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Arizona State University

2004–2005 General Catalog

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President Michael M. Crow

Tim Trumble photo

Dear ASU Students and Prospective Students:

Welcome to Arizona State University! I am very glad to introduce the 2004–2005 *General Catalog*. ASU offers a wide range and depth of academic study, research opportunities, and resources as well as an enthusiastic and engaged faculty to provide you with a high quality education that will be both challenging and rewarding.

The catalog is organized so that you can effectively find the information most applicable to you and your course of studies. All of the information included is intended to help guide you through your university experience. However, nothing will replace the guidance an academic advisor can provide. I strongly encourage you to work closely with an advisor to plan your academic program.

I am tremendously excited to welcome you to ASU and to wish you a productive and fulfilling collegiate experience here.

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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IAS	Integrative Studies	<i>ASU West Catalog</i>	NLM	Nonprofit Leadership and Management	<i>Graduate Catalog</i>
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Academic Organization

Organized under ASU Main, ASU East, ASU West, and ASU Extended Campus are colleges, schools, departments, and other administrative units whose faculty offer courses.

ASU Main

Barrett Honors College

College of Architecture and Environmental Design

School of Architecture

School of Design

School of Planning and Landscape Architecture

College of Education

Division of Curriculum and Instruction

Division of Educational Leadership and Policy Studies

Division of Psychology in Education

College of Extended Education

College of Law

College of Liberal Arts and Sciences

African 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

Interdisciplinary Humanities Program

School of Life Sciences (Biology, Clinical Laboratory Sciences, Conservation Biology, Microbiology, Molecular Biosciences and Biotechnology, Molecular and Cellular Biology, Plant Biology)

Women's Studies Program

College of Nursing

College of Public Programs

American Indian Studies Program

Asian Pacific American Studies Program

Department of Recreation Management and Tourism

Hugh Downs School of Human Communication

School of Justice Studies

School of Public Affairs

School of Social Work

Walter Cronkite School of Journalism and Mass Communication

Division of Undergraduate Academic Services

Academic Success at the University

Bachelor of Interdisciplinary Studies

Writing Across the Curriculum

Graduate College

Science and Engineering of Materials

Transportation Systems

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

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 Administration and Policy

ASU East

College of Technology and Applied Sciences

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

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

**Morrison School of Agribusiness and
Resource Management**

ASU West

Academic Affairs

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

College of Arts and Sciences

Applied Science Program
Department of American Studies
Department of Integrative Studies

Department of Interdisciplinary Arts and Performance
Department of Life Sciences
Department of Social and Behavioral Sciences
Ethnic Studies Program
Interdisciplinary Studies Graduate Program
Religious Studies Program
Women's Studies Program

College of Education

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

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 (ASU Main Program)

School of Management

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

ASU Extended Campus

College of Extended Education

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

ASU Baccalaureate Degrees

Baccalaureate degrees, majors, and concentrations offered by ASU Main, ASU East, and ASU West and through ASU Extended Campus 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 503.

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

Bachelor of Applied Science (B.A.S.)
Bachelor of Arts (B.A.)

Bachelor of Arts in Education (B.A.E.)
Bachelor of Fine Arts (B.F.A.)
Bachelor of Interdisciplinary Studies (B.I.S.)
Bachelor of Music (B.M.)
Bachelor of Science (B.S.)
Bachelor of Science in Design (B.S.D.)
Bachelor of Science in Engineering (B.S.E.)
Bachelor of Science in Landscape
Architecture (B.S.L.A.)
Bachelor of Science in Nursing (B.S.N.)
Bachelor of Science in Planning (B.S.P.)
Bachelor of Social Work (B.S.W.)

ASU Baccalaureate Degrees

Major	Degree	Concentration ¹	Campus	Page
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Aeronautical Management Technology ²	B.S.	Air transportation management or professional flight	East	642
Aerospace Engineering ²	B.S.E.	—	Main	257
African American Studies	B.A.	Humanities/arts, politics and society, or social and behavioral sciences	Main	333
Agribusiness	B.S.	Agribusiness finance, e-commerce, food and agribusiness marketing, food science, general agribusiness, golf and facilities management, international agribusiness, management of agribusiness, preveterinary medicine, professional golf management, or resource management	East	606
American Indian Studies	B.S.	—	Main	466
American Studies	B.A.	—	West	673
Anthropology	B.A.	—	Main	335
Applied Biological Sciences	B.S.	Applied biological sciences, applied biological sciences/secondary education, ecological restoration, urban horticulture, or wildlife habitat management	East	616
Applied Psychology	B.S.	—	East	621
Applied Science	B.A.S.	Aviation maintenance management technology	East	644
		Aviation management technology	East	644
		Computer systems administration	East	650
		Consumer products technology	East	610
		Digital media management	East	655
		Digital publishing	East	655
		Emergency management	East	655
		Fire service management	East	655
		Food retailing	East	610

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

⁴ This program is administered by ASU Main.

ASU Baccalaureate Degrees (continued)

Major	Degree	Concentration ¹	Campus	Page
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		Materials joining and manufacturing technology	East	661
		Microcomputer systems	East	650
		Multimedia writing and technical communication	East	633
		Municipal operations management	East	655
		Operations management	East	655
		Resource team specialist	East	610
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		(All concentrations listed for ASU East)	Extended	692
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	Extended	692		
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Art	B.A.	Art history, digital art, museum studies, or studio art	Main	273
	B.F.A.	Art education, ceramics, drawing, fibers, intermedia, metals, painting, photography, printmaking, or sculpture	Main	274
Asian Languages (Chinese/Japanese)	B.A.	—	Main	383
Biochemistry	B.A.	—	Main	342
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Biology	B.S.	Optional: biology and society ¹	Main	400
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			Extended	623
Chemical Engineering ²	B.S.E.	—	Main	228
Chemistry	B.A.	—	Main	340
	B.S.	Optional: environmental chemistry ¹	Main	341
Chicana and Chicano Studies	B.A.	Humanities/cultural sciences or social sciences/policy	Main	348
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Communication Studies	B.A., B.S.	—	West	673
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Computer Engineering Technology ²	B.S.	Computer hardware technology, embedded systems technology, or software technology	East	648
Computer Information Systems	B.S.	—	Main	180
Computer Science ²	B.S.	Optional: software engineering ¹	Main	243
Computer Systems Engineering ²	B.S.E.	—	Main	245

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

⁴ This program is administered by ASU Main.

ASU BACCALAUREATE DEGREES

ASU Baccalaureate Degrees (continued)

Major	Degree	Concentration ¹	Campus	Page
Conservation Biology	B.S.	—	Main	401
Construction ²	B.S.	General building construction, heavy construction, residential construction, or specialty construction	Main	215
Criminal Justice and Criminology	B.S.	—	West	673
Dance	B.F.A.	Choreography, dance education, dance studies, or performance	Main	287
Design Science ³	B.S.D.	—	Main	143
Early Childhood Education	B.A.E.	—	Main	196
Economics	B.A.	—	Main	350
	B.S.	—	Main	175
				350
Electrical Engineering ²	B.S.E.	—	Main	248
Electronics Engineering Technology ²	B.S.	Electronic systems, microelectronics, or telecommunications	East	647
Elementary Education	B.A.E.	—	East	624
		Optional: bilingual education/English as a second language or early childhood education ¹	West	673
		Optional: multilingual/multicultural education ¹	Main	198
			Extended	692
Engineering Interdisciplinary Studies ³	B.S.	—	Main	211
Engineering Special Studies ²	B.S.E.	Optional: premedical engineering ¹	Main	265
English	B.A.	—	West	673
		Linguistics or literature	Main	352
			Extended	691
Exercise and Wellness	B.S.	Exercise and wellness or health promotion	East	628
Family and Human Development	B.S.	Optional: family studies/child development ¹	Main	359
Finance	B.S.	—	Main	178
French	B.A.	—	Main	384
Geography	B.A., B.S.	Meteorology-climatology or urban studies	Main	361
Geological Sciences	B.S.	—	Main	367
German	B.A.	—	Main	384
Global Business	B.S.	Financial management, information systems management, international studies, leadership and management, or marketing	West	673
Graphic Design	B.S.D.	—	Main	144
History	B.A.	—	Main	370
			West	673
			Extended	691
Housing and Urban Development	B.S.D.	—	Main	154
			Extended	693
Human Health Studies	B.A., B.S.	—	East	631
Humanities	B.A.	—	Main	377
Industrial Design	B.S.D.	—	Main	144

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

⁴ This program is administered by ASU Main.

ASU Baccalaureate Degrees (continued)

Major	Degree	Concentration ¹	Campus	Page
Industrial Engineering ²	B.S.E.	—	Main	253
Industrial Technology	B.S.	Environmental technology management, graphic information technology, or industrial technology management	East	653
Integrated Studies	B.A., B.S.	—	Main	322
Integrative Studies	B.A.	Any minor available at ASU West or individualized concentration	West	673
Interdisciplinary Arts and Performance	B.A.	Media, music, performance studies, theater/performance, or visual art	West	673
Interdisciplinary Studies	B.I.S.	See the “B.I.S. Concentrations” table, page 125.	Main East Extended	123 615 692
Interior Design	B.S.D.	—	Main	144
Italian	B.A.	—	Main	384
Journalism and Mass Communication	B.A.	Journalism, media analysis and criticism, media management, media production, or strategic media and public relations	Main	475
Justice Studies	B.S.	—	Main	478
Kinesiology	B.S.	Exercise science, movement science, or teacher preparation	Main	378
Landscape Architecture	B.S.L.A.	—	Main	154
Life Sciences	B.S.	—	West	673
Management	B.S.	—	Main	183
Manufacturing Engineering Technology ²	B.S.	Manufacturing engineering technology or mechanical engineering technology	East	659
Marketing	B.S.	—	Main	185
Materials Science and Engineering ²	B.S.E.	—	Main	231
Mathematics	B.A. B.S.	— Optional: statistics ¹	Main Main	414 415
Mechanical Engineering ²	B.S.E.	—	Main	259
Mechanical Engineering Technology ²	B.S.	Aeronautical engineering technology, automation engineering technology, or mechanical engineering technology	East	660
Microbiology	B.S.	—	Main	402
Molecular Biosciences/ Biotechnology	B.S.	—	Main	402
Multimedia Writing and Technical Communication	B.S.	—	East	632
Music	B.A.	—	Main	293
Music Education ²	B.M.	Choral-general, instrumental, or string	Main	293
Music Therapy ²	B.M.	—	Main	295

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.

