Executive Director of Athletics	Gene Smith
Director, Equal Opportunity/Affirmative Action	Barbara A. Mawhiney
ICA Faculty Athletic Representative	Myles Lynk

Deans

Dean, the Barrett Honors College	Mark Jacobs
Dean, College of Architecture and Environmental Design	Wellington Reiter
Dean, College of Education	Eugene E. Garcia

ADMINISTRATIVE PERSONNEL

Interim Dean, College of Extended Education	William A. Verdini
Interim Dean, College of Human Services	Lesley Di Mare
Dean, College of Law	Patricia D. White
Dean, College of Liberal Arts and Sciences	David A. Young
Dean, College of Nursing	Bernadette Melnyk
Interim Dean, College of Public Programs	Jeffrey Chapman
Dean, College of Teacher Education and Leadership	Joseph Ryan
Dean, College of Technology and Applied Sciences	Albert L. McHenry
Dean, Division of Graduate Studies	Maria T. Allison
Dean, East College	Glenn W. Irvin
Dean, Ira A. Fulton School of Engineering	Peter E. Crouch
Dean, The Katherine K. Herberger College of Fine Arts	J. Robert Wills
Dean, Morrison School of Agribusiness and Resource Management	Raymond A. Marquardt
Dean, New College of Interdisciplinary Arts and Sciences	Emily F. Cutrer
Interim Dean, School of Global Management and Leadership	Leanne Atwater
Dean, University College	Gail Hackett
Dean, University Libraries	Sherrie Schmidt
Dean, W. P. Carey School of Business	Robert E. Mittelstaedt Jr.
Interim Dean, Walter Cronkite School of Journalism and Mass Communication	Stephen K. Doig

Chief Financial Officer

Interim Chief Financial Officer	Mernoy E. Harrison
Interim Senior Executive Assistant to the Chief Financial Officer	Sheila Stokes
Associate Vice President, Financial Services, and Treasurer	Gerald E. Snyder
Director, Student Business Services	Joanne Wamsley
Director, Financial Services	Marilyn Mulhollan
Associate Director, Financial Services	Terri Deasey
Assistant Director, Financial Services	Laura James
Assistant Director, Financial Services	Edalia Kousari
Assistant Director, Financial Services	Kathleen Rogers
Deputy Executive Vice President, University Services	Scott Cole
Director, Campus Physical Planning	Steve Nielsen
Director, Capital Programs Management Group	Ted Cary
Director, Facilities Planning and Space Management	David Techau
Director, Facilities Management	Dave Brixen
Director, Environmental Health and Safety	Leon Igras
University Architect	Ron McCoy
Associate Vice President, Administration and Business Services	Ray Jensen
Director, Purchasing and Business Services	John Riley
Director, ASU Bookstore	Val Ross
Associate Director, Real Estate	Karen Honeycutt
Associate Director, Document Production Services	Robert Lane
Associate Director, Purchasing and Business Services	Gina Webber
Associate Director of Parking and Transit	Linda Riegel

College of Extended Education

See [“College of Extended Education Administrative Personnel,”](#) page 711.

Downtown Phoenix Campus

See [“Downtown Phoenix Campus Administrative Personnel,”](#) page 525.

East Campus

See [“East Campus Administrative Personnel,”](#) page 604.

Intercollegiate Athletics

Executive Director, Athletics	Gene Smith
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ASU Head Coaches

Baseball—Men	Pat Murphy
Basketball—Men	Rob Evans
Basketball—Women	Charli Turner Thorne
Cross Country—Men and Women	Walt Drenth
Diving—Men and Women	Mark Bradshaw
Football—Men	Dirk Koetter

Golf—Men	Randy Lein
Golf—Women	Melissa Luellen
Gymnastics—Women	John Spini
Soccer—Women	Ray Leone
Softball—Women	Linda Wells
Swimming—Men and Women	Michael Chasson
Tennis—Men	Lou Belken
Tennis—Women	Sheila McInerney
Track and Field—Men and Women	Greg Kraft
Volleyball—Women	Brad Saindon
Water Polo—Women	Vicki Gorman
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	<i>To Be Appointed</i>
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 Relations	<i>To Be Appointed</i>
Director, Public Relations	Wilma Mathews
Director, State Relations	Scott A. Smith
Director, Special Events	Tye Thede
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	Rob Melnick
Program Manager, Office of the Vice President for Research and Economic Affairs	Anna-Rosa Lampis
Assistant to the Vice President	Cynthia Ryan
Director, Fiscal and Business Services	<i>To Be Appointed</i>
Executive Director, Financial Services	Jay Murphy
Director, Biodesign Institute at ASU	George H. Poste
Acting Director, Office of Research and Sponsored Projects Administration	Cheryl Conover
Director, Clinical Partnerships	Kathleen Matt
Executive Director, Materials Research	Tom Picraux
Director, Center for the Study of Religion and Conflict	Linell Cady
Director, Flexible Display Center	Greg Raupp
Director, Office of Research Publications	Conrad Storar
Director, International Institute for Sustainability	Charles L. Redman
Director, Partnership for Research in Spatial Modeling Program (PRISM)	Anshuman Razdan
Director, Animal Care and Technology	Michael McGarry
Director, Southwest Center for Environmental Research and Policy	Joseph Zehnder
Director, Radiation Safety Office	Kenneth L. Mossman

Student Affairs

Vice President for Student Affairs	Juan C. Gonzalez
Associate Vice President and Dean of Students	Bob Soza
Associate Vice President for Facility Development and Residential Life	Kevin Cook
Associate Vice President for Fiscal and Program Development	Sally Ramage
Director, Arizona Prevention Resource Center	Gail Chadwick
Director, Career Services	Raymond I. Castillo
Director, Counseling and Consultation	Martha Dennis Christiansen
Director, Recreational Sports	<i>To Be Appointed</i>
Director, Student Health and Wellness Center	<i>To Be Appointed</i>
Director, Student Media	Kristin Gilger

Tempe Campus

See “[Tempe Campus Administrative Personnel](#),” page 680.

ADMINISTRATIVE PERSONNEL

University Administration and General Counsel

Vice President for University Administration and General Counsel	Paul J. Ward
Director, Equal Opportunity/Affirmative Action	Barbara Mawhiney
Associate Vice President, Human Resources	David Butler
Director, Consulting Services	<i>To Be Appointed</i>
Director, Employee Assistance Office/Wellness/Worklife Balance Programs	Phillip Potter
Senior Director, Human Resources	Christine Cervantes
Associate Vice President, University Administration	LeEtta Overmyer
Director, Internal Audit and Management Services	<i>To Be Appointed</i>
Director, Administration and Finance Information Technology	<i>To Be Appointed</i>
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	Patricia Arrendondo
Director, Undergraduate Initiatives Technology Services	Mike Schaefer
Director, Student Financial Assistance	Craig Fennell
Dean, Undergraduate Admissions	Tim Desch
University Registrar	Lou Ann Denny

West Campus

See “West Campus Administrative Personnel,” page 702.

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, socio-economic, 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, 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) the School of Health Management and Policy, KAET (Channel 8), and the Morrison Institute for Public Policy to relocate from the Tempe campus to downtown Phoenix. In addition, University College has been created to provide undergraduate students with an 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.

Downtown Phoenix Campus Administrative Personnel

Vice President, ASU; Provost, Downtown Phoenix Campus Mernoy E. Harrison Jr.
Vice Provost for Administrative Services Sheila W. Stokes

ASU Administrative Personnel

See "Administrative Personnel," page 521.



Future home of the Downtown Phoenix Campus, scheduled to open in fall of 2006

Tim Trumble photo

East Campus

www.east.asu.edu

Gerald S. Jakubowski, PhD, Provost, East campus; Vice President, ASU

Morrison School of Agribusiness and Resource Management	531
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Faculty of Business Administration	548
Faculty of Education	550
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Faculty of Multimedia Writing and Technical Communication	560
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College of Technology and Applied Sciences	567
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business that are in high demand. The College of Technology and Applied Sciences offers bachelor's programs and a master's degree in several specialized areas of technology. East College offers a broad range of undergraduate and graduate degrees that teach students how to apply professional and liberal arts studies to real life. The college also provides the general education courses for all the East campus degree programs.

All three academic units at the East campus offer the Bachelor of Applied Science (BAS) degree, a program designed specifically as a career progression degree for students holding the Associate of Applied Science (AAS) degree. The BAS emphasizes management, leadership, and communication skills along with additional technical course work.

Twenty baccalaureate degree programs, nine master's degree programs, and four certificate programs are currently offered at the East campus. Through partnerships with programs at the Tempe campus, select doctoral programs are also offered. (See the "Morrison School of Agribusiness and Resource Management Baccalaureate Degrees and Majors" table, page 532; the "East College Baccalaureate Degrees and Majors" table, page 540; and the "College of Technology and Applied Sciences Baccalaureate Degrees and Majors" table, page 568).

Located 23 miles southeast of the Tempe campus and with a student population of fewer than 5,000, the 600-acre campus offers a small residential college environment. East campus 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. East 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 "East Campus Map," page 597. For information, call 480/727-EAST (3278) or access the Web site at www.east.asu.edu.

ACADEMIC ORGANIZATION

The chief academic officer of the East campus is the provost. There are two colleges and one school at the East campus 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 "East Campus Faculty and Academic Professionals," page 599, and "Academic Organization," page 10.

The East campus of Arizona State University is distinguished by the academic programs it offers and by its residential setting. As the university's polytechnic campus, it offers a variety of professionally oriented undergraduate and graduate programs that are applicable to the real world and require high levels of technological literacy and skill.

The Morrison School of Agribusiness and Resource Management offers bachelor's and master's degrees in Agribusiness that prepare students for careers in sectors of global

ACCREDITATION

The North Central Association of Colleges and Schools accreditation of ASU includes the East 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, e-mail caa@auburn.edu, or write

COUNCIL ON AVIATION ACCREDITATION
3410 SKYWAY DRIVE
AUBURN AL 36830

The Bachelor of Science in Industrial Technology degree (including the environmental technology management, graphic information technology, and industrial technology management concentrations) is 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 East 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 East campus. To be admitted to an East campus degree program, the student must meet undergraduate admissions requirements and the specific admission requirements of the East campus program. A student who is admitted to an East campus degree program is defined as an East campus student.

For more admissions information and applications to the East campus degree programs, call 480/727-EAST (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 an East campus degree program should contact Student Services at the East 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 East campus. Students should consult with their East 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 East 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 formed an innovative academic partnership that combines the strengths of the two institutions. ASU students receive instruction from both institutions. Chandler-Gilbert faculty teach freshman and sophomore General Studies, general interest 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 92.

EAST CAMPUS

Academic Advising at East Campus

Unit	Location	Telephone	Days	Hours ¹
Agribusiness and Resource Management, Morrison School of	WANNER	480/727-1585	Mon.–Fri.	8 A.M.–5 P.M.
Barrett Honors College ²	IRISH A 121	480/965-2359	Mon.–Fri.	8 A.M.–5 P.M.
East College	SUTTON	480/727-1333	Mon.–Fri.	8 A.M.–5 P.M.
Applied Biological Sciences, Department of	WANNER	480/727-1444	Mon.–Fri.	8 A.M.–5 P.M.
Applied Psychology, Faculty of	SUTTON	480/727-1333	Mon.–Fri.	8 A.M.–5 P.M.
Business Administration, Faculty of	SUTTON	480/727-1333	Mon.–Fri.	8 A.M.–5 P.M.
Education, Faculty of	SUTTON	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	SUTTON	480/727-1333	Mon.–Fri.	8 A.M.–5 P.M.
Multimedia Writing and Technical Communication, Faculty of	SUTTON	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.

¹ Walk-ins are welcome; appointments are recommended.

² The Barrett Honors College is located at the Tempe campus.

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 upper-division general education and general interest courses. ASU students are enrolled concurrently in both institutions. All transactions are handled through ASU. Students pay combined tuition or ASU tuition, whichever is less. Through the partnership with CGCC, ASU students can take all the courses needed to graduate with an ASU baccalaureate degree on the Williams Campus.

ADVISING

Students are encouraged to take advantage of the skill and knowledge of the advising professionals available to them in the academic units and to seek academic advising early.

For more information or to schedule an advising session, contact an academic advisor (see the “[Academic Advising at East Campus](#)” table, on this page).

COLLEGE OF EXTENDED EDUCATION

The university-wide College 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 “[College of Extended Education](#),” page 703, or access the Web site at www.asu.edu/xed.

CAMPUS AND STUDENT SERVICES

The East 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 a learning center, child care services, student union, bookstore, and copy center. A shuttle service provides transportation between the East 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 residing in QUADs one, two, and four, 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.

Learning Center

In the Learning Center, undergraduate and graduate students can study, utilize computers for research and writing, and access tutoring services. Qualified undergraduate and graduate students provide tutoring to individual students or study groups by appointment or on a drop-in basis. Writing assistance is offered both face-to-face and online through the Learning Center Web site to students seeking help with any written assignment. Other services include workshops on writing, presentation and study skills, and computer-assisted instruction. Learning Center tutors also staff the Freshman Year Experience Hall study room during weekday and evening hours.

The Learning Center is located in the Academic Center Building. For more information or to schedule a tutoring appointment, call 480/727-1452, or visit the Web site at www.east.asu.edu/learningcenter.

Library Services

Strong resources and personal service define the East Campus Library. 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 East 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.east.asu.edu.

Computing Services

Information Technology (IT) at East campus provides computing services to support academic programs. The IT East department provides specialized software and systems to meet the particular needs of the East campus programs in support of e-learning initiatives. All classrooms at East 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 East maintains computing sites around campus, including the Computing Commons in the Academic Center, offering students computing and printing facilities. IT East has a staff of support personnel to aid the campus community's diverse computing needs, including Web development, academic computing, and administrative computing.

Food Services

The East 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 at the East campus, call 480/727-1443.

Student Health Center

The East campus Student Health Center provides confidential, primary health care services for all full- and part-time East campus students at a nominal fee. The clinic offers primary assessment and limited treatment of health problems and minor injuries. The center is staffed by a full-time nurse practitioner and a part-time doctor. Services include physical examinations and immunizations; 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 East campus.

For more information, call 480/727-1041, or access the Web site at www.east.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. Appointments may also be made in person at Student Counseling Services in the Student Affairs Complex, Building 370.

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. For more information, call 480/727-1041, or access the Web site at www.east.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 meeting space, study rooms, a computer lab, a TV lounge, dining facilities, a game room, a bookstore, and a ballroom. Programs and services that complement the academic experience and enhance campus life include a film series, dances, live performances, resources for student organizations, 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.

Recreational Facilities and Services

ASU and Chandler-Gilbert Community College 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 and the Chandler-Gilbert Physical Education 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 to September) with lights.

At the fitness center, trained exercise and wellness professionals are available to perform assessments, develop programs, and provide expert advice and personal training assistance.

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 92.

EAST CAMPUS

In addition to the facilities, the PAC 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 cultural dance classes. A full schedule of intramural programs and special events are also offered at the PAC. Times for open recreation are scheduled at the PAC and the Chandler-Gilbert Physical Education 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.

For more information, access the PAC Web site at www.east.asu.edu/pac, 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 East campus provides students with the best 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.

The East campus's unique residential environment offers housing options for Williams Campus students throughout their undergraduate and graduate education. This includes 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.east.asu.edu/students/housing, or send e-mail to easthousing@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, send e-mail to easthousing@asu.edu.

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.east.asu.edu/sta/u-life/housing, or send e-mail to easthousing@asu.edu.

Residents can select a meal plan from several options offered by Campus Dining Services. For more information, access the Web site at www.east.asu.edu/students/dining.

Faculty Fellows. The Faculty Fellows program provides opportunities for faculty to interact with students outside of the classroom and to build academic community on campus. Fellows join students for meals in the dining hall, participate in special events, such as the Leadership Conference, and help plan a variety of activities, including field trips, the Faculty Film Series, and community service projects. Through these informal meetings faculty enhance students' opportunities for learning outside of the classroom and develop mentoring relationships, which help students make the most of their college experience. For more information about this program, call 480/727-1452.

Morrison School of Agribusiness and Resource Management

www.east.asu.edu/msabr

Raymond A. Marquardt, PhD, Dean

PURPOSE

Located at the East campus, 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 532.

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.

ADMISSION

The Morrison School admits students to the BS degree programs who meet the undergraduate 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 92.

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*.

requirements of Arizona State University; see “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 92), and the school and concentration requirements—leads to the BS degree. Note that all three General Studies awareness areas are required. An 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 534.

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 <i>SQ</i>	4
CHM 101 Introductory Chemistry <i>SQ</i> ²	4
ECN 111 Macroeconomic Principles <i>SB</i> ³	3
ECN 112 Microeconomic Principles <i>SB</i>	3
ENG 301 Writing for the Professions <i>L</i>	3
MAT 210 Brief Calculus <i>MA</i> ²	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 com-

petencies. 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 <i>CS</i>	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 <i>CS</i>	3
AGB 364 Agribusiness Technologies I.....	3
AGB 365 Agribusiness Technologies II ¹	3
AGB 410 Agribusiness Management II.....	3
AGB 414 Agribusiness Analysis <i>L</i>	3
Core total.....	36

- ¹ This course is not required for the professional golf management, golf and facilities management, or resource 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.

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.

Agribusiness Finance

AGB 431 Intermediate Agribusiness Financial Management.....	3
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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 <i>CS</i>	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 other 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 <i>G</i>	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.

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 92.

MORRISON SCHOOL OF AGRIBUSINESS AND RESOURCE MANAGEMENT

Special class fees are in place to cover the cost of PGA books, seminars, and testing. The PGM program fee ensures all students will 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 Prevetterinary Medicine. Students who select the prevetterinary 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 <i>SG</i>	4
BIO 188 General Biology II <i>SQ</i>	4
BIO 340 General Genetics.....	4
CHM 113 General Chemistry <i>SQ</i>	4
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i>	5
or CHM 116 General Chemistry <i>SQ</i> (4)	
Choose between the course combinations below.....	4-8
CHM 231 Elementary Organic Chemistry <i>SQ</i> (3) ¹	
CHM 235 Elementary Organic Chemistry Laboratory <i>SQ</i> (1) ¹	
or.....	
CHM 331 General Organic Chemistry (3)	
CHM 332 General Organic Chemistry (3)	
CHM 335 General Organic Chemistry Laboratory (1)	
CHM 336 General Organic Chemistry Laboratory (1)	
ECN 111 Macroeconomic Principles <i>SB</i>	3
or ECN 112 Microeconomic Principles <i>SB</i> (3)	
ENG 301 Writing for the Professions <i>L</i>	3
MAT 210 Brief Calculus <i>MA</i>	3
MIC 205 Microbiology <i>SG</i> ²	3

MIC 206 Microbiology Laboratory <i>SG</i> ²	1
PHY 111 General Physics <i>SQ</i> ³	3
PHY 113 General Physics Laboratory <i>SQ</i> ³	1
Upper-division AGB.....	6
Total	54-58

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.

Prevetterinary 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 prevetterinary 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 prevetterinary requirements for entrance to professional veterinary school.

Prevetterinary Medicine

Agribusiness core.....	21
AGB 310 Agribusiness Management I (3)	
AGB 320 Agribusiness Marketing I (3)	
AGB 332 Agribusiness Finance I (3)	
AGB 360 Agribusiness Statistics <i>CS</i> (3)	
AGB 364 Agribusiness Technologies I (3)	
AGB 365 Agribusiness Technologies II (3)	
AGB 414 Agribusiness Analysis <i>L</i> (3)	
Prevetterinary medicine prerequisites.....	54-58
Total	75-79

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.

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.east.asu.edu/msabr

480/727-1585

WANNER, First Floor

Raymond A. Marquardt, Dean

Professors: Daneke, Edwards, Kagan, Marquardt, Seperich, Shultz, Thor

Associate Professors: Patterson, Raccach, Richards, Schmitz

Assistant Professors: Eaves, Hughner, Manfredo

Senior Lecturer: Lindley

AGRIBUSINESS (AGB)

AGB 100 Introduction to Agribusiness. (3)

fall

Overview of agribusiness industries and career opportunities.

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

AGB 171 Animal Science. (3)

spring

Comparative growth, development, and propagation of domestic animals.

AGB 191 First-Year Seminar. (1-3)

selected semesters

AGB 194 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 92.

MORRISON SCHOOL OF AGRIBUSINESS AND RESOURCE MANAGEMENT

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

AGB 271 Veterinary Medicine Today. (3)

spring

Introduces the role of the veterinarian as related to the fields of food supply and veterinary medicine.

AGB 294 Special Topics. (1–4)

selected semesters

AGB 310 Agribusiness Management I. (3)

fall

Principles of management, including planning, organizing, integrating, measuring, and developing people in agribusiness organizations.

AGB 311 Establishing an Agribusiness. (3)

fall

Opportunities and problems associated with new firm development in agribusiness. Business plan is written and presented orally.

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 112.

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 112.

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 111 and 112 (or their equivalents); introductory accounting.

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 111 and 112 (or their equivalents); introductory accounting.

AGB 340 Food Processing. (3)

fall

Introduces processed food quality assurance, statistical sampling, and inspection procedures. Prerequisite: AGB 364.

AGB 341 Food Analysis. (3)

selected semesters

Processing control and scientific instrumentation used in food quality assurance laboratories. Prerequisites: AGB 364; CHM 101.

AGB 355 Sustainable Agriculture Systems. (3)

fall and spring

Innovative developments in precision farming, irrigation, soils, tillage methods, machinery, and biotechnology in crop production.

AGB 360 Agribusiness Statistics. (3)

fall and spring

Statistical methods with applications in agribusiness and resource management. Prerequisite: college algebra.

General Studies: CS

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.

AGB 365 Agribusiness Technologies II. (3)

fall

Biotechnology and other methods used in the production, processing, and distribution of food. Prerequisite: BIO 100.

AGB 370 Wildlife and Domestic Animal Nutrition. (3)

spring

Survey of nutritional needs of domestic and wild animals. Prerequisite: a General Studies SQ course.

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.

AGB 394 Special Topics. (1–4)

selected semesters

AGB 410 Agribusiness Management II. (3)

spring

Principles of human resource management in agribusiness firms. Prerequisite: AGB 310.

AGB 411 Agricultural Cooperatives. (3)

spring

Organization, operation, and management of agricultural cooperatives.

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

AGB 420 Food Marketing. (3)

spring

Food processing, packaging, distribution, market research, new food research and development, and social implications. Prerequisite: AGB 320.

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).

AGB 424 Sales and Merchandising in Agribusiness. (3)

summer

Principles and techniques of selling and merchandising in the agricultural and food industries.

AGB 425 Agricultural Marketing Channels. (3)

fall

Operational stages of agricultural commodities in normal distribution systems and implementation of marketing strategies. Prerequisite: AGB 320.

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).

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.

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).

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).

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.

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.

MORRISON SCHOOL OF AGRIBUSINESS AND RESOURCE MANAGEMENT

AGB 440 Food Safety. (3)

spring

Control, prevention, and prediction of microbial and chemical food-borne diseases. Prerequisite: AGB 442 or instructor approval.

AGB 441 Food Chemistry. (3)

spring

Biochemical and chemical interactions that occur in raw and processed foods. Prerequisites: CHM 115, 231.

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.

AGB 443 Food and Industrial Fermentations. (3)

spring

Management, manipulation, and metabolic activities of industrial microbial cultures and their processes. Prerequisite: AGB 442 or instructor approval.

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.

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

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 112; MAT 117.

General Studies: CS

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 112.

AGB 454 International Trade. (3)

spring

International practices in trading of agribusiness, technology, and resource products and services.

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 112.

General Studies: SB

AGB 457 Resource Policy and Sustainability. (3)

fall

Considers the evolution of policy design, focusing on how resource and environmental concerns have affected agricultural development and trade policies. Prerequisite: ECN 112.

AGB 460 Agribusiness Management Systems. (3)

spring

Development and use of decision support systems for agribusiness management and marketing.

AGB 463 Electronic Commerce Applications. (3)

fall

Overview of electronic commerce technology with introduction to basics of design, control, operation, organization, and emerging issues. Pre- or corequisite: AGB 460 (or its equivalent).

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.

AGB 470 Comparative Nutrition. (3)

selected semesters

Effects of nutrition on animal systems and metabolic functions. Prerequisite: CHM 231.

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.

AGB 473 Animal Physiology I. (3)

selected semesters

Control and function of the nervous, muscular, cardiovascular, respiratory, and renal systems of domestic animals. Prerequisites: BIO 188; CHM 113.

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.

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.

AGB 481 Applied Microeconomics. (3)

fall and spring

Emphasizes application of the theory of the firm, theory of exchange, and consumer theory.

AGB 484 Internship. (1–12)

fall and spring

AGB 492 Honors Directed Study. (1–6)

selected semesters

Topics may include the following:

- Recent Advances in Food Science. (1)

AGB 493 Honors Thesis. (1–6)

selected semesters

AGB 494 Special Topics. (1–4)

selected semesters

AGB 498 Pro-Seminar. (1–7)

selected semesters

Topics may include the following:

- Effective Consumer Response
Fee.
- Selling Today
Fee.

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/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.

PROFESSIONAL GOLF MANAGEMENT (PGM)

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.

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.

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 92.

MORRISON SCHOOL OF AGRIBUSINESS AND RESOURCE MANAGEMENT

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.

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.

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.

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.

PGM 120 Golf for Business and Life. (1)

fall and spring

Introduces nongolfing students to the game of golf. For beginners. Integrated lecture/lab.

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.

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.

PGM 166 Turf Equipment Management. (3)

spring

Introduces turf equipment used on golf courses. Instruction in maintenance, adjustment, and safety issues. Integrated lecture/lab.

PGM 194 Special Topics. (1–4)

selected semesters

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.

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.

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.

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.

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.

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).

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.

PGM 463 Golf and Sports Turf Management. (3)

fall

Selection, establishment, and maintenance of turf grasses bred specifically for golf and sports facilities. Cross-listed as ABS 463. Credit is allowed for only ABS 463 or PGM 463. Integrated lecture/lab.

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.

PGM 484 Internship. (1–12)

selected semesters

PGM 494 Special Topics. (1–4)

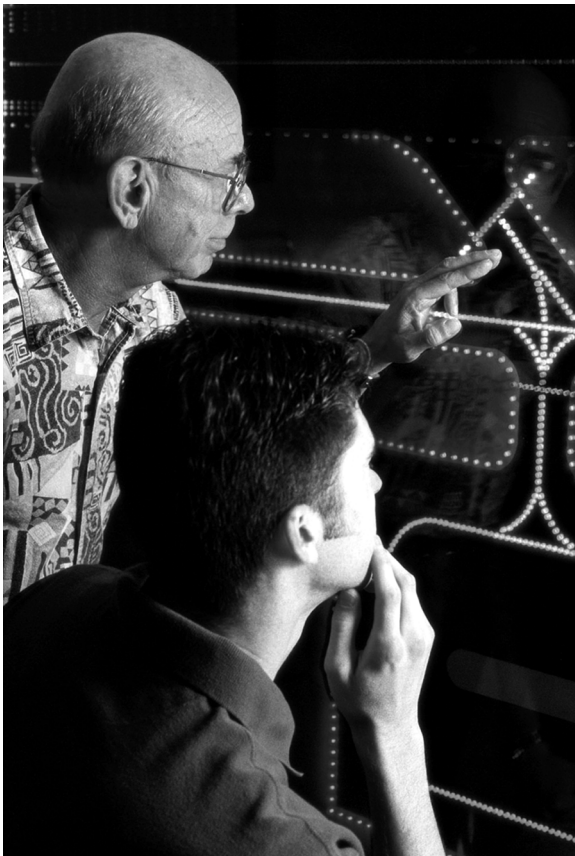
selected semesters

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.

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.



A consultant and a student discuss effective use of lighting on the airport lighting simulator.

Dave Tevis photo

East College

www.east.asu.edu/ecollege

Glenn W. Irvin, PhD, Dean

PURPOSE

East College offers a variety of liberal 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.

Each semester, East College offers a selection of popular upper-division ASU General Studies and general interest courses. While designed primarily to support East campus students, these courses are open to all ASU students who might find the times and location convenient. East College typically offers courses in anthropology, art, communication, economics, English, history, mathematics, music, philosophy, political science, psychology, religious studies, sociology, and women's studies. Students should refer to the current *Schedule of Classes* for specific courses offered at East campus each semester. All credit earned at East campus automatically transfers to Tempe campus or West campus.

Students who begin their college careers at East campus benefit from the small, residential campus environment. If they are uncertain about a major they can declare exploratory/undeclared status. Students are able to complete General Studies requirements and search for an ASU major that serves their personal and career objectives while enrolled as exploratory/undeclared majors. East College provides advising to exploratory/undeclared majors.

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.

APPLIED MATHEMATICS (APM)

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

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.](#)

APPLIED SCIENCE CORE (ASC)

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.

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.

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.

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

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.](#)

Partnership in Baccalaureate Education. The Partnership in Baccalaureate Education, an agreement between Chandler-Gilbert Community College and East campus, is coordinated through East College. Through this partnership, East campus students take first-year composition courses and courses that meet lower-division ASU General Studies requirements. They are listed in ["General Studies," page 92.](#) 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 540.](#) For graduate degrees, see the ["East College Graduate Degrees and Majors" table, page 541.](#)

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.

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 92.](#)

East College Baccalaureate Degrees and Majors

Major	Degree	Concentration*	Administered By
Applied Biological Sciences	BS	Applied biological sciences, applied biological sciences/secondary education, ecological restoration, urban horticulture, or wildlife habitat management	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 126.	Bachelor of Interdisciplinary Studies Advisory Committee
Multimedia Writing and Technical Communication	BS	—	East College
Nursing	BSN	—	College of Nursing (Tempe 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*.

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 East campus take their core courses and at least one concentration through East campus. The second concentration may be taken at the Tempe campus or East campus. The BIS core courses are offered by East College. Concentrations at East 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 with an East College advisor at 480/727-1333 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 “**Bachelor of Interdisciplinary Studies;**” page 125.

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.

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	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 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 East campus.

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 G.P.A. 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 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.east.asu.edu/ecollege or contact an East College advisor at 480/727-1333.

Department of Applied Biological Sciences

www.east.asu.edu/ecollege/appliedbiologicalsciences

480/727-1444

WANNER, Third Floor

Ward W. Brady, Chair

Professors: Brady, Brock, Mushkatel, Ohmart, Sommerfeld, Stutz

Associate Professors: Green, Martin, Miller, Slater, Steele, Whyson

Assistant Professors: Hu, Marcum

Lecturer: Huffman

APPLIED BIOLOGICAL SCIENCES—BS

Programs offered by the Department of Applied Biological Sciences integrate applied research in the biological sciences with education and service to the community. Faculty strive to be at the forefront of their chosen academic disciplines; they combine classroom teaching, student advising, research, and practical problem solving. The aim is to provide the best possible education to the next generation of biological practitioners and scientists through mentors 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 92.

themselves understand the science, the means by which it advances, and the manner in which it can be brought to bear on practical problems. The educational goal is to offer students rigorous and practical programs in applications of the biological sciences that feature current technologies as well as an understanding of the policy context in which biologists work. Consistent with a polytechnic vision, programs involve extensive student interaction with the faculty through experience based learning activities such as laboratories, field trips, internships, and faculty guided research and service learning projects. Faculty are committed to the advancement of knowledge in their chosen fields of study and work closely with graduate students in the Master of Science degree program. Graduate students gain practical experience in the practice of research leading to a solid foundation for scholarly research. The Department of Applied Biological Sciences is also committed to providing service to the community outside the university. Because of the variety of career options available in this field, one general and four focused concentrations are offered:

1. applied biological sciences;
2. applied biological sciences/secondary education;
3. ecological restoration;
4. urban horticulture; and
5. wildlife habitat management.

Applied Biological Sciences graduates can pursue entry-level careers in biological research, education, and applied sciences such as ecological restoration, urban horticulture, and wildlife biology. The Applied Biological Sciences major also prepares students for graduate school and professional schools in disciplines such as medicine, dentistry, physical therapy, ecology, horticulture, and wildlife biology. For the latest information about program requirements and courses, access the Web site at www.east.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 92. 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 301 Technology and Biology.....	2
ABS 302 Policy and Biology.....	2
ABS 311 Applied Cellular Biology.....	3
or ABS 312 Structure and Function (4)	
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

BIO 360 Animal Physiology.....	3
or PLB 308 Plant Physiology (4)	
MAT 210 Brief Calculus MA.....	3
Total	31–33

Students majoring in Applied Biological Sciences must select one of the concentrations listed below.

Applied Biological Sciences Concentration

This concentration provides maximum flexibility for students seeking careers in the biological sciences. The Applied Biological Sciences core provides a foundation in the biological sciences; required courses in chemistry and physics complete the general science requirements. Students intending to pursue research careers in biology and postgraduate studies may find this concentration appropriate. In addition, the concentration is designed for students planning to enter professional programs in the health care professions such as medicine, medical technology, epidemiology, dentistry, optometry, pharmacy, physical therapy, podiatry, 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 113 General Chemistry SQ.....	4
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 Laboratory SQ ¹ (1)	
— or —	
CHM 331 General Organic Chemistry (3)	
CHM 332 General Organic Chemistry (3)	
CHM 335 General Organic Chemistry Laboratory (1)	
CHM 336 General Organic Chemistry Laboratory (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 biology and science.....	12
Total	36–44

- 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 552, 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 <i>CS</i>	3
BIO 187 General Biology I <i>SG</i>	4
BIO 188 General Biology II <i>SQ</i>	4
MAT 210 Brief Calculus <i>MA</i>	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 113 General Chemistry <i>SQ</i>	4
CHM 116 General Chemistry <i>SQ</i>	4
MIC 205 Microbiology <i>SG*</i>	3
MIC 206 Microbiology Laboratory <i>SG*</i>	1
PHY 101 Introduction to Physics <i>SQ</i>	4
Upper-division electives.....	2
Total	25–26

* 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 <i>L</i>	3
EDP 310 Educational Psychology for Non-Teachers <i>SB</i>	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 <i>C</i>	3
SPE 311 Orientation to Education of Exceptional Children <i>SB, C</i>	3

Ecological Restoration Concentration

The discipline of ecological restoration provides a scientific basis for the reconstruction of damaged and degraded ecosystems. It focuses on management practices designed to improve the ecological structure and function of these ecosystems. These practices may involve all ecosystem components, including soils, water, vegetation, and wildlife. The actual restoration process includes identifying the causes of degradation, devising goals and methods for the restoration effort, developing management strategies for the restored

sites, and monitoring and assessing restoration success. Restoration activities may include reintroducing plants or animals, removal of invasive species, rebuilding soils, and returning natural processes such as fire and flooding to ecosystems that historically experienced these disturbance regimes. The goals of restoration are to restore ecological integrity and to meet societal needs for sustainable and functional ecosystems. Successful restoration projects require stakeholder involvement and demand consideration of the economic and social context in which restoration is carried out. The policies guiding such processes are also taken into account.

For students choosing the Ecological Restoration Concentration, the following courses each must be used as General Studies courses in order to graduate in 120 hours:

ABS 350 Applied Statistics or equivalent <i>CS</i>	3
ABS 480 Ecosystem Management and Planning <i>L</i>	3
BIO 187 General Biology I <i>SG</i>	4
BIO 188 General Biology II <i>SQ</i>	4
MAT 210 Brief Calculus <i>MA</i>	3

Ecological Restoration Concentration

ABS 207 Applied Plant Taxonomy	3
ABS 225 Soils <i>SQ</i> ¹	3
ABS 226 Soils Laboratory <i>SQ</i> ¹	1
ABS 370 Ecology.....	3
ABS 380 Restoration and Wildlife Plants	3
ABS 381 Natural Resources Policy.....	3
ABS 402 Vegetation and Wildlife Measurement.....	3
ABS 440 Ecological Restoration Techniques.....	3
ABS 441 Ecological Restoration Practicum.....	1
ABS 480 Ecosystem Management and Planning <i>L</i>	3
ABS 482 Ecology and Planning for Restoration.....	3
ABS 483 Restoration Planning Practicum.....	2
ABS 485 GIS in Natural Resources.....	3
ABS 490 Applied Biological Sciences Seminar.....	1
CHM 101 Introductory Chemistry <i>SQ</i>	4
CHM 231 Elementary Organic Chemistry <i>SQ</i> ²	3
Total	42

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.

Ecological Restoration Supporting Courses

Select 12 semester hours from the following list, or courses approved by advisor:

ABS 368 Plant Propagation (3)
ABS 374 Introduction to Wildlife Management (3)
ABS 376 Wildlife Ecology (3)
ABS 425 Soil Classification and Management (3)
ABS 430 Watershed Management (3)
ABS 433 Riparian and Wetland Ecology (3)
ABS 434 Soil Ecology (3)
ABS 475 Habitat Management for Small Wildlife (4)
ABS 476 Big Game Habitat Management (3)
ABS 481 Riparian and Wetland Restoration (3)
ABS 486 Introduction to Remote Sensing (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 92.