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ASU BACCALAUREATE DEGREES

ASU Baccalaureate Degrees (continued)

Major	Degree	Concentration ¹	Campus	Page	
Nursing	B.S.N.	—	Main	455	
			East ⁴	615	
			West ⁴	673	
			Extended	693	
Nutrition	B.S.	Dietetics, food and nutrition management, or human nutrition	East	634	
Performance	B.M.	Guitar, jazz, keyboard, music theatre, orchestral instrument, piano accompanying, or voice	Main	295	
Philosophy	B.A.	—	Main	424	
Physics	B.S.	—	Main	426	
Plant Biology	B.S.	Environmental science and ecology or plant biochemistry and molecular biology	Main	403	
Political Science	B.A.	—	Main	431	
			West	673	
			Extended	692	
	B.S.	—	Optional: public policy advocacy and lobbying or public policy analysis ¹	West	673
				Main	431
Psychology	B.A., B.S.	—	Extended	693	
			Main	438	
			West	673	
Real Estate	B.S.	—	Extended	692	
Recreation	B.S.	Recreation management or tourism management	Main	187	
Recreation and Tourism Management	B.S.	—	Main	482	
Religious Studies	B.A.	—	West	673	
Russian	B.A.	—	Main	441	
Secondary Education	B.A.E.	Academic specializations: biological sciences, business, chemistry, Chicana and Chicano studies, economics, English, family and human development, ³ French, geography, German, history, Japanese, mathematics, physical education, physics, political science, social studies, or Spanish	Extended	692	
			Main	384	
		Academic specializations: English, history, mathematics, or social studies	West	673	
Selected Studies in Education ³	B.A.E.	—	Main	441	
Social and Behavioral Sciences	B.A., B.S.	—	Main	199	
Social Work	B.S.W.	—	West	673	
			Main	486	
			Extended	693	
Sociology	B.A.	—	Main	445	
			West	673	
			Extended	692	
			West	673	
Spanish	B.A.	—	Main	385	
			West	673	

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

⁴ This program is administered by ASU Main.

ASU Baccalaureate Degrees (continued)

Major	Degree	Concentration ¹	Campus	Page
Special Education	B.A.E.	—	Main	194
			West	673
Speech and Hearing Science	B.S.	—	Main	448
Supply Chain Management	B.S.	—	Main	187
Theatre	B.A.	Optional: acting or scenography ¹	Main	305
Theory and Composition	B.M.	Composition or theory	Main	298
Urban Planning	B.S.P.	—	Main	154
Women's Studies	B.A.	—	Main	451
			West	673
			West	673

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

⁴ This program is administered by ASU Main.

University Calendar

March 2004

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 2004

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	

May 2004

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					

June 2004

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			

July 2004

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

August 2004

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				

2004

Check the 2004 *Summer Sessions Bulletin* for details and to confirm these dates.

Mon., Feb. 2–
Wed., June 2

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

Mon., Feb. 2–
Wed., July 7

Registration and drop/add for second five-week session

Tues., May 4

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

Mon., May 31

Memorial Day holiday

Tues., June 1

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

Tues., June 8

Unrestricted course and complete withdrawal deadline for first five-week session and eight-week session

Fri., June 18

Restricted course withdrawal deadline for first five-week session and eight-week session

Fri., June 25

Restricted complete withdrawal deadline for first five-week session

Thurs., July 1

August graduation filing deadline

Fri., July 2

First five-week session ends

Mon., July 5

Classes are excused for Independence Day holiday

Tues., July 6

Instruction begins for second five-week session

Tues., July 13

Unrestricted course and complete withdrawal deadline for second five-week session

Fri., July 16

Restricted complete withdrawal deadline for eight-week session

Fri., July 23

Eight-week session ends

Fri., July 23

Restricted course withdrawal deadline for second five-week session

Fri., July 30

Restricted complete withdrawal deadline for second five-week session

Fri., Aug. 6

Second five-week session ends

2004

Fall Semester

Check the fall 2004 *Schedule of Classes* for details and to confirm these dates.

Thurs., Mar. 25–

Preregistration

Fri., Apr. 2

Drop/add

Mon., Apr. 19–

Sun., Aug. 29

Registration

Wed., Apr. 21–

Sun., Aug. 29

Tues., Aug. 3

Final tuition payment deadline for fall 2004 (For students who register on or after the deadline, fees are due daily.)

Tues., Aug. 17–

Thurs., Aug. 19

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

Wed., Aug. 18

New Faculty and Academic Professional Orientation and Reception

September 2004

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		

October 2004

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						

November 2004

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		

December 2004

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	

January 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					

February 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				

Thurs., Aug. 19–
Sun., Aug. 22

Mon., Aug. 23

Mon., Sept. 6

Fri., Sept. 17

Fri., Oct. 15

Fri., Oct. 29

Thurs., Nov. 11

Thurs., Nov. 25–
Fri., Nov. 26

Wed., Dec. 1

Tues., Dec. 7

Wed., Dec. 8

Thurs., Dec. 9–
Sat., Dec. 11;

Mon., Dec. 13–
Wed., Dec. 15

Thurs., Dec. 16

Fri., Dec. 17

Sat., Dec. 18

2004

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

Fri., Oct. 1

Mon., Dec. 27

Mon., Jan. 3, 2005

Fri., Jan. 14

2005

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

Mon., Oct. 25–

Tues., Nov. 2, 2004

Mon., Nov. 15, 2004–

Sun., Jan. 23, 2005

Wed., Nov. 17, 2004–

Fri., Jan. 21, 2005

Tues., Dec. 14, 2004

Wed., Jan. 12

Fri., Jan. 14

Mon., Jan. 17

Tues., Jan. 18

Sun., Feb. 13

Sun., Mar. 13–

Sun., Mar. 20

Fri., Mar. 25

Thurs., Mar. 31

Wed., Apr. 27

ASU Sun Devil 101

Instruction begins

Classes are excused for Labor Day holiday

Unrestricted course and complete withdrawal deadline

December graduation filing deadline

Restricted course withdrawal deadline

Classes are excused for Veterans Day holiday

Classes are excused for Thanksgiving recess

Restricted complete withdrawal deadline

Instruction ends

Reading day

Final examinations

Commencement

Some residence halls close for semester break

Midyear recess begins

Winter Session

Winter Session registration begins

Winter Session instruction begins

Winter Session classes are excused for New Year's Day holiday

Winter Session instruction ends

Spring Semester

Preregistration

Drop/add

Registration

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

Residence halls open

Orientation for new students

Classes are excused for Martin Luther King Jr. Day holiday

Instruction begins

Unrestricted course and complete withdrawal deadline

Classes are excused for spring recess; semester midpoint

Restricted course withdrawal deadline

May graduation filing deadline

Restricted complete withdrawal deadline

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

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

May 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				

June 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		

July 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						

August 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			

Tues., May 3

Wed., May 4

Thurs., May 5–

Sat., May 7;

Mon., May 9–

Wed., May 11

Thurs., May 12

Fri., May 13

2005

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

Mon., Jan. 31–

Wed., June 1

Mon., Jan. 31–

Wed., July 6

Tues., Apr. 26

Mon., May 30

Tues., May 31

Tues., June 7

Fri., June 17

Fri., June 24

Fri., July 1

Fri., July 1

Mon., July 4

Tues., July 5

Tues., July 12

Fri., July 15

Fri., July 22

Fri., July 22

Fri., July 29

Fri., Aug. 5

Instruction ends

Reading day

Final examinations

Commencement

Residence halls close

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

Unrestricted course and complete withdrawal deadline for first five-week session and eight-week session

Restricted course withdrawal deadline for first five-week session and eight-week session

Restricted complete withdrawal deadline for first five-week session

August graduation filing deadline

First five-week session ends

Classes are excused for Independence Day holiday

Instruction begins for second five-week session

Unrestricted course and complete withdrawal deadline for second five-week session

Restricted complete withdrawal deadline for eight-week session

Eight-week session ends

Restricted course withdrawal deadline for second five-week session

Restricted complete withdrawal deadline for second five-week session

Second five-week session ends

Frequently Asked Questions

How do I apply to ASU Main? Complete an application and have all required transcripts and test scores sent directly to Undergraduate Admissions. See “[Undergraduate Admission](#),” page 65. For more information, call 480/965-7788.

How do I apply to ASU East? Complete an application and have all required transcripts and test scores sent directly to Undergraduate Admissions. See “[Undergraduate Admission](#),” page 65. For more information, call 480/727-3278.

How do I apply to ASU West? Contact Admissions Services at ASU West. See “[Admission](#),” page 674. For more information, call 602/543-8203.

What is the ASU Extended Campus? The ASU Extended Campus provides access to ASU courses and degrees evenings and weekends, by television, the Internet, at on- and off-campus sites, and through Independent Learning. See “[ASU Extended Campus](#),” page 28, and “[ASU Extended Campus](#),” page 689, or call 480/965-3986 for information and a course catalog.

What if I am a student with college credit? Upon admission, note the number of semester hours on your Certificate of Admission. When registering, consult your department advisor to determine how transfer credits fit into the curriculum (see “[Academic Advising](#),” page 76). Have you met the First-Year Composition requirement? (See “[First-Year Composition Requirement](#),” page 87.) If you have completed 87 or more semester hours, file a program of study or declaration of graduation (see “[Declaration of Graduation](#),” page 89).

What if I have a disability or am a veteran? If you have a disability and will be requesting academic accommodations, see “[Disability Resources for Students](#),” page 47, and “[Applicants with Disabilities](#),” page 71. Veteran students using GI benefits, see “[Veterans Services](#),” page 44.

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 priority date. If you apply after the priority date, you will be considered a late applicant and are less likely to receive grants and Federal Work-Study due to funding limitations. You may obtain a paper FAFSA from any financial aid office or complete an electronic application at www.fafsa.ed.gov. See “[Student Financial Assistance](#),” page 44, and “[Financial Aid](#),” page 59.

How do I find a place to live and purchase a meal plan? Apply early (before March 1, 2004) for the best chance to live on campus beginning in fall semester 2004. Housing is not guaranteed. See “[Residential Life](#),” page 44, for information on student housing. 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 Services at 480/965-3464. For ASU East housing, call 480/727-1700, or see “[Campus and Student Services](#),” page 602, in the “ASU East” section, for more information on dining and housing.

What about orientation? Attend orientation on your campus, where questions regarding advising, class registration, student IDs, on-campus housing, and other pertinent topics are addressed. For information about Main campus orientation, see “[Freshman Orientation](#),” page 71. Information regarding ASU East orientation can be obtained by calling 480/727-1165.

How do I get an ID, and what about parking? See “[Proof of Identification](#),” page 78, 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 55. ASU East students may obtain student ID cards and parking decals in Student Services, QUAD 2. Parking is also available at the ASU Downtown Center. For information about fees and keycards, call 480/965-3046.

What about placement examinations and university testing requirements? See “[Placement Examinations](#),” page 76, and “[University Testing Requirements](#),” page 76.

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 76. For ASU East Academic Advising, see “[Advising](#),” page 602.

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 71.

Once I am registered and ready to go, how can I ensure my success at ASU? Consider enrolling in UNI 100 Academic Success at the University. See “[Division of Undergraduate Academic Services](#),” page 122.

What's left to do now that the business is taken care of? Become involved in the university by getting to know professors, joining student organizations, and taking advantage of the many cultural, recreational, and social opportunities. For more information on ASU Main campus life, call Student Life at 480/965-6547, Sun Devil Involvement Center at 480/965-2255, or ASASU at 480/965-3161; for ASU East, call 480/727-3278. Investigate the challenges and advantages of the Barrett Honors College. See “[The Barrett Honors College](#),” page 128.

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 78.

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 72.

AECF. 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 71.

ASU East. ASU East is located at the former Williams Air Force Base. See “[ASU East](#),” pages 27 and 600.

ASU Extended Campus. The ASU Extended Campus offers courses evenings and weekends, via television and the Internet, at on- and off-campus sites, and through Independent Learning. See “[ASU Extended Campus](#),” pages 28 and 689.

ASU Main. ASU Main is the principal campus of ASU, located in Tempe. See “[ASU Main](#),” page 27.

ASU West. ASU West is the Phoenix campus of ASU, established to serve the educational needs of residents in western Maricopa County. See “[ASU West](#),” pages 28 and 672.

Audit Enrollment. A student who audits a course attends regularly scheduled class sessions but earns no credit. See “[Audit Enrollment](#),” page 80.

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 72.

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 72.

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 79.

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.

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 90. See also “Magna Cum Laude” and “Summa Cum Laude” in this section.

Declaration of Graduation. The Declaration of Graduation uses the Degree Audit Reporting System (DARS). DARS is an automated process that matches courses a student has completed with the requirements of a particular academic degree program, producing a report that shows the student which requirements are satisfied and which remain to be fulfilled. See “[Declaration of Graduation](#),” page 89.

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 81.

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 91.

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 82.

Grade Points. For the purpose of computing the GPA, grade points are assigned to each of the grades for each semester hour as follows: “A,” four points; “B,” three points; “C,” two points; “D,” one point; and “E,” zero points.

Graduate Catalog. The *Graduate Catalog* describes the procedures and requirements for enrollment in the Graduate College. See “[Graduate College](#),” page 491.

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 80.

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 72.

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 90. 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 503.

Minor. A minor is a formalized group of courses contained within the program of study available from some instruction units. See “[Minors](#),” page 116.

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 81.

Placement Examination. A proficiency examination is given to waive a course requirement, validate certain trans-

fer credits in professional programs, or determine a student’s ability in a field where competence is an important consideration. See “[Placement Examinations](#),” page 76.

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.

Restricted Complete Withdrawal. From the fifth week to the transaction deadline for a semester and from the seventh day to the transaction deadline for a summer session, students may withdraw from all courses but receive a mark of “W” only from courses in which the instructor certifies that they are passing at the time of the withdrawal. See “[Restricted Withdrawal](#),” page 81.

Restricted Course Withdrawal. From the fifth week to the end of the 10th week of a semester and from the seventh day to the end of the third week of a summer session, students may withdraw with a mark of “W” only from courses in which the instructor certifies that they are passing at the time of withdrawal. See “[Restricted Withdrawal](#),” page 81.

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 90. 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 70, 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 83.

Unrestricted Course Withdrawal. During the first four weeks of a semester or the first six days of a summer session, a student may withdraw from any course with a mark of “W.” See “[Unrestricted Course Withdrawal](#),” page 81.

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 55,491 full-time and part-time students through ASU Main in Tempe; ASU West in northwest Phoenix; a major educational center in downtown Phoenix; ASU East, 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 “2002–2003 Enrollment” table below.

2002–2003 Enrollment

Type	Students
Total	55,491
ASU Main	47,359
ASU East	3,126
ASU West	6,630
National Merit Scholars	368

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 “Administrative Personnel,” page 592.

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 702.

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, 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.

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, 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 directives of teaching and learning through the application of social justice approaches to diversity, intergroup relations programming, and scholarship in partnership with campus and external communities.

Through structured interaction programs for faculty, staff, and students—including intergroup dialogues, retreats, institutes, and educational and training workshops—the center promotes diversity as one of the university's greatest assets. The educational work of the center encompasses 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 main 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.

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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 ASU East; 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 forward with Dr. Crow's vision. 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 Arizona BioDesign Institute already under construction and scheduled for completion in 2004. ASU will take a leading role in biomedicine and biotechnology, designing new therapies, new vaccines, new diagnostic devices, and better delivery methods.

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

Athletics

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

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

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

In 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

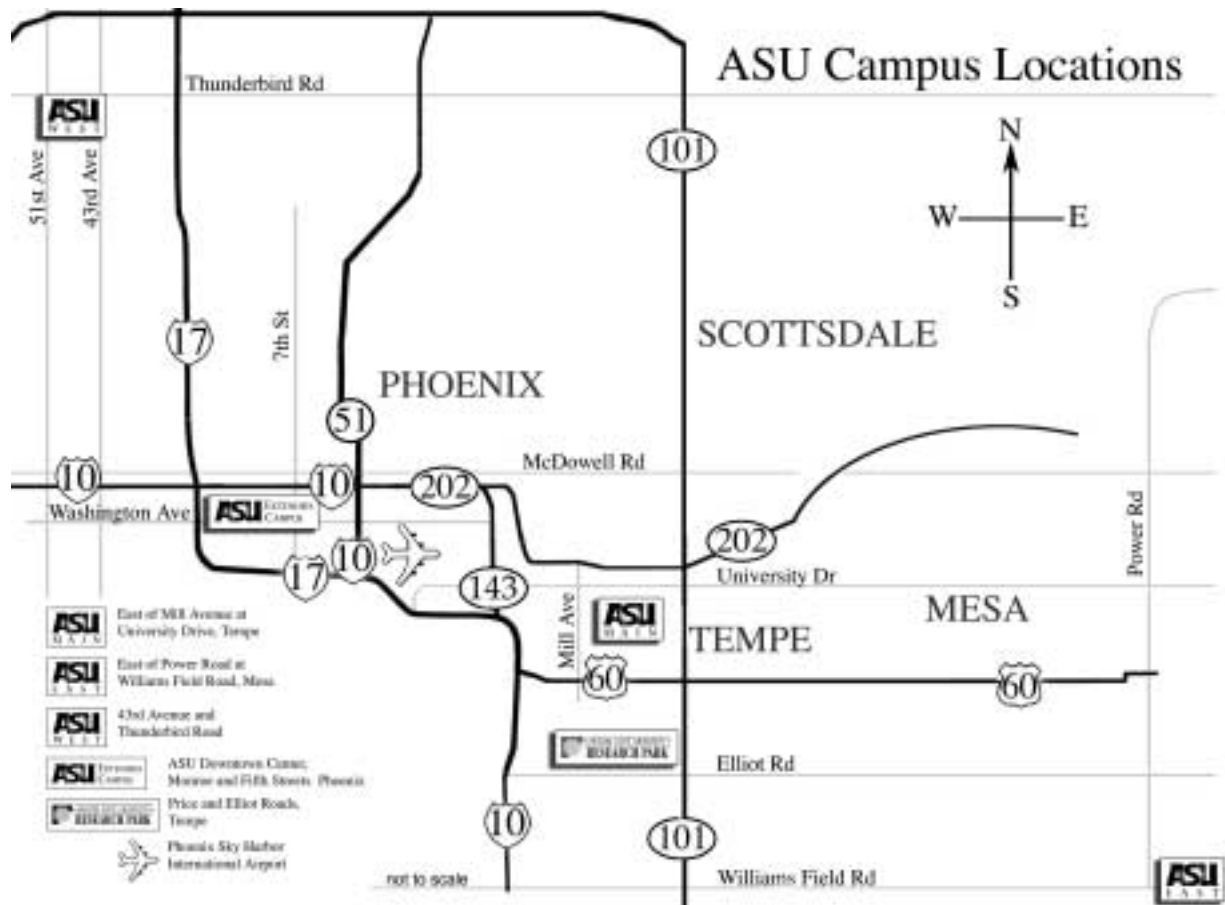
ASU comprises ASU Main, ASU East, ASU West, ASU Extended Campus, the ASU Research Park, and various other entities and facilities. See the "ASU Campus Locations" map, on this page.

ASU Main. ASU Main is located near the heart of metropolitan Phoenix in the city of Tempe (population 165,000). Nearby are the municipalities that make up the fast-growing

Valley of the Sun: Chandler, Gilbert, Glendale, Mesa, Scottsdale, and other communities.

ASU Main 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.

ASU East. The newest of the ASU campuses, ASU East 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 ASU Main in Tempe and the amenities of the metropolitan Phoenix area.



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ASU East offers a variety of bachelor's and master's degrees, certificate programs, and, through partnerships with programs at ASU Main, select doctoral degrees. Sharing the campus with ASU East 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 ASU East 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 ASU East students.

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

A shuttle service provides transportation between ASU East and ASU Main. The campus, located at Power and Williams Field Roads in Mesa, is easily accessible via major interstate routes. For more information, see "ASU East," page 600.

ASU West. Celebrating its 20th year, Arizona State University West, located in northwest Phoenix, is a vital component of Arizona State University. The campus serves more than 7,100 students, offering a highly personalized, student-centered education.

ASU West is a force in the creation and communication of knowledge through its interdisciplinary teaching, research, and outreach programs. ASU West 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 ASU West's unique blend of interactive, classroom-based learning communities, community- and field-based learning experiences, and faculty-student research partnerships that address important societal issues.

ASU West offers an interdisciplinary education for undergraduates, as well as an array of professional programs grounded in the liberal arts. ASU West offers 29 bachelor's degree programs, nine master's degrees, and eight professional certificates.

ASU West's 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, ASU West 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 "ASU West," page 672. For complete information and course listings, see the *ASU West Catalog*.

ASU Extended Campus. The ASU Extended Campus goes beyond the boundaries of the university's physical campuses to provide access to quality academic credit and degree programs for working adults through flexible schedules; a vast network of off-campus sites; classes scheduled days, evenings, and weekends; and innovative delivery technologies, including television, the Internet, and Independent Learning. Through the Extended Campus, students can access programs, including a variety of professional continuing education programs. ASU Extended Campus offers lifelong learning opportunities throughout Maricopa County and the state of Arizona.

For more information, see "ASU Extended Campus," page 689.

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

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

The Research Park has numerous major tenants, including ASM Lithography, Avnet CMG, Bright Horizons Family Solutions, Edward Jones, Iridium Satellite, Motorola Labs, the Institute for Supply Management, Philips Electronics, and many others. The Research Park contains more than 1.5 million square feet of developed space on 320 acres.

For more information, access researchpark.asu.edu on the Web.

Camp Tontozona. Located in the famed Mogollon Rim country near Kohl's Ranch, northeast of Payson, this continuing education facility serves the needs of academic departments conducting teaching and research in mountain terrain. The camp is also available to faculty, staff, graduate

students, and alumni for family use. For more information, call 480/965-6851.

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

The Arboretum. The Arboretum at Arizona State University is the entire 722-acre main campus. The Arboretum is home to a flourishing oasis of plants from around the world. This virtual outdoor classroom includes more than 300 species of trees and other woody ornamental and herbaceous plants from diverse geographic regions as well as the Sonoran Desert. The Arboretum contains one of the best collections of palms and conifers in the desert Southwest and a growing collection of native Southwestern plants. The Arboretum's date palm collection has received international recognition by the American Association of Botanical Gardens and Arboreta North American Plant Collection Consortium.