Urban Horticulture Concentration

Urban horticulture emphasizes the relationship of plants and people in city environments. Set in a unique southwestern desert location, East 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 101 Introductory Chemistry SQ.....	4
CHM 231 Elementary Organic Chemistry SQ ²	4
PLB 414 Plant Pathology L.....	3
or PGM 466 Integrated Pest Control (2)	
Approved upper-division electives.....	6
Total.....	41-43

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 Habitat Management Concentration

The wildlife habitat management concentration focuses on the ecological relationship between wildlife and its habitats. The goal of wildlife habitat management is to create conditions that ensure sustainable wildlife populations. Achieving this goal requires expertise in both wildlife biology and habitat management. The wildlife habitat management concentration is distinguished by its strong emphasis on habitat management. While students are expected to master the material found in traditional wildlife biology curricula, they are also expected to develop 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, and a comprehensive understanding of the economic and policy contexts in which wildlife habitat management occurs.

Wildlife Habitat Concentration General Studies

Requirements. For students choosing the wildlife habitat 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 Habitat Management Concentration

ABS 207 Applied Plant Taxonomy.....	3
ABS 355 Vertebrate Zoology.....	4
ABS 370 Ecology.....	3
ABS 374 Introduction to Wildlife Management.....	4
ABS 376 Wildlife Ecology.....	3
ABS 402 Vegetation and Wildlife Measurement.....	3
ABS 440 Ecological Restoration Techniques.....	3
ABS 480 Ecosystem Management and Planning L.....	3
ABS 485 GIS in Natural Resources.....	3
ABS 490 Applied Biological Sciences Seminar.....	1
CHM 101 Introductory Chemistry SQ.....	4
CHM 231 Elementary Organic Chemistry SQ*.....	3
Total.....	37

* Both CHM 231 and 235 must be taken to secure SQ credit.

Wildlife Supporting Courses

Select nine semester hours from the following list, or courses approved by advisor:

ABS 375 Conservation Biology.....	3
ABS 378 Wildlife Nutrition.....	3
ABS 470 Mammalogy.....	3
ABS 471 Ornithology.....	3
ABS 475 Habitat Management for Small Wildlife.....	4
ABS 476 Big Game Habitat Management.....	3
BIO 331 Animal Behavior.....	3
BIO 385 Comparative Invertebrate Zoology.....	4
BIO 410 Techniques in Wildlife Conservation Biology L.....	3
BIO 426 Limnology L.....	4
BIO 473 Ichthyology.....	3
BIO 474 Herpetology.....	3

Habitat Supporting Courses

Select nine semester hours from the following list, or courses approved by advisor:

ABS 225 Soils SQ*.....	3
ABS 226 Soils Laboratory SQ*.....	1
ABS 368 Plant Propagation.....	3
ABS 380 Restoration and Wildlife Plants.....	3
ABS 381 Natural Resource Policy.....	3
ABS 430 Watershed Management.....	3
ABS 433 Riparian and Wetland Ecology.....	3
ABS 435 Ecological Modeling.....	3
ABS 481 Riparian and Wetland Restoration.....	3
ABS 486 Introduction to Remote Sensing.....	4
PLB 308 Plant Physiology.....	4

* Both ABS 225 and 226 must be taken to secure SQ credit.

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 plans and defining their career goals. For more information, see “[School of Interdisciplinary Studies,](#)” page 124.

MINOR

The Applied Biological Sciences minor consists of 24 semester hours, including BIO 187 General Biology I, BIO 188 General Biology II, ABS 312 Structure and Function, and at least 12 hours selected with the approval of an advisor; at least nine hours must be in the upper division. This minor is not available to students majoring in life 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.

Biology and plant biology courses regularly offered on East campus include BIO 340, BIO 360, PLB 308, and PLB 414. For courses, see “[School of Life Sciences,](#)” page 422.

APPLIED BIOLOGICAL SCIENCES (ABS)

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

ABS 191 First-Year Seminar. (1–3)

selected semesters

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.

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)

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)

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

ABS 294 Special Topics. (1–4)

selected semesters

ABS 300 Environmental Biology. (3)

spring

Applies biological sciences to environmental issues. Includes ecological, historical, and global perspectives on environmental conservation.

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.

ABS 302 Policy and Biology. (2)

fall

Policy environment for the practice of biology. Covers policy formulation, regulatory agencies, and policies in biotechnology, agriculture, and environment.

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 182; CHM 231 (or their equivalents).

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.

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

ABS 355 Vertebrate Zoology. (4)

spring

Classification, anatomy, and physiology of the vertebrates. Lecture, lab. Prerequisites: BIO 188 and CHM 101 (or their equivalents).

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.

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).

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.

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).

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.

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.

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 92.

EAST COLLEGE

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.

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.

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.

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.

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.

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.

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.

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.

ABS 381 Natural Resources Policy. (3)

fall

Policies and regulations affecting management of natural resources, with emphases on wildlife and ecological restoration.

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.

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).

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.

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.

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.

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.

ABS 440 Ecological Restoration Techniques. (3)

fall

Techniques for ecological restoration, riparian and wetland restoration, and monitoring restoration success. Prerequisites: ABS 370, 380.

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.

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.

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.

ABS 463 Golf and Sports Turf Management. (3)

fall

Selection, establishment, and maintenance of turf grasses bred specifically for golf and sports facilities. Cross-listed as PGM 463. Credit is allowed for only ABS 463 or PGM 463. Integrated lecture/lab.

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.

ABS 470 Mammalogy. (3)

fall

Classification and biology of mammals, emphasizes North America. Pre- or corequisite: ABS 355.

ABS 471 Ornithology. (3)

spring

Classification and biology of birds, emphasizing North America. Lecture, lab, field trips. Fee. Prerequisite: ABS 355.

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.

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.

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. Prerequisite: senior standing or instructor approval.

General Studies: L

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.

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.

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.

ABS 484 Internship. (1–12)

selected semesters

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 natural resources. Lecture, lab. Prerequisite: ABS 350 (or its equivalent).

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.

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.

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.

ABS 492 Honors Directed Study. (1–6)

selected semesters

ABS 493 Honors Thesis. (1–6)

selected semesters

ABS 494 Special Topics. (1–4)

selected semesters

ABS 498 Pro-Seminar. (1–7)

selected semesters

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/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.

tion, 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 East 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 92), 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 <i>SB</i>	3
PGS 350 Social Psychology <i>SB</i>	3
PSY 230 Introduction to Statistics <i>CS</i>	3
PSY 290 Research Methods <i>L/SG</i>	4
PSY 323 Sensation and Perception	3
PSY 324 Memory and Cognition	3
PSY 325 Physiological Psychology	3
PSY 330 Statistical Methods <i>CS</i>	3
PSY 477 Applied Psychology Capstone Experience*	3
or HON 493 Honors Thesis <i>L</i> (3)	
Total	28

* This PSY course is offered only by East campus. All other PSY courses listed above are offered by East 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 <i>L</i>	3
PGS 471 Psychological Testing	3
PSY 320 Learning and Motivation.....	3
PSY 360 Cognitive Science*	3
PSY 390 Experimental Psychology <i>L</i>	3
PSY 437 Human Factors <i>L</i>	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

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 92.

Faculty of Applied Psychology

www.east.asu.edu/ecollege/appliedpsych

480/727-1515

SUTTON, Third Floor

Roger W. Schvaneveldt, Faculty Head

Professors: Cooke, Schvaneveldt

Assistant Professor: 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, avia-

EAST COLLEGE

PSY 494 Special Topics1-4

* This PSY course is offered only by East campus. All other PSY courses listed above are offered by East campus and Tempe campus.

Related Course Work

BIO course with a lab4
MAT 210 Brief Calculus *MA*3
or a higher MAT course (3)
Computer skills course3
Writing skills course3
Courses selected in consultation with an advisor5
Total18

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 courses9

* This PSY course is offered only by East campus. All other PSY courses listed above are offered by East campus and Tempe campus.

A maximum of three semester hours from the following courses can be used to satisfy minor requirements:

PGS 399 Supervised Research3
PGS 499 Individualized Instruction3
or PSY 499 Individualized Instruction (3)
PSY 492 Honors Directed Study3

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 480/727-1515, or access the Web site at www.east.asu.edu/ecollege/appliedpsych.

For PGS courses and additional PSY courses, see “Department of Psychology,” page 458.

PSYCHOLOGY (SCIENCE AND MATHEMATICS) (PSY)

For more PSY courses, see “Course Prefix Index,” or access www.asu.edu/aad/catalogs/courses. The campus designation—*E* (East), *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.east.asu.edu/ecollege/businessadmin

480/727-1515

SUTTON, Third Floor

Roger W. Hutt, Faculty Head

Professors: Daneke, Edwards, Kagan, Marquardt, Shultz, Thor

Associate Professors: Butler, Hutt, Patterson, Richards

Assistant Professors: Manfredo, 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 92).

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, 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 East campus.

Business Administration Core

BUA 394 ST: Professional Development.....	1
FIN 300 Fundamentals of Finance.....	3
IBS 300 Principles of International Business <i>G</i>	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 <i>L</i>	3
Total	22

Capstone Course (Three Semester Hours)

MGT 440 Small Business and Entrepreneurship.....	3
or MGT 494 ST: 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 East campus industry-specific business programs (Aeronautical Management Technology, Agribusiness, and Information and Management Technology).

For the latest information about application, admissions, program requirements, and courses, call East College at 480/727-1515, or access the Web site at www.east.asu.edu/college/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

In addition to the courses listed for the major, students in the program also satisfy the requirement for BUS 301 Fundamentals of Management Communication (listed in the business core) and BUS 451 Business Research Methods (listed as a major support course). These courses are integrated into the major, not taken separately. Because of the emphasis on teamwork, interaction with business professionals, and completion of all requirements within a year, students may enter the program in only the fall semester. Classes meet from 9 to 11:45 A.M. Monday through Thursday in a classroom assigned to the Real Estate program. For more information, call 480/727-1055.

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 (BIS Majors Only)

The requirements for the small business concentration are identical to those for the minor in Small Business listed above. For BIS degree requirements, see “School of Interdisciplinary Studies,” page 124.

BUSINESS ADMINISTRATION (BUA)

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.

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.

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 92.

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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.

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.

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.

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.

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.

BUA 394 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Business Professional Development. (1)
- Professional Development. (1)

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.

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)

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.

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.

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.

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. See REA Note 1. Prerequisites: 2.00 ASU GPA; junior standing.

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.

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.

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.east.asu.edu/ecollege/education

480/727-1103

SUTTON 240E

Bette S. Bergeron, Faculty Head

Professors: Bergeron, Darst

Assistant Professors: Kulinna, Mahoney, Marble, White-Taylor

Clinical Assistant Professors: Molina-Walters, Smith

Senior Lecturers: Stever, Wenhart

Lecturers: Foley, Gomez, Hopper, Orlowicz, Prest

ELEMENTARY EDUCATION—BAE

Program Overview

The Elementary Education program at East 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 East campus or participate in 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 92) 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 East Elementary Education program before enrolling in the Professional Preparation Program courses (Blocks I–IV).

Foundations (15 semester hours)*

EDC 314	The Developing Child	3
EDP 310	Educational Psychology <i>SB</i>	3
MCE 446	Understanding the Culturally Diverse Child <i>C</i>	3
MTE 180	Theory of Elementary Mathematics.....	3
SPE 311	Orientation to Education of Exceptional Children <i>SB, C</i>	3

* For foundation courses, see “College of Education,” page 192.

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 340	Writing and the Professional Educator <i>L</i>	3
EDC 354	Educational Media in the Classroom	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 355	Accommodating Instruction for Diverse Learners.....	3
EDC 474	Field Experience	0–1

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 non-degree 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. For more information, call 480/727-1103.

Application. Applications for the East 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 East 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 include two letters of recommendation and a résumé outlining work with school-age children and/or their families. Students should call the East 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 East 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

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 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 92). 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 full-time

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 92.

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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. A 2.50 GPA within the area of concentration;
3. Proficiency in written English, met in one of the following ways: (a) GPA of 3.0 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 East 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. Specific program requirements are under revision; students interested in the program should contact the East Education Office at East campus 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.east.asu.edu/ecollege/elementaryed, or call the East 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 the following courses in physical education in addition to the required KIN core courses:

KIN 361 Physical Education in the Secondary School.....	3
KIN 376 Physical Education for the Elementary School.....	3
KIN 382 Adaptive and Inclusive Physical Education.....	3
KIN 480 Methods of Teaching Physical Education.....	3
KIN elective*	3
Total	15

* See an advisor for approved electives.

Academic Specialization Admission Requirements. The following courses must be completed with a “C” (2.00) or higher *before* applying to the ITC program:

At least three KIN core courses	9
At least four semester hours of KIN 110	4
MAT 117 College Algebra	3

The following courses must be completed or in progress when applying to the ITC program:

BIO 201 Human Anatomy and Physiology I <i>SG</i>	4
BIO 202 Human Anatomy and Physiology II.....	4
CHM 101 Introductory Chemistry <i>SQ</i>	4
PGS 101 Introduction to Psychology <i>SB</i>	3
PHY 111 General Physics <i>SQ</i> *.....	3

* Both PHY 111 and 113 must be taken to secure SQ credit.

Students must also complete a three-semester Physical Education Teacher Certification Program professional sequence in the College of Education (23 semester hours).

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 542. 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 92). 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 Policy and Biology.....	2
ABS 350 Applied Statistics or equivalent <i>CS</i>	3
BIO 187 General Biology I <i>SG</i>	4
BIO 188 General Biology II <i>SQ</i>	4
BIO 340 General Genetics.....	4
MAT 210 Brief Calculus <i>MA</i>	3
Choose one course	3 or 4
ABS 311 Applied Cellular Biology (3)	— or —
ABS 312 Structure and Function (4)	— or —
Choose one course	3 or 4
BIO 360 Animal Physiology (3)	— or —
PLB 308 Plant Physiology (4)	— or —

Total

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 <i>CS</i> ¹	3
BIO 187 General Biology I <i>SG</i>	4
BIO 188 General Biology II <i>SQ</i>	4
MAT 210 Brief Calculus <i>MA</i>	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</i>	4
CHM 116 General Chemistry <i>SQ</i>	4
MIC 205 Microbiology <i>SG</i> ²	3
MIC 206 Microbiology Laboratory <i>SG</i> ²	1
PHY 101 Introduction to Physics <i>SQ</i>	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 303 Human Development <i>L</i>	3
EDP 310 Educational Psychology for Non-Teachers <i>SB</i>	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
Concentration total.....	61–64

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 <i>C</i>	3
SPE 311 Orientation to Education of Exceptional Children <i>SB, C</i>	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 East 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 East 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—both in applied biological sciences and 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 East campus Education Office, SUTTON, call 480/727-1103, or access the Web site at www.east.asu.edu/ecollege/education.

EARLY CHILDHOOD EDUCATION (EAC)

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.

ELEMENTARY EDUCATION (EDC)

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.

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.

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.

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.

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

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.

EDC 350 Educational Technology I: Applications. (1)
fall and spring

Module focused on basic technological skills needed for managing classroom instruction. Lab.

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 92.

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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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

EDC 494 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Professional Knowledge

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.

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)

ELL 484 Internship. (1–12)

selected semesters

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)

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 (PPE)

PPE 484 Internship. (1–12)
selected semesters

PPE 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.](#)

SECONDARY EDUCATION EAST (SDE)

SDE 194 Special Topics. (1–4)
selected semesters

SDE 294 Special Topics. (1–4)
selected semesters

SDE 394 Special Topics. (1–4)
selected semesters

SDE 484 Internship. (1–12)
selected semesters

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.](#)

SPECIAL EDUCATION (EAST) (SPC)

SPC 294 Special Topics. (1–4)
selected semesters

SPC 484 Internship. (1–12)
selected semesters

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/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 Exercise and Wellness

www.east.asu.edu/ecollege/wellness

480/727-1945

EAW

William J. Stone, Chair

Professors: Burkett, Stone

Associate Professors: Phillips, Swan

Assistant Professors: Adams, Tudor-Locke

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 other 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 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 92.](#)

Exercise and Wellness students are required to complete the following courses:

Required core courses

EXW 300 Foundations of Exercise and Wellness <i>L/SB</i>	3
EXW 310 Computer Skills and Technology for Exercise and Wellness <i>CS</i>	3
EXW 342 Health Behavior Change	3
EXW 450 Cultural and Social Issues in Exercise and Wellness <i>SB, C</i>	3
EXW 484 Exercise and Wellness Internship	6
NTR 241 Human Nutrition	3
Total	21

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 <i>SG</i>	4
BIO 202 Human Anatomy and Physiology II	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 92.](#)

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CHM 101 Introductory Chemistry <i>SQ</i>	4
or any equivalent chemistry course	
COM 225 Public Speaking <i>L</i>	3
PGS 101 Introduction to Psychology <i>SB</i>	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	2
EXW 315 Physiological Foundations of Movement	3
EXW 320 Program Development and Leadership	3
EXW 330 Kinesiological Foundations of Movement.....	3
EXW 400 Stress Management for Wellness	3
EXW 420 Exercise Testing	3
EXW 425 Exercise Prescription	3
Elective*.....	3
Total	23

* 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 320 Program Development and Leadership.....	3
EXW 325 Fitness for Life.....	3
EXW 346 Program Evaluation in Health Promotion.....	3
EXW 350 Substance Abuse and Addictive Behavior.....	3
EXW 400 Stress Management for Wellness	3
EXW 442 Physical Activity in Health and Disease <i>L</i>	3
EXW 444 Epidemiology	3
Elective*.....	6
Total	27

* Six semester hours must be selected from an approved list of concentration electives.

Teacher Preparation. This concentration is designed for the student interested in a physical education teaching career at the elementary or secondary school level; the concentration is also appropriate for students interested in coaching, youth sports, and recreation.

Required Courses

KIN 361 Physical Education in the Secondary School.....	3
KIN 376 Physical Education for the Elementary School.....	3
KIN 382 Adaptive and Inclusive Physical Education	3
Choose from among the courses below	12
KIN 100 Introduction to Health and Wellness <i>SB</i> (3)	
KIN 283 Prevention and Care of Athletic Injuries (3)	
KIN 290 Sports Officiating (3)	
KIN 292 Sports Officiating (3)	
KIN 334 Functional Anatomy and Kinesiology (3)	
KIN 348 Psychological Skills for Optimal Performance <i>SB</i> (3)	
KIN 370 Advanced First Aid (3)	
KIN 400 Teaching Physical Activity Concepts <i>L</i> (3)	
KIN 413 Qualitative Analysis in Sport Biomechanics (3)	
KIN 441 Physiology of Women in Sport <i>L</i> (3)	
KIN 445 Exercise Physiology for Children and Adolescents (3)	
KIN 448 Applied Sport Psychology <i>L</i> (3)	
KIN 460 Theory of Strength Training <i>L</i> (3)	
KIN 484 Internship (6)	

KIN 494 ST: Administration of Athletics (3)	
KIN 494 ST: Research and Teaching in Physical Education (3)	
KIN 494 ST: Sport and Social Issues (3)	

The minor is not open to Kinesiology majors or Secondary Education majors in the College of Education pursuing an academic specialization in physical education.

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 <i>L/SB</i>	3
EXW 325 Fitness for Life.....	3
EXW 342 Health Behavior Change	3
EXW 450 Cultural and Social Issues in Exercise and Wellness <i>SB, C</i>	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 124.

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 <i>L/SB</i>	3
EXW 310 Computer Skills and Technology for Exercise and Wellness <i>CS</i>	3
EXW 320 Program Development and Leadership	3
EXW 325 Fitness for Life	3
EXW 346 Program Evaluation in Health Promotion	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 <i>L</i>	3
EXW 444 Epidemiology	3
EXW 450 Cultural and Social Issues in Exercise and Wellness <i>SB, C</i>	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 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
MGT 394 Special Topics	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)

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.

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.

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

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. 3 hours per week. Activity. Fee. See EXW Notes 1, 2.

EXW 205 Physical Activity Instruction: Intermediate. (1)

fall and spring

Intermediate-level instruction in a variety of physical activities. Continuation of EXW 105. "Y" grade only. May be repeated for credit. 3 hours per week. Activity. Fee. See EXW Notes 1, 2.

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.

EXW 215 Physical Activity and Healthy Lifestyles. (1)

fall and spring

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 students with credit for EXW 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 92.

EAST COLLEGE

EXW 280 Global Issues in Exercise and Wellness. (3)

spring

Historical overview of health promotion and wellness models as they relate to minority, gender, social, cultural, economic, international, and environmental issues.

General Studies: G

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

EXW 301 Concepts of Fitness and Wellness. (1)

fall and spring

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.

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. 3 hours per week. Activity. Fee. See EXW Notes 1, 2.

EXW 310 Computer Skills and Technology for Exercise and Wellness. (3)

spring

Use of computers to statistically analyze data and design presentations of findings. Design of health promotion educational applications and presentations. Integrated lecture/lab. Prerequisite: MAT 117.

General Studies: CS

EXW 311 Special Populations in Exercise and Wellness. (3)

fall

Introduces the challenged population and surveys the agencies that work with special populations.

EXW 315 Physiological Foundations of Movement. (3)

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.

EXW 320 Program Development and Leadership. (3)

fall

Principles of planning, organizing, promoting, and leading fitness and wellness programs. Prerequisites: COM 225; Exercise and Wellness major.

EXW 325 Fitness for Life. (3)

fall and spring

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.

EXW 330 Kinesiological Foundations of Movement. (3)

spring

Studies and considers human movement with emphasis on kinesiology principles and their application to movement and fitness. Lecture, lab. Prerequisites: BIO 201, 202.

EXW 342 Health Behavior Change. (3)

fall

Examines major theories of health behavioral change. Develops intervention strategies and techniques employed to facilitate health behavioral change. Prerequisite: PGS 101.

EXW 346 Program Evaluation in Health Promotion. (3)

spring

Introduces and applies theory-based concepts and methods of program evaluation in health promotion. Prerequisite: EXW 320. Pre- or corequisites: EXW 300, 310.

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.

EXW 380 Body Image and Wellness. (3)

fall

Explores body image in American culture from physical, psychological, historical, and societal perspectives. Prerequisites: NTR 241; PGS 101.

EXW 400 Stress Management for Wellness. (3)

fall

Examines the stress response and management from a behavioral perspective as it pertains to individuals or groups. Prerequisite: PGS 101.

EXW 420 Exercise Testing. (3)

fall

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.

EXW 425 Exercise Prescription. (3)

fall

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.

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

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.

EXW 450 Cultural and Social Issues in Exercise and Wellness. (3)

spring

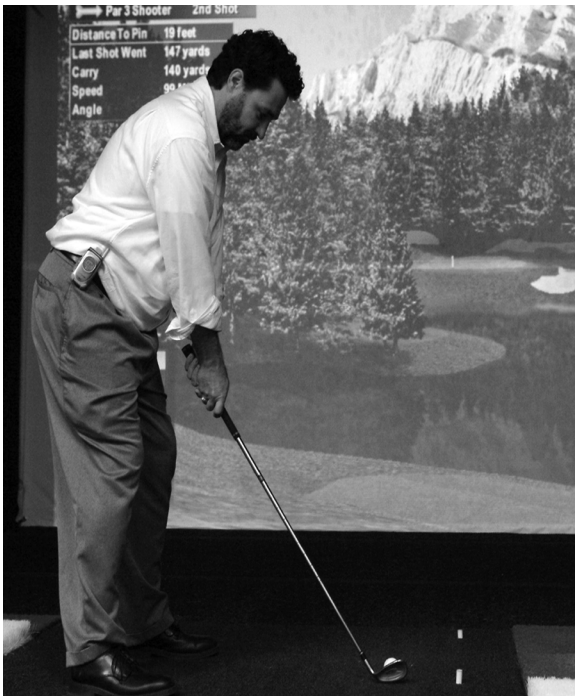
Examines contemporary sociocultural issues and social determinants of health and physical activity. Focuses on health disparities, obesity, and social stressors. Prerequisite: EXW 300.

General Studies: SB, C

EXW 460 Resistance Training Application and Theory. (3)

fall

Fosters critical thinking as it applies to resistance training theory. Pre- or corequisite: EXW 315.



The Morrison School of Agribusiness and Resource Management offers a BS degree in Agribusiness with a concentration in professional golf management.

Tim Trumble photo

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.

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/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 Human Health Studies

www.east.asu.edu/ecollege/humanhealth

480/727-1333

WANNER 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</i>	4
CHM 116 General Chemistry <i>SQ</i>	4
CHM 331 General Organic Chemistry	3
CHM 332 General Organic Chemistry	3
CHM 335 General Organic Chemistry Laboratory.....	1
CHM 336 General Organic Chemistry Laboratory.....	1
PHY 111 General Physics <i>SQ</i> *	3
PHY 112 General Physics <i>SQ</i> *	3
PHY 113 General Physics Laboratory <i>SQ</i> *	1
PHY 114 General Physics Laboratory <i>SQ</i> *	1

* Both PHY 111 and 113 or 112 and 114 must be taken to secure *SQ* credit.

HUMAN HEALTH STUDIES (HHS)

HHS 100 Introduction to Holistic Health. (3)

selected semesters

Studies holistic health in a bio-psycho-socio-cultural context for health promotion and wellness.

HHS 194 Special Topics. (1–4)

selected semesters

HHS 294 Special Topics. (1–4)

selected semesters

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.

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.

HHS 394 Special Topics. (1–4)

selected semesters

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.

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.

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.

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.

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.

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 92.

Faculty of Multimedia Writing and Technical Communication

www.east.asu.edu/ecollege/multimedia

480/727-1515

SUTTON, 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, to design, and to manage information using both traditional and leading edge technologies. Students

1. learn to communicate, both 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—both 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 <i>L</i>	3
TWC 401 Principles of Technical Communication <i>L</i>	3
TWC 411 Principles of Visual Communication <i>L</i>	3
TWC 421 Principles of Writing with Technology <i>L</i>	3
TWC 431 Principles of Technical Editing <i>L</i>	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.east.asu.edu/ecollege, or call an East College advisor at 480/727-1515.

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 480/727-1515, or access the Web site at www.east.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 124.

MULTIMEDIA WRITING AND TECHNICAL COMMUNICATION (TWC)

TWC 194 Special Topics. (1–4)
selected semesters

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

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

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.

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

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

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.

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

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

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

TWC 443 Proposal Writing. (3)
once a year
Develops persuasive strategies and themes for researching and writing professional proposals. Pre- or corequisite: TWC 401.

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.

TWC 445 Computer Documentation. (3)
once a year
Introduces writing documentation for the computer industry. Pre- or corequisite: TWC 401.

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

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 92.

EAST COLLEGE

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.

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. Credit is allowed for only TWC 452 or 552.

TWC 484 Internship. (3)

fall and spring

Applies classroom work in a supervised workplace environment. Pre- or corequisite: TWC 411 or 421 or 431.

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.

TWC 494 Special Topics. (1–4)

selected semesters

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.

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.

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.

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.

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.

TWC 543 Proposal Writing. (3)

once a year

Develops persuasive strategies and themes for researching and writing professional proposals. Pre- or corequisite: TWC 501.

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.

TWC 545 Computer Documentation. (3)

once a year

Introduces writing documentation for the computer industry. Pre- or corequisite: TWC 501.

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.

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.

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.

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.

TWC 584 Internship. (3)

fall and spring

Applies classroom work in a supervised workplace environment. Pre- or corequisites: TWC 511, 521, 531.

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.

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 Nutrition

www.east.asu.edu/ecollege/nutrition

480/727-1728

HSC 1386

Linda A. Vaughan, Chair

Professors: Johnston, Vaughan

Associate Professor: Hamp

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/preparental 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 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 <i>L</i>	3
NTR 350 Nutrition Counseling <i>SB</i>	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 <i>L</i>	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 <i>SG</i>	4
BIO 202 Human Anatomy and Physiology II.....	4
CHM 113 General Chemistry <i>SQ</i>	4
CHM 116 General Chemistry <i>SQ</i>	4
CHM 231 Elementary Organic Chemistry <i>SQ</i> ¹	3
CHM 235 Elementary Organic Chemistry Laboratory <i>SQ</i> ¹	1
MIC 205 Microbiology <i>SG</i> ²	3
MIC 206 Microbiology Laboratory <i>SG</i> 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.....	3
or NTR 241 Human Nutrition (3)	
NTR 142 Applied Food Principles	3
NTR 300 Computer Applications in Nutrition <i>CS</i>	3
NTR 343 Food Service Purchasing.....	3
NTR 344 Nutrition Services Management <i>L</i>	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 <i>SQ</i>	4
MIC 205 Microbiology <i>SG</i> ¹	3
MIC 206 Microbiology Laboratory <i>SG</i> ¹	1
Business or technical writing course.....	3
Management (AGB 310; BUS 301; COB 380; MGT 300, 380, or 394).....	3
Marketing (AGB 320; COB 382; MKT 300 or 394).....	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, COB, CSE, ECN, FIN, HSA, IBS, MGT, MKT, QBA, SCM, and TWC. Students select these courses in consultation with the Nutrition academic advisor.

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

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 92.

EAST COLLEGE

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 <i>SG</i>	4
BIO 202 Human Anatomy and Physiology II.....	4
CHM 113 General Chemistry <i>SQ</i>	4
CHM 116 General Chemistry <i>SQ</i>	4
CHM 231 Elementary Organic Chemistry <i>SQ</i> ¹	3
CHM 235 Elementary Organic Chemistry Laboratory <i>SQ</i> ¹	1
MIC 205 Microbiology <i>SG</i> ²	3
MIC 206 Microbiology Laboratory <i>SG</i> 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.....	3
or NTR 241 Human Nutrition (3)	
NTR 142 Applied Food Principles.....	3
NTR 300 Computer Applications in Nutrition <i>CS</i>	3
NTR 345 Development of Healthy Cuisines.....	3
NTR 348 Cultural Aspects of Food <i>SB,C</i>	3
NTR 351 Nutrition and Health Communications.....	3
NTR 400 Preprofessional Preparation in Dietetics.....	3
or NTR 401 Professional Practice in Food Service Management (3)	
NTR 448 Community Nutrition <i>L</i>	3
NTR 450 Nutrition in the Life Cycle I <i>SB</i>	3
or NTR 451 Nutrition in the Life Cycle II (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 <i>SB</i>	3
or MCO 120 Media and Society <i>SB</i> (3)	
JMC 201 Journalism Newswriting <i>L</i>	3
or JMC 202 Radio-Television Writing <i>L</i> (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 <i>SB, H</i>	3
MCO 430 International Mass Communication <i>G</i>	3
MCO 435 Emerging Media Technologies.....	3

MCO 440 Applied Media Research.....	3
MCO 450 Visual Communication <i>HU</i>	3
MCO 456 Political Communication <i>SB</i>	3
MCO 460 Race, Gender, and Media <i>C</i>	3
MCO 494 Special Topics.....	3

Additional Requirements

BIO 201 Human Anatomy and Physiology I <i>SG</i>	4
BIO 202 Human Anatomy and Physiology II.....	4
CHM 101 Introductory Chemistry <i>SQ</i>	4
ENG 301 Writing for the Professions <i>L</i>	4
Statistics (see advisor for a list of courses).....	3
Total.....	19

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.....	3
or NTR 241 Human Nutrition (3)	
NTR 142 Applied Food Principles.....	3
NTR 300 Computer Applications in Nutrition <i>CS</i>	3
NTR 343 Food Service Purchasing.....	3
NTR 344 Nutrition Services Management <i>L</i>	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 <i>SB/C</i>	3
NTR 350 Nutrition Counseling <i>SB</i>	3
NTR 351 Nutrition and Health Communications.....	3
NTR 446 Human Nutrition Assessment Lecture/Laboratory.....	3
NTR 448 Community Nutrition <i>L</i>	3
NTR 450 Nutrition in the Life Cycle I <i>SB</i>	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 124.](#)

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)

NTR 100 Introductory Nutrition. (3)

fall, spring, summer

Basic concepts of human nutrition. Recent controversies in nutrition and how food choices affect personal health.

NTR 142 Applied Food Principles. (3)

fall and spring

Applied scientific principles of food preparation and production. 2 hours lecture, 3 hours lab. Fee.

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.

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).

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

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.

NTR 341 Introduction to Planning Therapeutic Diets. (3)

fall and summer

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).

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.

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

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.

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.

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

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 92.



East campus students enjoy small class sizes and work in fully equipped laboratories.

Tim Trumble photo

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

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.

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.

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.

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.

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).

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.

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.

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).

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).

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

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

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/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 Technology and Applied Sciences

www.east.asu.edu/ctas

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 Information and Management Technology
- Department of Mechanical and Manufacturing Engineering Technology
- Division of Computing Studies

DEGREE PROGRAMS

See the “College of Technology and Applied Sciences Baccalaureate Degrees and Majors” table, page 568. For graduate degrees, see the “College of Technology and Applied Sciences Graduate Degrees and Majors” table, page 569.

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 on courses, faculty, and programs in the MST degree, 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

COUNCIL ON AVIATION ACCREDITATION
3410 SKYWAY DRIVE
AUBURN AL 36830

The Bachelor of Science degree in Industrial Technology, including the environmental technology management, graphic information technology, and industrial technology management concentrations is fully accredited by the National Association of Industrial Technology (NAIT). For more information, call 734/677-0720, 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 92.

COLLEGE OF TECHNOLOGY AND APPLIED SCIENCES

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, 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, embedded systems technology, or software 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
Industrial Technology	BS	Environmental technology management, graphic information technology, or industrial technology management	Department of Information and Management Technology
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

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.

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 69, with the exception that Arizona resident transfer students must have a 2.25 GPA.

Students admitted to a BS degree program in CTAS begin study under one of two student classifications, professional or preprofessional.

Professional Status

First-year students (new freshmen) may be admitted to CTAS with professional status if they meet the general aptitude criteria for admission and have no deficiencies in the basic competency requirements for admission. First-year students admitted upon completion of the GED may be admitted with professional status if they have also achieved the minimum ACT or SAT scores required for undergraduate admission to the university.

Students transferring from other ASU colleges may be admitted to CTAS with professional status if they have no remaining admissions deficiencies and 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 69. The CTAS also requires resident transfer students to have a cumulative GPA of 2.25.

All international students must have a minimum 500 TOEFL score to be admitted with professional status.

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, information technology, or management of technology	Department of Information and Management Technology
		Security engineering technology	College of Technology and Applied Sciences

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

Preprofessional Status

All other students are admitted with preprofessional status and may apply for professional status after they have removed the deficiency that disallows awarding professional status. All students are admitted to the professional flight concentration, in the Department of Aeronautical Management Technology, with preprofessional status. A secondary application process is required to attain professional status. Students with preprofessional status may not register for 300- and 400-level courses in the college until they have been awarded professional status. See an advisor for details.

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 69. 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 East 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 88, 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 92.

COLLEGE OF TECHNOLOGY AND APPLIED SCIENCES

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 GPAs 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 disci-

pline 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 92](#).

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)

ETC 100 Languages of Technology. (4)

fall and spring

Introduces computer-aided design, programming, modeling, and technical documentation. Lecture, lab.

General Studies: CS

ETC 191 First-Year Seminar. (1–3)

selected semesters

ETC 194 Special Topics. (1–4)

selected semesters

ETC 211 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 260; PHY 111, 113.

ETC 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. Prerequisites: MAT 261; PHY 112, 114.

ETC 492 Honors Directed Study. (1–6)

selected semesters

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.east.asu.edu

480/727-1381

SIM 205

William K. McCurry, Chair

Professors: Gesell, McCurry

Associate Professor: Karp

Associate Clinical Professor: Pearson

Assistant Professor: Niemczyk

Lecturers: O'Brien, Tripp

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.east.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.east.asu.edu. Requirements include First-Year Composition, university General Studies (see “General Studies,” page 92), and the Aeronautical Management Technology Core. Note that all three General Studies awareness areas

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 92.

COLLEGE OF TECHNOLOGY AND APPLIED SCIENCES

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
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
ETC 100 Languages of Technology CS	4
Total	35

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 are typically nine months before the beginning of the appropriate semester.

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.east.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.east.asu.edu.

Flight instruction costs are not included in university tuition and fees. The estimated cost of flight training is \$45,000 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 92), and the Aeronautical Management Technology core, the following additional courses are required for the professional flight management concentration:

AMT 100 Flight Safety I	1
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	3
Technical electives or internship.....	16
Total	51

Suggested Course Pattern for Freshmen

First Semester

AMT 100 Flight Safety I	1
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

DEPARTMENT OF AERONAUTICAL MANAGEMENT TECHNOLOGY

MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
Total	15
Second Semester	
AMT 214 Commercial/Instrument Ground School I.....	3
ENG 102 First-Year Composition.....	3
ETC 100 Languages of Technology <i>CS</i>	4
PHY 111 General Physics <i>SQ*</i>	3
PHY 113 General Physics Laboratory <i>SQ*</i>	1
Total	14

* 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 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 92**), 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
IMC 346 Management Dynamics	3
ITM 343 Occupational Safety and Ergonomics	3
ITM 430 Ethical Issues in Technology.....	3
ITM 452 Industrial Human Resource Management.....	3
ITM 456 Introduction to Organized Labor	3
ITM 480 Organizational Effectiveness.....	3
Technical electives or internship.....	18
Total	51

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 <i>MA</i>	4
Total	14

Second Semester

ENG 102 First-Year Composition	3
ETC 100 Languages of Technology <i>CS</i>	4
PGS 101 Introduction to Psychology <i>SB</i>	3
PHY 111 General Physics <i>SQ*</i>	3
PHY 113 General Physics Laboratory <i>SQ*</i>	1
General Studies elective <i>HU</i>	3
Total	17

* 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.

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 92**.