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

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

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

UNIVERSITY LIBRARY AND COLLECTIONS

ASU Main Libraries

The collections of the university's libraries comprise more than 3.7 million volumes, approximately 7.4 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 521. 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 Instruction, 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 in the College of Architecture and Environmental Design/North building, this library has a general collection that 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 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 books, journals, and microforms in the sciences, engineering, and nursing; and the Map Collection. 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 311, for more information.

ASU West Library

The ASU West Library utilizes a range of electronic systems, from compact discs to telecommunications networks, to provide access to resources and delivery of materials. Its resources include more than 325,000 volumes, 8,780 videos, 15,000 slides, 240 electronic databases, 1.4 million microforms, and full or partial access to more than 27,000 print and electronic titles. For more information and to take a virtual tour of the library, access the Web site at www.west.asu.edu/library.

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

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Arizona and the Southwest. For more information, access the Web site at www.users.qwest.net/~azhistoricalfdn.

University Archives. The University Archives collection is available for use at the Luhrs Reading Room in Hayden Library. The collection (1885–present) comprises university theses and dissertations; administrative records of the university; historical photographs and personal papers of faculty, staff, and alumni; and student, faculty, and official university publications. The historic University Archives Building on Tyler Mall is the home of the 1907 Gallery, which hosts exhibits of historical photographs from the collections of the Department of Archives and Manuscripts. For more information, access the Web site at www.asu.edu/lib/archives/archives.htm.

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.

ASU Downtown Center Galleria. The Galleria features work by ASU faculty, staff, students, and local artists. Exhibits rotate monthly. 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.

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 commu-

nity. 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 one of the only dance spaces in the country that is designed with 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.

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 the Motion Capturing Partnership, which includes the ISA, computer science, bioengineering, and PRISM (Partnership for Research in Stereo Modeling).

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 small but technically sophisticated 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.

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

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

Organ Hall. Located in the new music building expansion, 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 140 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.

The Art Gallery. The Art Gallery is located opposite the ASU 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 (myasuportal.asu.edu) and creating personal and course Web pages;
4. accessing courses online via myASU (myasuportal.asu.edu);
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.

GENERAL INFORMATION

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 253-workstation computing site, seven computer classrooms, two Classroom Support Centers, the Customer Assistance Center, a computer store, and the Computing Commons Gallery which is described under Performing and Fine Arts Facilities (see “[Computing Commons Gallery](#),” page 30).

Classroom Support. Classroom Support assists instructors in integrating technology into the educational process. To achieve this goal Classroom Support personnel provide equipment, technical support, maintenance, and instructor training for open-access classrooms, mediated classrooms, computer classrooms, and special events. Classroom Support Centers are located strategically around campus so that staff can provide help to instructors who request assistance. 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 (IT or open access) computing sites located on the ASU Main 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/it/fyi/sites.

ASU Downtown Center Computer Lab. The ASU Downtown Center offers two state-of-the-art computer labs. These facilities feature Pentium-class computers with the latest versions of software, high-speed laser printers, a color flat-bed scanner, and a ceiling-mounted video projection system. The ASU Downtown Center is located in central Phoenix. It 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/dtcplab.

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/it/fyi/accounts.

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, computing periodicals, 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 center also distributes communication, virus protection, and other site-licensed software, and how-to documentation in a “print-on-demand” format. Print on demand is also available on the Web at www.asu.edu/quicklook. Additional information about the center is available on the Web at www.asu.edu/cacenter.

Geographic Information Services. Information Technology provides infrastructure support for the use of Geographic Information Systems (GIS) through the establishment of partnerships with faculty and staff to acquire, create, and enhance research and instruction. GIS staff support researchers from various disciplines by facilitating the use of hardware, software, and data in the creation of geographic information systems. The systems are used for spatial analysis, query, and display. Staff also provide opportunities for researchers to meet and share information and technical expertise. For more information, access the Web site at www.asu.edu/gis.

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 data recovery and repair; AFS file space and permissions for Web sites; communication, e-mail, and virus protection software; 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.

Information Technology Instruction Support. The Information Technology Instruction Support (IT/IS) Group serves as 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, IT/IS fosters technological innovation by serving as a research and development unit, a production group, and a training facility.

IT/IS 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. IT/IS coordinates the efforts of these groups—which include the College of Extended Education, University Libraries, Disability Resources for Students, and the Office for Research and Sponsored Projects Administration—to provide faculty with a wide array of instruction support services.

IT/IS 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 IT/IS, access the Web site at is.asu.edu.

Instruction Support Lab. The Instruction Support (IS) Lab provides an environment in which faculty may seek and receive one-on-one, guided, or independent support for course development and delivery. Expert staff work closely with faculty to refine and develop their skills and confidence in the design and delivery of instruction through a variety of technology-supported means, both synchronous and asynchronous. Located in CPCOM 213, the IS Lab provides faculty, university professionals, and graduate students with a unique opportunity to integrate technology with instruction. The IS Lab sponsors workshops and demonstrations and serves as a dynamic clearinghouse of information and referrals for effective integration of technology with education. For more information about IS Lab resources, support, and workshops, access the Web site at is.asu.edu/islab.

ALUMNI ASSOCIATION

Founded in 1894, the Alumni Association is a volunteer 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. See "[ASU Alumni Association Board of Directors](#)," page 597. For more information about the association or its board of directors, call 1-800-ALUMNUS or 480/965-ALUM (2586), or access the Web site at www.asu.edu/alumni.

PROGRAM ASSESSMENT AND THE OFFICE OF UNIVERSITY EVALUATION

The Office of University Evaluation is a research and service facility that focuses on assessing and improving the effectiveness of the university's academic and support programs. The office conducts, coordinates, and manages research designed to measure the degree to which courses, curricula, and academic programs impart knowledge and skills to students, as well as the quality of support provided to students. The results of these studies, or assessments, are used to enhance both the support provided to students and the intellectual integrity of an ASU education.

In order for the university to assess and improve its programs, periodic measurement of student experiences, perceptions, and intellectual growth must be obtained. When asked by the university, students are expected to participate

in one or more evaluative procedures, such as the ASU Report Card. These evaluative procedures are designed to assess the efficacy of the total university experience, including teaching and learning and support programs and are not used in individual grading. The information obtained is one of the means used to improve the quality of the educational experience for this and future generations of ASU students.

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

LEARNING AND TEACHING EXCELLENCE

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

Some of the center's goals are

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

For more information, call 480/965-9401.

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

LEARNING AND TEACHING EXCELLENCE (LTE)

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

RESEARCH CENTERS, INSTITUTES, AND LABORATORIES

See "[Research Centers](#)," page 34.

Research Centers

Research centers, institutes, and laboratories serve the university's mission in research. They are overseen by eight of the colleges, the Office of the Vice President for Research and Economic Affairs, and the ASU East 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 480/965-5350, or access the CRESMET Web site at www.eas.asu.edu/~CRESMET.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

Herberger Center for Design Excellence

The Herberger Center for Design Excellence is the research, outreach, and publication arm of the College of Architecture and Environmental Design. The center facilitates and promotes research, scholarship, and creative activity among the faculty and students of the college in the fields of architecture, interior design, industrial design, graphic design, landscape architecture and urban design, and environmental planning.

In keeping with its outreach mission, the Herberger Center also publishes reports, newsletters, and books that help to inform debate on key design and planning issues in

the desert southwest. The center works closely with the faculty to publish books, working papers, and conference proceedings that promote scholarship in the planning and design disciplines.

The Joint Urban Design Program (JUDP), based in downtown Phoenix, is the center's outreach arm. It facilitates interaction among college faculty, students, and the broader community, and offers 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 concerns and strategies to respond to critical needs. Student groups and faculty work with the JUDP to identify real world problems that they address in studio projects. For more information, call 480/727-5146, or access the JUDP Web site at www.asu.edu/caed.

COLLEGE OF EDUCATION

Center for Indian Education

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

The center provides leadership through a group of American Indian faculty and is organized on the basis of scholarly expertise of the faculty. In addition to College of Education faculty, responsibilities are shared by faculty from the School of Social Work, the School of Justice Studies, 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,” on this page.

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, curriculum, and commercialism in schools. EPSL not only disseminates its analyses and

reports to policy makers and educators, but concentrates on providing the public with readable accounts of research.

The EPSL houses two research units—the Commercialism in Education Research Unit (CERU), which is the only national academic research center dedicated to schoolhouse commercialism, and the Education Policy Research Unit (EPRU), which conducts original research and facilitates implementation of educational innovations.

For more information, contact Alex Molnar, EPSL director and professor of Educational Leadership and Policy Studies, EDB L1-01, 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 a single 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 Southwest Center for Education Equity and Language Diversity 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

Arizona Biodesign Institute

This institute has a collaborative relationship with the Ira A. Fulton School of Engineering. For more information, see “[Arizona Biodesign Institute](#),” 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. It has the world's leading companies involved in the manufacture of portable computing and communication systems. The technical areas of focus of the center 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, or call 480/965-8654, or access the Engineering Research Services Web site at www.asu.edu/~ers.

CRESMET

See “[Center for Research on Education in Science, Mathematics, Engineering, and Technology](#),” page 34.

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 semiconductors 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 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

RESEARCH CENTERS

Computing, the Intelligent Information Integration core area, and the Information Assurance core area. InCISE also collaborates with five affiliated research groups: the Consortium for Embedded 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.

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. IMES's mission is to establish ASU as an international leader in the creation and dissemination of new knowledge in the area of global manufacturing for the new economy. It particularly focuses on how manufacturing impacts Arizona. Research thrust areas include virtual manufacturing, enterprise systems, knowledge management, and software in the system solution.

For more information, visit the institute in GWC 402, or 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 41.

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, and law and social science.

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 (ACMRS)

The Arizona Center for Medieval and Renaissance Studies is a research unit serving affiliate scholars from ASU,

Northern Arizona University, and the University of Arizona. It represents a variety of disciplines, including history, literature, philosophy, religion, language, music, art, and science. ACMRS enriches academic offerings in medieval and renaissance studies by sponsoring one or two visiting professors each year. Graduate research assistantships are also available through the center.

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

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

Since 1996, ACMRS has published *Medieval and Renaissance Texts and Studies (MRTS)*, 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

Through its East Asian and Southeast Asian studies programs, the Center for Asian Studies serves as research coordinator for Asian studies' faculty and graduate students in a variety of disciplines. The center sponsors colloquia and research conferences. It also publishes two scholarly *Monograph Series* and a newsletter on Southeast Asian studies, *Suvannabhumi*, which have an international readership.

Graduate students may apply for research assistantships in the center and its program.

The center works with the office of International Programs to administer student exchange programs with a number of universities in Asia. The center also sponsors an Asian film series each semester. A reading room is located in the center office suite offering a variety of Asian and English language publications and newspapers from and about Asia.

For more information, visit the center in COOR 6611, or call 480/965-7184.

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.

GMSL. These facilities include

1. the Materials Facility (MF), which provides a wide range of synthesis and processing capabilities for preparation of specimen materials. MF also provides thermal analysis for study of solid-state reactions and Auger and X-ray photoelectron spectroscopy for analysis of surface compositions and electronic structure of surfaces;
2. the Materials Science Electron Microscopy Laboratory (MSEML), which provides state-of-the-art electron microscopes for analysis of microstructures, including imaging and diffraction, and high spatial resolution chemical analysis using energy dispersive X-ray and electron energy loss micro-spectroscopy;
3. the Ion Beam Analysis of Materials (IBeAM) facility, which provides compositional and structural determination of the surface and near-surface regions (0–2 mm) of solids by ion beam analysis where elemental composition and depth distribution information are needed. Channeling experiments are used to determine crystal perfection and site occupancy;
4. the Secondary Ion Mass Spectrometry (SIMS) laboratory, which provides depth profile and point composition analysis with very high chemical sensitivity, on the order of one part per billion, including isotopic analysis for many materials. SIMS is also used as a chemical microscope, to image elemental distributions on specimen surfaces;
5. the Scanning Probe Microscopy Laboratory (SPM), which provides facilities for nanoscale viewing of solid surfaces using scanning tunneling microscopy (STM), atomic force microscopy (AFM), and related techniques. The SPM laboratory serves as a focus for undergraduate research training programs and educational and outreach activities;
6. the Facility for High Pressure Research, which provides facilities for synthesis of new materials and for geochemistry/geophysics studies at up to 25 Gpa (250,000 atmospheres) and temperatures greater than 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.

RESEARCH CENTERS

These facilities provide the primary teaching and research resources used by students in the Science and Engineering of Materials interdisciplinary Ph.D. program and the undergraduate option for Materials Synthesis and Processing. They 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.

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 biophysical processes of photosynthetic energy storage. This goal is being realized via investigation of the early events of photosynthesis, including light absorption and excitation transfer in photosynthetic antennas; the mechanism of primary photochemistry in plant and bacterial systems; secondary electron transfer processes; structure and assembly of photosynthetic antennas, reaction centers, and electron transfer proteins; pigment-protein interactions; artificial and biomimetic photosynthetic solar energy conversion systems; and mechanisms of biological electron transfer reactions.

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

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

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

CRESMET

See "Center for Research on Education in Science, Mathematics, Engineering, and Technology," page 34.

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 conducted in the *Applied Exercise Physiology Lab* is aimed at better understanding how physical activity and exercise influence the health, fitness, and athletic performance of able-bodied and physically-challenged individuals. 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) at ASU is an interdisciplinary unit, dedicated to research and creative activities, that is university-wide but 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 and the establishment of a chronological framework for human evolutionary events. 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/ihp.

Joan and David Lincoln Center for Applied Ethics

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

1. to develop and coordinate a strong focus on theoretical and applied ethics across intellectual disciplines and professional programs within the university,
2. to support teaching and creative research in ethics, and
3. to foster collaboration between the university and its varied publics to address major ethical challenges facing contemporary society.

For more information, visit LCAE 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 pro-

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grams 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, 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, or 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

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. It 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 an opportunity 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 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 and includes a collaborative relationship with the Ira A. Fulton School of Engineering (FSE). The ISA supports creation, research, development, presentation, and education at the intersection of the arts and technology.

The institute offers courses and training programs in interdisciplinary digital media and performance and in signal processing and programming for the arts. Courses are designed for graduate students exploring both the theory and practice of interdisciplinary collaboration between the arts and technology. Faculty include ISA artists, visiting artists, a faculty appointee jointly serving FSE and HCFA, and affiliated FSE faculty.

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—staffed by an electronics engineer and research assistant from the ASU Department of Electrical Engineering and dedicated to the development and creation of software and hardware tools for creative applications—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.

W. P. CAREY SCHOOL OF BUSINESS

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 480/965-5440, access the AREC Web site at www.wpcarey.asu.edu/seid/arec, or write

ARIZONA REAL ESTATE CENTER
PO BOX 874011
TEMPE AZ 85287-4011

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), a forecast and 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 positions of leadership in small and medium-size businesses, and aids small and medium-size businesses in the continuous improvement of their 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

RESEARCH CENTERS

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 Advanced Purchasing Studies) 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 Arizona State University Research Park, about eight miles south of the ASU Main 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. The staff within the center 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 for Services Leadership 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 M.B.A. 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 35, for information about this joint venture of the Ira A. Fulton School of Engineering and the W. P. Carey School of Business.

VICE PRESIDENT FOR RESEARCH AND ECONOMIC AFFAIRS

Arizona Biodesign Institute

The Arizona Biodesign Institute (AzBio) 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. Arizona Biodesign will be 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 AzBio will be 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 output of AzBio will be measurable in terms of highly trained professionals, pioneering discoveries, new technologies, new practices, and new businesses—all of which can drive statewide economic development. Arizona Biodesign will be a hub for biodesign research in central Arizona, building collaborative networks among scientists and clinical researchers from leading industries and institu-

tions. The institute will be anchored in a research complex on the main campus of ASU.

For more information, access the AzBio's Web site at www.azbio.org.

Center for Environmental Studies

Established in 1974, the primary mission of the Center for Environmental Studies 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 center 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 CES Web site at ces.asu.edu.

The center 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 center 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 center 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 general information about the center, contact the director, Center for Environmental Studies, Tempe Center (located at the southeast corner of University and Mill), 480/965-2975, or access the center's Web site at ces.asu.edu.

ASU EAST

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.

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.

UNDERGRADUATE ADMISSIONS

For many undergraduates, the first introduction to ASU is through the recruitment and admission programs of Undergraduate Admissions. Personal contact with prospective students through high school and community college visits and through student visits on campus are some of the approaches that provide information about the academic programs and support services available at ASU. A primary goal of Undergraduate Admissions is to identify, inform, motivate, recruit, and enroll students from ethnic groups underrepresented at ASU. Orientation programs ease the students' (and parents') transition to the ASU campus. For more information about undergraduate admissions, call 480/965-7788, or access the Web site at www.asu.edu/admissions.

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 merit 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.

REGISTRAR

Management of the registration system and maintenance of academic records are the primary responsibilities of the Office of the Registrar. Registration is available through SunDial telephone system; on the Web at asu.edu/interactive; or in person at Records Information at ASU Main, Student Services (QUAD 2) site at ASU East, or Registration Services at ASU West. The Student Information System stores academic records and improves the quality of data used in academic advising. The Office of the Registrar coordinates applications for graduation and undergraduate readmission, course changes and scheduling, transcript services, applications for residency, and verification of enrollment. 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 veteran 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 84. 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.

RESIDENTIAL LIFE

Living in one of the ASU residence halls provides students the opportunity to make the most of their college experience. Special residential communities for freshmen, honors students, and students in particular academic areas offer opportunities and activities that enrich the educational experience.

The Freshman Year Experience program (see "[Freshman Year Experience](#)," page 45) 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 tends to exceed space availability in the residence halls, students are encouraged to apply for housing early (before March 1, 2004) for the best chance to live on campus for fall semester 2004. 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 ASU Main optional meal plans may be obtained by calling 480/965-3464 or writing

CAMPUS DINING
ARIZONA STATE UNIVERSITY
PO BOX 871101
TEMPE AZ 85287-1101

ASU East Housing

On-campus housing at ASU East ranges from residence hall rooms for single students to two- to four-bedroom homes for students with families. A distinct freshman residence hall is available for students participating in ASU East's Freshman Year Experience program. For more information, see "[Williams Campus Housing and Residential Life](#)," page 604, call 480/727-1700, or access the Web site at www.east.asu.edu/sta/u-life/housing.

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 freshmen that fosters the student's academic and personal success through academic support services, faculty interaction, and student involvement with the university community. FYE assists first-year students by coordinating services and programs in settings designed just for freshmen.

Tutoring support is offered at *no* cost to all freshmen by tutors who live in the residence halls, creating an academic-focused atmosphere. Tutoring centers in the residence halls are open five evenings each week.

Academic advising is available at FYE sites, with academic advisors employing a developmental approach to advising.

Computer labs at FYE sites are available 24 hours each day. Lab attendants are available during evening hours to provide assistance and answer questions.

A full complement of freshman courses is offered at FYE sites, such as First-Year Composition, history, math, political science, and the university success course for freshmen.

Academic success consulting is offered by undergraduate and graduate students who work with first-year students individually or in a group setting to assist them with transitional issues such as time management and note taking.

Personal development and support programs are available. Presentations from campus departments focus on academic expectations, freshman transition, major and career choices, and other related developmental issues.

Living and learning communities have been set up for freshmen in the following colleges:

Barrett Honors College
College of Architecture and Environmental Design
College of Education
College of Liberal Arts and Sciences
College of Nursing
College of Public Programs (for students majoring in Communication and Journalism and Mass Communication)
Katherine K. Herberger College of Fine Arts
Ira A. Fulton School of Engineering
W. P. Carey School of Business

FYE is open to all freshmen regardless of their place of residence (on- or off-campus). Designated FYE sites in 2004–2005 are located in Cholla, Manzanita, Mariposa, Ocotillo, Palo Verde Complex, Sahuaro, San Pablo, and Sonora. For more information, call 480/965-1512, or access the Web site at www.asu.edu/fye. For information regarding the ASU East FYE program, access the Web site at www.east.asu.edu/fye.

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 sites. 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 such as 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 instruction and group workshops. Students can walk in or schedule individual instruction sessions with software specialists or participate in group workshops in LRC instructional labs. These are located in the Memorial Union (Montgomery 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 the Memorial Union at 480/965-7728, or access the Web site at www.asu.edu/lrc.

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,

STUDENT SERVICES

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.

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. CFS also provides information on child care subsidies and one-time emergency funds. 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 ASU East, call 480/727-1400; at ASU West, call 602/543-5437.

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, and student government. For more information, call 480/965-2255, or access the Web site at www.asu.edu/mu/sdic.

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, staff an information desk and 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 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 of ASU. 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, community service, and student government. 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.

Associated Students of Arizona State University (ASASU). 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, Safety Escort Service, and Bike Co-op Repair 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.

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 Resources for Students. Disability Resources for Students (DRS) 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 DRS 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. DRS is located on the first floor of Matthews Center. For more information, call 480/965-1234 (voice) or

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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 (MSC) supports the transition, retention, and graduation of multicultural students by engaging them in various support services and programs within a culturally affirming environment. University success courses, 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 (APPLES) 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 stu-

dents; 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 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/studentlife/legal.

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 psychological 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. The Counseling Center 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.

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. Career interest testing is offered to both students and non-students.

Crisis Intervention. Crisis intervention for students experiencing mental health emergencies is available. During normal working hours, students may call and request same day appointments to discuss urgent situations. After office hours, EMPACT Suicide Prevention Center, Inc., is available for crisis consultation by calling 480/921-1006.