COLLEGE OF TECHNOLOGY AND APPLIED SCIENCES

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
IMC 346 Management Dynamics	3
or ITM 344 Industrial Organization (3)	
or ITM 452 Industrial Human	
Resource Management (3)	
IMC 470 Project Management	3
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)

AMT Note 1. Flight instruction costs are not included in university tuition and fees.

AMT 100 Flight Safety I. (1)

fall, spring, summer

Supervised private pilot flight training and flight safety briefings. Requires continuous enrollment until completion of the FAA Private Pilot Certificate. Integrated lecture/lab. Fee. See AMT Note 1. Pre- or corequisites: both AMT 182 and 220 (or their equivalents).

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 East campus facilities.

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.

AMT 194 Special Topics. (1–4)

selected semesters

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.

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.

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.

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.

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.

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.

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.

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

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.

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.

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.

DEPARTMENT OF AERONAUTICAL MANAGEMENT TECHNOLOGY

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.

AMT 382 Air Navigation. (3)

spring

Theory and application of modern advanced navigation and flight instrument systems. Introduces crew resource management in multiplace cockpits. Lecture, lab. Prerequisite: AMT 322. Pre- or corequisite: AMT 200 or instructor approval.

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.

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.

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.

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.

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.

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.

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.

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.

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.

AMT 412 Air Transportation Research. (1)

fall

Surveys practical research methodology in use in the air transportation industry. Topics include planning and design considerations.

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.

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.

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.

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.

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.

AMT 489 Airline Administration. (3)

spring

Administrative organizations, economics of airline administration, operational structure, and relationship with federal government agencies. Prerequisite: junior standing.

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.

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.

AMT 494 Special Topics. (1–4)

selected semesters

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.

AMT 498 Pro-Seminar. (1–7)

selected semesters

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/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 92.

Department of Electronics and Computer Engineering Technology

www.east.asu.edu/ctas/ecet

480/727-1976

TECH 101

Lakshmi V. Munukutla, Chair

Professors: McHenry, Munukutla, Robertson

Associate Professors: Darveaux, Macia, 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 92) as well as the math/science requirement of TAC of 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 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 Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, 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:

ETC	100 Languages of Technology CS	4
ETC	211 Applied Engineering Mechanics: Statics	3
ETC	340 Applied Thermodynamics and Heat Transfer	3
Total		10

Electronics Engineering Technology Core and Major Requirements

CET	100 Object-Oriented Software Development I	3
CET	150 Digital Systems I CS	4

DEPARTMENT OF ELECTRONICS AND COMPUTER ENGINEERING TECHNOLOGY

CET 350 Digital Systems II	4
CET 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

CET 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 SQ	4
UET 416 Dopant Control Technology	3
UET 417 Semiconductor Technology Practice	3
UET 418 Systems on Silicon	4
UET 421 IC Device Characterization	3
UET 432 Semiconductor Packaging and Heat Transfer	3
Approved technical elective	2
Total	22

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

CET 100 Object-Oriented Software Development I	3
CET 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

CET 350 Digital Systems II	4
ECN 111 Macroeconomic Principles SB	3
EET 208 Electric Circuit Analysis I	4
ETC 211 Applied Engineering Mechanics: Statics	3
MAT 261 Technical Calculus II MA	3
Total	17

Second Semester

CHM 113 General Chemistry SQ	4
EET 301 Electric Circuit Analysis II	4
ETC 340 Applied Thermodynamics and Heat Transfer	3
MAT 262 Technical Calculus III MA	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 92.

COLLEGE OF TECHNOLOGY AND APPLIED SCIENCES

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

CET 354 Microcomputer Architecture and Programming	4
CST 386 Operating Systems Principles	3
EET 494 ST: Data Analysis.....	3
IMC 346 Management Dynamics	3
TWC 400 Technical Communications <i>L</i>	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 primed 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)

EET 191 First-Year Seminar. (1–3)

selected semesters

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.

EET 294 Special Topics. (1–4)

selected semesters

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.

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.

EET 310 Electronic Circuits I. (4)

fall and spring

Multistage amplifier, analysis, and design using models and computer simulation. Lecture, lab. Prerequisite: EET 208.

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.

EET 394 Special Topics. (1–4)

selected semesters

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.

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.

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).

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.

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.

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.

EET 422 Electronic Switching Circuits. (4)

once a year

Analysis and design of electronic circuits operating in a switching mode. Waveshaping, timing, and logic. Computer simulation. Lecture, lab. Prerequisites: CET 350; EET 301, 310.

EET 430 Instrumentation Systems. (4)

fall

Measurement principles and instrumentation, techniques. Signal and error analysis. Lecture, lab. Prerequisites: EET 301, 310.

EET 460 Power Electronics. (4)

spring

Analyzes circuits for control and conversion of electrical power and energy. Lecture, lab. Prerequisites: EET 301, 310, 407.

EET 470 Communication Circuits. (4)

spring

Analysis and design of passive and active communication circuits. Coupling networks, filters, and impedance matching. Modulation and demodulation techniques. Computer solutions. Lecture, lab. Prerequisites: EET 372; MAT 262.

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.

EET 484 Internship. (1–3)

selected semesters

DEPARTMENT OF ELECTRONICS AND COMPUTER ENGINEERING TECHNOLOGY

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.

EET 492 Honors Directed Study. (1–3)

selected semesters

EET 493 Honors Thesis. (1–6)

selected semesters

EET 494 Special Topics. (1–4)

fall and spring

Topics may include the following:

- Data Analysis. (3)
- Digital Filter Hardware Design. (3)

EET 498 Pro-Seminar. (1–3)

selected semesters

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/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](#).

MICROELECTRONICS ENGINEERING TECHNOLOGY (UET)

UET 191 First-Year Seminar. (1–3)

selected semesters

UET 194 Special Topics. (1–4)

selected semesters

UET 294 Special Topics. (1–4)

selected semesters

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.

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.

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.

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.

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.

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).

UET 418 Systems on Silicon. (4)

spring

Factors that drive integration on silicon, including logic, memory, and interfaces. Economics of system-level solutions. Lecture with Web support, lab, practical project. Credit is allowed for only UET 418 or 518. Prerequisite: UET 331.

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.

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.

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.

UET 432 Semiconductor Packaging and Heat Transfer. (3)

spring

Packaging theory and techniques; hermetic and plastic assembly; thermal management; electrical characteristics and reliability. Prerequisites: ETC 340 and UET 331 (or their equivalents).

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.

UET 484 Internship. (1–3)

selected semesters

UET 485 Digital Testing Techniques. (3)

once a year

Hardware/software aspects of digital testing technology; systems, board, and logic testing and equipment. Lecture, lab. Prerequisites: CET 350; EET 310.

UET 492 Honors Directed Study. (1–3)

selected semesters

UET 493 Honors Thesis. (1–6)

selected semesters

UET 494 Special Topics. (1–4)

selected semesters

UET 498 Pro-Seminar. (1–3)

selected semesters

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](#).

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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 92](#).

Department of Engineering

www.east.asu.edu/ctas/engineering

480/727-2727

CNTR 110

Chell Roberts, Chair

Professor: Jakubowski

Associate Professors: Grondin, Hinks, Kuo, Morrel, Roberts

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, 401/347-7700) 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 proceeding 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 graduate is prepared for positions of responsibility in a wide area of industrial and governmental settings that center on applied engineering science and technology. The student has a broad, interdisciplinary background in calculus-based, engineering science; skill in synthesizing and communicating information; engineering design; an ability to work in multidisciplinary teams; a knowledge of various cultures, the knowledge of law and economics needed to maneuver in a global workplace; and an understanding of how engineers make informed choices constrained by technological feasibility, economics, public health and safety, environmental concerns, legal and ethical concerns, manufacturability, sustainability and quality.

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, MAT 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 to ECE 100, ECE 201, ECE 210, ECE 212 (or ECE 214), and ECE 380 will be accepted as credit toward this degree.

Upper division courses will not be offered until the fall of 2006.

For more information and advising on courses, send e-mail to enr@asu.edu, call (480) 727-2727, or access the Web site at www.east.asu.edu/ctas/engineering.

Department of Information and Management Technology

www.east.asu.edu/ctas/imt

480/727-1781

TECH 102

Thomas E. Schildgen, Chair

Professors: Duff, Hild, Schildgen

Associate Professors: Grossman, Hirata, Humble, Matson, Olson

Assistant Professor: Harris

Assistant Clinical 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 Information and Management Technology offer the BS degree in Industrial Technology, with concentrations in the following areas: environmental technology management, industrial technology management, and graphic information technology.

The Bachelor of Science degree in Industrial Technology—including the environmental technology management, graphic information technology, and industrial technology management concentrations—is 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



As the polytechnic focal point of ASU, East campus maintains facilities at the leading edge of technology.

Tim Trumble photo

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 development, graphic information technology, and management of technology. For more information about the graduate program, see the *Graduate Catalog*.

INDUSTRIAL TECHNOLOGY—BS

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 Information and Management core, program concentration course work, and technical electives selected with approval of an 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 92.

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Information and Management Technology students are required to complete a minimum of 120 semester hours with a 2.00 cumulative GPA, including a minimum of 50 semester hours of upper-division courses to graduate.

Information and Management Core*

ETC	100	Languages of Technology CS	4
GIT	303	Digital Publishing	3
IMC	331	Quality Assurance	3
IMC	346	Management Dynamics	3
IMC	396	Professional Orientation	1
IMC	470	Project Management	3
IMC	494	ST: Senior Project	3
Total			20

* These courses are for the industrial technology management and graphic information technology concentrations.

Environmental Technology Management Concentration. The environmental technology management concentration 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.

Industrial Technology Management Concentration. The industrial technology management concentration prepares students for supervisory and administrative positions in industry, manufacturing, and public service organizations. Course work includes accounting, data analysis, economics, effective decision making, finance, international business, legal and ethical studies, marketing, operations management, and safety. Emphasis is placed on health and safety within the workplace.

The industrial technology management 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 the industrial technology management option. Consultation with an advisor is required to coordinate the course selection for transfer to this option.

Graphic Information Technology Concentration. The graphic information technology concentration 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 graphic technology program of study emphasizing theory and hands-on laboratory practice. Students develop skills to plan and execute graphic solutions using visualization and sketching, engineering graphic standards, technical document design, higher-level graphic programming languages, computer drawing and illustration, multimedia and three-dimensional modeling, project management, quality assurance, and e-commerce practices.

The Graphic Information Technology Facility (GITF), 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.

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 certificate program for nondegree students, a BS degree in Industrial Technology 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 124.](#)

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
IMC 346 Management Dynamics	3
ITM 452 Industrial Human Resource Management.....	3
or IMC 470 Project Management (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.

Senior Project Requirement

All baccalaureate degree students (BS and BAS) in the Department of Information and Management Technology are required to complete a senior project for the requirements of graduation. The 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

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 92.

COLLEGE OF TECHNOLOGY AND APPLIED SCIENCES

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)

ETM 294 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Introduction to Organic Chemistry. (3)

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.

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.

ETM 303 Environmental Regulations. (3)

selected semesters

Explores environmental laws, regulations, and directives. Addresses air, land, and water. Lecture, full or partial Internet.

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.

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.

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.

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.

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.

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 contamination, and concentration. Lecture, full or partial Internet. Prerequisite: ETM 302. Pre- or corequisites: CHM 101; MAT 170.

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.

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.

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.

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.

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

ETM 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. Cross-listed as FSM 460. Credit is allowed for only ETM 460 or FSM 460.

ETM 461 Contingency Planning. (3)

selected semesters

Provides understanding of techniques for in-house or on-site planning as well as community planning.

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.

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.

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)

FSM 304 Fire Personnel Management. (3)

fall

Promotion, personnel development, career and incentive systems, validation of physical requirements, managerial and supervisory procedures.

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.

FSM 306 Fire Prevention Organization and Management. (3)

selected semesters

Examines and evaluates the techniques, procedures, programs, and agencies involved in preventing fires.

FSM 307 Fire Department Safety Organization and Management. (2)

summer

Focuses on the management of fire department safety programs.

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.

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.

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.

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.

FSM 401 Labor Relations in the Fire Service. (3)

fall

Examines the relationships between management and unions using the Relations by Objectives model.

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.

FSM 405 Fire Service Leadership. (3)

summer

Focuses on developing personal and organizational leadership qualities required to be successful in the fire service.

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.

FSM 425 Fire Service Administration. (3)

fall

Presents modern management and planning techniques that apply to organizing a fire department.

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. Cross-listed as ETM 460. Credit is allowed for only ETM 460 or FSM 460.

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.

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)

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.

GIT 194 Special Topics. (1–4)

selected semesters

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.

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

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).

GIT 230 Digital Illustration in Publishing. (3)

fall and spring

Raster and vector illustration in publishing. Integrated lecture/lab. Pre- or corequisite: GIT 135.

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.

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.

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

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.

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.

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.

COLLEGE OF TECHNOLOGY AND APPLIED SCIENCES

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.

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.

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.

GIT 352 Technical Presentations. (3)

spring

Technologies for planning, creating, and delivering individual and group presentations. Prerequisites: ENG 102; GIT 303.

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.

GIT 394 Special Topics. (1–4)

selected semesters

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.

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.

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.

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.

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).

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.

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 414.

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.

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.

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.

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).

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.

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.

INFORMATION AND MANAGEMENT CORE (IMC)

IMC 294 Special Topics. (1–4)

selected semesters

IMC 331 Quality Assurance. (3)

spring

Instrumentation and methodologies for materials testing and quality control in various manufacturing processes. Lecture, field trips.

IMC 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.

IMC 396 Professional Orientation. (1)

fall and spring

Senior advisement, industry presentations, and career counseling.

IMC 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 111; IMC 346; ITM 344.

IMC 494 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Senior Project. (3)

IMC 498 Pro-Seminar. (1–7)

selected semesters

IMC 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.

INDUSTRIAL TECHNOLOGY MANAGEMENT (ITM)

ITM 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.

ITM 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: IMC 346.

ITM 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.

ITM 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.

ITM 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: IMC 346 (or its equivalent).

ITM 430 Ethical Issues in Technology. (3)

spring
Topics in social responsibility for industrial technology and engineering. Prerequisite: IMC 346.

ITM 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: IMC 346.
General Studies: G

ITM 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.

ITM 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: IMC 346 or ITM 343.

ITM 452 Industrial Human Resource Management. (3)

fall
Concepts and practices of human resource management in a global industrial environment. Prerequisite: IMC 346.

ITM 453 Safety Management. (3)

selected semesters
Development and management of safety programs, education and training, and relationships within an organization. Prerequisite: ITM 343 or instructor approval.

ITM 455 Industrial Marketing Concepts. (3)

selected semesters
Customer and sales strategies for industrial organizations, including current practice and future planning. Prerequisites: ECN 111; IMC 346; junior standing.

ITM 456 Introduction to Organized Labor. (3)

spring
Introduces labor relations, unions, federations, collective bargaining, grievances, and labor legislation. Prerequisites: IMC 346; ITM 344.

ITM 461 Operations Management. (3)

fall
Introduces supervisory principles as applied to production of goods and services. Prerequisites: IMC 346; ITM 344.

ITM 480 Organizational Effectiveness. (3)

spring
Human aspects of supervisory behavior in the industrial setting and how they influence efficiency, morale, and organizational practices. Prerequisite: IMC 346.

ITM 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.

**Department of Mechanical and
Manufacturing Engineering
Technology**

www.east.asu.edu/ctas/mmet

480/727-1189

SIM 295

Scott G. Danielson, Chair

Associate Professors: Biekert, Danielson, Nam, Palmgren, Rajadas, Rogers

Assistant Professor: Post

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

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 92.

COLLEGE OF TECHNOLOGY AND APPLIED SCIENCES

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 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.

For more information about both programs, access the Web site at www.east.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 567, for more information.)

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 92), 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 396 Manufacturing Professional Orientation	1
MET 401 Quality Assurance	3
MET 416 Applied Computer-Integrated Manufacturing <i>CS</i>	3
MET 443 CNC Computer Programming	3
MET 444 Production Tooling	3
MET 451 Introduction to Automation	3
MET 460 Manufacturing Capstone Project I	3
MET 461 Manufacturing Capstone Project II	3
Total	54

A student participating in the Manufacturing Engineering Technology program may select from two concentrations:

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING TECHNOLOGY

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 442 Specialized Production Processes	3
Technical elective	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 434 Applied Fluid Mechanics	3
MET 438 Machine Design II	3
Approved technical elective	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 Manufacturing Capstone Project I	3
MET 461 Manufacturing 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

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 92.

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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.

IMC 470 Project Management	3
ITM 344 Industrial Organization	3
MET 401 Quality Assurance	3
MET 416 Applied Computer-Integrated Manufacturing CS.....	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. The 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 396 Manufacturing Professional Orientation.....	1
MET 400 Materials and Joining Processes	3
MET 402 Advanced Material Joining	3
MET 409 Applied Engineering Economics	3
MET 437 Design for Materials Joining.....	3

MET 451 Introduction to Automation.....	3
Total	20

AERONAUTICAL ENGINEERING TECHNOLOGY (AET)

AET 191 First-Year Seminar. (1–3)

selected semesters

AET 194 Special Topics. (1–4)

selected semesters

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.

AET 215 Mechanics of Aerospace Systems. (3)

spring

Basic physics of flight. Principles and design of aircraft systems and powerplants.

AET 294 Special Topics. (1–4)

selected semesters

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.

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.

AET 312 Applied Engineering Mechanics: Dynamics. (3)

fall

Masses; motion kinematics; dynamics of machinery. Prerequisites: ETC 211; MAT 261.

AET 394 Special Topics. (1–4)

selected semesters

AET 396 Aerospace Professional Orientation. (1)

fall

Career focus for Aeronautical Engineering Technology students. Familiarization with the aerospace industry. Prerequisite: junior standing.

AET 415 Gas Dynamics and Propulsion. (3)

spring

Introduces compressible flow, internal and external flow, and aerothermodynamic analysis of propulsion systems. Prerequisite: MET 434.

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.

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.

AET 432 Applied Heat Transfer. (3)

fall

Heat transfer by conduction, convection, and radiation. Applies heat transfer to engineering design problems. Prerequisite: ETC 340. Pre- or corequisite: MET 434 or instructor approval.

AET 484 Internship. (1–12)

selected semesters

AET 487 Aircraft Design II. (3)

spring

Basic aerodynamics and airplane performance analysis methods applied to practical design project. Prerequisite: AET 300.

AET 492 Honors Directed Study. (1–6)

selected semesters

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING TECHNOLOGY

AET 493 Honors Thesis. (1–6)

selected semesters

AET 494 Special Topics. (1–4)

selected semesters

AET 498 Pro-Seminar. (1–7)

selected semesters

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)

MET 150 Introduction to Engineering Technology. (1)

fall

Introduces mechanical, manufacturing, and aeronautical engineering technology. Covers aspects of the industries utilizing these majors.

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.

MET 191 First-Year Seminar. (1–3)

selected semesters

MET 194 Special Topics. (1–4)

selected semesters

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.

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.

MET 294 Special Topics. (1–4)

selected semesters

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.

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.

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.

MET 313 Applied Mechanics of Materials. (3)

spring

Stress, strain, stress-strain relations. Axial, shear, bending, torsional and combined loads and deflections. Prerequisite: ETC 211.

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.

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.

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.

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.

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.

MET 394 Special Topics. (1–4)

selected semesters

MET 396 Manufacturing Professional Orientation. (1)

fall

Career focus for Manufacturing Engineering Technology students. Familiarization with the manufacturing industry. Prerequisite: junior standing.

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.

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. Lecture, lab. Prerequisite: junior standing.

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).

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.

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.

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.

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 92.

COLLEGE OF TECHNOLOGY AND APPLIED SCIENCES

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

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. Lecture, lab. Credit is allowed for only MET 418 or 518. Prerequisite: MET 300 or instructor approval.

MET 432 Thermodynamics. (3)

spring

Thermodynamics of mixtures. Combustion process. Applies thermodynamics to power and refrigeration cycles. Prerequisite: ETC 340.

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.

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. Prerequisite: ETC 340.

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.

MET 436 Turbomachinery Design. (3)

selected semesters

Applies thermodynamics and fluid mechanics to the analysis of machinery design and power cycle performance predictions. Prerequisites: ETC 340; MET 434.

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.

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.

MET 442 Specialized Production Processes. (3)

fall

Nontraditional manufacturing processes, emphasizing EDM, ECM, ECG, CM, PM, HERF, EBW, and LBW. Prerequisite: MET 231.

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.

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.

MET 451 Introduction to Automation. (3)

spring

Introduces automation. Topics include assembly techniques, fixed and flexible automation systems, robots, material-handling systems, sensors, and controls. Lecture, lab. Prerequisite: MET 345.

MET 452 Implementation of Robots in Manufacturing. (3)

selected semesters

Robotic workcell design, including end effectors, parts presenters, and optimum material flow. Prerequisite: MET 451 or instructor approval.

MET 455 Automation Systems Integration. (3)

fall

Applies sensors and devices and their integration with PLCs and computers into automated devices and systems. Lecture, lab.

Prerequisites: EET 403; MET 451.

MET 460 Manufacturing 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. Lecture, lab.

Prerequisites: MET 331, 341; senior standing.

MET 461 Manufacturing Capstone Project II. (3)

spring

Small-group projects applying manufacturing techniques, with emphasis on demonstrating state-of-the-art technology. Lecture, lab. Prerequisite: MET 460 or instructor approval.

MET 484 Internship. (1–12)

selected semesters

MET 492 Honors Directed Study. (1–6)

selected semesters

MET 493 Honors Thesis. (1–6)

selected semesters

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)

MET 498 Pro-Seminar. (1–7)

selected semesters

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.

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 Computing Studies

www.east.asu.edu/ctas/dcst

480/727-1257

SUTTON 140

Timothy E. Lindquist, Associate Dean and Director

Professor: Lindquist

Associate Professors: Koehnmann, Millard, 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, 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 degree program that is available for qualified BS graduates. For more information, see the *Graduate Catalog* or access the division Web site at www.east.asu.edu/ctas/dcst.

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 111 Macroeconomic Principles *SB*3

Literacy

TWC 400 Technical Communications *L*3

Natural Sciences

CHM 115 General Chemistry with Qualitative Analysis *SQ*5
 PHY 121 University Physics I: Mechanics *SQ*¹3
 PHY 122 University Physics Laboratory I *SQ*¹1
 PHY 131 University Physics II: Electricity and Magnetism *SQ*²3
 PHY 132 University Physics Laboratory II *SQ*²1
 or CHM 113 General Chemistry *SQ* (4)

Natural Science Laboratory elective4
 Total17

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.

Mathematics

MAT 243 Discrete Mathematical Structures3
 MAT 270 Calculus with Analytical Geometry I *MA*4
 MAT 271 Calculus with Analytical Geometry II *MA*4
 STP 420 Introductory Applied Statistics *CS*3
 Numeracy elective4
 Total18

Lower-Division Core

CET 100 Object-Oriented Software Development I3
 CET 150 Digital Systems I *CS*4
 CET 200 Object-Oriented Software Development II3
 CET 230 Applied Data Structures3
 ETC 100 Languages of Technology *CS*4
 Total17

Upper-Division Core

CET 326 Programming Languages for
 Technology with C/C++ and Visual Basic4
 CET 354 Microcomputer Architecture and Programming4
 CET 364 Computer Architecture3
 CET 383 Shell and Script Programming with UNIX3
 CET 400 Software Engineering Technology3
 CST 386 Operating Systems Principles3
 CST 394 ST: Applications of Computing Theory3
 CST 415 Applied Software Process3
 or UET 415 Electronic Manufacturing
 Engineering Principles (3)
 CST 494 ST: Professional Orientation1
 Total27

Major Electives

Choose 21 semester hours from the following:

CET 420 Foundations of Distributed
 and Web-Based Applications in Java3
 CET 425 Server Software Programming3
 CET 427 Distributed Object Systems3
 CET 428 Web-Client User Interface Programming3
 CET 433 Database Technology3
 CET 441 Software for Personal Digital Assistants3
 CET 452 Digital Logic Applications4
 CET 458 Digital Computer Networks3
 CET 459 Internet Networking Protocols3
 CET 473 Digital/Data Communications4
 CET 488 Systems Administration of UNIX3
 CET 489 Network Administration with TCP/IP3
 CST 456 Microcomputer Systems Interfacing4
 CST 457 Advanced Assembly Language Applications3
 CST 494 ST: Embedded C3
 Technical electives6

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 92.

COLLEGE OF TECHNOLOGY AND APPLIED SCIENCES

Applied Computer Science Program of Study Typical First- and Second-Year Sequence

First Year

First Semester

CHM 113 General Chemistry <i>SQ</i>	4
ENG 101 First-Year Composition	3
ETC 100 Languages of Technology <i>CS</i>	4
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
Total	15

Second Semester

CET 100 Object-Oriented Software Development I	3
CET 150 Digital Systems I <i>CS</i>	4
ENG 102 First-Year Composition	3
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
HU or SB elective	3
Total	17

Second Year

First Semester

CET 200 Object-Oriented Software Development II	3
CET 354 Microcomputer Architecture and Programming	4
CET 383 Shell and Script Programming with UNIX	3
ECN 111 Macroeconomic Principles <i>SB</i>	3
MAT 243 Discrete Mathematical Structures	3
Total	16

Second Semester

CET 230 Applied Data Structures	3
CET 364 Computer Architecture	3
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i>	5
HU or SB elective	3
Mathematics elective	4
Total	18

COMPUTER SYSTEMS—BS

Students interested in the BS degree in Computer Systems may choose to specialize in one of the following three concentrations: computer hardware technology, embedded systems technology, and software 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.

The software technology concentration 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 111 Macroeconomic Principles <i>SB</i>	3
--	---

Literacy

TWC 400 Technical Communications <i>L</i>	3
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Natural Sciences

PHY 121 University Physics I: Mechanics <i>SQ</i> ¹	3
PHY 122 University Physics Laboratory I <i>SQ</i> ¹	1
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ²	3
PHY 132 University Physics Laboratory II <i>SQ</i> ²	1
Natural Science Laboratory elective	4
Total	12

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.

Mathematics

MAT 243 Discrete Mathematical Structures	3
MAT 270 Calculus with Analytical Geometry I <i>MA</i>	4
MAT 271 Calculus with Analytical Geometry II <i>MA</i>	4
MAT 272 Calculus with Analytical Geometry III <i>MA</i>	4
STP 420 Introductory Applied Statistics <i>CS</i>	3
Total	18

Lower-Division Core

CET 100 Object-Oriented Software Development I	3
CET 150 Digital Systems I <i>CS</i>	4
CET 200 Object-Oriented Software Development II	3
CET 230 Applied Data Structures	3
ETC 100 Languages of Technology <i>CS</i>	4
Total	17

Major

CET 326 Programming Languages for Technology with C/C++ and Visual Basic	4
CET 354 Microcomputer Architecture and Programming	4
CET 364 Computer Architecture	3
CET 383 Shell and Script Programming with UNIX	3
CET 400 Software Engineering Technology	3
CST 386 Operating Systems Principles	3
CST 415 Applied Software Process	3
or UET 415 Electronic Manufacturing Engineering Principles (3)	
CST 494 ST: Professional Orientation	1
Total	24

Computer Hardware Technology Concentration

CET 350 Digital Systems II	4
CET 401 Digital Signal Processing for Multimedia	3
CET 452 Digital Logic Applications	4
CET 458 Digital Computer Networks	3
or CET 473 Digital/Data Communications (4)	
CST 456 Assembly Language Applications	4
EET 208 Electrical Circuit Analysis I	4
EET 301 Electric Circuit II	4
Technical electives	3-4
Minimum total	29-30

Embedded Systems Technology Concentration

CET 350 Digital Systems II	4
CET 420 Foundations of Distributed and Web-Based Applications in Java	3
CET 441 Software for Personal Digital Assistants	3
CET 458 Digital Computer Networks	3
or CET 459 Internet Networking Protocols (3)	

CST 456 Assembly Language Applications.....	4
CST 494 ST: Embedded C	3
EET 208 Electric Circuit Analysis I.....	4
Technical electives	6
Total	30

Software Technology Concentration

CET 420 Foundations of Distributed and Web-Based Applications in Java	3
CET 427 Distributed Object Systems.....	3
CST 433 Database Technology	3
Choose two of the following courses.....	6
CET 425 Server Software Programming (3) — or —	
CET 428 Web-Client User Interface Programming (3) — or —	
CET 441 Software for Personal Digital Assistants (3)	
CET 459 Internet Networking Protocols.....	3
CET 488 Systems Administration of UNIX.....	3
or CET 489 Network Administration with TCP/IP (3)	
Technical electives	9
Total	30

**Computer Systems Program of Study
Embedded Systems Concentration
Typical First- and Second-Year Sequences**

First Year

First Semester

ENG 101 First-Year Composition.....	3
ETC 100 Languages of Technology CS	4
MAT 270 Calculus with Analytic Geometry I MA.....	4
PHY 121 University Physics I: Mechanics SQ*.....	3
PHY 122 University Physics Laboratory I SQ*.....	1
Total	15

* Both PHY 121 and 122 must be taken to secure SQ credit.

Second Semester

CET 100 Object-Oriented Software Development I	3
CET 150 Digital Systems I CS	4
ENG 102 First-Year Composition.....	3
MAT 271 Calculus with Analytic Geometry II MA	4
HU/SB elective	3
Total	17

Second Year

First Semester

CET 200 Object-Oriented Software Development II.....	3
CET 350 Digital Systems II	4
CET 354 Microcomputer Architecture and Programming.....	4
ECN 111 Macroeconomic Principles SB	3
MAT 243 Discrete Mathematical Structures	3
Total	17

Second Semester

CET 230 Applied Data Structures.....	3
EET 208 Electric Circuit Analysis I.....	4
MAT 272 Calculus with Analytic Geometry III MA	4
PHY 131 University Physics II: Electricity and Magnetism SQ*.....	3
PHY 132 University Physics Laboratory II SQ*	1
Total	15

* Both PHY 131 and 132 must be taken to secure SQ credit.

COMPUTER ENGINEERING TECHNOLOGY (CET)

CET 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. Prerequisite: ETC 100.

CET 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.

General Studies: CS

CET 191 First-Year Seminar. (1–3)

selected semesters

CET 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: CET 100.

CET 230 Applied Data Structures. (3)

fall

Introduces data structures: strings, stacks, queues, binary trees, recursion, searching, and sorting. Prerequisite: CET 200.

CET 256 C Programming for Engineering Technology. (3)

fall, spring, summer

Applied and practical problem solving using the C programming language. Prerequisite: ETC 100.

CET 294 Special Topics. (1–4)

selected semesters

CET 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: CET 150, 200.

CET 350 Digital Systems II. (4)

fall

Analysis and design of synchronous and asynchronous state machines. Introduces VHDL. Lecture, lab. Prerequisite: CET 150.

CET 354 Microcomputer Architecture and Programming. (4)

fall and spring

Microcomputer architecture, assembly language programming, I/O considerations, exception and interrupt handling. Introduces interfacing. Prerequisite: CET 150.

CET 364 Computer Architecture. (3)

fall

Processor performance, RISC/CISC, processor design and implementation, basic pipelining, memory hierarchy, I/O. Prerequisite: CET 200, 354.

CET 383 Shell and Script Programming with UNIX. (3)

fall and spring

UNIX operating system programming of shells, environment and 4th-generation languages and tools, such as sed, awk, perl, grep, make. Prerequisite: CET 100 or 256.

CET 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: CET 326.

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.

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 92.

COLLEGE OF TECHNOLOGY AND APPLIED SCIENCES

CET 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: CET 230; CST 386.

CET 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: CET 420 or instructor approval.

CET 427 Distributed Object Systems. (3)

spring

Distributed applications with Web services, RMI, and CORBA; concepts and frameworks for managing registering, locating, and securing distributed object applications. Prerequisite: CET 420 or instructor approval.

CET 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: CET 420 or instructor approval.

CET 433 Database Technology. (3)

fall

Introduces database technologies and DBMS, data models, and languages. Prerequisites: CET 230, 326.

CET 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: CET 420.

CET 452 Digital Logic Applications. (4)

spring

Design of sequential machines using system design techniques and complex MSI/LSI devices with lab. Prerequisite: CET 350.

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. Prerequisites: CET 354; EET 372.

CET 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: CET 200 (or 256), 354.

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: CET 354; EET 372.

CET 484 Internship. (1–3)

selected semesters

CET 486 Hardware Description Languages: VHDL. (3)

spring

Introduces hardware description languages using VHDL. Techniques for modeling and simulating small digital systems using a VHDL simulator. Prerequisites: CET 350, 383.

CET 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: CET 383; CST 386.

CET 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: CET 383, 459.

CET 490 Reading and Conference. (1–12)

selected semesters

CET 492 Honors Directed Study. (1–3)

selected semesters

CET 493 Honors Thesis. (1–6)

selected semesters

CET 494 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Applied Software Process. (3)
- Computer Project

CET 498 Pro-Seminar. (1–3)

selected semesters

CET 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.

COMPUTING STUDIES (CST)

CST 386 Operating Systems Principles. (3)

spring

Fundamentals of operating systems, process management, scheduling and synchronization techniques, memory and file management, protection and security issues. Prerequisites: CET 256 (or 100), 354.

CST 394 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Applications of Computing Theory (3)

CST 415 Applied Software Process. (3)

fall and spring

Applies software processes using Rational's Unified Process (RUP) and eXtreme Programming (XP), iterative and architecture-centric development. Prerequisite: CET 400.

CST 456 Microcomputer Systems Interfacing. (4)

fall

Programming using BIOS and DOS routines. Disk operations, TSR routines, and device drivers. Lecture, lab. Prerequisite: CET 354.

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: CET 354.

CST 494 Special Topics. (1–4)

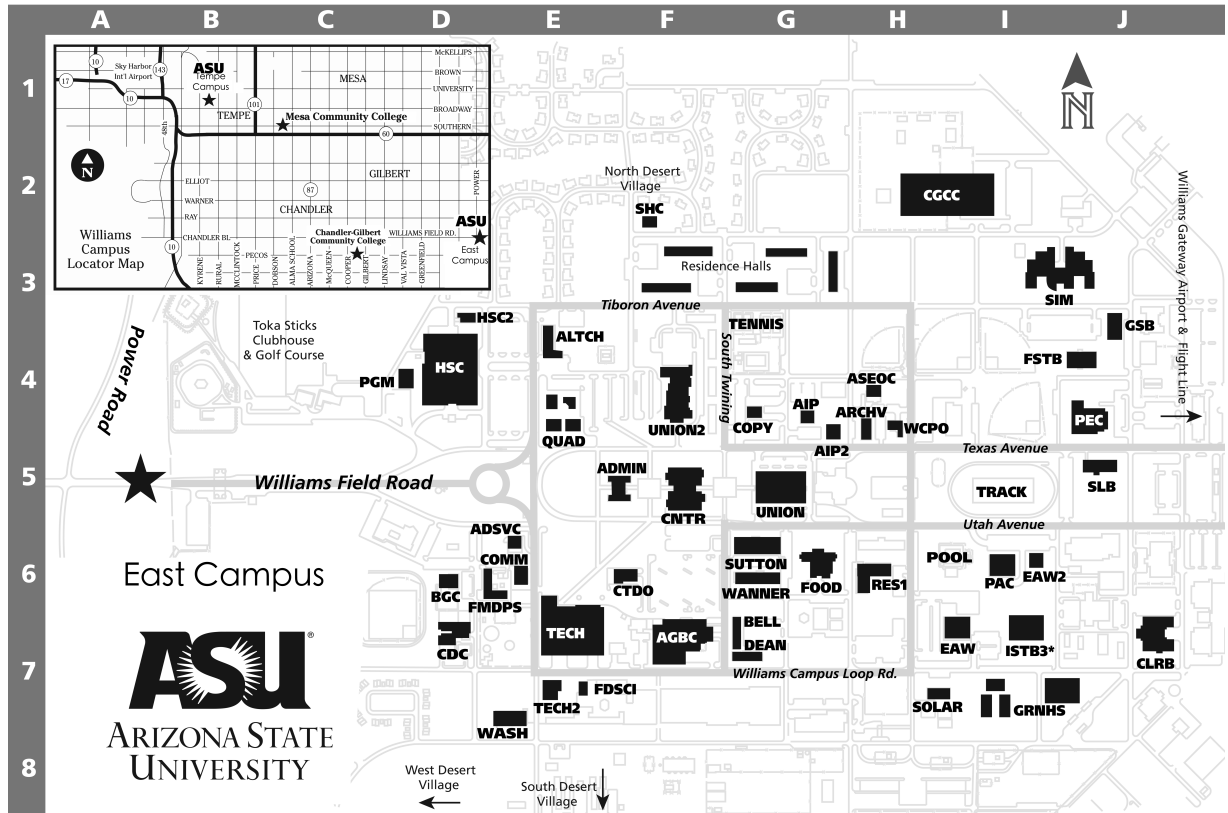
selected semesters

Topics may include the following:

- Professional Orientation (1)
- Embedded C (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.