Confidentiality. Confidentiality in counseling 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 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 480/965-4726) or in person. There is no cost for the initial personal consultation. Students may receive up to three counseling sessions for no fee. 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 two sites on campus, SSV 334 and SHW A168. Additional information is available on the Counseling and Consultation Web site at www.asu.edu/vpsa/counseling.

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

Internship Training. Counseling and Consultation provides training for psychologists through its internship training program for doctoral trainees in clinical and counseling psychology. This program is accredited by the American

Psychological Association. In addition, counseling practicum training is provided to master's and doctoral students enrolled in ASU graduate 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.asu.edu/vpsa/tss. The TSS office is located in SSV 382 and is open 9 A.M. to 6 P.M. Monday through Thursday and 9 A.M. to 5 P.M. Friday.

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, orthopedics, 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 ASU East, call 602/222-6568.

Health Education. 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,

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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 avail-

able 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 main campus, at ASU West and ASU East, 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.



This 40-by-six-foot wall wrap—highlighting ASU academics, research, and quality of life—greeted the estimated 24 million people who pass through Phoenix Sky Harbor Airport's Terminal Four each year.

Cindi Farmer photo

Hayden's Ferry Review is published twice a year. This award-winning national literary and art magazine brings together in one publication the finest contemporary literature and art. It features established and emerging writers and artists from across the country. Access the Web site at www.haydensferryreview.org.

All of these products provide students with on-the-job training in newswriting, photography, editing, broadcast reporting and production, on-line 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 ASU Main campus office is located in SSV 329. For more information, call 480/965-2350.

ASU East students may visit the Career Preparation Center in the Student Affairs Quads, call 480/727-1411, or access the Web site at www.east.asu.edu/sta/career.html.

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 access control 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 ASU Main students are automatic members and can use the SRC for drop-in use. ASU East and West 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, 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 linkages between 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

STUDENT SERVICES

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 ASU Main 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 Danforth Chapel, 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 with the School of Music provide opportunities for involvement and credit, including bands, Lyric Opera Theatre, symphony orchestra, and university 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.

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 "2003–2004 General University Tuition," 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 79.

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. The 2003 registration fee per semester hour is \$131, except for law students. The registration fee per semester hour for law students is \$301. For more information, see "Summer Sessions," page 517, and the *Summer Sessions Bulletin*.

Tuition Installment Plan

The tuition installment plan offers students an option to divide tuition payments up 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 will not be 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

Special 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) who take at least one class at ASU Main 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 Student Aid Trust grants are awarded under the established Student Financial Assistance office's aid eligibility criteria.

Arizona Students' Association Fee. The ASA is a non-profit 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

FEES, DEPOSITS, AND OTHER CHARGES

2003–2004 General University Tuition

Hours	Undergraduate Tuition		Graduate Tuition	
	Resident*	Nonresident*	Resident*	Nonresident*
1	\$ 183.00	\$ 501.00	\$ 194.00	\$ 510.00
2	366.00	1,002.00	388.00	1,020.00
3	549.00	1,503.00	582.00	1,530.00
4	732.00	2,004.00	776.00	2,040.00
5	915.00	2,505.00	970.00	2,550.00
6	1,098.00	3,006.00	1,164.00	3,060.00
7	1,754.00	3,507.00	1,854.00	3,570.00
8	1,754.00	4,008.00	1,854.00	4,080.00
9	1,754.00	4,509.00	1,854.00	4,590.00
10	1,754.00	5,010.00	1,854.00	5,100.00
11	1,754.00	5,511.00	1,854.00	5,610.00
12 or more	1,754.00	6,014.00	1,854.00	6,114.00

* Tuition is subject to change. In addition to tuition, students are charged other fees (e.g., the Student Recreation Complex fee and financial aid trust fee).

funding the ASA. A \$1 fee is charged to each student every semester. Any refunds for this fee are provided through the ASA Central Office.

Late Registration. The fee assessed for registrations on or after the first day of each session is \$50. 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 admission or readmission applications for nonresident applicants is \$50. The nonrefundable fee for graduate nondegree applications or applications for readmission to a degree program after a lapse in enrollment is \$15.

Transcripts. The Office of the Registrar releases official transcripts *only upon the written request of the student*. The request must include the following information about the student:

1. name;
2. former name(s);
3. date of birth;
4. first and last dates of attendance;
5. return address;
6. phone number;
7. specific mailing address for each transcript ordered;
8. ASU ID number; and
9. Social Security Number (SSN).

Students must also select one of the following options to be displayed on the transcript (if the student attended ASU before 1980, these ID/SSN options are not available):

1. ASU ID only;
2. SSN only;
3. both ASU ID and SSN displayed; or
4. neither ASU ID or SSN displayed.

The Request for Official Transcript form is available online at www.asu.edu/registrar/forms.

The Office of the Registrar does not issue a transcript if the student has a financial records hold. The student must supply a specific address if the transcript is to be mailed.

The fee for an official transcript is \$6 per copy. “Rush” transcripts (requested to be printed and picked up on the same day) will cost \$5 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 \$17.50 per delivery address, in the 48 contiguous U.S. states, in addition to the cost of the transcript(s). The additional cost of special express deliveries to addresses outside the contiguous states (e.g., Hawaii, Alaska, and other countries) varies. Students are billed the initial \$17.50 as part of this credit card transaction and sent a bill for the remainder. Fees are subject to change without notice.

Unofficial transcripts may be requested in person at the Office of the Registrar, 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/registrar.

Note: Pre-1980 records are not available via the Web.

All in-person transcript requests require presentation of photo identification. Requests are not accepted from third parties without a written release from the student. For information on parental access to records, see “[Access to Records](#),” page 86.

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

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

Private Music Instruction. 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.

On-Campus Housing. The cost of ASU Main housing varies. In 2003–2004 the typical cost for undergraduate students was \$3,400 per academic year. Meal plans are purchased separately. For more information, see “**Residential Life**,” page 44, 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 ASU Main in Tempe and ASU West in northwest Phoenix; another shuttle runs among ASU Main, Mesa Community College, and ASU East in Mesa; and a Free Local Area Shuttle (FLASH) is available around the periphery of ASU Main. A free Neighborhood FLASH also is available for the ASU community connecting the Escalante and University Heights neighborhoods with the Riverside/Sunset and Lindon Park neighborhoods through downtown Tempe and ASU Main.

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 from any touch-tone phone or via the Web. Visa, MasterCard, and Discover are accepted. Refer to the *Schedule of Classes* for more information.

Credit Cards. ASU accepts Visa, MasterCard, and Discover. Credit card payments through SunDial are processed online with the bank. See the *Schedule of Classes* for information about using credit cards by mail or campus payment boxes.

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 Veteran Promissory Note may be issued deferring payment during their first

FEES, DEPOSITS, AND OTHER CHARGES

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 UASB Registrar site 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 below:

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.

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.

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.

Special 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.

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 ASU Main 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 are mailed to the student’s local address.

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 pro-

gram 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. A second and third \$15 late charge is assessed at 60 and 90 days past due. A late charge of \$25 is assessed for balances due the university in excess of \$100 that are not paid within 30 days of the initial due date. A second and third \$25 late charge is assessed at 60 and 90 days past due, for balances in excess of \$100. Procedures to be followed for disputed charges are available from the Student Accounts section of Student Business Services, located in SSV 230.

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.

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

FEES, DEPOSITS, AND OTHER CHARGES

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.



This aerial view of the ASU Main campus features Grady Gammage Memorial Auditorium in the foreground.

Tim Trumble photo

Financial Aid

The primary responsibility for financing a college education belongs to students and their families (see the “2003–2004 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. These scholarships generally cover tuition and/or fees. The largest source for university scholarships is the waiver program authorized by the Arizona Board of Regents. In addition, many scholarships are funded from a general endowment fund. Some of the typical areas targeted for these scholarships are top academic seniors in Arizona high schools, students who demonstrate leadership, students who demonstrate scholastic or scientific abilities, students with disabilities, and nontraditional 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 2003–2004 academic year was \$4,050.

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 avail-

FINANCIAL AID

2003–2004 Typical Undergraduate Student Budgets

Item	Dependent		Independent
	At-Home	On/Off Campus	On/Off Campus
Room	\$ 1,100	\$ 4,101	\$ 5,608
Board	1,178	2,352	2,352
Personal/miscellaneous	2,479	2,479	3,176
Transportation	1,178	1,178	1,417
Books/supplies	823	823	823
Total living ¹	\$ 6,758	\$ 10,933	\$ 13,376
Resident tuition	\$ 3,508	\$ 3,508	\$ 3,508
Special fees	87	87	87
Resident total	\$ 10,353	\$ 14,528	\$ 16,971
Nonresident tuition ²		\$ 12,028	\$ 12,028
Special fees		87	87
Nonresident total		\$ 23,048	\$ 25,491

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 “2003–2004 General University Tuition” table, page 54.

ability of funds. Maximum grant awards for 2003–2004 were \$1,000.

Leveraging Educational Assistance Partnership (LEAP). This is a three-partner program of federal, state, and university funding. Students with a high financial need may receive this particular form of funding. It is restricted to residents of Arizona. The maximum grant for 2003–2004 was \$1,500.

Student Aid Trust Grant. Provided in partnership between ASU students and the state legislature, these funds are provided primarily to resident, undergraduate or underrepresented students with a high financial need. The maximum grant for 2003–2004 was \$2,000.

University 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 2003–2004 were \$2,000.

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.

William D. Ford Direct Student Loan. Through the William D. Ford Direct Student Loan program, 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. Under this program there are two loan types: subsidized and unsubsidized. With a subsidized Direct Student Loan, 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 Direct Student 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 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 current interest rate can be found at www.ed.gov/directloan. 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 Student 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 2003–2004 were \$3,000.

Parent Loan for Undergraduate Students. Under the Parent Loan for Undergraduate Students (PLUS), 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 after the final disbursement for the enrollment period. The PLUS approval is based on the parents' credit history. There is a variable



Cady Mall provides a convenient north-south route through ASU Main campus, which has a wide variety of trees and other vegetation from around the world.

Tim Trumble photo

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 Direct Student 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. Both 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 the university. Students employed under this program receive the same pay rates as other students being employed on campus. In this program, students must demonstrate a financial need as established through completion of the Free Application for Federal Student Aid (FAFSA).

University Hourly. The university, 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.ustreas.gov.

Classification of Courses

COURSE INFORMATION

Information about all lower- and upper-division courses offered at ASU Main and ASU East 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.

ASU Main and ASU East graduate-level courses are described in the *Graduate Catalog*. ASU West courses are described in the *ASU West 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 ASU East and ASU Main. Campus codes are used for all courses offered at ASU Main (M), ASU East (E), and ASU West (W) in the *Schedule of Classes* and the *Summer Sessions Bulletin*.

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.

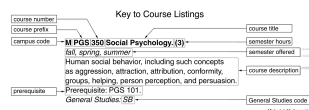
General Studies Code. See “[Meeting the General Studies Requirement](#),” page 91, for an explanation of the General Studies requirement, which applies to students pursuing a bachelor’s degree.