- | | | | |
|--------------|--|---------------|---|
| ADMIN | Administration Building (F5) | GRNHS | Greenhouses (I7) |
| ADSVC | Administrative Services (E5) | GSB | General Studies Building (J4) |
| AGBC | Agribusiness Center (F7) | HSC | Health Sciences Center (D4) |
| AIP | American Indian Programs (G4) | HSC2 | Health Sciences Center Research (D4) |
| AIP2 | American Indian Programs Annex (G5) | ISTB3 | Interdisciplinary Science and Technology Building 3 (I7)* |
| ALTCH | Altitude Chamber Building (E3) | PAC | Physical Activity Center (I6) |
| ARCHV | Library Archives (H4) | PEC | Physical Education Center (J5) |
| ASEOC | Alternate State Emergency Operations Center (H4) | PGM | Professional Golf Management (D4) |
| BELL | Bell Hall (F7) | POOL | Swimming Pool (H6) |
| BGC | Boys and Girls Club (D6) | QUAD | Student Affairs (1,2,4), CERTT Lab (3) (E4) |
| CDC | Child Development Center (D7) | RES1 | Freshman Experience Dorm (H6) |
| CGCC | Chandler-Gilbert Community College (H2) | SHC | Student Health Center (F2) |
| CLRB | Classroom Building (J7) | SIM | Flight Simulator Building (I3) |
| CNTR | Academic Center Building (F5) | SLB | Science Lab Building (J5) |
| COMM | Telecommunications (D6) | SOLAR | Photovoltaic Testing Laboratory (H7) |
| COPY | Williams Express Copy Services (G4) | SUTTON | Sutton Hall (G6) |
| CTDO | College of Technology Dean's Office (E6) | TECH | Technology Center (E7) |
| DEAN | Dean Hall (F7) | TECH2 | Technology Center Annex (E7) |
| EAW | Exercise and Wellness Center (I7) | TENNIS | Tennis Courts (G4) |
| EAW2 | Exercise Instructional Lab Building (I6) | UNION | Williams Campus Union (G5) |
| FDSCI | Agribusiness Food Science Lab (E7) | UNION2 | Campus Union Annex (F4) |
| FMDPS | Facilities Management/DPS (D6) | WANNER | Wanner Hall (G6) |
| FOOD | Williams Campus Dining Hall (G6) | WASH | Launderette (D7) |
| FSTB | Fire Science Technology Building (I4) | WCPO | Williams Campus Post Office (H4) |

*To Be Completed 2006

East Campus Directory

For the “Tempe Campus Directory,” see page 606. For the “West Campus Directory,” see page 693. For the “College of Extended Education Directory,” see page 711.

Organization	Location	Telephone	Web Address
Agribusiness and Resource Management, Morrison School of Professional Golf Management	WANNER PGM	480/727-1585 480/727-1912	www.east.asu.edu/msabr www.east.asu.edu/msabr/pgm
American Indian Programs	AIP	480/727-1075 480/727-1161	www.east.asu.edu/aip —
Bookstore	UNION	480/727-1168	www.east.asu.edu/admin/index_bookstore.html
Campus Copy Center, Williams	COPY	480/727-1600	east.asu.edu/admin/index_williamsexpress.html
Cashiering Services	QUAD 2	480/727-1081	www.east.asu.edu/admin/index_cashiering.html
Computing Commons, East campus	CNTR 150	480/727-1118	www.east.asu.edu/infotech/labs
East College Advising	SUTTON	480/727-1333 480/727-1333	www.east.asu.edu/ecollege —
Applied Biological Sciences, Department of	WANNER	480/727-1444	www.east.asu.edu/ecollege/ appliedbiologicalsciences
Applied Psychology, Faculty of	SUTTON	480/727-1333	www.east.asu.edu/ecollege/appliedpsych
Business Administration, Faculty of	SUTTON	480/727-1333	www.east.asu.edu/ecollege/businessadmin
Education, Faculty of	SUTTON	480/727-1103	www.east.asu.edu/ecollege/education
Exercise and Wellness, Department of	EAW 109	480/727-1945	www.east.asu.edu/ecollege/wellness
Human Health Studies, Faculty of	WANNER	480/727-1333	www.east.asu.edu/ecollege/humanhealth
Multimedia Writing and Technical Communication, Faculty of	SUTTON	480/727-1333	www.east.asu.edu/ecollege/multimedia
Nutrition, Department of	HSC 1386	480/727-1728	www.east.asu.edu/ecollege/nutrition
Fitness Center, Williams Campus	WCFC Bldg.	480/988-8400	www.east.asu.edu/sta/u-life/recreation.htm
General information	QUAD 2	480/727-3278	www.east.asu.edu
Housing, Williams Campus	BELL	480/727-1700	www.east.asu.edu/housing
Learning Center	CNTR 160	480/727-1452	www.east.asu.edu/learningcenter
Library Services	CNTR 30	480/727-1037	eastlib.east.asu.edu
Parking	FMDPS 109	480/727-2775	www.east.asu.edu/admin/pts
Provost, Office of the	ADMIN	480/727-1028	—
Student Health Center	SHC	480/727-1041	www.east.asu.edu/students/health
Student Union	UNION	480/727-1098	www.asu.edu/sta/u-life/union.htm
Student Services*	QUAD 2	480/727-3278	www.east.asu.edu/students
Technology and Applied Sciences, College of	CTDO	480/727-1874	technology.east.asu.edu/
Aeronautical Management Technology, Department of	SIM 201	480/727-1775	eastair.east.asu.edu
Computing Studies, Division of	SUTTON 140	480/727-1257	www.east.asu.edu/ctas/dcst
Electronics and Computer Engineering Technology, Department of	TECH 101	480/727-1976	www.east.asu.edu/ctas/ecet
Engineering, Department of	CNTR 110	480/727-2727	www.east.asu.edu/ctas/engineering
Information and Management Technology, Department of	TECH 102	480/727-1781	www.east.asu.edu/ctas/imt
Mechanical and Manufacturing Engineering Technology, Department of	SIM 295	480/727-1584	www.east.asu.edu/ctas/mmet

* Student Services includes ASU Sun Cards, Office of the Registrar, Student Business Services, Student Financial Assistance, and Undergraduate Admissions.

East Campus Faculty and Academic Professionals

A

Adams, Troy B. (2002), Assistant Professor of Exercise and Wellness; BS, MS, Brigham Young University; PhD, University of Texas, Austin

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

Bergeron, Bette S. (2000), Professor of Education; Head, Faculty of Education; BSEd, University of Maine, Orono; MEd, 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, 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, East Campus Library Services; Director, East 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 Emeritus of Technology; BA, MA, Arizona State University; EdD, Bradley University

Burkett, Lee N. (1974), Professor 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

Carlsen, Paul A. (1978), Professor Emeritus of Technology; BAE, MNS, EdD, Arizona State University

Cavaliere, 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 Information and Management Technology; BA, Bard College; MS, Arizona State University

Duff, Jon M. (1997), Professor of Information and Management Technology; BS, MS, Purdue University; PhD, Ohio State University

E

Eaves, James E. (2003), Assistant Professor of Agribusiness and Resource Management; BA, University of Connecticut, Storrs; PhD, University of California, Davis

EAST CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

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 Computer 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

Gomez, Conrado L. (2003), Lecturer 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, Humboldt State University; MS, North Dakota State University; PhD, Oregon State University

Grondin, Robert O. (1983), Associate Professor of Electrical Engineering; Director, Student Academic Services, Ira A. Fulton School of Engineering; BS, MS, PhD, University of Michigan

Grossman, Gary M. (1994), Associate Professor of Information and Management Technology; 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 Information and Management Technology; 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

Hild, Nicholas R. (1983), Professor of Information and Management Technology; 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

Hirata, Ernest T. (1974), Associate Professor of Information and Management Technology; BA, San Diego State College; EdD, Arizona State University

Hopper, Lee Ann (2001), Lecturer of Education; BS, Texas Tech University; MA, Arizona State University

Horowitz, Renee B. (1986), Professor Emerita of Information and Management Technology; 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)

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 Information and Management Technology; 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; Provost, East campus; Vice President, ASU; 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), Associate Professor of 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

EAST CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

Kime, Charles Henry (2000), Professor of Practice, Information and Management Technology; 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 Information and Management Technology; 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

Maddy, Kenneth H. (1980), Professor Emeritus of Agribusiness and Resource Management; BS, Pennsylvania State University; MS, University of Wisconsin, Madison; PhD, Pennsylvania State University

Mahoney, Kate (2004), Assistant Professor of Education; BA, State University of New York, Geneseo; MA, New Mexico State University; PhD, Arizona 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), Assistant 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 Information and Management Technology; 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/Computer 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 Electrical Engineering; BS, MS, PhD, Brigham Young 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

EAST CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

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 Information and Management Technology; 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

Ohmart, Robert D. (1970), Professor of Applied Biological Sciences; BS, MS, New Mexico State University; PhD, University of Arizona

Olson, Larry W. (1995), Associate Professor of Information and Management Technology; 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

Pardini, Louis J. (1967), Professor Emeritus of Technology; BA, AM, Idaho State University; EdD, University of Northern Colorado

Parmentier, Mary Jane (1999), Lecturer of Information and Management Technology; 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, Information and Management Technology; 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

Phillips, Wayne T. (1997), Associate Professor of Exercise and Wellness; CertEd, Cardiff College of Education, Cardiff (United Kingdom); MS, Loughborough University of Technology (United Kingdom); PhD, Arizona State University

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), Associate 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

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, Humanities, Arts, and English Program; 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

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 Information and Management Technology; Chair, Department of Information and Management Technology; 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, East campus; BA, Carlton College; MS, PhD, University of Chicago

Sehren, Ann (2004), Lecturer of Exercise and Wellness; BS, MS, University of Southern Mississippi; EdD, University of North Carolina, 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 Clinical 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

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, 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

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

Tripp, Wayne E. (2002), Lecturer of Aeronautical Management Technology; BS, Liberty University; ME, Lynchburg College

Tudor-Locke, Catrine (2001), Assistant 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–Z

Vaughan, Linda A. (1982), Professor of Nutrition; Chair, Department of Nutrition; BS, University of California, Davis; MNS, Cornell University; PhD, University of Arizona

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, East 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 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 Information and Management Technology; 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

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

East Campus Administrative Personnel

Academic Administration

Provost, East campus; Vice President, ASU	Gerald S. Jakubowski
Vice Provost, Academic Programs	David E. Schwalm
Dean, Student Affairs	Gary L. McGrath
Director, Academic Services	C. Vinette Williams
Vice Provost, Administrative Services	Terry C. Isaacson
Director, American Indian Programs	Phillip J. Huebner
Director, Information Technology	Kati L. Weingartner
Director, Public Affairs	C. Vinette Williams
Director, Library Services	Charles W. Brownson
Vice Provost, Planning and Budget	Sheila L. Ainlay
Director, Research and Sponsored Projects	Jean N. Humphries

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 Multimedia Writing and Technical Communication	Barry M. Maid

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 Information and Management Technology	Thomas E. Schildgen
Chair, Department of Mechanical and Manufacturing Engineering Technology	Scott G. Danielson
Project Director, International Projects Unit	Gary M. Grossman

Morrison School of Agribusiness and Resource Management

Dean, Morrison School of Agribusiness and Resource Management	Raymond A. Marquardt
Associate Dean, Morrison School of Agribusiness and Resource Management	George J. Seperich

ASU Administrative Personnel

See ["Administrative Personnel," page 521](#).

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 Architecture and Environmental Design;
3. College of Education;
4. College of Law;
5. College of Liberal Arts and Sciences;
6. College of Nursing;

7. College of Public Programs;
8. Herberger College of Fine Arts;
9. Ira A. Fulton School of Engineering; and
10. W. P. Carey School of Business.

The Division of Graduate Studies, College of Extended Education, 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 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 Directory

For the “East Campus Directory,” see page 598. For the “West Campus Directory,” see page 693. For the “College of Extended Education Directory,” see page 711.

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	www.asu.edu/admissions/transfercenter
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
Admissions	—	—	—
Graduate	WILSN 101	480/965-6113	www.asu.edu/graduate/admissions
Law	LAW 120	480/965-1474	www.law.asu.edu
Readmissions (undergraduate)	SSV 142	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/studentlife/reentry
Architecture and Environmental Design, College of	ARCH 138	480/965-6384	www.asu.edu/caed
Architecture and Landscape Architecture, School of	AED 162	480/965-3536	www.asu.edu/caed/sala
Design, School of	AED 154	480/965-4135	www.asu.edu/caed/SOD
Herberger Center for Design Research	ARCH 119	480/965-6693	www.asu.edu/caed/HCODE
Planning, School of	AED 158	480/965-7167	www.asu.edu/caed/SPLA
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
Associated Students of ASU (ASASU)	MU Third Floor	480/965-3161	www.asu.edu/asasu
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, Tempe campus	BKSTR	480/965-7928	bookstore.asu.edu/index.php
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
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/hap
Information Systems, Department of	BA 223	480/965-3252	wpcarey.asu.edu/is
International Business Studies	BA 109	480/965-0596	wpcarey.asu.edu/up/ipo.cfm
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
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	—
Career Services	SSV 329	480/965-2350	www.asu.edu/career
Career Testing Services	SSV 340	480/965-6777	asu.edu/counseling_center/personaldev.html
Cashiering Services	SSV 244	480/965-7468	fs.asu.edu/office/cashier.asp
Child and Family Services	MU 14C	480/965-9515	www.asu.edu/mu/family

Organization	Location	Telephone	Web Address
Co-Curricular Programs	MU third floor	480/965-9600	www.asu.edu/vpsa/partnerships
Community Service Program	MU third floor	480/965-2255	www.asu.edu/mu/community
Counseling and Consultation	SSV 334	480/965-6146	www.asu.edu/counseling_center
Creative Writing (MFA)	LL 307C	480/965-3528	www.asu.edu/clas/english/creativewriting
Danforth Chapel	CHAPL	480/965-3570	www.asu.edu/studentlife/danforth
Disability Resource Center	MCENT	—	www.asu.edu/drs
TTY	—	480/965-9000	—
Voice	—	480/965-1234	—
Drop/add and withdrawal information	SSV 144	480/965-3124	—
East Campus (See “East Campus Directory,” page 598.)	—	480/727-3278	www.east.asu.edu
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/oss/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
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
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
Vice President for University-School Partnerships	EDB 104	480/965-3306	coe.asu.edu
Educational Opportunity Center	1000 E. Apache, No. 118	480/894-8451	www.asu.edu/studentlife/eoc
Engineering, Ira A. Fulton School of	—	480/965-1726	fulton.asu.edu/fulton
Bioengineering, Harrington Department of	ECG 334	480/965-3028	fulton.asu.edu/~bme/new
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	480/965-3190	cse.asu.edu
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)	PEBW M201	480/965-7906	www.asu.edu/clas/espe
Extended Education, College of (See “College of Extended Education Directory,” page 711.)	ASUDC C319	480/965-9696	www.asu.edu/xed

TEMPE CAMPUS DIRECTORY

Organization	Location	Telephone	Web Address
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
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, Department of	GHALL 232	480/965-5337	herbergercollege.asu.edu/theatre
Freshman Year Experience	PVW	480/965-1512	www.asu.edu/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	WILSN 101	480/965-6113	www.asu.edu/graduate/admissions
Advising/Referral Office	WILSN lobby	480/965-3521	www.asu.edu/graduate
Financial Support	SSV 216A	480/965-3355	www.asu.edu/graduate/financial
Student Academic Services/Format Advising	WILSN lobby	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 140	480/965-6980	—
Undergraduate Division	SSV 140	480/965-3256	—
Greek Life (Fraternities and Sororities)	MU third floor	480/965-2255	www.asu.edu/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
University Chief Information Officer	—	—	www.asu.edu/cio
Classroom Support Centers	CPCOM 105	480/965-3342	www.asu.edu/classroomsupport
Computer Accounts Office	CPCOM 202	480/965-1211	www.asu.edu/it/tempe/cac
Computing Site hours	—	480/965-6500	www.asu.edu/it/tempe/sites/schedules.htm
Computing Sites	CPCOM Atrium	480/965-4459	www.asu.edu/it/tempe/sites
	BAC 16	480/965-3074	—
	COOR 150	480/965-7992	—
	ECG 150	480/965-6280	—
	GWC 185	480/965-4307	—
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/it/tempe/cac
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/studentlife/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
Justice Studies (PhD)	WILSN 316	480/965-7682	www.asu.edu/clas/justice
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/?folderid=2587
Learning Resource Center	MU 14	480/965-7728	www.asu.edu/lrc
	PVW	480/965-6254	—
Liberal Arts and Sciences, College of	FOUND 1120	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 227	480/965-4399	www.asu.edu/clas/aframstu
American Indian Studies Program	AG 372	480/965-3634	www.asu.edu/clas/americanindian
Anthropology, Department of	ANTH 233	480/965-6213	www.asu.edu/clas/anthropology
Asian Pacific American Studies Program	AG 352	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	PS A216	480/965-5519	lifesciences.asu.edu/compbiosci

Organization	Location	Telephone	Web Address
Liberal Arts and Sciences, College of (continued)	LL 542 COWDN 106	480/965-3168 480/965-6978	
English, Department of			www.asu.edu/clas/english
Family and Human Development, Department of	SCOB 330 PS F686	480/965-7533 480/965-5081	www.asu.edu/clas/fhd
Geography, Department of	COOR 4595	480/965-5778	geography.asu.edu
Geological Sciences, Department of	STAUF A412	480/965-5095	geology.asu.edu
History, Department of			www.asu.edu/clas/history
Human Communication, Hugh Downs School of	LL 641 WILSN 331	480/965-6747 480/965-7682	www.asu.edu/clas/communication
Interdisciplinary Humanities Program	PEBW 218	480/965-3875	www.asu.edu/clas/humanities
Justice and Social Inquiry, School of	LL 440	480/965-6281	www.asu.edu/clas/justice
Kinesiology, Department of			www.asu.edu/clas/kines
Languages and Literatures, Department of	LSC 226 LSE 229	480/965-9537 480/965-1768	www.asu.edu/languages/
Life Sciences, School of	LSE 205	480/965-2543	sols.asu.edu
Graduate Programs	LSC 206	480/727-6277	sols.asu.edu/grad/gdegrees.php
Research and Training Initiatives	LSC 226	480/965-9537	sols.asu.edu/rti
Student Services/advising	PS A216	480/965-3951	sols.asu.edu/ugrad/uadvising.php
Undergraduate Programs	SS 330	480/965-3318	sols.asu.edu/ugrad/udegrees.php
Mathematics and Statistics, Department of	COOR 3307	480/965-3394	math.la.asu.edu
Military Science, Department of	PS F470	480/965-3561	www.asu.edu/clas/military
Philosophy, Department of	COOR 6801	480/965-6551	www.asu.edu/clas/philosophy
Physics and Astronomy, Department of	PSY 237	480/965-3326	phy.asu.edu
Political Science, Department of	ECA 377	480/965-7145	www.asu.edu/clas/polisci
Psychology, Department of	COOR 5681	480/965-3546	www.asu.edu/clas/psych
Religious Studies, Department of	COOR 2211	480/965-2374	www.asu.edu/clas/religious_studies
Sociology, Department of			www.asu.edu/clas/sociology
Speech and Hearing Science, Department of	ECA 209	480/965-2358	www.asu.edu/clas/shs
Women and Gender Studies Program			www.asu.edu/clas/womens_studies
Libraries	—	—	—
Fletcher Library	FLHLB	602/543-8501	library.west.asu.edu
John J. Ross–William C. Blakley Law Library	LAWLB	480/965-6144	www.law.asu.edu?folderid=2587
University Libraries	LIB	480/965-6164	www.asu.edu/libraries
Architecture and Environmental Design Library	AED 153	480/965-6400	www.asu.edu/lib/arch
Archives and Manuscripts, Department of	LIB 413	480/965-3145	www.asu.edu/lib/archives
Hayden Library (Circulation Desk)	LIB	480/965-3605	www.asu.edu/lib/hayden
Library Administration	LIB	480/965-3417	—
Music Library	MUSIC W302	480/965-3513	www.asu.edu/lib/music
Noble Science and Engineering Library	NOBLE	480/965-7607	www.asu.edu/lib/noble
Reference questions	—	480/965-6164	www.asu.edu/lib/hayden/ref
Memorial Union	MU	—	www.asu.edu/mu
Administrative offices	MU mezzanine	480/965-5310	—
Event and Meeting Services	MU 182	480/965-3406	—
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/studentlife/msc
Nursing, College of	NUR 344	480/965-3244	nursing.asu.edu
ASUN Office	NUR 304	480/965-0123	nursing.asu.edu/asun
Community Health Services Clinic	—	480/941-9283	nursing.asu.edu/anc/chsc/
Continuing and Extended Education	CSB 334	480/965-7431	nursing.asu.edu/ce
Dean's Office	NUR 454	480/965-6431	nursing.asu.edu/general/deans_welcome.htm

TEMPE CAMPUS DIRECTORY

Organization	Location	Telephone	Web Address
Nursing, College of (continued)			
Graduate Programs and Research Office	NUR 444	480/965-3948	nursing.asu.edu/programs/graduate
Learning Resource Office	NUR 208	480/965-3942	nursing.asu.edu/lrc
Student Services Office	NUR 108	480/965-2987	nursing.asu.edu/student-services
Undergraduate Program Office	NUR 470	480/965-2668	nursing.asu.edu/programs/undergraduate
Operator, university	—	480/965-9011	www.asu.edu/directory
Orientation and Parent Programs	SSV 110	480/965-2880	www.asu.edu/admissions/orientation
Parents Association	MARIP A120	480/965-7625	www.asu.edu/admissions/parentprograms/association.html
Parking and Transit Services	University Towers	480/965-6406	www.asu.edu/dps/pts
Public Programs, College of	WILSN 234	480/965-1034	www.asu.edu/copp
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.asu.edu/copp/morrison
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	480/965-3304	ssw.asu.edu
Urban Inquiry, Center for	AG 320	480/965-9216	www.asu.edu/copp/urban
Readmissions (undergraduate)	SSV 142	480/965-7550	www.asu.edu/registrar/readmissions
Registrar, University	SSV 144	—	www.asu.edu/registrar
General information (recorded)	—	480/965-4747	—
TTY	—	480/965-3236	—
Voice	—	480/965-3124	—
Residency Classification	SSV 146	480/965-7712	www.asu.edu/registrar/residency
Residential Life	SSV 170	480/965-3515	www.asu.edu/reslife
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	480/965-6547	www.asu.edu/studentlife/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/mu
Student Employment	SSV 202	—	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 Health and Wellness Center	SHS	480/965-3346	www.asu.edu/health
Appointments	—	480/965-3349	—
Fax	—	480/965-8914	—
Insurance	—	480/965-2411	—
Measles information	—	480/965-1358	—
Student ID (Sun Card)	MU 15	480/965-2273	www.suncard1.com
Student Judicial Affairs	SSV 263	480/965-6547	www.asu.edu/studentlife/judicial
Student Leadership Programs	MU third floor	480/965-2255	www.asu.edu/mu/slp
Student Legal Assistance	MU 329	480/965-6307	www.asu.edu/mu/legal
Student Life	SSV 263	480/965-6547	www.asu.edu/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	—

Organization	Location	Telephone	Web Address
Student Media (continued)			
<i>State Press</i> 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 Recreational Sports	SRC 220	480/965-8900	www.asu.edu/src
Student Risk Management	SSV 263	480/965-6547	www.asu.edu/studentlife
Summer Sessions	RITT B160	480/965-6611	www.asu.edu/ssc
	—	480/965-6611	www.asu.edu/ssc/abroad
SunDial	—	480/350-1500	www.asu.edu/registrar/registration/intouch.html
Testing Support Services	SSV 340	480/965-6777	www.vpsa.asu.edu/cc/tss_reg/student_testingsupport_information.asp
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 140B	480/965-7276	www.asu.edu/registrar/transcripts
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 College	UASB	480/965-3097	www.asu.edu/duas
Academic Advising Services	UASB 129	480/965-4464	www.asu.edu/duas/cas
Academic Community Engagement Services	UASB 156	480/727-6382	www.asu.edu/duas/aces
Academic Success at the University (UNI 100 and 101)	UASB 129	480/965-0259	www.asu.edu/duas/uni100
America Reads/America Counts	UASB 156	480/965-8092	www.asu.edu/duas/aces
Campus Match	UASB 129	480/965-0259	www.asu.edu/duas/campmat
Declaration of Graduation	—	—	www.asu.edu/registrar/forms/pos.html
Degree Audit Reporting System (DARS)	UASB 100	480/965-7370	www.asu.edu/duas/dars
General Studies Program	UASB 142	480/965-0739	www.asu.edu/duas/genstudies
Interdisciplinary Studies, School of	UASB 203	480/965-1970	www.asu.edu/duas/bis
Service Learning Program	UASB 156	480/965-2259	www.asu.edu/duas/servicelearning
Summer Bridge	UASB 129	480/965-0259	www.asu.edu/duas/bridge
Writing Across the Curriculum Support and Development	UASB 129	480/965-0259	www.asu.edu/duas/wac
Writing Center	LL 340	480/965-4272	www.asu.edu/duas/wcenter
University Evaluation, Office of	ADM B366	480/965-9291	www.asu.edu/oue
University Libraries (See "Libraries," page 609.)	—	—	—
University Testing Services	EDB 301	480/965-7146	www.asu.edu/uts
Upward Bound	SSV 276	480/965-6483	www.asu.edu/studentlife/ub
Veterans Services section	SSV 148	480/965-7723	www.asu.edu/registrar/veterans
Veterans Upward Bound	1000 E. Apache, No. 106	480/965-3944	www.asu.edu/studentlife/vub
West campus (See "West Campus Directory," page 693.)	—	602/543-5500	www.west.asu.edu
Fletcher Library	FLHLB	602/543-8501	library.west.asu.edu
Winter Session (See "College of Extended Education Directory," page 711.)	RITT B132	480/727-9900	www.asu.edu/xed/winter

Tempe Campus 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.

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

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, 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, Donna (1983), Professor Emerita of Nursing; BSN, University of Missouri, Columbia; MS, Arizona State University; DNSc, University of San Diego

Adams, James B. (1996), Professor of Materials Engineering; Codirector, Science and Engineering of Materials; BS, Duke University; MS, PhD, University of Wisconsin, Madison

Adams, Karen L. (1984), Professor of English; Director, Program for Southeast Asian Studies; BA, MA, PhD, University of Michigan

Adams, Sue (2001), Clinical Associate Professor of Nursing; BSN, University of Arizona; MS, Arizona State University

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

Aerni, Wayne (1991), Faculty Associate of Public Affairs; BA, University of Oregon; MPA, PhD, Arizona State University

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

Ahrendt, Laurie (2000), Faculty Associate of Nursing; BSN, MS, Arizona State University

Aiken, Leona S. (1985), Professor of Psychology; BS, Virginia Commonwealth University; MS, PhD, Purdue University

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, 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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

Aldrich, Frank T. (1969), Professor Emeritus of Geography; BA, University of Texas, 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; 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, 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

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

Alozie, Nicholas O. (1991), Professor of Public Affairs; BA, MPA, Texas Southern University; MA, PhD, University of Texas, Dallas

Alpers, Rojann (1995), Associate Professor of Nursing; Chair, Division of Community Public Health/Psycho-Mental Health Nursing; BSN, MS, Arizona State University; PhD, University of Iowa

Alquist, Lewis R. (1984), Professor of Art; BFA, Florida Atlantic University; MFA, Cranbrook Academy of Art



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

Alvarado, Ronald H. (1974), Professor Emeritus of Life Sciences; Dean Emeritus, College 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

Ames, James G. (1985), Senior Research Associate, Institute for Manufacturing Enterprise Systems; BS, San Diego State University

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 Life Sciences; 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; 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, Greensboro

Appleton, Nicholas R. (1972), Professor of Educational Leadership and Policy Studies and Curriculum and Instruction; Academic Program Coordinator, Social and Philosophical Foundations; BA, San Francisco State University; MA, California State University, Northridge; EdD, University of Massachusetts, Amherst

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 Counselor 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, Charlotte (1997), Clinical Associate Professor of Nursing; BSN, MS, Arizona State University

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

Armbruster, Dieter (1989), Professor of Mathematics and Statistics; Abitur, Zeppelin, Gymnasium (Germany); Diplom, PhD, University of Tübingen (Germany)

Armentdt, 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; 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 R. (1979), 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); Ph.D., 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

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

Ashforth, Blake (1996), Jerry and Mary Ann Chapman Professorship in Business; 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

Augsburg, Tanya (1997), Senior Lecturer of Interdisciplinary Studies; BA, New York University; MA, PhD, Emory University

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

Bacchus, Denise N.A. (2003), Assistant Professor of Social Work; BA., Ithaca College; MA, PhD, State University of New York, Albany

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; Director, Del E. Webb School 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

Bagwell, Marilyn (1972), Professor Emerita of Nursing; BSN, University of California, Los Angeles; MA, Arizona State University; PhD, Texas Woman's University

Bahr, Donald M. (1967), Professor Emeritus of Anthropology; AB, MA, PhD, Harvard University

Baier, Leslie (1994), Adjunct Professor of Life Sciences; BA, Lawrence University; PhD, University of Michigan

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

Bailey, James E. (1974), Professor Emeritus of Industrial Engineering; BSIE, MSIE, PhD, Wayne State University

Bailey, Wayne A. (2000), Professor of Music; Director, School of Music; BME, Iowa State University; MM, University of Michigan; DMA, University of Colorado

Baker, Aaron (1992), Associate Professor of Interdisciplinary Humanities; 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, Pier Raimondo (1978), Professor of Italian; Chair, Department of Languages and Literatures; BA, San Francisco State University; MA, University of British Columbia (Canada); PhD, University of California, Los Angeles

Baldwin, Carol (2004), Associate Professor of Nursing; BSN, MSN, University of Phoenix; PhD, University of Arizona

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

Bardewyck, Loretta A. (1957), Professor Emerita of Nursing; Dean Emerita, College of Nursing; PHN, BS, University of Minnesota, Twin Cities; MS, Cornell 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 of Psychology in Education; BS, MEd, Texas A&M University; PhD, University of Texas, 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

Barry, Rebecca E. (2002), Assistant Professor of Community Resources and Development; BA, University of Utah; MA, Middlebury College; PhD, University of Utah

Bartels, Robert D. (1981), Professor of Law; BA, University of Michigan; JD, Stanford University

Barto, Michelle (1999), Lecturer of Speech and Hearing Science; BA, MEd, Arizona State University

Bartolomei, Carmen (1999), Faculty Associate of Nursing; BSN, MPS, C.W. Post College, Long Island University

Barton, C. Michael (1987), Professor of Anthropology; Collections Administrator; BA, University of Kansas; MA, PhD, University of Arizona

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- 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
- Bates, Mary** (1996), Professor of Art; BFA, Colorado State University; MFA, Indiana University
- 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), Adjunct Professor of Anthropology; BS, Birzeit University (Palestine); DEA, PhD, Caen University (France)
- Beardmore, Gary D.** (1979), Associate Research Technologist of Geological Sciences; BA, Arizona State University
- Beaulieu, David** (2004), Professor of Educational Leadership and Policy Studies; BA, MA, PhD, University of Minnesota
- Beck, Lasca** (1984), Professor Emerita of Nursing; BSN, Texas Woman's University; MS, Texas A&M University, Commerce
- Beckman, James R.** (1980), Associate Professor of Chemical Engineering; Associate Chair for 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** (2003), 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), Lecturer of the Barrett Honors College; 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
- Bell, Shirley** (1988), Clinical Professor of Nursing; BSN, University of Cincinnati; MSN, Wayne State University; EdD, West Virginia University
- 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 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 of Law; AB, LLB, Harvard University
- Benesh, Susan** (1999), Clinical Assistant Professor of Nursing; BSN, MS, Arizona State 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
- Benn, James A.** (2001), Assistant Professor of Religious Studies; BA, University of Cambridge (England); MA, University of London (England); PhD, University of California, Los Angeles
- Bennett, Peter A.** (1984), Professor of Physics and Astronomy; BA, University of Minnesota, Duluth; PhD, University of Wisconsin, Madison
- Benzing, Robert P.** (1970), Professor Emeritus of 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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS



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 Design; BArch, National University of Cordoba; 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 Counseling and Counseling Psychology; 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), Research Professor of Life Sciences; HBS, 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

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

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 Counselor of 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, International Institute for 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, Austin

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

Bletzer, Keith (2004), Adjunct Professor of Anthropology; BA, University of South Florida; MA, New York University; MPH, University of Arizona; PhD, Michigan State University

Bley, Patricia (2002), Faculty Associate of Nursing; BSN, Arizona State University; MSN, University of Phoenix

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, Greensboro

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- Boatsman, James R.** (1986), KPMG Professor of Accountancy; Director, School of Accountancy; BS, MS, Oklahoma State University; PhD, University of Texas, 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, Austin
- Boggs, Lohnie J.** (1959–65; 1966), Professor Emeritus of Supply Chain Management; BS, MS, PhD, Ohio State University
- Bohlender, 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)
- 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
- 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 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, Leonor** (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, 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
- Boylan, Amy Cooper** (1986), Academic Associate, University College; Academic Advisor; BSW, MC, Arizona State University
- 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, 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 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
- Branstetter, Ellamae** (1967), Professor Emerita of Nursing; BS, St. Louis University; MPH, University of Minnesota, Twin Cities; PhD, University of Chicago
- 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, LL.M., New York University; LL.B., 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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- 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), Assistant Professor of Psychology in Education; AB, University of Chicago; MS, PhD, Northwestern University
- Bremner, Andrew** (1984), Professor of Mathematics and Statistics; Chair, Department of Mathematics and Statistics; BA, MA, University of Oxford (United Kingdom); PhD, University of Cambridge (United Kingdom)
- Brenstuh, 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
- 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
- Brillhart, Barbara** (1996), Associate Professor of Nursing; BSN, MSN, California State University, Los Angeles; PhD, Texas Woman's 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, College of Architecture and Environmental 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
- Brose, Marianna F.** (1963), Professor Emerita of English; BA, College of William and Mary; Diploma, Royal Academy of Dramatic Art (United Kingdom); MA, Arizona State University
- 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, Austin
- Brown, Brent W.** (1972), Professor Emeritus of Public Affairs; BA, Brigham Young University; MA, Arizona State University; PhD, University of Illinois
- 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, 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
- 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
- Bruhn, Karen** (1998), Senior Lecturer of the Barrett Honors College; BA, City University of New York; MA, PhD, University of North Carolina, Chapel Hill
- Brune, Daniel C.** (1986), Senior Research Professional of Chemistry and Biochemistry; BA, University of Kansas; PhD, Indiana University, Bloomington
- Bruner, May I.** (1961), Professor Emerita of Nursing; BS, University of Hawaii, Honolulu; MS, University of Colorado
- Brungart, Jennifer** (2002), Assistant Professor of 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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

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

Brzyzy, Stephanie (1995), Associate Professor of Social Work; BSW, Indiana University, Bloomington; MSW, University of Illinois, Urbana-Champaign; PhD, Ohio 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

Budruk, Megha (2004), Assistant Professor of Community Resources and Development; BS, University of Poona (India); MS, Arizona State University; PhD, University of Vermont

Buksbaum, Rebecca (2000), Faculty Associate of Nursing; BA, University of Illinois; MSN, University of Hartford, West Hartford

Buley, Jerry L. (1973), Associate Professor 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 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, the Barrett Honors College; Associate Dean, National Scholarship Advisement and Student Internships, the 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

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 Counselor 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

Callarman, Thomas E. (1980), Associate Professor of Supply Chain Management; Director, Institute for Manufacturing Enterprise Systems; 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

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

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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

Candela, Giuseppe (1995), Associate Professor of Italian; MA, PhD, University of Wisconsin

Candelaria, Cordelia C. (1992), Professor of English and Chicana and Chicano Studies; Chair, Department of Chicana and Chicano Studies; BA, Fort Lewis College; MA, PhD, University of Notre Dame

Cannella, Albert (2004), The Hahnco Companies Professor 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, Austin

Caplan, Michael R. (2002), Assistant Professor of Bioengineering; BA, BS, University of Texas, Austin; PhD, Massachusetts Institute of Technology

Cardineau, Guy A. (2003), Research Professor of Life Sciences and Center Faculty Fellow of Law; 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, Marilyn P. (1995), Associate 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, Kevin K. (1975), Associate Professor of History; BA, Canisius College; MA, PhD, Harvard University

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, 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), 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

Catlaw, Thomas J. (2004), Assistant Professor of Public Affairs; BA, Trinity College; MPA, PhD, George Washington University

Caudle, M. Tyler (1997), Assistant Professor of Chemistry and Biochemistry; BS, University of North Carolina, Charlotte; PhD, Duke 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

Cayer, N. Joseph (1980), Professor of Public Affairs; BA, MPA, University of Colorado; PhD, University of Massachusetts, Amherst

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- Cervený, Randall S.** (1986), Professor of Geography; BS, MA, PhD, University of Nebraska, Lincoln
- Cesarotti, Evelyn L.** (1992), Associate Professor of Nursing; BSN, University of West Florida; MS, PhD, University of Arizona
- 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 Economía, National University of Cuyo (Argentina); MS, PhD, University of Illinois, Urbana-Champaign
- Chakrabarti, Chaitali** (1990), Professor of Electrical Engineering; B.Tech, 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
- Chapman, Jeffrey** (1999), Professor of Public Affairs; Interim Dean, College of Public Programs; AB, Occidental College; MA, PhD, University of California, Berkeley
- 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
- Chase, Marcelle P.** (1983), Law Librarian Emeritus; MLS, Ball State University; JD, University of Brussels (Belgium)
- 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
- Chattopadhyay, Aditi** (1990), Professor of Mechanical and Aerospace Engineering; MS, PhD, Georgia Institute of Technology
- Chaudhuri, Joyotpal** (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, Angela Chia-Chen** (2004), Assistant Professor of Nursing; BSN, National Taiwan University, Taipei (Taiwan); MS, PhD, University of Washington
- 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, Nai-Kuang** (1998), Assistant Professor of Computer Information Systems; BBA, Soochow University (Taiwan); MS, George Washington University; PhD, University of Connecticut
- 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 Donghua 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, 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
- Chilton, Leslie Anne** (1998), Academic Associate, University College; Coordinator, Writing Center; BA, MA, PhD, Arizona 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, Hyae-weol** (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
- Chong, Herbert M., Lieutenant Colonel** (2002), Professor of Military Science; Chair, Department of Military Science; BS, West Texas A&M University; MS, Kansas State University
- Chou, Ju-Hsi** (1975), Professor Emeritus of Art; BA, University of Kentucky; MA, PhD, Princeton University

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS



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; 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; Interim 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, 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 Counseling Psychology and Counselor Education; AB, University of Missouri; MA, Ohio State University; PhD, University of Missouri

Clark, Caroline (1999), Faculty Associate of Design; BFA, Arizona State University

Clark, Doug (2002), Assistant Professor of Curriculum and Instruction; BA, University of North Carolina, 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, 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

Cluff, Gordon L. (1963), Professor Emeritus of Speech and Hearing Science; BA, Arizona State University; MS, PhD, Southern Illinois University

Cobas, José A. (1975), Professor of Sociology; BA, Maryville College; MA, University of Tennessee, Knoxville; PhD, University of Texas, 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

Coghlan, William A. (1990), Adjunct Professor of Chemical Engineering; BS, Montana College of Mineral Science and Technology; MS, PhD, Stanford University

Cohen, Herbert G. (1978), Professor Emeritus of Curriculum and Instruction; BS, Muhlenberg College; MA, Hofstra University; PhD, University of Iowa

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, 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; MLS, University of Michigan

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

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), Associate 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, Sue (2004), Assistant Professor of Nursing; BSN, University of Phoenix; MS, Arizona State University; MEd, Northern Arizona University; PhD, University of Arizona

Cook, Suzanne M. (1974), Professor Emerita of Management; BBA, MBA, DBA, Texas Tech University

Cooke, Cheryl (2004), Assistant Professor of Nursing; BSN, MSN, PhD, University of Washington

Coombs, Toni (2002), Lecturer of Mathematics and Statistics; BS, MS, Arizona State University

Cooper, Allene (1997), Senior Lecturer of English; BA, MA, University of Utah; PhD, Arizona State University

Coor, Lattie F. (1990), Professor of Public Affairs; President Emerita, Arizona State University; AB, Northern Arizona University; MA, PhD, Washington 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

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

Corman, Steven R. (1987), Professor of Communication; BS, Illinois State University; MA, PhD, University of Illinois

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)

Coudroglou, Alik (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

Coursen, Jerry (1987), Senior Lecturer of Bioengineering; BS, MS, Arizona State University; PhD, University of Arizona

Cowgill, George L. (1990), Professor 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



Cowley, John M.

(1969)

Regents' and Galvin Professor Emeritus of Physics and Astronomy; BS, MS, DSc, University of Adelaide (Australia); PhD, Massachusetts Institute of Technology

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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- 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)
- Crnicek, Keith A.** (2004), Professor of Psychology; Chair, Department of Psychology; BA, University of Southern California; PhD, University of Washington
- Crocker, Nancy** (1996), Academic Associate, University College; Associate Director, Academic Community Engagement Services; BA, MA, PhD, Michigan State University
- 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 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
- 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
- Crow, Michael M.** (2002), Professor of Public Affairs; President, Arizona State University; BA, Iowa State University; PhD, Syracuse 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)
- Cruz, Rhodora** (2001), Faculty Associate of Nursing; BSN, Georgia Southwestern State University; MSN, University of Phoenix
- 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 Design; Associate Dean, College of Architecture and Environmental Design; BA, BFA, Arizona State University; MA, University of Phoenix
- 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'Alessandro, 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 Counselor 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, Jeannine** (1989), Professor Emerita of Nursing; BS, University of Kansas; MA, EdD, University of Northern Colorado
- Dahl, Richard C.** (1966), Professor Emeritus of Law; BA, BLS, University of California, Berkeley; JD, Catholic University of America
- Daley, J. Michael** (1978), Professor Emeritus of Social Work; BS, Spring Hill College; MSW, Saint Louis University; MS, University of Pittsburgh; PhD, Tulane University
- 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), Senior Lecturer of the Barrett Honors College; BA, Columbia University; MPhil, University of Oxford (United Kingdom); PhD, University of Virginia
- Damrel, David W.** (2000), Assistant Professor of Religious Studies; BA, BJ, MA, University of Texas, Austin; PhD, Duke University

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- 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** (1998), 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 Real Estate; 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 Jesús, Melinda L.** (1999), Assistant Professor of Asian Pacific American Studies; BA, Lehigh University; MA, University of York (United Kingdom); PhD, University of California, Santa Cruz
- 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, Austin
- de los Santos, Alfredo** (1999), Research Professor, Division of Educational Leadership and Policy Studies; BA, MLS, PhD, University of Texas, Austin
- de Marneffe, Peter** (1989), Associate Professor of Philosophy; BA, University of Massachusetts, Amherst; PhD, Harvard University
- Deach, Dorothy F.** (1967), Professor Emerita of Kinesiology; BS, MS, University of Illinois; PhD, University of Michigan
- Deal, Clarice** (1996), Lecturer of Portuguese; BA, Saint Marens 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
- DeFato, Rosalinda** (1970), Librarian; Team Leader, Hayden Reference Services; BA, Saint John's University; MLS, University of California, Los Angeles
- DeGraw, Bette F.** (1986), Administrative Professional Emerita of Public Affairs; Dean Emerita, College of Extended Education; BA, Thiel College; MSW, Rutgers, The State University of New Jersey; PhD, Arizona State University
- DeLamotte, Eugenia** (1997), Associate Professor of English; AB, Duke University; BA, MA, University of Oxford (United Kingdom); MA, PhD, Harvard University
- Deli, Daniel N.** (2001), Assistant Professor of Finance; BA, University of Illinois; 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
- DeLusé, Stephanie R.** (1993), Lecturer of Interdisciplinary Studies; BS, MA, PhD, Arizona State 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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- DeNardo, Dale** (1998), Assistant Professor of Life Sciences; BS, DVM, University of California, Davis; PhD, University of California, Berkeley
- 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
- 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 Design; BFA, MFA, Louisiana Tech University
- Deviche, Pierre** (1999), Professor of Life Sciences; BS, PhD, University of Liege (Belgium)
- Devlin, John** (1998), Assistant Professor of Philosophy; BA, University of Toronto (Canada); PhD, University of Michigan
- 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
- Di Adamo, Barbara A.** (1999), Academic Associate, University College; BA, William Paterson University; MA, Sonoma State University
- 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
- 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, Hochschule Fur Bankwirtschaft; MS, PhD, Carnegie Mellon University
- Dierig, David A.** (1996), Adjunct Professor of Life Sciences; BS, MS, Arizona State University; PhD, University of Arizona
- Dietrich, Suzanne Wagner** (1988), Associate Professor of Computer Science and Engineering; BS, MS, PhD, State University of New York, Stony Brook
- Dirksen, Shannon Ruff** (1996), Associate Professor of Nursing; BSN, Arizona State University; MS, PhD, University of Arizona
- 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
- Doelle, William H.** (2001), Adjunct Professor of Anthropology; BA, University of Michigan; MA, PhD, University of Arizona
- Doherty, Brian** (2002), Associate Librarian; Head, Music Library; BA, Westminster Choir College; MA, MLS, Rutgers, The State University of New Jersey, New Brunswick
- Doig, Stephen K.** (1996), Professor of Journalism and Mass Communication; Interim Director, Walter Cronkite School of Journalism and Mass Communication; BA, Dartmouth
- Dollin, Michael** (1989), Faculty Associate of Planning; Coordinator, Joint Urban Design Studio; Urban Designer, Joint Urban Design Studio; BLA, University of Arizona
- Dolmas, Carole** (2002), Faculty Associate of Nursing; BSN, University of San Francisco; MSN, University of California, San Francisco
- 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
- Dornfield, Leslie G.** (2004), Faculty Associate of Planning; BA, Vassar College; MCP, University of Pennsylvania
- Doser, Douglas A.** (2000), Academic Associate, University College; Academic Advisor; BA, MS, Eastern Illinois University
- 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
- Dow, John** (1990), Professor of Physics and Astronomy; BS, University of Notre Dame; PhD, University of Rochester
- Dowling, Karen** (1996), Assistant Professor of Computer Information Systems; BA, University of Michigan; MS, PhD, Arizona State University
- 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, Austin
- Driscoll, Michael F.** (1971), Professor Emeritus of Mathematics and Statistics; BA, Saint John's University; MS, PhD, University of Arizona

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

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, 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

Durand, Barbara A. (1992), Professor Emerita of Nursing; BS, College of Saint Teresa; MS, University of California, San Francisco; EdD, University of San Francisco

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

Duttgupta, Chitralekha (2001), Lecturer of English; BA, Calcutta University; 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, 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), Visiting 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, Albuquerque

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

Edgar, Julia (2002), Assistant Professor of Speech and Hearing Science; BA, Valparaiso University; MA, University of Kansas; PhD, University of Minnesota

Edsall, Robert M. (2000), Assistant Professor of Geography; BA, Kenyon College; MS, PhD, Pennsylvania State University

Edwards, Andrew (1994), Academic Associate, University College; BA, Northwestern University; MSE, Indiana University, Bloomington

Edwards, Gus (1988), Associate Professor of Theatre

Edwards, John L. (1964), Professor Emeritus of Curriculum and Instruction; BA, Ball State University; MA, EdD, Arizona State University

Eeds, Maryann H. (1975), Professor Emerita of Curriculum and Instruction; BA, California State University, Sacramento; PhD, University of Oregon

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 Hamel, Chouki (2002), Associate Professor of History; BA, University of Muhammad I of Oujda (Morocco); MA, PhD, University of Paris Pantheon-Sorbonne (France)

El-Basyouny, Mohammed (1996), Faculty Research Associate of Civil and Environmental Engineering; BS, Cairo University (Egypt); MS, PhD, Arizona State University

El-Sharawy, El-Badawy (1989), Associate Professor of Electrical Engineering; BSE, MSE, Mansoura University (Egypt); PhD, University of Massachusetts, Amherst

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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

Ellis, Andrew W. (1998), Associate Professor of Geography; BA, MS, PhD, University of Delaware

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), Professor of Supply Chain Management; BSB, MBA, University of Minnesota, Twin Cities; PhD, Ohio State University

Ellsworth, Kevin H. (1995), Lecturer of Interdisciplinary Studies; Director, Bachelor of Interdisciplinary Studies; BA, MA, Brigham Young University; PhD, Arizona State University

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; 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; BS, University of Notre Dame; MS, University of Tennessee, Knoxville; PhD, University of California, Davis

Elser, Monica M. (1996), Academic Associate, Educational Liaison, International Institute for Sustainability; BS, University of Notre Dame; MS, University of Tennessee, Knoxville; MEd, Arizona State University

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

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; BS, MS, University of Notre Dame; PhD, University of Texas, Austin

Escalante, Ananias (2005), Associate Professor of Life Sciences; Licenciado, MSc, Simón Bolívar University; 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, Paul D. (2004), Professor of Chicana and Chicano Studies; BA, Brown University; MA, PhD, Stanford University

Essig, Linda (2004), Professor of Theatre; Chair, Department of Theatre; BFA, MFA, New York University

Etnier, Jennifer L. (1998), Associate Professor of Kinesiology; BS, University of Tennessee, Knoxville; MA, University of North Carolina, Chapel Hill; PhD, Arizona State University

Etter, Patricia A. (1988), Archivist, Archives and Manuscripts; BA, California State University, Long Beach; MLS, University of Arizona

Evans, Bronwynne (2004), Associate Professor of Nursing; BSN, Washington State University; MA, PhD, University of Washington

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), Assistant 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



Eyring, LeRoy
(1961)

Regents' Professor Emeritus of Chemistry and Biochemistry; BS, University of Arizona; PhD, University of California, Berkeley

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), Senior Lecturer of the Barrett Honors College; 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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

Faltz, Leonard M. (1979), Associate Professor of Computer Science and Engineering; BS, City University of New York; MS, Harvard University; PhD, University of California, Berkeley

Fargotstein, Barbara P. (1988), Clinical Associate Professor of Nursing; BS, BSN, Arizona State University; MN, University of California, Los Angeles

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

Farnsworth, Bill (1999), Faculty Associate of Nursing; BSN, University of Massachusetts; MSN, University of Evansville

Fausel, Donald F. (1969), Professor Emeritus of Social Work; AB, STB, STL, Saint Mary's University; MSW, Fordham University; DSW, Columbia University

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

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, 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

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

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

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, 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, 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

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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

Fleury, Julie (2001), Hanner Professor of Nursing; BSN, Northern Arizona University; MS, PhD, University of Arizona

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), Associate Professor of Life Sciences; BA, MA, PhD, University of Texas, Austin

Fowler, John W. (1995), Professor 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), Assistant 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

Freeman, Sandee (1990), Academic Associate, University College; Academic Advisor; BS, MFA, Arizona 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 (2004), Professor of Political Science; Director, Graduate Studies Department of Political Science;

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; MS, Free University of Berlin (Germany); PhD, Technical University of Berlin (Germany)

Fronske, Jeanne (1975), Professor 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)

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, Austin

Furr-Soloman, Connie (2001), Associate Professor of Theatre; BA, University of North Carolina, 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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

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
- Gale, Betty J.** (1982), Professor Emerita of Nursing; BSN, MS, Arizona State University; DNSc, University of San Diego
- 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
- Garcia, Peter J.** (2001), Assistant Professor of Chicana and Chicano Studies; BME, University of New Mexico; MM, PhD, University of Texas, 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 Pontificia de 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), Assistant Professor of Geological Sciences; AB, University of California, Berkeley; PhD, California Institute of Technology
- 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
- 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
- Genstrup, 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
- 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
- Gerdes, Karen E.** (1995), Associate Professor of Social Work; BS, Florida State University; MSW, Brigham Young University; PhD, Florida State University
- 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 Design; Director, School of Design; Dip.Des., IAA, Montreal (Canada); H.Dip.Des., Birmingham Polytechnic (United Kingdom); PhD, Concordia University (Canada)
- Gibbs, W.R.** (1987), Adjunct Professor of Physics and Astronomy; BS, MA, University of Texas; PhD, Rice University
- 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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

Gillingwater, Denis (1973), Professor of Art; BFA, MFA, University of Cincinnati

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), Assistant Professor of Sociology; BA, Pennsylvania State University; MA, PhD, University of Texas, 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 of Management; Chair, Department 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

Goldstein, Tom (2003), Professor of Journalism and Mass Communication; Frank Russell Chair of Business and Journalism; BA, Yale College; MS, JD, Columbia University

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

Gonzales, Nancy A. (1992), Professor of Psychology; BS, Arizona State University; MS, PhD, University of Washington

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

Gonzalez-Santin, Edwin (1979), Senior Instructional Professional of Social Work; BA, Cameron State College; MSW, Arizona State University

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, 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; Chair, Department of Electrical Engineering; BS, Trinity University; MS, PhD, Colorado State University

Gopalan, Sandeep (2004), Associate Professor of Law; Faculty Fellow, Center for the Study of Law, Science, and Technology; BA, LLB, National Law School of India (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, Austin; PhD, University of Kansas

Gorman, Robert (2001), Professor of Law; AB, LLB, Harvard University

Gorur, Ravi S. (1987), Professor 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), Professor of Chemistry and Biochemistry; BSc, MSc, PhD, University of Manchester (United Kingdom)

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

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)

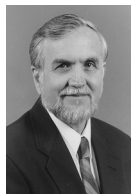
Regents' Professor Emeritus of Geography; BA, MSc, PhD, University of Wisconsin, Madison

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 Educational Psychology; Academic Program Leader, Educational Psychology; BA, West Virginia University; MS, Marquette University; PhD, University of Georgia

Greenberg, Edward A. (1996), Associate Research Scientist for Nursing; BA, University of California, Los Angeles; PhD, Arizona State University

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

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, International Institute for 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 Counselor 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 Counselor 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 Real Estate; AB, Knox College; MBA, DBA, Indiana University

Guo, Chao (2002), Assistant Professor of Community Resources and Development; BA, MA, Renmin University of China; PhD, University of Southern California

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

Gustavsson, Nora S. (1994), Associate Professor of Social Work; AB, MSW, City University of New York; PhD, University of Southern California

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

Gutierrez, Nancy A. (1985), Professor of English; Vice Provost; BA, Denison University; MA, PhD, University of Chicago

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. (1998), Professor of Sociology; BA, Colgate University; MA, PhD, Cornell University

Hackett, Gail (1988), Professor of Counseling Psychology and Counselor Education; Vice Provost; Dean, University College; BA, MEd, PhD, Pennsylvania State University

Hadley, Neil F. (1966), Professor Emeritus of Life Sciences; BA, Eastern Michigan University; PhD, University of Colorado

Haefler, J. Richard (1976), Associate Professor of Music; BM, Ohio State University; MM, University of Arizona; PhD, University of Illinois

Haenn, Nora M. (1999), Assistant 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

Hagler, Debra (1996), Clinical Associate Professor of Nursing; BSN, New Mexico State University; MS, University of Arizona

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, Austin

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

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

Hanson, Randel D. (1999), Assistant Professor of Justice and Social Inquiry; BA, PhD, University of Minnesota

Hanson, Roland C. (1966), Professor Emeritus of Physics and Astronomy; BS, Michigan College of Mining and Technology; MS, PhD, University of Illinois

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, Annabelle (1968), Professor Emerita of Curriculum and Instruction; BA, Southwestern University; MA, Cornell University; PhD, University of Texas, 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 Educational Psychology; 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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- 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; 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
- 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
- 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
- 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, and 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
- 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; 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 Research 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, Austin
- Hembree, Gary G.** (1986), Senior Research Scientist of Physics and Astronomy; BA, University of California, San Diego; PhD, Arizona State University
- Henderson, Mark** (1984), Professor of Industrial Engineering; BSME, MSME, PhD, Purdue 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
- 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
- Hepburn, John R.** (1984), Professor of Justice and Social Inquiry; BA, Butler University; MS, University of Kentucky; PhD, University of Iowa
- Hepworth, Dean H.** (1990), Professor Emeritus of Social Work; BS, MSW, PhD, University of Utah
- 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)

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

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)

Hermann, Ria (1986), Academic Associate, University College; Academic Advisor; BA, BS, MS, PhD, Arizona State University

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), Assistant Professor of Design; BA, American University; BSD, MSD, Arizona State University

Herrington, Scott S. (1982), Librarian; Head, Library Information Systems and Technology (LIST); BA, State University of New York, Plattsburgh; MLS, University of Tennessee; PhD, Arizona State University

Hershauer, James C. (1969), Professor of Management; BS, Purdue University; MBA, DBA, Indiana University, Bloomington

Hertz, Michael G. (1987), Professor of Finance; BA, MBA, MS, University of Rochester; PhD, University of Oregon

Hervig, Richard L. (1981), Professor of Geological Sciences; Senior Research Scientist, Center for Solid State Science; 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 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

Hill, Vanessa (2002), Faculty Associate of Nursing; BSN, MS, Arizona State University

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 Mediation Clinical 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

Hirshorn, Jessica (2004), Lecturer of Interdisciplinary Studies; BA, Coe College; MIIM, The School for International Training; EdD, University of Houston

Hirt, Paul W. (2004), Associate Professor of History; BA, MA, PhD, University of Arizona

Hiryak, Christopher D. (2000), Faculty Associate of Public Affairs; BSE, Lock Haven University; MPA, Arizona State University

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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- 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, 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; 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
- Holley, Lynn C.** (2000), Assistant Professor of Social Work; BA, MSSW, University of Tennessee, Knoxville; PhD, University of Washington
- 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), Associate Professor of Theatre; BA, Boise State University
- 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 Counseling Psychology and Counselor Education; Director, Counselor Training Center; BA, MS, PhD, University of Oklahoma
- Honegger, Gitta** (2001), Professor of Theatre; PhD, University of Vienna (Austria)
- Hooper, 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; Interim Associate Dean of 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, International Institute for 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 Counseling Psychology and Counselor 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, 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
- Howell, Susan** (2001), Adjunct Professor of Anthropology; BA, San Jose State University; MA, PhD, Arizona State University
- Howells, Edmund G.** (1960), Professor Emeritus of Philosophy; BA, University of Utah; MA, University of Michigan; MA, Middlebury College; PhD, Stanford University
- Hrabe, David P.** (2002), Assistant Professor of Nursing; Director, Continuing and Extended Education, College of Nursing; BSN, Fort Hays State University; MS, Arizona State University; PhD, University of Arizona
- 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)
- Hubbard, Paul G.** (1950), Professor Emeritus of History; AB, Washab 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; BA, College of Wooster; MA, PhD, University of Texas, 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), Barrett Professor and Professor of Philosophy; 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, 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, Austin

Huss, Gary (1998), Senior Research Scientist of Geological Sciences; BA, Rice University; MS, University of New Mexico; PhD, University of Minnesota

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 African and African American Studies; Director, African and African American Studies Program; BSc, University of Nigeria (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

Innes, Matthew (2001), Assistant Professor of Architecture and Landscape Architecture; BEng, Sheffield City Polytechnic (United Kingdom); MS, University of Cambridge (United Kingdom)

Inskip, 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)

Ismeurt, Robert L. (1989), Associate Professor of Nursing; BSN, Florida State University; MS, Arizona State University; PhD, University of Texas, Austin

Isom, Matthew (1996), Senior Lecturer of Mathematics and Statistics; Director of First-Year Mathematics and Statistics; BA, Humboldt 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 Hall, Cheryl (2002), Lecturer of Interdisciplinary Studies; BA, University of Massachusetts; MA, University of Montana; PhD, University of California, San Francisco

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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- 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, the 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 Sociology; BA, Hebrew University of Jerusalem, (Israel); MS, 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
- Jacobson, Diana L.** (1996), Faculty Associate of Nursing; BSN, University of Arizona; MS, Arizona State University
- 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
- James, Jodi** (2003), Lecturer of Arts, Media, and Engineering; BA, BS, Hope College; MA, University of Utah
- 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
- Jarrell, Kay** (2002), Clinical Assistant Professor of Nursing; BSN, West Virginia University; MS, Arizona State University
- Jarvis, Cheryl Burke** (2000), Assistant Professor of Marketing; BS, MS, Texas A&M University; PhD, Indiana University
- Jasper, Marcia A.** (1976–86; 1993), Clinical Associate Professor of Nursing; BSN, St. Olaf College; MS, Arizona State University
- Jay, William (Bill)** (1974), Professor Emeritus of Art; Diploma, Institute of Incorporated Photographers, Berkshire College of Art (United Kingdom); Final Diploma, City and Guilds of The London Institute, Berkshire College of Art (United Kingdom); MA, MFA, University of New Mexico
- Jeans, Franklyn** (2002), Director, Communications, College of Law; BS, California State Polytechnical College; MS, Columbia University; JD, Arizona State University
- 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)
- Jinks, Derek** (2004), Associate Professor of Law; BA, University of Texas; MA, MPhil, JD, Yale University
- 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 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 Design; BA, MA, Iowa State University
- Johnson, Paul C.** (1994), Professor of Civil and Environmental Engineering; Associate Vice President of Research, Research and Economic Affairs; BS, University of California, Davis; MA, PhD, Princeton University
- Johnson, Penelope M.** (1995), Professor Emerita of Nursing; BS, University of Colorado; MS, Arizona State 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, Sue M.** (1994), Faculty Associate of Nursing; BSN, MS, Arizona State University
- Johnson, Wendee** (1990), Clinical Associate Professor of Nursing; BSN, Gustavus Adolphus College; MSN, University of Pennsylvania
- 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
- Johnson, William S.** (1990), Executive Director Emeritus, University College; BA, Washington State University; MS, Iowa State University; PhD, University of Southern California
- Johnston, Hubert** (1986), Clinical Associate Professional of Social Work; BS, Cheyney State College; MA, Central Michigan University; PhD, Cornell University
- 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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

Jones, Brad (2001), Faculty Associate of 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, International Institute for 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), Assistant 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; MEd, Northern Illinois University; EdD, Arizona State University

Justus, Jerry T. (1968), Professor Emeritus of Life Sciences; BA, Franklin College; MA, PhD, Indiana University, Bloomington

Juvel, Richard S. Jr. (1970), Professor Emeritus of Chemistry and Biochemistry; BS, PhD, University of California, Los Angeles

K

Kabiri-Badr, Mostafa (2004), Faculty Research Associate of Civil and Environmental Engineering; BS, University of Missouri; MS, Rensselaer Polytechnic Institute; PhD, University of Arizona

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

Kahler, James M. (2002), Lecturer of Marketing; BS, Xavier University; MS, Ohio University

Kahn, B. Winston (1966), Professor Emeritus of History; BA, National Taiwan University (Taiwan); MA, University of Minnesota, Twin Cities; PhD, University of Pennsylvania

Kahn, Kim (1989), Professor of Political Science; AB, MA, PhD, University of Michigan

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

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

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

Kang, Suk-Young (2003), Assistant Professor of Social Work; BA, Seoul National University College of Social Work (South Korea); MA, PhD, Columbia University

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), Associate Professor of Construction; BS, University of Hawaii, Manoa; MS, PhD, Arizona State University

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

Kastenbaum, Beatrice (1982), Clinical Associate Professor of Nursing; BSN, University of Michigan; MSN, Wayne State University

Kastenbaum, Robert J. (1981), Professor Emeritus of Gerontology and Communication; BA, Long Beach State College; PhD, University of Southern California

Kastre, Norma (2001), Lecturer of Curriculum and Instruction; BA, MA, PhD, Arizona State University

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

Katzman, Elaine Menter (1983), Professor Emerita of Nursing; BS, MS, PhD, Syracuse University

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 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, Janice M. (1982), Academic Associate, University College; Director, Academic Community Engagement Services; BA, MFA, Arizona State 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

Kendle, Jeri Cornoyer (2001), Adjunct Professor of Design; BS, Northern Arizona University

Kennedy, Chad (2003), Assistant Research Scientist of Bioengineering; BS, University of Texas, Austin; MS, PhD, Arizona State University

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

Kerr, Barbara A. (1990), Professor of Counselor Education and Counseling Psychology; AB, University of Missouri; MA, Ohio State University; PhD, University of Missouri

Kettner, Peter M. (1979), Professor Emeritus of Social Work; BA, Valparaiso University; MSW, Washington University; DSW, University of Southern California

Keuter, Clifford D. (1988), Professor of Dance

Kevane, Clement J. (1956), Professor Emeritus of Physics and Astronomy; BS, PhD, Iowa State University

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

Keys, Eric G. (2002), Assistant Professor of Geography; BA, Macalester College; MA, University of Texas, 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, Mary (1982–84; 1986), Associate Professor of Nursing; Associate Dean for Undergraduate Programs and Extended Education, College of Nursing; BSN, MS, Arizona State University; PhD, University of Texas, Austin

Killeen, Peter R. (1968), Professor of Psychology; BS, Michigan State University; PhD, Harvard University

Kim, Bruce (2000), Associate Professor of Electrical Engineering; BS, University of California, Irvine; MS, University of Arizona; PhD, Georgia Institute of Technology

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

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

King, Tracy (1998), Faculty Associate of Nursing; BSN, MS, 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 Counseling Psychology and Counselor 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, 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

Klann, Margaret L. (1945), Professor Emerita Kinesiology; BS, University of Illinois; MA, University of Northern Colorado

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

Kleinlein, Shirley (2002), Faculty Associate of Nursing; BSN, Bradley University; MSN, University of Phoenix



Klett, Mark C.
(1982)

Regents' Professor of Art; BS, Saint Lawrence University; MFA, State University of New York, Buffalo

Kliwer-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

Knudsen, Frances S. (1964), Professor Emerita of Nursing; BS, University of Arizona; MS, University of Colorado; PhD, Arizona State University

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- Knutson, Kraig** (1997), Assistant Professor of Construction; BS, MS, PhD, Arizona State University
- Knutson-Woods, Teri** (1997), Assistant Administrative Professional of Social Work; BA, Grand Canyon University; MSW, 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
- Koerner, Kurt J.** (1993), Faculty Associate of Construction; BS, U.S. Air Force Academy; MS, Golden Gate 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
- Kommenich, Pauline** (1984), Professor of Nursing; BS, Stanford University; MN, University of Washington; MA, PhD, University of Arizona
- Konjevod, Goran** (2000), Assistant Professor of Computer Science and Engineering; BSc, University of Zagreb (Croatia); MSc, PhD, Carnegie Mellon University
- Konomos, Phillip J.** (1991), Learning Resource Specialist, 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 Supply Chain 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
- 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
- Krinsky, Charles** (2004), Lecturer of Interdisciplinary Studies; BA, Wesleyan University; MA, New York University; PhD, University of California, Irvine
- Krinsley, David** (1976), Professor Emeritus of Geological Sciences; PhB, SB, SM, PhD, University of Chicago
- Kroelinger, Michael D.** (1980), Professor Emeritus of 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, Chapel Hill; MA, PhD, Brown University
- Kronengold, Eric A.** (1970), Professor Emeritus of Art; BA, MA, San Francisco State University
- Krueger, Janelle** (1984), Professor Emerita of Nursing; Dean Emerita, College of Nursing; BS, MS, PhD, University of Colorado
- Krus, David J.** (1975), Professor of Psychology in Education; BA, MA, Charles University; PhD, University of Minnesota, Twin Cities
- Kruschek, Michael** (2004), Adjunct Professor of Anthropology; BSc, Arizona State University; MA, PhD, University of Pittsburgh
- Krzys, Katherine J.** (1990), Associate Archivist, Department of Archives and Manuscripts; 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, International Institute for 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, 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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

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



Kulhavy, Raymond W.
(1971)

Regents' Professor Emeritus of Psychology in Education; BA, MA, California State College, San Diego; PhD, University of Illinois

Kulinna, Pamela Hodges (2003), Assistant Professor of Kinesiology; BS, MS, University of Oregon; PhD, University of Illinois, Urbana-Champaign

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 Valley, Mary (2000), Faculty Associate of Nursing; BA, Rhode Island College; MS, Northeastern University

Laananen, David (1983), Professor Emeritus of Mechanical and Aerospace Engineering; BS, Worcester Polytechnic Institute; MS, PhD, Northeastern University

Labelle, Jeffrey (2002), Assistant Research Scientist of Bioengineering; BSEE, Western New England College; MS, PhD, Arizona State 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 Mathematics and Statistics and Electrical Engineering; BS, MS, Zhejiang University (China); PhD, University of Maryland, College Park

Lamorey, Suzanne G. (1998), Clinical Associate Professor of Curriculum and Instruction; BA, University of California, Berkeley; MS, Arizona State University; PhD, University of Oregon

Lan, Zhiyong (1991), Professor of Public Affairs; BA, Nanjing University (China); MPA, North Carolina State University, Raleigh; PhD, Syracuse University

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; Interim Chair, Department 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

Langdon, Debra Seaman (2000), Senior Lecturer of Supply Chain Management; Recruitment Director; BA, Loretto Heights College; MBA, University of Denver

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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- Larson, Nancy C.** (1999), Assistant Professor of Social Work; BA, Western Washington University; MSW, PhD, University of Washington
- Larson-Bennett, Donna Rae** (1972), Law Librarian Emerita; BA, MALS, University of Michigan
- 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
- Lattouf, Mirna** (1998), Lecturer of Interdisciplinary Studies; BA, Rutgers, The State University of New Jersey; MA, New York University; PhD, University of Arizona
- 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, Austin; MA, PhD, Stanford University
- Lavrin, Asuncion** (1995), Professor of History; BA, University of Havana; MA, Radcliffe College; PhD, Harvard 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
- LeCroy, Craig** (1984), Professor of Social Work; BSW, San Jose State University; MSW, Western Michigan University; PhD, University of Wisconsin
- 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, Nancy** (1997), Adjunct Professor of Life Sciences; BS, Memphis State University; PhD, Cornell University
- 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 Interdisciplinary Humanities; 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
- Leighninger, Leslie** (2000), Professor of Social Work; Director, School of Social Work; BA, Oberlin College; MSW, Syracuse University; DSW, University of California, Berkeley
- 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** (1999), Assistant Professor of Women and Gender Studies; AB, MA, PhD, University of California, Berkeley
- Lersch, Judy** (1999), Clinical Assistant Professor of Nursing; BSN, University of Arizona; MEd, Northern Arizona University; MS, Arizona State University
- 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)
- Leshin, Laurie** (1998), Professor of Geological Sciences; Director, Center for Meteorite Studies; BS, Arizona State University; MS, PhD, California Institute of Technology
- 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
- Lewenstein, Suzanne** (1997), Academic Associate of Interdisciplinary Studies, University College; BA, University of Wisconsin, Madison; MA, Case Western Reserve University; PhD, Arizona State University
- Lewis, Charles F.** (1963), Research Specialist Emeritus, Center for Meteorite Studies; BA, Adams State College

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

Leyba, Raul L. (1970), Professor Emeritus of Social Work; BA, Western New Mexico University; MSW, University of Denver

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, 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 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

Lindquist, Barbara (2001), Lecturer of Interdisciplinary Studies; BSW, MSW, MA, PhD, University of Wisconsin, Milwaukee

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, University Art Museum; Associate Museum Professional; BA, MA, University of Texas, Austin

Lingas, Alexander (2001), Assistant Professor of Music; BA, Portland State University; PhD, University of British Columbia (Canada)

Link, Denise (2002), Clinical Associate Professor of Nursing; BSN, Gwynedd-Mercy College; MSN, University of Pennsylvania; DNSc, Widener University

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; Director, Executive Committee, 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 of Engineering; BS, National Taiwan University (Taiwan); 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, Xianchen (2001), Assistant Professor of Family and Human Development; BA, MS, Shandong University (China); PhD, University of Tokyo (Japan)

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

Lock, Ethan (1981), Associate Professor of Legal and Ethical Studies; BA, University of California, Berkeley; MBA, Arizona State University; JD, University of North Carolina, Chapel Hill

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, 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, Austin

Lorton, Dianne (2000), Adjunct Professor of Life Sciences; BS, PhD, Indiana State University

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

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, 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

Ludemann, Ruth S. (1984), Professor Emerita of Nursing; BSN, Columbia University; MSN, Wayne State University; PhD, Arizona State University

Luderer, Gottfried W.R. (1990), Professor Emeritus of Electrical Engineering; MSEE, PhD, Technical University Braunschweig (Germany)

Ludlow, Elizabeth A. (1972), Professor Emerita of Nursing; BSN, University of New Mexico; MS, Arizona State University

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; BA, Radcliffe College; AM, Harvard University

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 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

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), Lecturer of the Barrett Honors College; Faculty Chair, the Barrett Honors College; BA, Kalamazoo College; MA, Harvard University; PhD, Arizona State University

Lynch, John M. (1994), Lecturer of the Barrett Honors College; BSc, PhD, University College, Dublin (Ireland)

Lyuk, Myles (2000), Professor of Law; Kiewit Foundation Professor of the Legal Profession; AB, JD, Harvard University

M

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

MacEachron, Ann (1984), Professor of Social Work; BA, Cornell University; MSW, University of Pittsburgh; PhD, Cornell 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

Maderazo, Catherine (2003), Lecturer of Curriculum and Instruction; BA, University of California, Irvine; MA, University of California, Berkeley; PhD, Arizona 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), Associate Professor 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; 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

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

Mankin, Lawrence D. (1973), Professor Emeritus of Public Affairs; BBA, City College; MA, PhD, University of Illinois

Manuelito, Kathryn (2001), Assistant Professor of Curriculum and Instruction; BA, MA, University of New Mexico, Albuquerque; 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 Manuscripts; 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), Lecturer of Chemistry and Biochemistry; BS, St. Olaf College; MS, University of Arizona

Marlowe, Stephen (2004), Associate Director of Communications and Web Manager, College of Law; BA, Miami University; MFA, University of Iowa; JD, University of Toledo

Marohnic, Charles S. (1981), Professor Emeritus of Music; BA, MM, University of Miami

Marrero, Robert (1998), Adjunct Professor of Life Sciences; BS, City College of New York; PhD, University of Maryland, Baltimore

Marshall, Kimberly (1998), Professor of Music; Associate Director for Graduate Studies, School of Music; BA, University of North Carolina, Chapel Hill; DPhil, University College, Oxford (United Kingdom)

Marsiglia, Flavio F. (1994), Professor of Social Work; BLaw, SS, MSW, University of the Republic (Uruguay); PhD, Case Western Reserve University

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, 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

Martinez, 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)

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

Martinez-Brawley, Emilia E. (1992), Professor of Social Work; BA, National University of Tucumán (Argentina); MSS, Bryn Mawr College; EdD, Temple University

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, Austin

Mason, Hugh S. (2002), Associate Professor of Life Sciences; BS, University of Texas, 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, 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. (1967), Professor of Law; BA, MS, JD, University of Utah

Mathews, Mookencheryl (2004), Visiting Eminent Scholar; MTech, PhD, India Institute of Technology, Madras (India)