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 Graduate College.

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 78.

Omnibus Courses

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

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

Omnibus Course Abbreviations

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

OMNIBUS UNDERGRADUATE COURSES

191 First-Year Seminar. (1–3)

Small course emphasizing student-faculty discussion/interaction. Strongly recommended for first-year students. Must have taken 25 or fewer semester hours. Consulting an academic advisor before enrolling is recommended.

194, 294, 394, 494 Special Topics. (1–4)

Covers topics of immediate or special interest to a faculty member and students.

484 Internship. (1–12)

Structured practical experience following a contract or plan, supervised by faculty and practitioners.

498 Pro-Seminar. (1–7)

Small-group study and research for advanced students within their majors. Major status in the department or instructor approval is required.

499 Individualized Instruction. (1–3)

Provides an opportunity for original study or investigation in the major or field of specialization on an individual and more autonomous basis. Neither a substitute for a catalog course nor a means of taking a catalog course on an individual basis. Requires application well in advance of regular registration with the student’s advisor, the advisor’s

signature, and approval by both the instructor with whom the student will work and the chair of the department offering the course. This course may be taken only by outstanding senior students who have completed at least one semester in residence and who have a cumulative GPA of 3.00 or higher in the major or field of specialization. A special class fee may be required.

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

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

OMNIBUS GRADUATE COURSES

500, 600, 700 Research Methods. (1–12)

Course on research methods in a specific discipline.

580, 680, 780 Practicum. (1–12)

Structured practical experience in a professional program, supervised by a practitioner and/or faculty member with whom the student works closely.

583, 683, 783 Field Work. (1–12)

Structured, supervised field experience in a field science or other discipline requiring experience in field techniques.

584, 684, 784 Internship. (1–12)

Structured practical experience following a contract or plan, supervised by faculty and practitioners.

590, 690, 790 Reading and Conference. (1–12)

Independent study in which a student meets regularly with a faculty member to discuss assignments. Course may include such assignments as intensive reading in a specialized area, writing a synthesis of literature on a specified topic, 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 thesis or dissertation, 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 Graduate College 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 123) in the Division of Undergraduate Academic Services; 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.

Graduate College. Courses with the prefix GRD numbered 791 are reserved for doctoral students participating in the Preparing Future Faculty (PFF) program administered by the Graduate College. 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 the transfer of overseas courses to the 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 Student Recreation Complex gives students numerous workout options, from classes to individualized training. 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.

STUDENT SERVICES AT ASU

Arizona State University is a richly diverse academic setting with more than 50,000 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. Student Affairs, one of these areas, is responsible for the delivery of a variety of services and developmental programs in support of students' educational pursuits. These programs and services are based upon human development research that advocates that a person develop culturally, emotionally, intellectually, morally, physically, psychologically, socially, and spiritually.

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. Student Affairs encourages students to explore the facilities, services, and human resources available. ASU departments guiding students in their educational experience include Career Services, Counseling and Consultation, the Memorial Union and Student Development, Recreational Sports, Residential Life, the Student Health and Wellness Center, Student Life, and Student Media. Each of these areas provides specialized learning opportunities, contributing to an environment that fosters both personal and academic growth.

Undergraduate Admission

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

For information and application materials, prospective students may call 480/965-7788, access the Web site at www.asu.edu/admissions, or write

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

Undergraduate Admissions offers tours of ASU, University Information Sessions, and admission appointments Monday through Friday (except days that are official university holidays). For more information, call 480/727-7013.

Requests for specific information relating to academic programs or student services should be addressed to the appropriate department, school, division, or college.

Admission Procedures for Applicants

Individuals interested in admission to an undergraduate program at ASU must have the following items on file at Undergraduate Admissions (non-U.S. citizens should see

UNDERGRADUATE ENROLLMENT

“International Student Admissions,” page 70, for additional requirements): the required application, fee, official transcripts, and test scores.

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

Students who do not enroll for the semester for which they were admitted must submit a new application (and application fee for nonresident applicants) 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 Fee. All applicants classified as nonresidents must submit a \$50 nonrefundable application fee.

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 facsimile (fax) machine. High school transcripts must show GPA and date of graduation. ASU requires an English translation of all foreign language transcripts.

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

ACT
PO BOX 168
2201 N DODGE ST
IOWA CITY IA 52243-0168

or the

COLLEGE BOARD SAT PROGRAM
PO BOX 6201
PRINCETON NJ 08541

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

Application Time Line. ASU urges applicants to have their materials sent as soon as possible to enable university officials to make an early decision concerning the applicant’s admission and to permit the student to take part in preregistration and orientation. Applicants should allow four weeks after all necessary items are received for an admission decision to be made.

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 admissions 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.

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 “Admission Requirements” table, page 67, and the “Competency Requirements” table, page 69.

Application Materials Required

All applicants must submit an application for admission to Arizona State University on the Web at www.asu.edu/admissions/applyingtoasu or a paper application. In addition, official high school transcripts and college/university transcripts from all colleges/universities the applicant has enrolled at must be submitted to

UNDERGRADUATE ADMISSIONS OFFICE
PO BOX 870112
TEMPE AZ 85287-0112

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

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. These score reports must be received directly from the issuing agency.

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	Meet class rank <i>or</i> test score <i>or</i> GPA	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.	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	Class rank—top 25% of the high school graduating class	Class rank—top 25% of the high school graduating class	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>Applicants in the top 26 to 50% may be admitted with conditions.</i>	<i>Applicants in the top 26 to 50% may be admitted with conditions.</i>	<i>Applicants in the top 26 to 50% may be admitted with conditions.</i>
	<i>or</i> ACT Composite—22	<i>or</i> ACT Composite—24	<i>or</i> ACT Composite—22	<i>or</i> ACT Composite—24
	<i>or</i> SAT I—1040	<i>or</i> SAT I—1110	<i>or</i> SAT I—1040	<i>or</i> SAT I—1110
	<i>or</i> GPA—3.00 (4.00 = A) in competency courses	<i>or</i> GPA—3.00 (4.00 = A) in competency courses	<i>or</i> GPA—3.00 (4.00 = A) in competency courses	<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>	<i>Applicants with a 2.50–2.99 GPA in competency courses may be admitted with conditions.</i>		
College aptitude requirement	Does not apply	Does not apply	2.00 cumulative GPA (4.00 = A)	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.	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.

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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.

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.

Transfer Credit

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

1. Transfer credit is not given for courses in which the lowest passing grade (“D” [1.00]) or a failing grade was received.
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 accredited 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 this 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.

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

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 ACT 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	One-year transferable college course 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

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 community college work. See “Guidelines for Determination of Catalog Year,” page 87.

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 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

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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 AGECE and major requirements.

Completion of any AGECE guarantees admission to the university provided that a GPA of 2.00 (for Arizona residents) or 2.50 (for nonresidents) has been achieved. AGECE completion, however, does not guarantee admission to any specific university program. Majors in the professional fields (e.g., architecture, engineering, business, fine/creative arts, or health professions) and sciences 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 recognized by the home government/Ministry of Education as a degree-awarding institution or attached to a regionally accredited U.S. college or university as a Study Abroad Program. No credit is awarded for English composition courses completed at foreign institutions (credit may be awarded at the discretion of ASU when the credit was completed in a country whose native language is English). There are no advanced credits for the international affiliation programs overseas unless they comply with this general policy. For more information, call Undergraduate Admissions at 480/965-2688.

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

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 697, 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 Resources for Students (DRS) 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 DRS deadlines, DRS attempts to provide, but cannot guarantee, requested accommodations. Effective alternatives may be necessary.) *Disability identification to DRS is confidential and cannot affect eligibility for admission.*

Call 480/965-1234 (voice) or 480/965-9000 (TTY). Access the Web site at www.asu.edu/drs, or write

DISABILITY RESOURCES FOR STUDENTS
ARIZONA STATE UNIVERSITY
PO BOX 873202
TEMPE AZ 85287-3202

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.

Anyone interested in admission as a nondegree undergraduate student at ASU must submit to Undergraduate Admissions: (1) a Nondegree Undergraduate Application for Admission (including residency information) and (2) a \$50 nonrefundable application fee for applicants classified as nonresidents. Applicants who are not high school graduates or who are younger than 18 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 to Undergraduate Admissions at 480/965-7788.

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. Parent programs are also included. Newly admitted students are sent information preceding each orientation program. Students are strongly encouraged 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.

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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, and 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.

Special Programs for Advanced Placement and Credit

No more than 60 hours of credit are awarded for any or all programs, including ASU comprehensive and proficiency examinations. Special program credit will not be awarded for any course in which the student has been given credit from any educational institution. Special program 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 73.](#)

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 university or accepted by the university for work done else-

where. All examinations are given monthly by University Testing Services.

There is no limit to the number of CLEP credits that can be used to fulfill the General Studies requirement. The General Studies requirement in natural sciences (SQ and SG) and literacy and critical inquiry (L) are not satisfied by CLEP (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.

General Examinations. To obtain credit or placement, students must receive a standard score of 50 (Computer Based Training [CBT] scale) or higher for the General Examinations, except for English Composition with Essay, on which students must receive a standard score of 610 (1978 scale), 500 (1986 scale), or 50 (CBT scale). *Students who have completed 60 semester hours of credit are not eligible to receive any credit for the CLEP General Examinations.*

Subject Examinations. A standard score of 50 (except Spanish, French, or German) or higher must be received to obtain credit for any subject examination. The completion of 60 semester hours does not preclude eligibility for additional credit for subject examinations.

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*

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 187
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
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
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 or 4	6	PHY 111, 112
	3	3	PHY 111
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

UNDERGRADUATE ENROLLMENT

CLEP Credit

Examinations	Semester Hours	Equivalency
General		
English Composition	0	With essay qualifies for ENG 105
Humanities	6	Elective credit
Mathematics	3	MAT 106
Natural Sciences	8	Elective credit
Social Sciences and History	6	Elective credit
Subject		
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 39–48.)
College French	8	FRE 101, 102 (Students must score 49–53.)
College French	12	FRE 101, 102, 201 (Students must score 54–62.)
College French	16	FRE 101, 102, 201, 202 (Students must score 63 or higher.)
College German	4	GER 101 (Students must score 39–45.)
College German	8	GER 101, 102 (Students must score 46–50.)
College German	12	GER 101, 102, 201 (Students must score 51–59.)
College German	16	GER 101, 102, 201, 202 (Students must score 60 or higher.)
College Mathematics	3	MAT 114
College Spanish	4	SPA 101 (Students must score 40–49.)
College Spanish	8	SPA 101, 102 (Students must score 50–54.)
College Spanish	12	SPA 101, 102, 201 (Students must score 55–61.)
College Spanish	16	SPA 101, 102, 201, 202 (Students must score 62 or higher.)
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 Accounting	6	Elective credit
Introductory Business Law	3	Elective credit
Introductory Psychology	3	PGS 101
Introductory Sociology	3	SOC 101
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
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

* No credit is awarded if the language is the student's native language.

transferred to ASU from another institution, and all credits earned by examination). The examinations must be taken during the first two semesters in residence in a degree program at the university.