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, Clinical Services; BA, University of Massachusetts; MA, Washington State University; PhD, University of Wisconsin, Madison

Matt, Kathleen S. (1987), Professor of Kinesiology; Director of Clinical Partnership, 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

Mattson, Susan (1993), Professor of Nursing; Chair, Division of Adult Health/Parent-Child Nursing; BS, MA, MS, California State University, Los Angeles; PhD, Claremont Graduate University

Matyushov, Dimitry (2000), Assistant Professor of Chemistry and Biochemistry; BS, Moscow Institute of Physics and Technology (Russia); PhD, Vienna University of Technology (Austria)

Maxwell, Katherine Davis (1996), Clinical Assistant Professor of Nursing; BS, University of Utah; MS, Arizona State University

Maxwell, Kathryn (1988), Professor of Art; BA, Northwestern University; MFA, University of Wisconsin, Madison

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), Associate Professor 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 Assistant Professor of Communication Disorders; BS, MS, Arizona State University

McCabe, Barbara (1997), Associate Professor of Public Affairs; BA, MPA, Florida Atlantic University; PhD, Florida State University

McCarter, Joan H. (1961), Associate Professor of Mathematics and Statistics; BS, MA, University of Arizona

McCarthy, Marianne (1994), Associate Professor of Nursing; BSN, Mount Saint Mary College; MSN, Seton Hall University; PhD, University of California, San Francisco

McCarthy, Matthew J. (2003), Lecturer of Computer Information Systems; BS, Arizona State University; MS, Northern Arizona University

McCartney, Martha R. (1989), 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, International Institute for 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

McCormack, Brian (2000), Senior Lecturer of Interdisciplinary Studies; BA, BS, University of Nebraska, Omaha; BA, Australian National University (Australia); MA, PhD, Arizona State University

McCoy, Janetta Mitchell (1999), Assistant Professor of Design; BLS, St. Edwards University; MS, Cornell University; PhD, University of Wisconsin, Milwaukee

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; Director, School of Architecture and Landscape Architecture; BS, University of Southern California; MArch, Princeton University

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- McCready, Richard R.** (1960), Professor Emeritus of Computer Information Systems; BS, Valley City State Teachers College; MA, EdD, University of Northern Colorado
- McDaniel-Doran, Noreen** (2004), Lecturer of Curriculum and Instruction; BA, Northeastern Illinois University; MA, University of York (England); PhD, Fielding Graduate Institute, Santa Barbara
- McDermott, Lauren** (1990), Associate Professor of Design; BFA, MFA, Rochester Institute of Technology
- 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 Instructional Professional 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
- McGaughey, Robert W.** (1971), Professor Emeritus of Life Sciences; BA, Augustana College; MA, University of Colorado; PhD, Boston University
- McGaw, Dickinson L.** (1968), Professor Emeritus of Public Affairs; BA, MA, PhD, Indiana University, Bloomington
- McGehee, Shelley** (1985), Librarian Emerita; BMus, Converse College; MMus, MLS, University of Alabama
- McGibney 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
- McGrath, Jacqueline** (1999), Assistant Professor of Nursing; BSN, University of Akron; MSN, Kent State University; PhD, University of Pennsylvania
- 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
- 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, Jeff** (2001), Senior Lecturer of Theatre; BA, State University of New York; MFA, Columbia University
- McManus, Elizabeth B.** (2000), Lecturer of the Barrett Honors College; 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
- McMillen, Phyllis** (2000), Faculty Associate of Nursing; BSN, Union College, Lincoln; MSN, University of Nebraska Medical Center
- 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; 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 Counseling Psychology and Counselor 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
- 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, 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
- 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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- Melnyk, Bernadette** (2005), Professor of Nursing; Dean, College of Nursing; BS, West Virginia University; MS, University of Pittsburgh; PhD, University of Rochester
- Melody, Noeleen** (1991), Assistant Research Professor, Cancer Research Institute; BS, PhD, University College, Galway (Ireland)
- 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, 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)
- Mengeling, Kristina** (1999), Assistant Law Librarian, Ross-Blakley Law Library; BA, Northern Illinois University; MLS, Rosary College
- Menjivar, Cecilia** (1995), Associate Professor of Justice and Social Inquiry; 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 Counseling Psychology; 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; Interim 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, Barbara K.** (1976), Professor Emerita of Nursing; BSN, MSED, University of Akron; PhD, University of Texas, Austin
- 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
- Mills, Robert** (2004), Assistant Professor of Music; BA, University of Maryland, College Park; MM, 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 Professor 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
- Mitkova, Maria** (1999), Associate Research Professor of Electrical and Materials Engineering; BS, MSc, PhD, Technological University of Sofia (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, University of Pennsylvania

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

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

Montero, Darrel (1979), Associate Professor of Social Work; BA, California State University, Sacramento; MA, PhD, University of California, Los Angeles

Montgomery, Douglas C. (1988), Professor of Industrial Engineering; BSIE, MS, PhD, Virginia Polytechnic Institute and State University

Montgomery, Eric (1997), Faculty Associate of 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

Mooney, Elina (1988), Associate Professor of Dance

Moor, William C. (1968), Associate Professor of Industrial Engineering; Associate Chair, 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, Nancy (2002), Grant Writing Resource Specialist; BA, University of Maryland; MA, PhD, Princeton University

Moore, Patricia (1984), Professor Emerita of Nursing; BSN, Loyola University, Chicago; MS, Catholic University of America; MPH, DrPH, Johns Hopkins University

Moore, Patricia A. (2000), Adjunct Professor of Design; BFA, Rochester Institute of Technology; MA, Columbia University

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, Tsafir (2000), Assistant Professor of Life Sciences; BSc, MSc, PhD, Hebrew University of Jerusalem (Israel)

Morgan, Don (2000), Associate Professor of Kinesiology; BME, Northwestern University; MS, University of Tennessee, Knoxville; PhD, Arizona State University

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

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; BSN, MS, University of Arizona; EdD, Arizona State University

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

Morse, Jon (2003), Associate Professor of Physics and Astronomy; BA, Harvard University; MS, PhD, University of North Carolina

Moses, Michele (2000), Assistant Professor of Educational Leadership and Policy Studies; BA, University of Virginia; MEd, University of Vermont; MA, PhD, University of Colorado

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 Counselor 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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

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; MBA, Ohio State University; CPA, Arizona

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, Juanita F. (1971), Professor Emerita of Nursing; Dean Emerita, College of Nursing; BA, Oklahoma Baptist University; MS, PhD, Case Western Reserve University

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, Victoria (United Kingdom)

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

Nagy, Sandra Griffiths (1984), Academic Associate, University College; Assistant Director, Academic Success Programs; BEd, MA, PhD, Arizona State University

Nakagawa, Kathryn (1996), Associate Professor of Psychology in Education; BA, MA, University of Notre Dame; 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 Asian Pacific American Studies and Communication; Director, Asian Pacific American Studies Program; AB, Georgia State University; MA, PhD, University of Iowa

Napoli, Maria (1996), Associate Professor of Social Work; BA, H.H. Lehman College; MSW, PhD, New York University

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 Educational Psychology; BS, University of Wisconsin, Madison; PhD, Stanford University

Nelson, Ben A. (1995), Professor of Anthropology; Associate Chair, Department of Anthropology; BA, MA, Florida State University; PhD, Southern Illinois University

Nelson, G. Lynn (1973), Associate Professor of English; BA, Kearney State College; PhD, University of Nebraska, Lincoln

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

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, Kelly (1999), Senior Lecturer of Interdisciplinary Studies; BA, Michigan State University; MS, University of Southern Maine; PhD, Brandeis University

Nelson, Margaret (1995), Professor of Anthropology; Associate Dean, the 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

Nemiro, Jay S. (1995), Adjunct Professor of Life Sciences; BA, Temple University; MD, George Washington University School of Medicine

Nering, Evar D. (1960), Professor Emeritus of Mathematics and Statistics; BA, Indiana University, Fort Wayne; MA, PhD, Princeton 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), Assistant Professor of Life Sciences; BS, Hobart College; MA, MS, University of Hawaii; PhD, Emory 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

Ney, James W. (1969), Professor Emeritus of English; BA, MA, Wheaton College; EdD, University of Michigan

Nichols, Ann W. (1970), Associate Professor of Social Work; AB, Stanford University; MSW, DSW, Columbia University

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 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; PhD, Academy of Science of Russia, Research Institute of System Studies

Niles, Michael (1994), Assistant Professor of Social Work; BA, University of Missouri, Columbia; MSW, Arizona State University; PhD, University of Wisconsin, Madison

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

Nuñez, Diane E. (1995), Clinical Associate Professor of Nursing; BSN, MS, Arizona State University

O

O'Brien, Carmen A. (1959), Professor Emerita of Education; BA, MA, Arizona State University

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, Austin; CPA, Colorado

O'Donnell, Ed (1999), Assistant Professor of Accountancy; BBA, Texas A&M University; PhD, University of North Texas, Kingsville

O'Grady, Catherine (1991), Professor of Law; Executive Director, Clinical Programs; BA, University of Michigan; JD, Arizona State University

O'Haver, Judy (1999), Faculty Associate of Nursing; BSN, Niagara University; MS, 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'Keefe, Michael
(1963)

Regents' Professor Emeritus of Chemistry and Biochemistry; BS, PhD, University of Bristol (United Kingdom)

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

O'Leary, Timothy J. (1978), Associate Professor of Computer Information Systems; BS, Westminster College; MBA, DBA, Kent State University

O'Sullivan, Peggy (1998), Director, Advanced Public Executive Program; BS, Northern Arizona University; MPA, Arizona State University

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, 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), Adjunct Professor of Anthropology; BA, University of California, Santa Barbara; MA, PhD, Arizona State University

Okamoto, Scott K. (2000), Assistant Professor of Social Work; BS, University of California, Los Angeles; MSW, San Jose State University; PhD, University of Hawaii, Manoa

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, Ilana (1996), Associate Professor of Romanian; BA, University of Bucharest (Romania); MA, PhD, Arizona State University

Orlowicz, Connie (2002), Lecturer of Kinesiology; BAE, 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; 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

Padilla, Peter A. (1997), Assistant Professor of Sociology; BA, MA, University of Northern Colorado; PhD, Arizona State University



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. (2004), 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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- 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)
- Panchmatia, Bella** (1998), Faculty Associate of Nursing; BSN, University of Alberta (Canada); MSN, University of Wisconsin, Madison
- 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), Assistant 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, 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 Pittsburgh; AM, PhD, Harvard University
- Patel, Mookesh** (1990), Associate Professor of 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
- 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
- Patton, David W.** (2004), Research 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
- Paz, Juan J. Jr.** (1988), Associate Professor of Social Work; BA, University of Texas, El Paso; MS, University of Houston; DSW, Howard 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
- Peccia, Jordan** (2001), Assistant Professor of Civil and Environmental Engineering; BS, MS, Montana State University, Bozeman; PhD, University of Colorado, Boulder
- Peck, Laura** (2002), Assistant Professor of Public Affairs; BA, Arizona State University; MPA, MPhil, PhD, New York University
- 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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

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

Perry, Curtis (1995), Associate Professor of English; BA, Cornell University; MA, PhD, Harvard University

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

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, Kenneth J. (2001), Assistant Professor of Supply Chain Management; BS, University of Alabama; MBA, University of Akron; PhD, Michigan 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; 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

Pfister, A.J. (1991), Distinguished Research Fellow Emeritus of Public Affairs; BS, JD, University of Arizona

Pfuhl, Erdwin H. Jr. (1968), Professor Emeritus of Sociology; AB, Whitman College; AM, University of Idaho; PhD, Washington State University

Pfund, Michele E. (2004), Senior Lecturer of Industrial Engineering; 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; 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

Pian, Richard H.J. (1959), Professor Emeritus of Civil Engineering; BSCE, Kung Shang University (China); MSE, PhD, Cornell University

Piburn, Michael D. (1989), Professor Emeritus of Curriculum and Instruction; BS, University of California, Davis; PhD, Princeton University

Pickens, Judith M. (1987–99; 2000), Assistant Professor of Nursing; BSN, Marymount College; MS, University of Missouri; PhD, Arizona State University

Pickus, David (1999), Lecturer of the Barrett Honors College; BA, Lawrence University; MA, PhD, University of Chicago

Picraux, Thomas (2001), Professor of Materials Science and Engineering; Executive Director, Materials Science Program; BS, University of Missouri, Columbia; MS, PhD, California Institute of Technology

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

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 of Art; BFA, MFA, University of Nebraska, Lincoln

Pinckard, Mary-Margaret (1982), Librarian Emerita; BS, University of New Hampshire; MLS, University of Arizona

Pinkava, Donald J. (1964), Professor Emeritus of Life Sciences; BS, MS, PhD, Ohio State University

Pinto, Ana C. (2003), Adjunct Professor of Anthropology; BA, Rovira i Virgili University (Spain); MA, University of Barcelona (Spain); PhD, University of Oviedo (Spain)

Piper, Christopher J. (2003), Faculty Associate of Planning; BSD, Arizona State University

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- 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, Austin; MA, New York University; EdD, Stanford University
- Pittsley, Janice M.** (1987), Professor of Art; BFA, University of North Carolina, 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
- 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
- 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
- Poste, George H.** (2003), 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), Senior Research Technologist, Center for Solid State Electronics Research
- Prescott, Edward C.** (2004), 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
- Priest, Janice** (2001), Faculty Associate of Nursing; BSN, Weber State University; MSN, University of Utah
- 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
- 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
- Pritchard, Melissa** (1994), Associate Professor of English; BA, University of California, Santa Barbara; MA, Western Washington University
- Privateer, Paul** (1991), Associate Professor of Interdisciplinary Humanities; BA, MA, California State University, Stanislaus; PhD, University of California, Davis
- Prochazka, Michal** (2000), Adjunct Professor of Life Sciences; MD, University of Zurich (Switzerland)
- 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
- Pruden, Kristin** (2004), Research Scientist of Bioengineering; BS, Tufts University; MSE, PhD, Arizona State 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, 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
- Quay, Ray** (1990), Adjunct Professor of Planning; BS, Baylor University; MSCRP, University of Texas, Austin
- Quesada, Eugene R.** (1973), Professor Emeritus of Design; BA, Arizona State University

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

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

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), Associate Professor 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)

Ramer, Michael, Captain (2002), Assistant Professor of Military Science; BS, DeVry Institute of Technology

Ramsey, Kirby, Major (2004), Assistant Professor of Military Science; BS, Eastern Michigan University

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

Raupp, Gregory B. (1985), Professor of Chemical Engineering; 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

Raveslout, John C. (1993), Adjunct Professor of Anthropology; BA, MA, PhD, Southern Illinois University, Carbondale

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, Austin

Rawls, J. Alan (1997), Associate Professor of Life Sciences; BS, University of Western Ontario (Canada); PhD, Saint Louis University

Ray, Tushar (2001), Adjunct Professor of Life Sciences; BS, MS, PhD, University of Calcutta (India)

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 Counseling Psychology; BA, MA, University of North Carolina, Charlotte; PhD, University of North Carolina, 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, 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, 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, International Institute for Sustainability; BA, Harvard University; MA, PhD, University of Chicago

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; Director, Business Honors Program; Deputy Dean, W. P. Carey School of Business; 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, Mark P. (1988), Associate Professor of Biostatistics and Health Management and Policy; BS, University of Michigan; PhD, University of Chicago

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- 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 R.** (1988), Associate Professor of Biostatistics; 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), Assistant Professor of Electrical Engineering; MS, PhD, University of Pennsylvania
- Reiter, Wellington** (2003), Professor of Architecture and Landscape Architecture; Dean, College of Architecture and Environmental 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)
- Reneau, J. Hal** (1975), Professor Emeritus of Accountancy; BBA, MS, Texas Tech University; PhD, University of Missouri, Columbia
- 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, 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 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), Adjunct Professor of Anthropology; BA, MA, PhD, Arizona State University
- Rice, Glen E.** (1986), Associate Professor of Anthropology; Director, Office of Cultural Resource Management; 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, 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
- Rigual, Michelle** (2001), Assistant Law Librarian; BA, University of Texas, Austin; MLS, JD, University of Illinois
- Rikakis, Thanassis** (2001), Professor of Music; Director, Institute for Studies in the Arts; BA, Ithaca College; MA, DMA, Columbia University
- Ringenbach, Shannon D.** (1998), Assistant 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

- Ripley, Catherine** (2004), Adjunct Professor of Anthropology; BA, University of North Carolina, Charlotte; MA, University of Toronto (Canada); PhD, Arizona State University
- Rippon, Stephen** (1989), Academic Associate, University College; Director, Academic Success Programs; BA, MA, Arizona State University
- Riske, Marc C.** (1985), Associate Professor of Theatre; BFA, North Dakota State University; MFA, PhD, Wayne State University
- Risley-Curtiss, Christina** (1992), Associate Professor of Social Work; BA, University of Connecticut; MSSW, University of Tennessee; PhD, University of Maryland, Baltimore

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- Risseuw, 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, 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, Carolyn** (1982), Professor Emerita of Nursing; BSN, University of Western Ontario (Canada); MEd, Columbia University; PhD, Wayne State University
- 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, 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 Counseling Psychology and Counselor 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
- Roe, Sue** (2000), Faculty Associate of Nursing; BSN, MS, University of Arizona; DPA, Arizona State University
- Roedel, Ronald J.** (1981), Professor of Electrical Engineering; Associate Dean, Academic Affairs, Ira A. Fulton School of 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
- 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
- Rosdahl, Dana** (1994), Assistant Professor of Nursing; BSN, Montana State University; MS, Arizona State University; PhD, University of Arizona
- 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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

Ross, Katherine B. (2002), Adjunct Professor of Speech and Hearing Science; BA, University of North Carolina, 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

Rothschild, Mary Logan (1975), Professor of History and Women and Gender Studies; BA, MA, PhD, University of Washington

Rothstein, Paul (1998), Associate Professor of Design; BFA, University of Wisconsin-Stout, Menomonie; MD, Illinois Institute of Technology

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

Rountree, Michele (1999), Assistant Administrative Professional of Social Work; Coordinator of Field Education, School of Social Work; BA, University of Arizona; MSW, Boston 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, 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

Ruiz, Ester (1986), Associate Professor of Nursing; BSN, MS, PhD, Arizona State University

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 (1998), Associate Professor of Supply Chain Management; Director, W. P. Carey MBA Online Program; 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; Director, Program for Southeast Asian Studies; 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, 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

Sackton, Frank J. (1976), Professor Emeritus of Public Affairs; BS, University of Maryland, College Park; MPA, Doctor of Humane Letters, Arizona State 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 Leipzig (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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

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, 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, International Institute for 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

Sanft, Alfred C. (1990), Associate Professor of 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), Assistant 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)

Santorico, Ann (2003), Academic Associate, University College; Academic Advisor; BA, University of Phoenix; MEd, Arizona State University

Santos, Manuel (1999), Professor of Economics; Licenciatura, Autonomous University of Madrid (Spain); MA, PhD, University of Chicago

Santos de Barona, Maryann (1989), Professor of Psychology in Education; Interim Associate Dean; Academic Programs and Personnel, College of Education; BS, City University of New York; MA, PhD, University of Texas, 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

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), Adjunct 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), 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)

Sayles, Judy (1997), Clinical Assistant Professor of Nursing; BSN, University of Michigan; MS, Arizona State University

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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- 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
- 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, Georganne** (1983), Associate Professor of Women and Gender Studies; BA, Ithaca College; MA, University of Western Ontario (Canada); PhD, Arizona State University
- 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), Associate Professor of Art; BA, Concordia College; MA, Washington University; PhD, University of Bamberg (Germany)
- Schleifer, Thomas** (2001), Visiting Eminent Scholar of Construction; BS, MS, East Carolina University; PhD, Heriot-Watt University (United Kingdom)
- Schmeekle, 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 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, 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 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, 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 East Campus; BA, Carleton College; MA, PhD, University of Chicago
- Schwartz, Andrew B.** (1993), Research Professor of Bioengineering; BA, PhD, University of Minnesota
- Schwartz, Gary** (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
- Scoggin, Janet** (1989), Professor Emerita of Nursing; BSN, University of Portland; MS, PhD, Arizona State 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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- 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)
- 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
- Segura, Joseph M.** (1979), Associate Professor of Art; BA, MFA, Southern Illinois University, Carbondale
- Sehested, Colene R.** (1967), Professor Emerita of Nursing; BSN, University of Arkansas, Fayetteville; MSN, University of Maryland, Baltimore
- 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
- 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
- Shaefter, 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 of Art; Director, School 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 of Life Sciences; BA, University of Northern Iowa; MS, Arizona State University
- Shaw, Milton C.** (1978), Professor Emeritus of Engineering; BSME, Drexel University; MEd, ScD, University of Cincinnati; DrHC, University of Louvain (Belgium)
- 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
- Shears, Brenda L.** (1987), Adjunct Professor of Anthropology; Associate Research Administrator, Research Coordinator, International Institute for Sustainability; BA, Arizona State University; MA, Hunter College, City University of New York
- Shell, Leon G.** (1967), Professor Emeritus of Counselor 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
- Shigo, Peter** (2002), Faculty Associate of Design; BSD, Arizona State University
- Shimansky, Yuri** (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, Dosum** (2004), Assistant Professor of Design; BFA, Keimyung University (South Korea); MFA, University of Illinois, Urbana-Champaign
- Shinn, Randall A.** (1978), Professor 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)

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- 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, 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, 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, degré supérieur, Certificat de prononciation 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
- 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, Amarjit** (2002), Associate Research Professor of Bioengineering; BSc, Ranchi University (India); MSc, PhD, University of Bombay (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), Research Associate Professor of Russian and 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
- Small, Leigh** (2004), Assistant Professor of Nursing; BS, Keuka College; MS, PhD, University of Rochester
- 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, Beth** (2000), Associate Law Librarian; Assistant Director, Ross-Blakley Law Library; BA, Centenary College; MLS, JD, University of Washington
- Smith, Cheryl Aubin** (1996), Faculty Associate of Nursing; BSN, University of Arizona; MS, Arizona State University
- Smith, David F.** (2004), Adjunct Professor of Life Sciences; BS, Mississippi State University; PhD, University of Texas

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS



Smith, David J.

(1984)

Regents' Professor of Physics and Astronomy and Solid State Science; Director, Center for 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, 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, Ernest E. Jr. (1958), Professor Emeritus of Physics and Astronomy/Science Education; AB, MA, Colorado State University; EdD, New York University

Snyder, Lester M. Jr. (1967), Professor Emeritus of Counseling Psychology; BS, Millersville State College; MEd, Western Maryland College; PhD, University of Michigan

Soergel, Philip M. (1989), Associate Professor of History; BA, Muskingum College; AM, PhD, University of Michigan

Sola, Anthony (1995), Faculty Associate of Design; BA, Ottawa University; MBA, University of Phoenix

Solis, 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, Iris (2002), Faculty Associate of Design; BSD, Arizona State University

Song, Yuwu (1999), Assistant Librarian; BA, Luo Yang Foreign Languages University, China; MA, Clemson University; MLIS, University of Texas, Austin

Sorensen, Vibeke (2004), Professor of Arts, Media, and Engineering; 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

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

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

Speer, Therese (1997), Faculty Associate of Nursing; BSN, Salve Regina University; MS, University of Arizona

Spellman, Catherine (1995), Associate Professor 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 (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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

Spiers, James V. (1990), Senior Lecturer of Marketing; BS, Weber State College; MA, University of Northern Colorado

Spindler, Robert P. (1988), Archivist; Head, Department of Archives and Manuscripts; 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

Squires, Rose L. (1981), Professor Emerita of Nursing; BS, Duquesne University; MA, EdD, Columbia 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), Associate Professor of Educational Psychology; Training Director, School Psychology; BA, University of Texas, Austin; MEd, University of Houston, Victoria; PhD, University of Texas, Austin

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

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, DePaul University; MA, PhD, Arizona State University

Stanford, Michael (1992), Senior Lecturer of the Barrett Honors College; 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), Assistant Professor 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; BA, Harvard University; MBA, University of Chicago; JD, DePaul University

Steere, Caryl J. (1960), Professor Emerita of Education; BA, Albion College; MA, Arizona State University

Steffl, Bernita M. (1961), Professor Emerita of Nursing; BSN, MPH, University of Minnesota, Twin Cities

Steimle, Timothy C. (1985), Professor of Chemistry and Biochemistry; BS, Michigan State University; PhD, University of California, Santa Barbara

Steinbart, Paul (1997), Professor of Computer Information Systems; BA, University of Illinois; MBA, Southern Illinois University; PhD, Michigan State University

Steiner, Sue (1996), Associate Professor of Social Work; BA, Brandeis University; MSW, San Francisco State University; PhD, University of Washington

Steinmetz, Peter N. (2005), Assistant 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, 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), Assistant Professor of Theatre; BFA, MFA, University of Washington

Steverson, Norris J. (1932), Professor Emeritus of Kinesiology; BA, Arizona State University; MS, University of Southern California

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- Stewart, Donald G.** (1964), Professor Emeritus of Mathematics and Statistics; BA, MS, Utah State University; PhD, University of Tennessee, Knoxville
- Stiftel, Ruthy Z.** (1997), Lecturer of Hebrew; BA, Hebrew University of Jerusalem (Israel); MA, Ohio State University
- Stillwell, Susan B.** (1997), Clinical Associate Professor of Nursing; BS, College of Saint Teresa; MSN, University of Florida
- Stinson, Judith M.** (1997), Senior Instructional Professional of Law; Director, Legal Research and Writing and Academic Success Program; 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
- 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
- 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, Hildegard** (1961), Professor Emerita of 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
- Strickland, Patricia L.** (1999), Academic Associate, University College; Academic Advisor; BA, Cornell College; MS, Iowa State University
- 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
- Stromwall, Layne** (1996), Associate Professor of Social Work; BA, MSSW, University of Wisconsin, Madison; PhD, Case Western Reserve 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
- Stump, Glenda** (2000), Faculty Associate of Nursing; BSN, University of Pittsburgh; MSN, Wayne State University
- Stumpf, Angela M.** (1959), Professor Emerita of Nursing; BSN, Marquette University; MA, University of Chicago
- Sudol, David E.** (1996), Senior Lecturer of English; BA, Simpson College; MA, Drake University; PhD, University of Arizona
- Sugar, Thomas G.** (1999), Assistant Professor of Mechanical and Aerospace Engineering; BSE, MSE, PhD, University of Pennsylvania
- Sugiyama, Saburo** (1999), Associate Research Professor of Anthropology; BS, Tokyo-Keizai University (Japan); PhD, Arizona State University
- Suiter, Scott** (2003), Instructor of Military Science
- 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; Interim 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), Senior Lecturer of the Barrett Honors College; BA, University of Michigan; MA, PhD, University of Virginia
- Sutton, Sam** (2004), Visiting Professor of Law; BA, BS, University of Arizona; JD, George Washington University
- 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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- 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 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
- Sweeney, J. Gray** (1986), Professor of Art; BA, University of New Mexico; MA, PhD, Indiana University, Bloomington
- Sweeney, James D.** (1989), Associate Professor of Bioengineering; ScB, Brown University; MS, PhD, Case Western Reserve University
- 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; LL.M., New York University; JD, University of Buffalo
- Sylvester, Edward J.** (1982), Professor of Journalism and Mass Communication; AB, Princeton University; MA, City College
- 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, Selina** (2003), Assistant Professor of Chicana and Chicano Studies; BA, University of California, Irvine; PhD, University of California, Berkeley
- ### T
- 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)
- Tann, Sheila** (2001), Assistant Professor of Nursing; BSN, Northern Arizona University; ND, University of Colorado Health Sciences Center, School of Nursing
- Tao, Nongjian** (2001), Professor of Electrical Engineering; BS, Anhui University (China); PhD, Arizona State University
- Tatro, B.J.** (1990), Faculty Associate of Public Affairs; BA, MSSW, University of Louisville; PhD, Arizona State University
- Taylor, Jack J.** (1960), Professor Emeritus of Art; BS, Kutztown State College; MEd, Pennsylvania State University
- Taylor, Jacqueline** (1984), Professor Emerita of Nursing; BSN, University of Washington; MS, University of North Carolina, Chapel Hill; PhD, University of Arizona
- Taylor, Nora** (1998), Associate Professor of Interdisciplinary Humanities 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
- 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)
- Tharp, Julie** (1991), Associate Librarian, Hayden Reference Services; BA, University of Hawaii; MLS, University of Arizona
- Theobald, Clarabelle** (1962), Professor Emerita of Nursing; BSN, Arizona State University; MS, University of California, Los Angeles; PhD, Arizona State University
- Thibeau Catsis, Connie** (2001), Assistant Professor of 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, David A.** (1999), Senior Lecturer of Interdisciplinary Studies; BS, California State Polytechnic University; MBA, PhD, University of Southern California
- Thomas, George M.** (1981), Professor of Sociology; 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
- 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 Educational Psychology; BA, Carleton College; MA, PhD, University of Kansas
- 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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- Thomson, Tom R.** (1961), Professor Emeritus of Chemistry and Biochemistry; BA, University of California, Berkeley; MS, PhD, Kansas State University
- Thorne, Anita** (1984), Professor Emerita of Nursing; Diploma, Allegheny General Hospital; BSNEd, MA, University of Pittsburgh
- 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)
- 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
- 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
- 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)
- Tipton, Gary P.** (1969), Professor Emeritus of Chinese; BA, Brigham Young University; PhD, Indiana University, Bloomington
- Tobiason, Sarah J.** (1963–67; 1974), Professor Emerita of Nursing; BSN, Vanderbilt University; MA, Columbia University
- 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
- Tom, Beth** (1997), Faculty Associate of Design; BFA, Arizona State University
- 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
- 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
- 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
- Traaen, Teresa** (1993), Faculty Associate of Public Affairs; BA, Northern Arizona University; MA, Wheaton College; EdD, DPA, Arizona State University
- 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)
- Treasure, Darren C.** (1998), Associate Professor of Kinesiology; BA, West London Institute of Higher Education (United Kingdom); MS, PhD, University of Illinois, Urbana-Champaign
- Trelease, Richard N.** (1971), Professor of Life Sciences; BS, MS, University of Nevada, Reno; PhD, University of Texas, 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-Tong** (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)

Tsois, Rebecca A. (1993), Professor of Law; Executive Director, Indian Legal Program; BA, JD, University of California, Los Angeles

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 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

Turnbow, James W. (1959), Professor Emeritus of Civil Engineering; BSME, Texas Technological College; MSEM, PhD, University of Texas

Turner, Caroline Sotella 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-V

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, 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, 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, Arribidesi (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

Valdivieso, L. Teresa (1971), Professor Emerita of Spanish; BA, MAE, PhD, Arizona State University

Valenti, F. Miguel (2004), Professor of Theatre and Lincoln Professor of Ethics in the Arts; BA, JD, Yale University

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 (2004), Professor of Anthropology; Chair, Department of Anthropology; BA, PhD, University of Amsterdam (Netherlands)

Van Duzer, Leslie (1996), Associate Professor of Architecture and Landscape Architecture; BArch, MArch, University of California, Berkeley

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), Associate Professor 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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

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

Vana, Kimberly (2001), Faculty Associate of Nursing; BSN, Arizona State University; MSN, University of Arizona

Vanacour, Martin (1987), Faculty Associate of Public Affairs; BA, State University of New York, Buffalo; MPA, New York University; PhD, Arizona State University

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 Stedelschule (Germany)

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; Interim Dean, College of Extended Education; BS, Case Western Reserve University; MBA, DBA, Kent State University

Vermaas, Willem F.J. (1986), Professor of Life Sciences; Associate Director, School of Life Sciences Research Initiatives; DSc, Agricultural University (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

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

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

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; 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

Vitulo, 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; MLS, University of Michigan, Ann Arbor

Volek, Emil (1975), Professor of Spanish; Prom.Phil., PhD, Charles University, Prague (Czechoslovakia)

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

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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- 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 Justice and Social Inquiry and Lincoln Professor of Ethics, Justice, and the Public Sphere; 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
- Wall, Gerard** (1992), Adjunct Professor of Life Sciences; BS, State University of New York, Stony Brook; MS, PhD, Kansas State University
- 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
- Waller, Margaret Ann** (1997), Associate Professor of Social Work; BM, DePaul University; MSW, University of Illinois; PhD, University of Chicago
- 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
- 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 Manuscripts; BA, Pennsylvania State University; MLIS, University of Pittsburgh
- Warne, Donald K.** (2003), Clinical Professor of Health Management and Policy; BS, Arizona State University; MPH, Harvard; MD, Stanford University
- Warner, Carolyn** (1994), Associate Professor of Political Science; BA, University of California, San Diego; MA, 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
- 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 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)
- Weed, Andrew** (1999), Clinical Associate Professor of Design; BFA, Arizona State University; MFA, Basel School of Design (Switzerland)
- Weidemaier, William** (1977), Professor Emeritus of the 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)
- 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, Jane (2000), Assistant Professor of Accountancy; BBA, University of Wisconsin, Whitewater; MAcc, University of Georgia; PhD, University of Wisconsin

Weiss, Karl H. (1984), Senior Research Professional, Center for Solid State Science; BSc, Ursinus College; MSc, University of Arizona

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- 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, David** (1998), Senior Lecturer of Interdisciplinary Studies; Assistant Director, Bachelor of Interdisciplinary Studies Program; BA, Bucknell University; PhD, University of Southern California
- 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
- Weschler, Louis** (1980), Professor Emeritus of Public Affairs; BA, California State University, Long Beach; MA, PhD, University of California, Los Angeles
- West, Stephen G.** (1981), Professor of Psychology; BA, Cornell University; MA, PhD, University of Texas
- West, Stephen H.** (2004), Professor of Chinese; BA, MA, University of Arizona; PhD, University of Michigan; PhD, Australian National University (Australia)
- 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, 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
- Wheatley, John C.** (1983), Senior Research Professional of Physics and Astronomy; BS, Arizona State 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, 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, 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
- 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 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
- Whitcotton, 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
- Wiesel, Avi** (1995), Associate Professor of Construction; BScCE, Polytechnic Institute of Timisoara (Romania); MScCE, PhD, Technion-Israel Institute of Technology (Israel)
- Wigal, Kathy D.** (2000), Lecturer of Accountancy; BS, Arizona State University; MBA, MEd, EdD, Northern Arizona University
- 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; 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
- Wilkins, Barry J.** (1992), Senior Research Professional, Center for Solid State Science; BA, Columbia Union College; MSC, Rutgers, The State University of New Jersey

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

- 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, Carol E.** (1984), Academic Associate, University College; Assistant Director, Academic Success Programs; BA, Trinity University, San Antonio; MA, Arizona State University
- 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 of Theatre; Dean, 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 for 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), 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
- Wintergalen, Barbara A.** (1992), Professor Emerita of Nursing; BSN, Loretto Heights College; MS, Arizona State University
- 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 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; Assistant Chair for Graduate Studies, Department of Chemistry and Biochemistry; BA, University of California, San Diego; MS, PhD, University of California, Berkeley
- Wolf, Robert** (1985), Professor Emeritus of Design; BS, Southern Illinois University, Carbondale; MA, University of Missouri; Certificate, Konstindustriskolan (Sweden)
- Wolf, W. Shapard Jr.** (1983), Associate Research Administrator, Sociology; Director, Survey Research Laboratory, Sociology; BFA, Florida State University; MEd, University of Georgia
- Wolfe, Philip M.** (1988), Professor of Industrial Engineering; BS, University of Missouri; MSE, PhD, Arizona State University
- Wolfthal, Diane** (1995), Associate 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

TEMPE CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

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, 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 C. (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

Woodley, Ann E. (2000), Professor of Law; Director, Lodestar Mediation Clinic; BA, University of Arizona; JD, Arizona State University

Woodman, Natalie J. (1969), Professor Emerita of Social Work; BA, New York University; MSS, Smith College

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, 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)

Wotring, Roxena A. (1994), Clinical Assistant Professor of Nursing; BSN, MS, Arizona State University

Wright, David (1981), Associate Research Professional, Center for Solid State Science; BS, Arizona State University

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

Wulk, Ned W. (1957), Professor Emeritus Kinesiology; BS, Wisconsin State University; MEd, Xavier University

Wurzburger, Marilyn J. (1960), Librarian; Department of Archives and Manuscripts; BA, MacMurray College

Wurzell, Carol A. (1965), Professor Emerita of Nursing; BS, California State College, Chico; MS, University of Maryland, College Park

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

Wynne, Mary (2004), Associate Professor of Law; BA, Augustana College; JD, University of Minnesota

Wysoki, Ken (1984–1986, 2001), Faculty Associate of Nursing; BSN, University of Wisconsin, Milwaukee; MS, Arizona State University; PhD, University of Arizona

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), Associate 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

Yancy, Margaret Lee (1997), Faculty Associate of Nursing; BSN, MS, Arizona State University

Yao, Lun-Shin (1981), Professor of Engineering; BSE, Cheng Kung University; MS, University of Texas; PhD, University of California, Berkeley

Yao, Winberta M. (1975), Librarian Emerita; BA, University of California, Berkeley; MS, Columbia 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, 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

Yepez, Eleanor (1984), Academic 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

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; Interim Director, 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

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; Associate Dean, Student Support Services, Division of Graduate Studies; 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

Zell, Ann (2000), Academic Associate of Electrical Engineering

Zenhausern, Frederic (2003), Associate Research 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), Assistant 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 Educational Psychology; BA, New York University; PhD, University of Rochester

Zimmer, Carl R. (1959), Professor Emeritus of Engineering; BSEE, Cornell University; MSEE, PhD, Syracuse University

Zottola, Adelina (1997), Academic Associate, University College; Program Coordinator, Science and Math Service Learning; BS, State University of New York, Binghamton

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

Zygmund, Linda (2004), Academic Associate, University College; Academic Advisor; BA, Montana State University, Billings; MSW, Western Michigan University; MEd, Montana State University

Tempe Campus Administrative Personnel

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	Nancy A. Gutierrez
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 Olivias
Assistant to the Executive Vice President and Provost of the University	Linda Van Scoy
Assistant to the Executive Vice President and Provost of the University	Alan Carroll
Special Assistant to the Executive Vice President and Provost for Web Development	Jake Kupiec
Director, Fiscal and Business Services	Lynn Carpenter
Director, Academic Articulation	Zoila Gamero de Tovar
Director, Data Warehousing and Data Administration	John Rome
Director, International Programs	William G. Davey
Director, Center for Learning and Teaching Excellence	<i>To Be Appointed</i>
Director, Summer Sessions	Carol Switzer
Director, University Evaluation	<i>To Be Appointed</i>

Barrett Honors College

Dean, the 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 Architecture and Environmental Design

Dean, College of Architecture and Environmental Design	Wellington Reiter
Associate Dean, College of Architecture and Environmental Design	Lorraine M. Cutler
Associate Dean for Academic Affairs, College of Architecture and Environmental Design	Kenneth R. Brooks
Director, PhD Program in Environmental Design and Planning	K. David Pijawka
Director, School of Architecture and Landscape Architecture	<i>To Be Appointed</i>
Director, School of Design	Jacques Giard
Director, School of Planning	Hemalata Dandekar
Director, Herberger Center for Design Research	<i>To Be Appointed</i>
Coordinator, Joint Urban Design Program	John McIntosh
Coordinator, Joint Urban Design Studio	Michael Dollin

College of Education

Vice President for University-School Partnerships and Dean, College of Education	Eugene E. García
Interim Associate Dean for Academic Programs and Personnel	Maryann Santos de Barona
Interim Associate Dean, Teacher Education	Elaine Surbeck
Interim Associate Dean for Research	Stafford Hood
Assistant Dean, Office of Student Services	Inta "Maggie" Tolan
Interim 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 Christine
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 Sotella Vienes 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 Sotella Vienes 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	Patricia Arredondo
Academic Program Leader, Educational Psychology	Samuel B. Green
Academic Program Leader, Educational Technology	James D. Klein
Training Director, School Psychology	Mary E. Stafford
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 Extended Education

See “College of Extended Education Administrative Personnel,” page 711.

College of Law

Dean, College of Law	Patricia D. White
Associate Dean of Information Technology and Director, Ross–Blakley Law Library	Victoria K. Trotta
Assistant Dean, Academic Affairs	Leslie Mamaghani
Assistant Dean, Institutional Operations	Christopher Baier
Assistant Dean, Student Life and Development	Michael Bossone
Executive Director, Indian Legal Program	Rebecca A. Tsosie
Executive Director, Center for the Study of Law, Science, and Technology	Gary E. Marchant
Executive Director, Clinical Programs	Catherine O’Grady
Director, Communications	Franklyn Jeans
Associate Director, Communications	Stephen Marlowe
Director, Center for the Study of Law, Science, and Technology	Andrew Askland
Director, Legal Research and Writing and Academic Success Program	Judith M. Stinson
Director, Indian Legal Program	Kathlene Rosier
W. P. Carey Assistant Dean of Career Services	Iлона DeRemer

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 Anthropology	Sander van der Leeuw
Chair, Department of Chemistry and Biochemistry	Robert E. Blankenship
Chair, Department of Chicana and Chicano Studies	Cordelia C. Candelaria
Chair, Department of English	Neal 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 Mandarin
Chair, Department of Languages and Literatures	Pier Raimondo Baldini
Chair, Department of Mathematics and Statistics	Andrew Bremner
Chair, Department of Military Science	Lieutenant Colonel Herbert M. Chong
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

TEMPE CAMPUS ADMINISTRATIVE PERSONNEL

Chair, Department of Speech and Hearing Science	Sid P. Bacon
Director, African and African American Studies Program	Okechukwu Iheduru
Director, American Indian Studies Program	Eddie Brown
Director, Asian Pacific American Studies Program	Mary Romero
Director, Hugh Downs School of Human Communication	H.L. "Bud" Goodall, Jr.
Director, School of Justice Studies and Social Inquiry	Doris Marie Provine
Director, School of Life Sciences	Robert E. Page
Director, Center for Asian Studies	Claudia Brown
Director, Cancer Research Institute	G. Robert Pettit
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

College of Nursing

Dean, College of Nursing	Bernadette Melnyk
Associate Dean for Graduate Programs and Research	Karen H. Sousa
Associate Dean for Undergraduate Programs and Extended Education	Mary Killeen
Director, Continuing and Extended Education	David P. Hrabec
Director, Student Services	Jean Craig Stengel
Chair, Division of Adult Health/Parent-Child Nursing	Susan Mattson
Chair, Division of Community Public Health/Psych-Mental Health Nursing	Rojann Alpers
Manager, Community Health Services Clinic	M. Christina Lyons

College of Public Programs

Interim Dean, College of Public Programs	Jeffrey Chapman
Associate Dean, College of Public Programs	Elizabeth Segal
Assistant Dean, College of Public Programs	Nancy Gwilliam
Director, Academic Services	Rudy R. Garcia
Director, Alumni and Media Relations	Debra Palka
Director, Student Services	Cheryl Herrera
Coordinator, Student Services	Kimberly Huffaker
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	Peggy O'Sullivan
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

Division of Graduate Studies

Vice Provost and Dean of Graduate Studies	Maria T. Allison
Associate Dean, Student Support Services	Marjorie S. Zatz
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, Graduate Admissions	Michael A. Dickson

Ira A. Fulton School of Engineering

Dean, Ira A. Fulton School of Engineering	Peter E. Crouch
Associate Dean, Academic Affairs	Ronald J. Roedel
Associate Dean, Planning and Administration	Ben M. Huey
Interim Executive Associate Dean, Research	Edward Hall
Assistant Dean, Business and Fiscal Services	Ruth Bettenhausen
Assistant Dean and Director, Center for Professional Development	Jeffrey S. Goss

TEMPE CAMPUS ADMINISTRATIVE PERSONNEL

Assistant Dean, Academic Administration	Marilyn L. Hart
Assistant Dean, Academic Affairs	Barry W. McNeill
Director, Del E. Webb School of Construction	William W. Badger
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. Goodnick
Chair, Department of Industrial Engineering	Gary L. Hogg
Chair, Department of Mechanical and Aerospace Engineering	Robert E. Peck
Director, Engineering Core and Special Studies	Ronald J. Roedel
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
Director, Institute for Manufacturing Enterprise Systems	Thomas E. Callarman

Katherine K. Herberger College of Fine Arts

Dean, The Katherine K. Herberger College of Fine Arts	J. Robert Wills
Associate Dean, Research and Administration	Margaret M. Knapp
Assistant Dean, Student Academic Services	Gina Stephens
Director, School of Art	Jon W. Sharer
Chair, Department of Dance	<i>To Be Appointed</i>
Director, School of Music	Wayne A. Bailey
Chair, Department of Theatre	Linda Essig
Director, Communications	Stacey Shaw
Director, Community Programs	Melanie Ohm
Director, Fine Art Programs	Catherine Fletcher
Director, Institute for Studies in the Arts	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 College

Vice Provost and Dean, University College	Gail Hackett
Associate Dean, University College	Frederick C. Corey
Assistant Dean, University College	Shelly Potts
Director, Academic Community Engagement Services	Janice M. Kelly
Director, Academic Success Programs	Stephen Rippon
Director, Academic Advising Services	Casey Self
Director, Bachelor of Interdisciplinary Studies	Kevin H. Ellsworth
Interim Director, School of Interdisciplinary Studies	Frederick C. Corey
Senior Program Coordinator, General Studies	Phyllis Lucie
Senior Business Manager	Kathleen Renshaw

University Libraries

University Librarian and Dean	Sherrie Schmidt
Associate Dean, Library Services	Vicki Coleman
Associate Dean	John B. Howard
Assistant 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, Department of Archives and Manuscripts	Robert P. Spindler
Head, Government Documents/Map Collection	Brad T. Vogus
Head, Library Information Systems and Technology (LIST)	Scott S. Herrington
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	Rosalinda DeFato

W. P. Carey School of Business

Dean, W. P. Carey School of Business	Robert E. Mittelstaedt Jr.
Deputy Dean	Philip R. Regier

TEMPE CAMPUS ADMINISTRATIVE PERSONNEL

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	Gerald Keim
Associate Dean, Undergraduate Programs	Kay Faris
Assistant Dean, Fiscal and Business Services	Anne Nguyen
Director, School of Accountancy	James R. Boatsman
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	William H. Glick
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

Interim Director	Stephen K. Doig
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ASU Administrative Personnel

See ["Administrative Personnel," page 521.](#)

West Campus

www.west.asu.edu

Mark S. Searle, PhD, Vice President, ASU; Provost, West Campus

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The West campus, a community-focused metropolitan campus of Arizona State University located in Phoenix, serves the community and more than 7,300 residential and commuter students of diverse ages, ethnic backgrounds, and experiences through 30 baccalaureate programs, 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. It 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 West campus' vision 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, 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.

ACCREDITATION

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 in Social Work and Master of Social Work programs are accredited by the Council on Social Work Education (CSWE). See the “**Academic Accreditation at West Campus**” table, page 713.

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. These academic units

WEST CAMPUS

West Campus Baccalaureate Degrees and Majors

Major	Degree	Concentration*	Administered By
Accountancy	BS	—	Department of Accounting and Information Systems Management
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 Integrative Studies
Applied Science	BAS	Any minor available at the West campus or individualized concentration	Department of Integrative Studies
Communication Studies	BA, BS	—	Department of Communication Studies
Criminal Justice and Criminology	BS	—	Department of Criminal Justice and Criminology
Elementary Education	BAE	Optional: bilingual education/English as a second language or early childhood education*	Department of Elementary Education
English	BA	—	Department of Language, Cultures, and History
Global Business	BS	Financial management, information systems management, international studies, leadership and management, or marketing	School of Global Management and Leadership
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	Media, music, performance studies, theater/performance, or visual art	Department of Interdisciplinary Arts and Performance
Life Sciences	BS	—	Department of Integrated Natural Sciences
Nursing	BSN	—	College of Nursing (Tempe campus)
Political Science	BA, BS	—	Department of Social and Behavioral Sciences
Psychology	BA, BS	—	Department of Social and Behavioral Sciences
Recreation and Tourism Management	BS	—	Department of Recreation and Tourism Management
Secondary Education	BAE	Academic specializations: English, history, mathematics, or social studies	Department of Secondary Education
Social and Behavioral Sciences	BA, BS	—	Department of Social and Behavioral Sciences
Social Work	BSW	—	Department of Social Work
Sociology	BA, BS	—	Department of Social and Behavioral Sciences
Spanish	BA	—	Department of Language, Cultures, and History
Special Education	BAE	—	Department of Special Education
Women's Studies	BA, BS	—	Women's Studies Program

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

West Campus Graduate Degrees and Majors

Major	Degree	Concentration*	Administered By
Business Administration	MBA	—	School of Global Management and Leadership
Communication Studies	MA	—	Department of Communication Studies
Criminal Justice	MA	—	Department of Criminal Justice and Criminology
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
Interdisciplinary Studies	MA	—	New College of Interdisciplinary Arts and Sciences
Secondary Education	MEd	Optional: educational technology*	Department of Graduate Studies and Professional Development
Social Work	MSW	Advanced generalist practice	Department of Social Work
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*.

develop and implement the teaching, research, and service programs of the institution, aided by the Fletcher Library and other 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–East campus committees serving the needs of a rapidly growing institution.

See “[West Campus Faculty and Academic Professionals](#),” page 695, and “[West Campus Administrative Personnel](#),” page 702.

ADMISSION

Nondegree Students

Nondegree students may take courses at the West campus according to the special provisions under “[Admission of Undergraduate Nondegree Applicants](#),” page 72.

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.

For more information on applying to the West campus degree programs, see the current *West Campus Catalog* or *West Campus Schedule of Classes*. For applications and admission information, call 602/543-8203, or write

ADMISSION SERVICES
UNIVERSITY CENTER BUILDING 120
ARIZONA STATE UNIVERSITY WEST CAMPUS
PO BOX 37100
PHOENIX AZ 85069-7100

Change of Major from Tempe Campus or East Campus to West Campus

Currently enrolled 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

Effective academic advising is an essential aspect of the educational experience at the West campus. Prospective students should contact a general advisor as a first step in the admission process. To make an appointment, call 602/543-WCAC, or visit the Campus Advising Center in UCB 201. A general counselor reviews admission requirements and processes and makes referrals to academic advisors as appropriate. A convenient alternative is to meet with an outreach advisor at a West campus Transfer Center located on the campuses of local community colleges.

DEGREE PROGRAMS

See the “[West Campus Baccalaureate Degrees and Majors](#)” table, page 686, and the “[West Campus Graduate Degrees and Majors](#)” table, on this page.

WEST CAMPUS

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	New College of Interdisciplinary Arts and Sciences
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
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

West Campus Certificates

Certificate	Administered By
Accountancy, Postbaccalaureate Certificate in	Department of Accounting and Information Systems Management
Communication and Human Relations, Postbaccalaureate Certificate in	Department of Communication Studies
Ethnic Studies, Certificate in	New College of Interdisciplinary Arts and Sciences
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 and Information Systems Management
Women's Studies, Certificate in	Women's Studies Program
Writing, Certificate in	Department of Language, Cultures, and History

The College of Teacher Education and Leadership offers postbaccalaureate programs for teacher certification in elementary education and secondary education. Students who complete the approved program, including student teaching, are recommended for certification to the Arizona Department of Education.

For more information on West campus degree requirements, see the *West Campus Catalog* in print or on the Web at westcgi.west.asu.edu/acadaffairs/curriculum/catalog.cfm.

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, on this page, and the “[West Campus Certificates](#)” table, on this page.

For information on the university-wide Gerontology Program, see “[Gerontology](#),” page 690. For more information,

refer to the individual department or college descriptions in the *West Campus Catalog*.

Tempe Campus 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 474.

Course Information

For information on West campus course offerings, see the current *West Campus Schedule of Classes*. For West campus course descriptions and General Studies courses offered at the West campus, see the *West Campus Catalog* or westcgi.west.asu.edu/acadaffairs/curriculum/catalog.cfm.

LIBRARY SERVICES

The Fletcher Library provides resources that support the curricula of the West campus with a collection of 331,000 volumes, 1.4 million microforms, 9,600 videos, and 15,000 slides. As participants in the shared resources environment of ASU, users can access more than 74,000 print and e-journals, and nearly four million monographic titles. Approximately 95 percent of electronic databases are available to ASU registered users from home computers.

A wide range of information and research tools are available through the Fletcher Library Web site at library.west.asu.edu. 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 academic disciplines, including Internet resources.

For library hours and information, call 602/543-8501.

STUDENT AFFAIRS

Student Affairs is responsible for the delivery of a variety of services and developmental programs. These services support both the administrative needs and educational pursuits of students and include

1. admission and enrollment services,
2. career services and personal counseling,
3. disability support services,
4. financial aid,
5. testing services,
6. multicultural student services,
7. recruitment and outreach,
8. registration services,
9. residential life,
10. student employment,
11. student health services,
12. student life, and
13. veterans services.

For more information, visit the University Center Building, access the Web site at www.west.asu.edu/sa, call 602/543-8152, or write



Las Casas, the West campus residence hall, features a state-of-the-art computer lab.

Tim Trumble photo

STUDENT AFFAIRS
ARIZONA STATE UNIVERSITY WEST CAMPUS
PO BOX 37100
PHOENIX AZ 85069-7100

STUDENT HOUSING

A new 400-bed student housing facility opened at the West campus in August 2003. The facility features two three-story buildings of apartment-style residential units with full kitchens, laundry facilities, a community hall with multipurpose rooms and a computer lab, a swimming pool, and convenient parking. Amenities include tutoring services, academic advising, in-room Internet access, coordinated educational and social activities, and dining services close by on campus. The expense to residents is competitive with the rental costs of nearby apartment complexes. For more information, call 602/543-CASA.

COLLEGE OF EXTENDED EDUCATION

The university-wide College 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 “College of Extended Education,” page 703, or access the Web site at www.asu.edu/xed.

Gerontology

Interdisciplinary Certificate Program

www.west.asu.edu/chs/grn

602/543-6642

FAB S121

Richard Gitelson, Director

Anthropology (Tempe campus)

Professor: Carr

Communication Studies (West campus)

Professor: V. Waldron

Associate Professors: Di Mare, Kelley

Design (Tempe campus)

Associate Professor: Cutler

English (Tempe campus)

Professor: Kehl

Exercise and Wellness (East campus)

Associate Professors: Phillips, 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

Integrative Studies (West campus)

Professor: McGovern

Kinesiology (Tempe campus)

Regents' Professor: Daniel Landers

Professor: Stelmach

Associate Professor: Etnier

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 (Tempe campus)

Professor: Komnenich

Associate Professors: Killeen, McCarthy

Nutrition (East 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 Professor: Burluson

Assistant Professor: Anastasi

Social Work (Tempe 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 24 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.

Certificate in Gerontology

An interdisciplinary, 21-semester-hour Certificate in Gerontology, administered by the Committee on Gerontology, is open to individuals with an earned 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.

The course work is composed of six semester hours of required courses, a capstone experience, and 12 hours of aging-related elective courses chosen in consultation with an advisor. For more information on program requirements, contact the Gerontology Program office.

Minor in Gerontology

The minor in Gerontology consists of 18 semester hours—six hours of required course work and 12 hours of electives. Undergraduate students may begin taking courses for the minor upon completion of 56 semester hours with a minimum cumulative GPA of 2.00.

The minor may be used to fulfill the BIS concentration requirement. See “[School of Interdisciplinary Studies](#),” page 124.

For more information, call 602/543-6642, or access the program Web site at www.west.asu.edu/chs/grn.

GERONTOLOGY (GRN) Tempe and West Campuses

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 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. Lecture, lab.

W GRN 484 Undergraduate Internship. (3–6)

fall, spring, summer

W GRN 494 Undergraduate Special Topics. (1–4)

fall, spring, summer

Selected topics in gerontology.

W GRN 498 Undergraduate Pro-Seminar. (3)

selected semesters

W GRN 499 Undergraduate Individualized Instruction. (3)

selected semesters

M GRN 530 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.



The West campus Welcome and Community Center gets students settled in to campus living.

Tim Trumble photo

M GRN 531 Caregiving. (3)

selected semesters

Examines theory and practice of caregiving for the senior population. Lecture, discussion.

M GRN 540 Aging and Wellness. (3)

selected semesters

One-on-one service/experiential learning with seniors from the community. Lecture, lab. Cross-listed as SWG 517. Credit is allowed for only GRN 540 or SWG 517.

M GRN 550 Biology of Aging. (3)

selected semesters

Examines normal biological aging and changes in functional capabilities in the elderly. Lecture, lab.

M GRN 560 Alzheimer's and Related Dementias. (3)

selected semesters

Familiarization with Alzheimer's disease and related dementias from a caregiver's perspective. Lecture, lab.

M/W GRN 584 Graduate Internship. (3–6)

fall, spring, summer

M/W GRN 590 Graduate Reading and Conference. (3)

fall, spring, summer

M/W GRN 591 Graduate Seminar. (1–6)

fall and spring

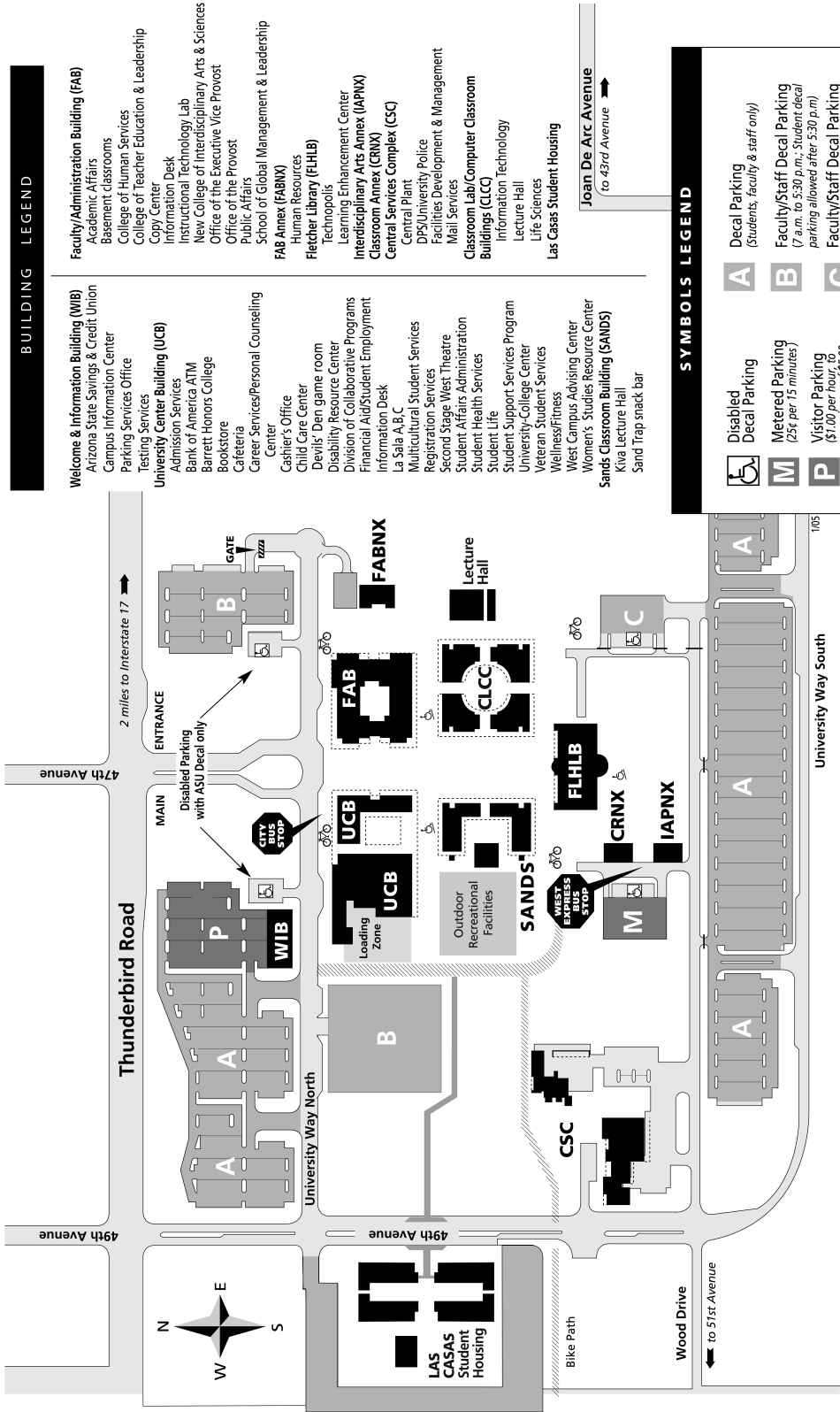
M/W GRN 598 Special Topics. (3)

selected semesters

Selected topics in gerontology.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see “[Omnibus Courses](#),” page 63.

WEST CAMPUS MAP



BUILDING LEGEND

- Welcome & Information Building (WIB)**
- Arizona State Savings & Credit Union
- Campus Information Center
- Parking Services Office
- Testing Services
- 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
- Dewitt's Den game room
- Disability Resource Center
- Division of Collaborative Programs
- Financial Aid/Student Employment
- Information Desk
- La Salle 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 Center
- Veteran Student Services
- Wellness/Fitness
- West Campus Advising Center
- Women's Studies Resource Center
- Sands Classroom Building (SANDS)**
- Kiva Lecture Hall
- Sand Trap snack bar
- Faculty/Administration Building (FAB)**
- Academic Affairs
- Basement Classrooms
- College of Human Services
- College of Teacher Education & Leadership
- Copy Center
- Information Desk
- Instructional Technology Lab
- New College of Interdisciplinary Arts & Sciences
- Office of the Executive Vice Provost
- Office of the Provost
- Public Affairs
- School of Global Management & Leadership
- FAB Annex (FABNX)**
- Human Resources
- Fletcher Library (FLHLB)
- Technopolis
- Learning Enhancement Center
- Interdisciplinary Arts Annex (IAPNX)**
- Classroom Annex (CRNX)**
- Central Services Complex (CSC)**
- Central Plant
- DPS/University Police
- Facilities Development & Management
- Mail Services
- Classroom Lab/Computer Classroom Buildings (CLCC)**
- Information Technology
- Lecture Hall
- Life Sciences
- Las Casas Student Housing

SYMBOLS LEGEND

- Disabled Decal Parking
 - Metered Parking (25¢ per 15 minutes)
 - Visitor Parking (\$1.00 per hour, a maximum of \$5.00 24 hours)
 - Accessible Ramp
 - Decal Parking (Students, faculty & staff only)
 - Faculty/Staff Decal Parking (7 a.m. to 5:30 p.m.; Student decal parking allowed after 5:30 p.m.)
 - Faculty/Staff Decal Parking (24 hours)
 - Bicycle Racks
- Parking regulations are enforced at all times. Decals are required on campus from 7am through 10pm. Meters are enforced from 7am until 10pm.



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

West Campus Directory

For the “East Campus Directory,” see page 598. For the “Tempe Campus Directory,” see page 606. For the “College of Extended Education Directory,” see page 711.

Organization	Location	Telephone	Web Address
Academic Affairs	FAB N301	602/543-4509	westcgi.west.asu.edu/acadaffairs
Admission and Enrollment Services	UCB 120	602/543-8203	www.west.asu.edu/admissions
Arts and Sciences, New College of Interdisciplinary	FAB N201	602/543-6000	www.west.asu.edu/coas
Bachelor of Applied Science Program	FAB N206	602/543-4BAS	www.west.asu.edu/bas
Ethnic Studies Program	FAB N204	602/543-6007	www.west.asu.edu/ethnic
Integrated Natural Sciences, Department of	CLCC 217	602/543-6050	www.west.asu.edu/lifesci
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
M.A. in Interdisciplinary Studies	FABN 230D	602/543-6241	www.west.asu.edu/mais
Social and Behavioral Sciences, Department of	FAB N250	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 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	UCB 140	602/543-6800	www.west.asu.edu/adaff/auxs/bookstore
Campus Advising Center	UCB 201	602/543-WCAC	www.west.asu.edu/dcp/wcac1.htm
Career Services and Personal Counseling Center	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
Freshman Experience Office	UCB 201	602/543-4600	www.west.asu.edu/dcp
Global Management and Leadership, School of	FAB N101	602/543-6200	www.west.asu.edu/som
Accounting and Information Systems Management, Department of	FAB S190-1	602/543-6275	http://www.west.asu.edu/som/Programs/ accountancy/acc.htm
Economics, Finance, Marketing and Quantitative Business Analysis, Department of	FAB N120A	602/543-6101	www.west.asu.edu/som
Management, Department of	FAB N120D	602/543-6204	www.west.asu.edu/som
Master of Business Administration Program	FAB N151	602/543-6201	www.west.asu.edu/som/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 S121	602/543-6642	www.west.asu.edu/chs/GRN
Nursing (the Tempe campus program)	FAB S331	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	www.west.asu.edu/adaff/auxs/info
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 Support Services Programs	UCB 220	602/543-8138	www.west.asu.edu/nativeamerican
Parking Services (Decals, Appeals)	WIB 101	602/543-7275	www.west.asu.edu/adaff/auxs/parking

WEST CAMPUS DIRECTORY

Organization	Location	Telephone	Web Address
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/recruitment
Research Consulting Center	FAB S303	602/543-3411	www.west.asu.edu/rcc
Residency Classification	UCB 120	602/543-8203	www.west.asu.edu/admissions
Residential Life	LCR	602/543-2272	www.west.asu.edu/reslife
Student Employment	UCB 120	602/543-8178	www.west.asu.edu/financialaid
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
Student Support Services Program (TRiO)	UCB 220	602/543-8121	www.west.asu.edu/trio
Teacher Education and Leadership, College of	FAB S210A	602/543-6300	www.west.asu.edu/coe
Elementary Education, Department of	FAB S218	602/543-6315	www.west.asu.edu/coe/elem
Graduate Studies and Professional Development, Department of	FAB S220	602/543-3634	www.west.asu.edu/coe/graduate
Secondary Education, Department of	FAB S251A	602/543-6445	www.west.asu.edu/coe/sed
Special Education, Department of	FAB S252	602/543-6380	www.west.asu.edu/coe/spe
Testing Services	WIB 102	602/543-8136	www.west.asu.edu/testing
University-College Center	UCB 201	602/543-4222	www.west.asu.edu/ucc
Veteran Student Services	UCB 120	602/543-8220	www.west.asu.edu/veteran/vetinfo.htm
West Campus	—	602/543-5500	www.west.asu.edu
Women's Studies Resource Center	UCB 323	602/543-3426	www.west.asu.edu/ws

West Campus Faculty and Academic Professionals

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
- Aleshire, Peter** (1993), Senior Lecturer, Department of Language, Cultures, and History; BA, MA, Stanford University
- Allgood, Tammy** (2002), Assistant Librarian, Fletcher Library; BA, University of Arizona; MS, University of North Carolina
- Amobi, Olufunmilayo 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 Economics, Finance, Marketing, and Quantitative Business Analysis; 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
- Armstrong, Gaylene S.** (2000), Assistant Professor, Department of Criminal Justice and Criminology; BA, University of Manitoba (Canada); MA, PhD, University of Maryland
- Armstrong, Todd A.** (1999), Assistant Professor, Department of Criminal Justice and Criminology; BA, MA, PhD, University of Maryland, College Park
- 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

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; Interim Vice Provost for 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 Accounting and Information Systems 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
- Beckett, E. Carol** (1996), Assistant Professor, Department of Elementary Education; BA, MEd, EdD, 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, Department of Integrative Studies; Director, Undergraduate Mathematics; BA, University of Kansas; MS, PhD, Purdue University
- 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
- 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; BA, Russell Sage College; MA, PhD, University of Virginia
- Brett, Joan F.** (1999), Associate Professor, Department of Management; Interim 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

WEST CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

Broadus, Dorothy C. (1990), Associate Professor, Department of Language, Cultures, and History; BA, Eastern Kentucky University; MEd, PhD, University of Louisville

Brown, Lee H. (2001), Assistant Professor, Department of Secondary Education; BA, Union College; MA, EdD, State University of New York, Albany

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

Byam, L. Dale (2004), Assistant Professor, Department of Interdisciplinary Arts and Performance; BAdmin, Concordia University; MA, PhD, New York University

C

Cabrera, Luis (2002), Assistant Professor, Department of Social and Behavioral Sciences; BA, Western Washington University; MFA, Eastern Washington University; MA, PhD, University of Washington

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 Accounting and Information Systems 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

Chavez, José G. (2000), Assistant Professor, Department of Language, Cultures, and History; BA, MA, California State University, Sacramento; PhD, Arizona State University

Chisholm, Inés M. (1991), Professor Emerita of Education; BA, MEd, University of Puerto Rico; PhD, University of Florida

Christie, Alice A. (1995), Associate Professor, Department of Graduate Studies and Professional Development; BA, Denison University; MEd, Boston University; PhD, Arizona State 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

Collins-Chobanian, Shari C. (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, BA, 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

Cuádras, 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, College of 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 and Information Systems Management; BS, Towson University; MBA, Loyola College in Maryland

Davidson, Ronald (1997), Associate Professor, Department of Accounting and Information Systems Management; BComm, University of Manitoba (Canada); MBA, York University (Canada); PhD, University of Arizona

De Backer, Stephanie Fink (2003), Assistant Professor, Department of Language, Cultures, and History; BSFS, Georgetown University; MA, Catholic University of America; PhD, University of Arizona

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

Di Mare, Lesley (1992), Associate Professor, Department of Communication Studies; Interim Dean, College of Human Services; 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

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 and Information Systems Management; BS, Portland State University; PhD, University of Texas, Austin

E

Ealy, Sandra 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 and Director of Undergraduate Studies, Department of Social Work; BA, University of Colorado at Boulder; MBA, University of Tennessee; JD, Vanderbilt University; MS, DSW, Columbia 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 Accountancy and Information Systems Management; 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

Forster, Bruce A. (2000), Professor, Department of Economics, Finance, Marketing, and Quantitative Business Analysis; BA, University of Guelph (Canada); PhD, Australian National University (Australia)

Foster, Will (2001), Assistant Professor, Department of Accounting and Information Systems Management; BA, Williams College; PhD, University of Arizona

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), Associate Librarian, Fletcher Library; BS, University of North Alabama; MLS, George Peabody College for Teachers

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

Gilkesson, 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, Chapel Hill; PhD, Texas A&M University

Glass, Ronald D. (1996), Associate Professor, Department of Graduate Studies and Professional Development; 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

Gonzales, David S. (2002), Associate Professor, Department of Integrated Natural Sciences; BS, Metropolitan State College, Denver; MS, PhD, University of Wisconsin, Madison

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), Assistant Professor, 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

Gutierrez, Sara E. (1990), Associate Professor, Department of Social and Behavioral Sciences; BS, MA, PhD, Arizona State University

H

Haarr, Robin N. (1994), Associate Professor, Department of Criminal Justice and Criminology; BS, State University of New York, Brockport; MS, PhD, Michigan State University

Haas, Nancy S. (1986), Associate Professor and Chair, Department of Secondary Education; 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, BSc, 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

WEST CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

Hattenhauer, Darryl (1988), Associate Professor, Department of Language, Cultures, and History; BA, MA, California State University; PhD, University of Minnesota, Twin Cities

Hayden, Mary (1998), Lecturer, Department of Management; BA, MPA, DPA, Arizona State University

Henderson, Katherine Andrews (2004), Assistant Librarian, Fletcher Library; BS, Arizona State University West; MLIS, University of Wisconsin, Milwaukee

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

Hull, Frank Montgomery (2004), Visiting Professor, Department of Management; BA, MA, University of Mississippi; MPhil, PhD, Columbia University

Hultman, 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

Hurwitz, Sally (2001), Lecturer and Director of Field Experience; BAE, MEd, PhD, Arizona State University

I

Inman, Thomas E. (2002), Lecturer, Department of Integrative Studies; 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

J

Johnson, Carolyn R. (1995), Librarian Emerita, Fletcher Library; BA, Montclair State College; MSLS, University of Illinois; MBA, University of Minnesota

Joshipura, Smita (2004), Assistant Librarian, Fletcher Library; BLIS, Gujarat University (India); MLIS, IGNOU (India); MA, University of Arizona

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; BS, Truman State University; MA, PhD, University of Nebraska, Omaha

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), Fine Arts Specialist and Associate Artistic Director, Department of Interdisciplinary Arts and Performance; BA, California State University, Fullerton; MA, New York University

Kirby, Andrew (1995), Professor, Department of Social and Behavioral Sciences; BA, PhD, University of Newcastle (United Kingdom)

Knopf, Richard C. (1986), Professor, Department of Recreation and Tourism Management; Interim Director, Partnership for Community Development; BS, MS, PhD, University of Michigan

Koptiuch, Kristin (1992), Associate Professor, Department of Social and Behavioral Sciences; BA, State University of New York, Binghamton; MA, PhD, University of Texas, Austin

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; 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

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

Limb, Gordon Earl (2003), Assistant Professor, Department of Social Work; BS, Brigham Young University; MSW, University of Utah; PhD, University of California, Berkeley

Lowe, D. Jordan (2003), Associate Professor, Department of Accounting and Information Systems Management; BS, MAcc, Brigham Young University; PhD, Arizona State University

Lowe, Gary R. (2004), Professor and Chair, Department of Social Work; BA, University of North Carolina, Chapel Hill; BSW, University of Denver; PhD, University of Iowa

M

Macfie, Brian P. (2004), Lecturer, Department of Economics, Finance, Marketing, and Quantitative Business Analysis; BA, Seton Hall University; MA, MS, MA, Rutgers, The State University of New Jersey; MBA, Monmouth College

WEST CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

Malian, Ida M. (1990), Professor and Chair, Department of Special Education; Interim Chair, Department of Graduate Studies and Professional Development; 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, 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

Mezner, 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

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)

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

Morris, Richard (1999), Professor, Department of Communication Studies; BA, San Jose State University; MA, PhD, University of Wisconsin, Madison

Moulton, Ian F. (1995), Associate Professor, Department of Language, Cultures, and History; BA, University of Manitoba, Winnipeg (Canada); MA, University of Western Ontario (Canada); PhD, Columbia University

Mueller, Carol M. (1988), Professor and Interim Chair, 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 and Information Systems Management; 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; Interim Director, Division of Collaborative Programs; 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

Nevin, Ann (1991), Professor Emerita of Education; BA, Westminster College; MEd, University of Vermont; PhD, University of Minnesota, Twin Cities

Noronha, Gregory M. (1995), Associate Professor, Department of Economics, Finance, Marketing, and Quantitative Business Analysis; BSE, University of Michigan; MBA, PhD, Virginia Polytechnic Institute and State University

O

Olander, George A. (2000), Lecturer, Department of Economics, Finance, Marketing, and Quantitative Business Analysis; BS, Xavier University, MBA, Pepperdine University

Onofrey, Karen A. (2002), Assistant Professor, Department of Elementary Education; BS, Westfield State College; MEd, American International College; PhD, University of Arizona

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), Associate Professor, Department of Graduate Studies and Professional Development; BA, Douglas College; MEd, Rutgers, The State University of New Jersey; PhD, University of Oregon

Persau, Linda (1999), Lecturer, Department of Integrative Studies; Department Coordinator of Internships and Fieldwork; BA, University of California, Davis; MA, Ottawa University

WEST CAMPUS FACULTY AND ACADEMIC PROFESSIONALS

Peterson, Suzanne J. (2005), Visiting 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

Popp, Sharon Osborn (2004), Assistant Professor, Department of Elementary Education; BS, Rutgers, The State University of New Jersey; MA, PhD, Arizona State University

Prosch, Marilyn (2000), Associate Professor, Department of Accounting and Information Systems Management; 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; Associate Dean, Barrett Honors College; BA, Rutgers, The State University of New Jersey; MA, PhD, Purdue University

Reese, Ruth (1988), Assistant Professor, Department of Elementary Education; BS, University of Wisconsin, Madison; MS, PhD, University of Wisconsin, Milwaukee

Renne, Dianne (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, Department of Secondary Education; BA, State University of New York, Buffalo; MA, Columbia University; PhD, Ohio State University

Rodriguez, Nancy (1998), Associate Professor, Department of Criminal Justice and Criminology; BS, Sam Houston University; PhD, Washington State University

Ruff, William G. (2002), Assistant Professor, Department of Graduate Studies and Professional Development; BS, Colorado State University, Fort Collins; MA, Webster University; MA, EdD, University of Texas, San Antonio

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

Samuels, Janet A. (2003), Assistant Professor, Department of Accounting and Information Systems Management; 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

Schuett, Gordon W. (2004), Visiting Assistant Professor, Department of Integrated Natural Sciences; BA, University of Toledo; MS, Central Michigan University; PhD, University of Wyoming

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

Sen, Nilanjan (1992), Associate Professor, Department of Economics, Finance, Marketing, and Quantitative Business Analysis; BA, Jadavpur University (India); MA, PhD, Virginia Polytechnic Institute

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

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), Assistant Professor, Department of Communication Studies; BA, University of Calcutta (India); PhD, University of Georgia, Athens

Silberman, Jonathan (1992), Professor, Department of Economics, Finance, Marketing, and Quantitative Business Analysis; 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

Stanley, Linda L. (2003), Visiting Assistant Professor, Department of Management; BA, California State University, Sacramento; BS, PhD, Arizona State University

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 and Information Systems Management; 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

Thording, Lars (2002), Lecturer, Department of Economics, Finance, Marketing, and Quantitative Business Analysis; BEd, Royal Danish School of Educational Studies (Denmark); MA, Odense University (Denmark); PhD, University of Southern Denmark

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

Ukpanah, Ime J. (2001), Assistant Professor, Department of Language, Cultures, and History; BS, MA, Sam Houston State University; PhD, University of Houston

V

Vakilzadeh, Ardeshir (2002), Lecturer, Department of Integrative Studies; 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 and Information Systems Management; 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; BA, MA, University of Arizona; PhD, Ohio State University

Webb, Vincent J. (1996), Professor, Department of Criminal Justice and Criminology; BA, University of Omaha; MA, University of Nebraska, Omaha; PhD, Iowa State 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, Julia A. (2003), Lecturer, Department of Special Education; AB, MAEd, Washington University, St. Louis; EdD, Ohio State University

Williams, Mia K. (2002), Lecturer, Department of Elementary Education; BS, Northern Arizona University; MEd, Arizona State University West

Wise, John Macgregor (1999), Associate Professor and Chair, Department of Communication Studies; BA, Trinity University; MA, PhD, University of Illinois, Urbana-Champaign

Wosinska, Wilhelmina (1994), Senior Lecturer, Department of Social and Behavioral Sciences; BA, University of Warsaw (Poland); MA, PhD, Jagiellonian University (Poland)

Y

Yoshikawa, Elaine K. (2003), Lecturer, Department of Integrative Studies; BA, University of California, Berkeley; MA, PhD, Arizona State University

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

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

West Campus Administrative Personnel

Administration

Provost, West campus; Vice President, ASU	Mark S. Searle
Interim Vice Provost for Academic Affairs	Michael A. Awender
Interim Associate Vice Provost, Academic Programs and Graduate Studies	Joan F. Brett
Associate Vice Provost, Research and Faculty Development	Manuel Ávalos
Assistant Vice Provost, Information Technology	Connie McNeill
Associate Dean, Barrett Honors College	R. Eric Ramsey
Director, Curriculum and Academic Articulation	Julia R. Ramsden
Director, Research Consulting Center	Joseph M. Ryan
Faculty Director, Division of Collaborative Programs	Afsaneh Nahavandi
Interim Vice Provost for Administrative Affairs	Barry R. Bruns
Vice Provost for Planning and Budget	Barry R. Bruns
Vice Provost for Public Affairs	Carol A. Poore
Dean, Fletcher Library	Marilyn Myers
Dean of Students	Jo Ann Madonna

College of Human Services

Interim Dean, College of Human Services	Lesley Di Mare
Chair, Department of Communication Studies	John Macgregor Wise
Chair, Department of Criminal Justice and Criminology	Chester L. Britt III
Chair, Department of Recreation and Tourism Management	Wendy Hultsman
Chair, Department of Social Work	Gary Lowe
Director, Gerontology Program	Richard Gitelson
Interim 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 Ryan
Assistant Dean, College of Teacher Education and Leadership	Ray R. Buss
Chair, Department of Elementary Education	Michael F. Kelley
Interim Chair, Department of Graduate Studies and Professional Development	Ida M. Malian
Chair, Department of Secondary Education	Nancy S. Haas
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
Interim Chair, Department of Social and Behavioral Sciences	Carol Mueller
Chair, Women's Studies Program	Astair G. M. Mengesha

School of Global Management and Leadership

Interim Dean, School of Global Management and Leadership	Leanne Atwater
Chair, Department of Accounting and Information Systems Management	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

ASU Administrative Personnel

See "Administrative Personnel," page 521.

College of Extended Education

www.asu.edu/xed

William A. Verdini, DBA, Interim Dean, College of Extended Education

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PURPOSE

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 university provides additional access to quality education through the ASU College of Extended Education. The college provides flexible scheduling, innovative technologies, and a vast network of off-campus sites that makes it more convenient for students to pursue their education. 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.

ORGANIZATION

The university-wide College 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 ASU campuses, colleges, and the community to serve learners using a network of locations, programs, schedules, and technologies. The college is composed of the following departments: Academic and Professional Programs, American English and Culture Program, Communications and Marketing, Distance Learning and Technology, Downtown Center and Property Administration, Extended Campus Programs, and Planning and Business Services.

Credits, Tuitions, and Fees

Academic credits earned off-campus are equivalent in all considerations as 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 non-resident 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 the start 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.

Schedule Options

Through the College of Extended Education, students have many opportunities to pursue their educational goals. A variety of scheduling options are available for credit courses offered by the university's academic departments. Convenient times and locations, and innovative technologies, make it easier for students to earn degrees.

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.

Evening Classes

Evening study is perfect for students with busy schedules. The College 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 707.

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

COLLEGE OF EXTENDED EDUCATION

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 at ASU 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 at ASU. 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 weekend 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 College 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 480/965-6738.

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 Tempe and East 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.

Interactive Instructional Television Program. Students employed by companies participating in this program may take courses for credit at their work sites. The teleconferencing system enables students to interact with other students and instructors in the classroom on campus. Interactive instructional television sites are available at several locations in the Phoenix area. Each site has a coordinator to assist with registration, provide information, and proctor exams, which typically are held at the site. A daily courier service circulates course materials between faculty on campus and their students at remote sites.

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 at ASU, the East and West campuses of ASU, 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.

The anchor off-campus site is the Downtown Center at ASU, 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, see "Locations," page 708.

Degree Programs

Convenient times and locations, as well as today's innovative technologies, make it easier for working adults and other nontraditional students to earn a degree. Some of the degrees may be offered in different subject areas or concentrations, at various locations, or through technology. The College of Extended Education delivers courses offered by the university's academic departments. The courses are published each fall and spring semester in the *ASU Schedule of Classes*. For complete details about any of these degree programs, contact the appropriate academic department.

Undergraduate Evening Degree Completion Programs. These programs are perfect for the working adult seeking a bachelor's degree. The programs offer a variety of courses and access to faculty and advisors at night. Most classes are

held on the Tempe campus. Students enrolled in the program typically have completed 60 lower-division semester hours. Degrees offered are from the College of Liberal Arts and Sciences, and students can earn a bachelor's degree in any of these disciplines: communication, English, history, political science, psychology, and sociology. The Undergraduate Evening Degree Completion Programs are offered in partnership with the Maricopa Community Colleges. For more information, contact the evening degree advisor at 480/965-6506, or contact the College of Liberal Arts and Sciences at 480/965-3391.

UNDERGRADUATE DEGREES

The following undergraduate degrees are offered through the college:

Baccalaureate Degrees and Majors

Major	Degree
Applied Science	BAS
Communication	BA, BS
Elementary Education	BAE
English	BA
History	BA
Housing and Urban Development	BSD
Interdisciplinary Studies	BIS
Nursing	BSN
Political Science	BA, BS
Psychology	BA, BS
Religious Studies	BA
Social Work	BSW
Sociology	BA

GRADUATE DEGREES

The following graduate degree programs are offered through the college:

Graduate Degrees and Majors

Major	Degree
Business Administration	MBA
Curriculum and Instruction	MEd
Educational Administration and Supervision	EdD
Electrical Engineering	MSE
Engineering	MEng
Engineering Science	MSE
Health Sector Management	MHSM
Nursing	MS
Public Administration	MPA
Social Work	MSW
Technology	MSTech

Certificates

UNDERGRADUATE CERTIFICATES

All certificates offered by the College of Extended Education or in collaboration with the other ASU colleges are shown in the “ASU Certificates Offered Through or by the College of Extended Education” table, page 706.

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.east.asu.edu/ctas/imt/fire, or call 480/727-1321.

GRADUATE CERTIFICATES

All certificates offered by the College of Extended Education or in collaboration with the other ASU colleges are shown in the “ASU Certificates Offered Through or by the College of Extended Education” table, page 706.

Asian Studies

A Graduate Certificate in Asian Studies is offered through the ASU Center for Asian Studies and is designed for graduate students in any department or discipline who wish to earn a transcript credential for an academic specialization in Asian Studies. All graduate students—including those engaged in master's, doctoral, or nondegree studies—are eligible to apply for the certificate.

The certificate requires 18 semester hours of course work made up of classes with Asian studies content, including six hours of advanced language study in one of the following languages: Chinese, Japanese, Korean, Indonesian, Thai, or Vietnamese. In addition to the course work, students must complete a capstone paper, thesis, dissertation, an internship, or overseas experience. Students should make this decision in consultation with the advisor in the Center for Asian Studies.

For more information, call 480/965-7179, or access the Web site at www.asu.edu/asian.

Gerontology

The Gerontology certificate program brings together faculty from several disciplines to teach courses related to adult development and aging, to collaborate on gerontological research projects, and to participate in projects of service for older adults and the community.

The graduate certificate in Gerontology requires 21 semester hours of course work. Students must complete six semester hours of required courses, a capstone experience of at least three semester hours (internship, individualized instruction, reading and conference, or applied research),

ASU Certificates Offered Through or by the College of Extended Education

Certificate Program	Administered By
Asian Studies, Graduate Certificate in	Center for Asian Studies
Business English Certificate*	College of Extended Education
Fire Service Management, Certificate in	Department of Information and Management Technology
Gerontology, Certificate in	Gerontology Program
Human Performance Improvement Certificate*	College of Extended Education and American Society of Training and Development
Maintenance Management Certificate*	College of Extended Education
Multimedia Writing and Technical Communication, Postbaccalaureate Certificate in	East College
Professional Purchasing Certificate*	College of Extended Education
Supervisory and Management Skills Certificate*	College of Extended Education
Transportation Systems, Certificate in	Committee on Transportation Systems and the Division of Graduate Studies

* This certificate is not for academic credit.

and four additional aging-related courses approved as electives.

For more information, see “Certificate in Gerontology,” page 690, call 602/543-6642, or access the program Web site at www.west.asu.edu/chs/grn.

Multimedia Writing and Technical Communication

A Postbaccalaureate Certificate in Multimedia Writing and Technical Communication requires 18 semester hours. Students learn the principles of technical communication, writing with technology, technical editing, and visual communication.

For more information, call 480/727-1190, or access the Web site at www.east.asu.edu/ecollege/multimedia.

Transportation Systems

This interdisciplinary studies certificate program offers current ASU graduate students and transportation professionals the opportunity to pursue a wide range of transportation-related issues from multimodal and interdisciplinary perspectives. The certificate is intended to be either a specialization within an existing master’s degree program or a stand-alone 15-credit nondegree program.

For more information, access the Web site at www.asu.edu/caed/transportation, or call 480/965-6395.

PROFESSIONAL DEVELOPMENT CERTIFICATES

All certificates offered by or in collaboration with the College of Extended Education are shown in the “ASU Certificates Offered Through or by the College 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.

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.

Human Performance Improvement

This six-course certificate program provides a well-rounded understanding of the human performance field by capturing the latest information on analyzing, evaluating, and implementing human performance improvement programs. New certificate cohorts begin each fall semester.

For more information, access the Web site at www.asu.edu/xed, or call 480/965-9200.

Maintenance Management

This program offers participants the opportunity to explore the latest technical, profit-making and cost-cutting ideas in the industry. This is a four-part, results-oriented seminar series. Course topics include improving maintenance planning, scheduling, managing maintenance for results, designing and implementing a superior professional purchasing management program, and improving program management skills for supervisors.

For more information, call 480/965-9200, or visit www.asu.edu/xed.

Professional Purchasing

Enroll in one seminar to fine-tune skills or all four purchasing seminars to earn a professional purchasing certificate. Each seminar covers the latest technical, profit-making, and cost-cutting ideas to improve purchasing management.

For more information, access the Web site at www.asu.edu/xed, or call 480/965-9200.

Supervisory and Management Skills

This certificate is a 56-semester-hour program that provides supervisors the opportunity to enhance their skills in a number of areas. The program is divided into seven core areas: interviewing and hiring, principles and practices of supervision, motivating employees, coaching for improved performance, effective conflict management, problem-solving techniques, and cultural diversity in the workplace.

For more information, call 480/965-9200.

Continuing Education

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.

Elderhostel

Elderhostel is an academic experience for older adults looking for a different kind of educational travel. Individuals 55 and older participate in week-long courses that include stimulating lectures and field trips. ASU Elderhostels are held throughout the valley and focus on Southwest history, computer technology, and the arts.

For more information, call 480/965-9200.

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 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 (see “**Professional Development Certificates**,” page 706).

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 College 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.

TravelLearn

TravelLearn® educational tours are designed to challenge an individual’s mind and offer learning opportunities. These programs for adult learners have no exams, grades, or attendance requirements. Participants may attend any number of the scheduled learning experiences. TravelLearn students must be between the ages of 30 and 80.

For more information, call 800/235-9114.

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.

COLLEGE OF EXTENDED EDUCATION

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 at ASU.

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 valley-wide. 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 College 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.

Downtown Partnerships

The university provides several services to the downtown Phoenix community.

Advanced Public Executive Program

This program is committed to enhancing the effectiveness of government services and operations. The program provides high-quality professional development and interventions tailored to the specific needs of public managers, executives, and elected officials.

For more information, call 480/965-4006.

Arizona Prevention Resource Center

This library and distribution center serves as a centralized source for individuals, schools, and communities throughout Arizona to support, enhance, and initiate prevention efforts. Planning, mobilizing, training, and evaluating community prevention efforts can be coordinated through this center.

For more information, call 480/727-2772.

Joint Urban Design Studio

The studio is the Joint Urban Design Program's physical location at the Downtown Center at ASU. It is a place where facilitated discussions among community, civic, and private sector interests can be held. The studio displays ideas and disseminates information on urban issues through models, the Web, and publications of local, regional, and national importance.

For more information, call 480/727-5146.

Office of Youth Preparation

This nationally recognized program is committed to increasing the flow of college-eligible minority students into higher education. The program provides academic support to Arizona youth through classroom, university, community, and research programs. The program's position within the university system allows for the development of diverse partnerships in order to maintain its commitment to positively impact Arizona's youth.

For more information, call 480/965-8510.

Urban Data Center

This center serves as a resource for analysis and implementation of public policy in metropolitan Phoenix and works closely with ASU researchers and organizations as well as local governments, state agencies, and other independent organizations.

For more information, call 480/965-3046.

Locations

More than 200 off-campus sites throughout metropolitan Phoenix, the state, and beyond are used to make classes more accessible to students. In addition, various technologies are used to deliver degree programs and credit courses to the workplace and home. Partnerships have been created with public and private organizations to deliver ASU courses off campus. Many neighborhood sites, such as community colleges, schools, churches, and businesses, serve as hosts to many university courses.

For more information about off-campus sites, call 480/965-9797. For information about Internet, televised, and independent learning courses, call 480/965-6738.

Downtown Center at ASU

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 the 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 system, video projection system, and Ethernet connections, and has the ability to receive satellite downlinks. The center has three rooms equipped with a teleconferencing system that allows students at corporate and community receiving sites, such as the center, to interact with instructors during televised class sessions. ASU students, faculty, and staff may take advantage of the center's two state-of-the-art computer labs, as well as Web stations throughout the facility and wireless networking. 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 spring and fall 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

DOWNTOWN CENTER AT ASU
502 E MONROE ST
PHOENIX AZ 85004-4442

Several ASU programs and partnerships are located at the center.

The *Advanced Public Executive Program* provides quality professional development and interventions tailored to the specific needs of public organizations.

The *Arizona Prevention Resource Center* enables effective prevention in Arizona by promoting healthy families, schools and communities. The center is a statewide resource on best practices for prevention, and it provides assistance, training, grant writing, and evaluation services. It is a cen-

tralized resource for individuals, practitioners, schools, and communities.

Building Great Communities serves as a liaison to targeted communities throughout the state, creating alliances among community organizations, faculty, staff, and students. It seeks to improve the quality of life in Arizona and addresses specific issues through various long- and short-term projects.

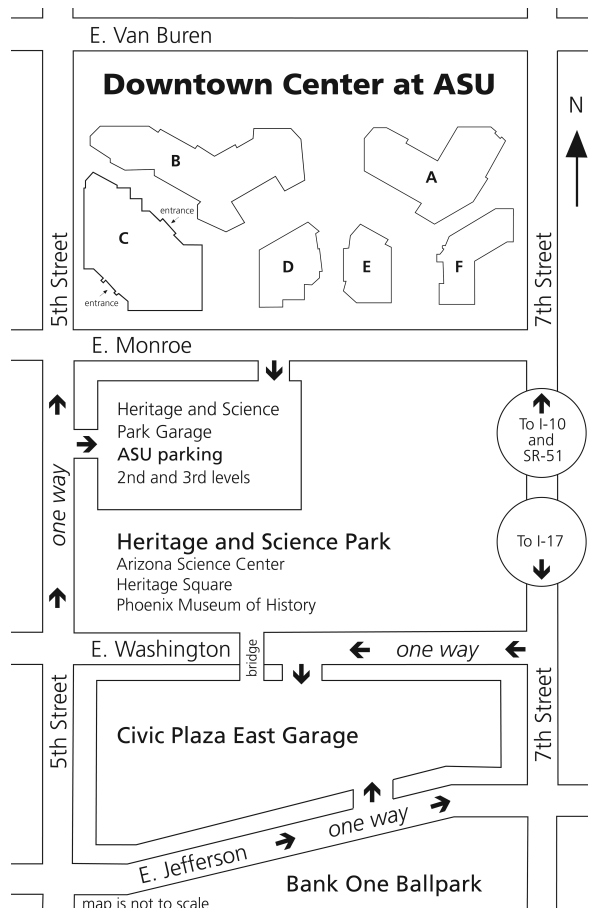
The *Center for the Future of Arizona* works with civic and political leaders to develop a statewide agenda to expand educational opportunities, encourage strategic investments, and achieve a sustainable quality of life for residents.

The *College of Extended Education* has several administrative offices located at the center, including the dean's office.

The *Joint Urban Design Studio* is the Joint Urban Design Program's physical location at the Downtown Center at ASU.

The *Office of Youth Preparation* is a nationally recognized program committed to increasing the flow of college-eligible minority students into higher education.

The *Urban Data Center* serves as a resource for analysis and implementation of public policy in metropolitan Phoenix.



College of Extended Education Faculty and Academic Professionals

A

Alvarado, Ronald H. (1974), Professor Emeritus of Life Sciences; BA, University of California, Riverside; MS, PhD, Washington State University

B

Backer, Linda R. (1997), Assistant Instructional Professional, College of Extended Education; Manager, Interdisciplinary Programs, Academic and Professional Programs, College of Extended Education; BA, University of Colorado; MS, Colorado State University

C

Cole, Tom (1981), Lecturer, College of Extended Education; Associate Director, American English and Culture Program, College of Extended Education; BS, Northern Arizona University; MA, Arizona State University

D

DeGraw, Bette F. (1986), Professor Emerita of Public Affairs; Dean Emerita, College of Extended Education; BA, Thiel College; MSW, Rutgers, The State University of New Jersey; PhD, Arizona State University

Dehghanpisheh, Elaine (1983), Lecturer, College of Extended Education; BA, MA, Pahlavi University (Iran)

F

Feldman, Patricia A. (1990), Associate Administrative Professional, College of Extended Education; Executive Director, Academic and Professional Programs, College of Extended Education; BS, MEd, Colorado State University; EdD, Arizona State University

Fontaine, Steven (1990), Lecturer, College of Extended Education; BA, Shepherd College; MA, Temple University; PhD, Arizona State University

H

Honker, Andrew M. (2001), Academic Associate of Academic and Professional Programs, College of Extended Education; Academic Advisor, Bachelor of Interdisciplinary Studies, College of Extended Education; BA, Dartmouth College; MA, Utah State University; PhD, Arizona State University

J

Johnson-Becker, Gayle (1994), Lecturer, College of Extended Education; BA, University of Colorado; MA, University of California, Los Angeles

K

Kegelman, Jan (1978), Lecturer, College of Extended Education; Coordinator, International Teaching Assistants Program, American English and Culture Program; BS, University of Massachusetts; MA, Arizona State University

Kyselka, Christine K. (1990), Associate Administrative Professional, College of Extended Education; Associate Director, Extended Campus Programs, College of Extended Education; BS, MPA, Arizona State University

L

Lindeman, Mary (1988), Lecturer, College of Extended Education; BA, St. Mary's University; MA, University of Houston

Livingston, Mary (1978), Lecturer, College of Extended Education; BA, MA, Arizona State University

M

Miller, Charles D. (1998), Academic Associate, Academic and Professional Programs, College of Extended Education; Academic Advisor, College of Liberal Arts and Sciences

Mitchell, Marie (1980), Lecturer, College of Extended Education; BA, Fort Hays State University; MA, School for International Training

N

Navarrete, Carol (1994), Lecturer, College of Extended Education; BA, MA, University of Colorado

R

Rentz, Mark D. (1984), Lecturer, College of Extended Education; Director, American English and Culture Program, College of Extended Education; BA, Bethel College; MA, William Carey International University

S

Schlather, Erica (1993), Instructional Specialist, College of Extended Education; Marketing Coordinator, American English and Culture Program, College of Extended Education; BA, MA, Northern Arizona University

V

Verdini, William A. (1976), Associate Professor of Supply Chain Management; Interim Dean, College of Extended Education; BS, Case Western Reserve University; MBA, DBA, Kent State University

Vicens, Wendy (1977), Senior Lecturer, College of Extended Education; BA, MA, Northern Arizona University

W

Wagy, Scott (2001), Instructional Specialist, College of Extended Education; Coordinator for Cultural Activities and Programs, American English and Culture Program, College of Extended Education; BA, MA, West Virginia University

Wong, Michelle (2003), Instructional Specialist, College of Extended Education; International Student Advisor, American English and Culture Program, College of Extended Education; BA, University of Minnesota; MA, Arizona State University

College of Extended Education Administrative Personnel

Interim Dean, College of Extended Education William A. Verdini
 Assistant Dean Elaine Sweet
 Executive Director, Academic and Professional Programs Patricia A. Feldman
 Director, American English and Culture Program Mark D. Rentz
 Director, Downtown Center at ASU and Property Administration Cathie Fox
 Director, Communications and Marketing Randy Bailey
 Interim Director, Distance Learning and Technology Marc Van Horne
 Director, Extended Campus Programs Jim Patzer

ASU Administrative Personnel

See “Administrative Personnel,” page 521.

College of Extended Education Directory

For the “East Campus Directory,” see page 598. For the “Tempe Campus Directory,” see page 606. For the “West Campus Directory,” see page 693.

Organization	Location	Telephone	Web Address
Extended Education, College of	ASUDC C319	480/965-3046	www.asu.edu/xed
Academic and Professional Programs	RITT B132	480/965-9797	—
	ASUDC	480/965-9200	—
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
Extended Campus Programs	ASUDC C250	480/965-3046	—
Independent Learning	RITT B132	480/965-6563 1-800-533-4806	www.dlt.asu.edu/courses/ independent/programinfo.cfm
Planning and Business Services	ASUDC C319	480/965-3046	—
Property Administration	ASUDC C295	480/965-3046	www.asu.edu/xed/asudt/
Winter Session	RITT B132	480/965-9797 480/727-9900	www.asu.edu/xed/winter

Accreditation and Affiliation

Tempe and East Campuses. The Tempe campus of 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

The East campus is recognized by the Higher Learning Commission as a full-service campus and is accredited under the Tempe campus umbrella. Programs in the various colleges, schools, divisions, and departments are accredited

by, affiliated with, or members of national bodies as described in the “[Academic Accreditation at East Campus](#),” on this page; the “[Academic Accreditation at Tempe Campus](#),” on this page; the “[Academic Affiliation and Membership at the East Campus](#)” table, page 714; and the “[Academic Affiliation and Membership at Tempe Campus](#)” table, page 714. Some programs in the College of Education are approved by the State Board of Education (Arizona) and the National Association of School Psychologists.

West campus. The West campus of ASU is separately accredited by the Higher Learning Commission. Professional programs in the various academic areas are accredited by national bodies as described in the “[Academic Accreditation at West Campus](#)” table, page 713.

Academic Accreditation at East 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, Industrial Technology, with concentrations in environmental technology management, graphic information technology, and industrial technology management	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
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 Tempe Campus

Unit or Program	Accredited By
College of Architecture and Environmental Design	
BSD, Graphic Design, Industrial Design	National Association of Schools of Art and Design
BSD, Interior Design	Foundation for Interior Design Education Research
BSLA	Landscape Architectural Accreditation Board
BSP, MEP	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

Academic Accreditation at Tempe Campus (continued)

Unit or Program	Accredited By
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	American Speech-Language-Hearing Association
MS, Family and Human Development, with a focus in marriage and family therapy under the family studies concentration	Commission on Accreditation for Marriage and Family Therapy Education—Candidacy Status
PhD, Psychology, with a concentration in clinical psychology	American Psychological Association
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
Ira A. Fulton School of Engineering	
BS, Computer Science	Computer Science 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 Technology	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 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

ACCREDITATION AND AFFILIATION

Academic Accreditation at West Campus (continued)

Unit or Program	Accredited By
School of Global Management and Leadership All programs	AACSB International, the Association to Advance Collegiate Schools of Business

Academic Affiliation and Membership at the East Campus

Unit or Program	Affiliation or Membership With
East College Department of Applied Biological Sciences Department of Exercise and Wellness	Society for Range Management American Academy of Kinesiology and Physical Education American Alliance for Health, Physical Education, Recreation and Dance American Association of Health Education American College of Sports Medicine Association of Worksite Health Promotion Committee on Allied Health Education Council on Physical Education for Children National Association for Physical Education in Higher Education National Strength and Conditioning Association National Wellness Association North American Society for Sports Psychology and Physical Activity
Department of Nutrition	North American Society for the Study of Obesity American Dietetic Association

Academic Affiliation and Membership at Tempe Campus

Unit or Program	Affiliation or Membership With
Barrett Honors College	National Collegiate Honors Council
College of Architecture and Environmental Design School of Architecture and Landscape Architecture	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
School of Design	American Society of Interior Designers Human Factors and Ergonomics Society Industrial Designers Society of America Interior Design Educators Council
School of Planning	Society of Environmental Graphic Designers American Planning Association American Society of Landscape Architects Association of Collegiate Schools of Planning Council of Educators in Landscape Architecture
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 Anthropology	American Anthropological Association Council for Museum Anthropology
Department of Chemistry and Biochemistry	American Association for the Advancement of Science American Chemical Society American Society for Advancement of Science

Academic Affiliation and Membership at Tempe Campus (continued)

Unit or Program	Affiliation or Membership With
College of Liberal Arts and Sciences (continued) Department of Chemistry and Biochemistry	Association of American Geographers American Association of Petroleum Geologists American Geophysical Union
Department of Geography Department of Geological Sciences	American Institute of Professional Geologists Geological Society of America Mineralogical Society of America Society of Economic Paleontologists and Mineralogists American Association for State and Local History American Association of Museums American Historical Association
Department of History	Coordinating Committee for History in Arizona Institute of Historical Research National Council on Public History Western History Association American Academy of Kinesiology and Physical Education American Alliance for Health, Physical Education, Recreation, and Dance
Department of Kinesiology	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 Department of Mathematics and Statistics	American Council on Teaching Foreign Language International Studies Association Modern Language Association American Mathematical Society Mathematical Association of America
Department of Military Science Department of Philosophy Department of Physics and Astronomy	Rocky Mountain Mathematics Consortium Society for Industrial and Applied Mathematics Association of U.S. Army American Philosophical Association 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 Department of Sociology Hugh Downs School of Human Communication School of Justice and Social Inquiry	American Society of Clinical Psychologists American Sociological Association National Communication Association Western States Communication Association American Society of Criminology Arizona Justice Educators Association of Criminal Justice Doctoral Programs Consortium for Graduate Law and Society Programs

ACCREDITATION AND AFFILIATION

Academic Affiliation and Membership at Tempe Campus (continued)

Unit or Program	Affiliation or Membership With
School of Justice Studies (continued)	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 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
College of Nursing	American Association of Colleges of Nursing National Organization of Nurse Practitioner Faculties Western Institute of Nursing
Continuing and Extended Education Programs	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 Park and Recreation Association Arizona State Therapeutic Recreation Association

Academic Affiliation and Membership at Tempe Campus (continued)

Unit or Program	Affiliation or Membership With
School of Community Resources and Development (continued)	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 Council on Social Work Education Group for the Advancement of Doctoral Education
School of Social Work	National Association of Deans and Directors of Social Work National Association of Social Workers
Division of Graduate Studies	
Ira A. Fulton School of Engineering	
Department of Chemical and Materials Engineering	American Association for the Advancement of Science American Association of Aerosol Research American Association of University Women American Chemical Society American Geological Union American Institute of Chemical Engineers American Physical Society American Society for Engineering Education American Society for Microbiology American Vacuum Society ASM International Association of Environmental Engineering and Science Professors Böhmische Physical Society Electrochemical Society Institute of Electrical and Electronic Engineers Iron and Steel Society Materials Research Society Metal Powders Industry Federation Microscopy Society of America Minerals, Metals and Materials Society National Academy of Engineers National Association of Corrosion Engineers National Society of Black Engineers
Katherine K. Herberger College of Fine Arts	
Department of Theatre	American Alliance for Theatre and Education Association for Theatre in Higher Education 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

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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. The Tempe campus map coordinates are provided. For the Tempe campus map, see the inside back cover. For other locations, see the “[East Campus Map](#),” page 597; “[West Campus Map](#),” page 692; and “[Downtown Center at ASU](#)” map, page 709. For the locations of campuses, see the “[ASU Campus Locations](#)” map, page 27.

Building Abbreviations

Abbreviation	Name	Wings	Location (Coordinate)
ADELA	Adelphi II Commons	—	Tempe campus (H-8)
ADM	Administration	A, B	Tempe campus (F-3)
ADMIN	Administration	—	East campus
ADPCM	Adelphi Commons	—	Tempe campus (G-8)
AED	College of Architecture and Environmental Design/ North	—	Tempe campus (D-2)
AG	Agriculture Building	—	Tempe campus (F-3)
AGBC	Agribusiness Center	—	East campus
AIP	American Indian Programs	—	East campus
AIP2	American Indian Programs Annex	—	East campus
ALTCH	Altitude Chamber	—	East 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 Architecture and Environmental Design/ South	—	Tempe campus (D-2)
ARCV	University Archives	—	Tempe campus (D-4)
ART	Art Building	—	Tempe campus (D-2)
ARWH	Art Warehouse	—	Tempe campus (D-2)
ASEOC	Alternate State Emergency Operations Center	—	East campus
ASUDC	Downtown Center	—	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 residence hall	—	East 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	—	East campus: 6110 S. Sagewood, Mesa
CERA	Ceramics Annex	A, B	Tempe campus (D-8)
CFS	Center for Family Studies	—	Tempe campus (D-3)
CHAPL	Danforth Chapel	—	Tempe campus (E-3)
CHOLA	Cholla Apartments	A–G	Tempe campus (E-9)

BUILDING ABBREVIATIONS

Building Abbreviations (continued)

Abbreviation	Name	Wings	Location (Coordinate)
CLCC	Classroom Laboratory/Computer Classroom Building	—	West campus
CLRB	Classroom Building	—	East campus: 6113 S. Avery, Mesa
CNTR	Academic Center Building	—	East campus
COOR	Lattie F. Coor Hall	—	Tempe campus (E-2)
COWDN	Cowden Family Resources Building	—	Tempe campus (D-3)
CP	Central Plant	—	Tempe campus (E-4)
CPCOM	Computing Commons Building	—	Tempe campus (F-5)
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
DEAN	Dean Hall residence hall	—	East campus
DPSMN	Department of Public Safety	—	Tempe campus (G-7)
EAW	Exercise and Wellness Center	—	East campus: 7350 E. Unity Ave., Mesa
EAW2	Exercise Instructional Lab Building	—	East 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	—	West campus
FABNX	Faculty and Administration Building Annex	—	West campus
FAC	Nelson Fine Arts Center	—	Tempe campus (E-1)
FDSCI	Agribusiness Food Science Lab	—	East campus
FLHLB	Fletcher Library	—	West campus
FOUND	ASU Foundation	—	Tempe campus (C-4)
GGMA	Grady Gammage Memorial Auditorium	—	Tempe campus (F-2)
GHALL	Dixie Gammage Hall	—	Tempe campus (E-3)
GOLF	Pro Shop and Driving Range	—	East campus: 6807 E. Williams Field Road, Mesa
GRNHS	ABS Greenhouses	—	East campus: 7405 E. Unity Ave., Mesa
GWC	Barry M. Goldwater Center for Science and Engineering Research	—	Tempe campus (D-6)
HAYDN	Hayden Hall	—	Tempe campus (G-3)
HSC	Health Sciences Center	—	East campus: 6950 E. Williams Field Road, Mesa
HSC2	Health Sciences Center Research	—	East campus: 6950 E. Williams Field Road, Mesa
IAPNX	Interdisciplinary Arts and Performance Annex	—	West campus

Building Abbreviations (continued)

Abbreviation	Name	Wings	Location (Coordinate)
IRISH	Frederick M. Irish Hall	A–C	Tempe campus (G-3)
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)
LSC	Life Sciences C-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–C	Tempe campus (G-6)
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-6)
PABLO	San Pablo Residence Hall	—	Tempe campus (C-5)
PAC	Physical Activity Center	—	East 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	—	East campus: 5935 S. Edgewater, Mesa
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)
QUAD 1, 2, 4	Student Affairs Complex	—	East campus
QUAD 3	CERTT Lab	—	East campus
RES 1	Freshman Year Experience Residence Hall	—	East 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

BUILDING ABBREVIATIONS

Building Abbreviations (continued)

Abbreviation	Name	Wings	Location (Coordinate)
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)
SDF	Solar Demonstration Facility	—	Tempe campus (C-7)
SHC	Student Health Center	—	East campus: 7153 E. Thistle, Mesa
SHS	Student Health Service	A, B	Tempe campus (D-4)
SIM	Simulator Building	—	East campus: 7442 E. Tillman Ave., Mesa
SOLAR	Photovoltaics Testing Laboratory	—	East 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)
SUTTON	Sutton Hall	—	East campus
TECH	Technology Center	—	East campus
TECH2	Technology Center Annex	—	East 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	Student Union	—	East campus
UNION2	Student Union Annex	—	East campus
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)
WANNER	Wanner Hall	—	East campus
WFA	Wells Fargo Arena	—	Tempe campus (B-5)
WFLD	West campus Alternate Locations	—	West campus
WHALL	West Hall	—	Tempe campus (E-3)
WIC	Welcome and Information Center	—	West campus
WILSN	George W. Wilson Hall	—	Tempe campus (E-3)
WTC	Whiteman Tennis Center	—	Tempe campus (B-7)

* The Tower Center is different from University Towers, 525 S. Forest Ave., Tempe (B-3), which has no official building abbreviation.