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

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

The examination is prepared by the instructor who normally conducts the course, and it is comprehensive in nature and scope. The instructor and other experts designated by the chair grade the examination, using letter grades "A+," "A," "A-," "B+," "B," "B-," "C+," "C," "D," or "E." If the grade is "C" or higher, a mark of "Y" is entered on the student's permanent record; otherwise, no entry is

made. Credit by examination is indicated as such on the record. The student is notified by mail of the result of the examination. In cases of failure ("D" or "E"), the student is not given an opportunity to repeat the examination.

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

Proficiency Examinations. Proficiency examinations and auditions are given

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

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

UNDERGRADUATE ENROLLMENT

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 134 (480/965–3853). See “[First-Year Composition Requirement](#),” page 87, 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 359). 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,” and “[Foreign Language Placement](#),” page 387, and “[Special Programs for Advanced Placement and Credit](#),” page 72.

Mathematics. Readiness examinations are required before registering for the following mathematics courses at ASU: MAT 106, 113, 117, 119, 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.

Academic advising plays a critical role in the retention and graduation of students. Advisors mediate between the institution’s broad regulations and procedures and the individual student’s needs, which are many and varied. In a major, urban, multicampus, largely commuter research institution such as ASU, advisors play many roles and must keep abreast of both changing institutional features and the multiplexity of students’ academic and nonacademic lives.

ASU academic advisors serve as facilitators and mediators for students as they

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.

In their role as facilitators and mediators, advisors

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;

Academic Advising at ASU Main

College	Location	Telephone	Days	Hours ¹	Web Address
Barrett Honors College	MB C100L1	480/965-9155	Mon.–Fri.	8 A.M.–5 P.M. ²	www.asu.edu/honors
College of Architecture and Environmental Design	ARCH 141	480/965-3584	Mon.–Fri.	8:30 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	480/965-1474	Mon.–Fri.	8 A.M.–5 P.M. ⁴	www.law.asu.edu
College of Liberal Arts and Sciences	SS 111	480/965-6506	Mon.–Fri.	8 A.M.–5 P.M.	clasdean.la.asu.edu/student/resources
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
DUAS 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
Ira A. Fulton School of Engineering	ECG 105	480/965-3421	Mon.–Fri.	8:30 A.M.–4:30 P.M. ^{2, 3}	www.fulton.asu.edu
Katherine K. Herberger College of Fine Arts	GHALL 127	480/965-4495	Mon.–Fri.	8 A.M.–5 P.M. ³	herbergercollege.asu.edu
W. P. Carey School of Business	BA 109	480/965-4227	Tues. Other weekdays	8 A.M.–6:30 P.M. 8 A.M.–5 P.M.	www.wpcarey.asu.edu/up

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.

4. promote and enhance the university’s recruiting and retention efforts;
5. engage in activities to keep themselves informed on issues that impact student success; and
6. support cultural diversity at the university.

Each college has advisors to assist students in developing programs of study, assessing educational goals, and understanding rules, procedures, and curriculum requirements. In some colleges, these advisors are faculty members. In others, they are full-time, professional advisors. Students often may seek academic and career advice from both faculty members and full-time advisors. Students are encouraged to take advantage of the skill and knowledge of the advising professionals available to them. Most new students and many continuing students must meet with an advisor as a condition of registration.

An additional unit, DUAS 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 (B.I.S. or pre-B.I.S.) 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 “Academic Advising at ASU Main” table, on this page. For academic advising at ASU East, see the “Academic Advising at ASU East” table, page 602. (See “Building Abbreviations,” page 741, 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 for the semester in which reenrollment is intended. Nonresident applicants must submit a nonrefundable \$50 application 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 could be up to six weeks before the semester of readmissions. Students whose GPA is below a 2.00 and who are

UNDERGRADUATE ENROLLMENT

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 Office of the Registrar 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 Office of the Registrar 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 65, and “[Readmission to the University](#),” page 77.

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 ASU Main campus, at the OASIS in the Center Building on ASU East campus, and in the University Center Building at ASU West. See the *Schedule of Classes* or refer to “[Parking Decals](#),” page 55.

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 available online at www.asu.edu/registrar/schedule. They list course offerings, dates, times, places, and procedures for registration, along with other important information about the term.

Course Loads. A minimum full-time course load for an undergraduate student is 12 semester hours. The maximum course load for which a student may register is 18 semester hours (with the exception of a 19-hour maximum for students enrolled in the College of 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 override before registration. See “[Summer Session Semester Hour Load](#),” page 79, for summer course load information.

Reserving of Course Credit by Undergraduates. Seniors at ASU within 12 semester hours of graduation may enroll

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

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 Graduate College 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 the Graduate College.

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 enrollment to assure orderly progress toward a degree. If total credits exceed the maximum course load, prior permission must be granted by the college standards committee. See [“Course Loads,” 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 Registrar’s Records Information section, or access the Web at www.asu.edu/registrar/forms.

UNDERGRADUATE ENROLLMENT

Grading System

DEFINITIONS

Unit of Credit

The Arizona Board of Regents has defined (May 26, 1979) a unit of credit for the institutions under its jurisdiction. A minimum of 45 hours of work by each student is required for each unit of credit. An hour of work represents a minimum of 50 minutes of class time—often called a “contact hour”—or 60 minutes of independent study work. For lecture-discussion courses, this requirement equates to at least 15 contact hours and a minimum of 30 hours of work outside the classroom for each unit of credit. Even though the values of 15 and 30 may vary for different modes of instruction, the minimum total of 45 hours of work for each unit of credit is a constant. Since the unit of credit as defined by the Arizona Board of Regents is the cornerstone of academic degree programs at ASU, degrees granted by other institutions that are recognized by ASU should be based on a similar unit of credit.

Grades and Marks

All grades and marks appear on the permanent record and/or unofficial transcript. They are indicated by the letters shown in the “[Grades](#)” table below.

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.

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 Request for Grade of Incomplete form. The student has one calendar year from the date the mark of “I” is recorded to complete the course. If the student completes the course within the calendar year, the instructor must submit a Request for Grade of Incomplete/Authorization for Change of Grade form to the Office of the Registrar, 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.

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 44.

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” (unrestricted 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 an unrestricted withdrawal.

Unrestricted Course Withdrawal

During the first four weeks of a semester or the first six days of a summer session, 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 unrestricted withdrawal period.

Restricted Withdrawal

From the fifth week to the end of the 10th week of a semester and from the seventh day to the end of the third week of a summer session, students may withdraw with a mark of “W” from only courses in which the instructor certifies that they are passing at the time of the withdrawal. See the *Schedule of Classes* or the *Summer Sessions Bulletin* for dates of the restricted withdrawal period.

The number of restricted withdrawals with the mark of “W” is limited. One restricted withdrawal is assessed for each course withdrawn from, unless the student is withdrawing from all courses. A complete withdrawal results in the assessment of one restricted withdrawal against a student’s limit. The number of withdrawals is a total of two for students during freshman, sophomore, junior, or senior standing; and a total of two for students during second undergraduate degree standing. Non-degree-seeking graduate students are permitted to process an unlimited number of restricted withdrawals. Students must obtain a Restricted Withdrawal Request and obtain the signature of the instructor. The instructor has the option of assigning either a “W” or a failing grade of “E” (0.00).

Students who have reached their restricted withdrawal limit are not allowed to process any additional restricted course withdrawals. However, students are allowed to process a restricted complete withdrawal even when they have reached the restricted withdrawal limit. The preceding limits do not prevent students from processing a complete withdrawal from the university with marks of “W” or “E” (0.00). Complete withdrawal counts as one withdrawal for purposes of applying the above limits. The preceding does not apply to audit enrollment or zero-hour labs and recitations.

Procedure for Restricted Withdrawal. A student seeking a restricted withdrawal needs to

1. obtain a withdrawal form from any registrar site or print one via the Web at www.asu.edu/registrar/forms;
2. obtain a signature and verification of grade from instructor(s); and
3. have the form processed at any registrar site.

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. Restricted withdrawal limits do not apply to withdrawals initiated by an instructor.

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 the Office of the Registrar in person. The ASU Interactive and SunDial complete withdrawal option is only available through the first week of classes for a semester. During the unrestricted complete withdrawal period, a student may

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withdraw from all courses with marks of “W.” During the restricted complete withdrawal period, a student may withdraw with marks of “W” only from courses that the instructors certify the student was passing at the time of withdrawal. See the *Schedule of Classes* or the *Summer Sessions Bulletin* for dates of the complete withdrawal periods. No one is permitted to withdraw from the university or to conduct any registration transaction in the last two weeks of the semester. The date of the complete withdrawal is always the date the withdrawal form or letter is received in the Office of the Registrar.

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 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 midsemester 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 Office of the Registrar 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

The Office of the Registrar releases official transcripts *only upon the written request of the student*. The request must include the following information about the student:

1. name;
2. former name(s);
3. date of birth;
4. first and last dates of attendance;
5. return address;
6. phone number;
7. specific mailing address for each transcript ordered;
8. ASU ID number; and
9. Social Security Number (SSN).

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 request for official transcript form is available online at www.asu.edu/registrar/forms.

The Office of the Registrar does not issue a transcript if the student has a financial records hold. The student must supply a specific address if the transcript is to be mailed.

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The fee for an official transcript is \$6 per copy. “Rush” transcripts (requested to be printed and picked up on the same day) cost \$5 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 \$17.50 per delivery address, in the 48 contiguous U.S. states, in addition to the cost of the transcript(s). The additional cost of special express deliveries to addresses outside the contiguous states (e.g., Hawaii, Alaska, and other countries) varies. Students are billed the initial \$17.50 as part of this credit card transaction and sent a bill for the remainder. Fees are subject to change without notice. Unofficial transcripts may be requested in person at the Office of the Registrar, 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 86.

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, on this page.

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 85.

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 Office of the Registrar 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 satisfac-

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; ASU West courses: ARS 101, 300; IAP 101, 300, 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 114, 117, 119, 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.

tory 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 any student on probation 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 77](#)

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.

Reinstatement Appeals. A student wishing to appeal the decision of the standards committee of a college may submit an appeal to the University Admissions Board. The decision of the board is final.

UNDERGRADUATE ENROLLMENT

Academic Integrity. The highest standards of academic integrity are expected of all students. The failure of any student to meet these standards may result in suspension or expulsion from the university or other sanctions as specified in the University Student Academic Integrity Policy. Violations of academic integrity include, but are not limited to, cheating, fabrication, tampering, plagiarism, or facilitating such activities. The University Student Academic Integrity Policy is available from the Office of the Senior Vice President and Provost 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 Office of the Registrar. A request to withhold this information excludes the student from being listed in the annual directory only if the request is submitted to the Office of the Registrar 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 Office of the Registrar. 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 Office of the Registrar.

Location of Policy and Records

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

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 45 upper-division semester hours for graduation; refer to college graduation requirements for the specific number required.

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 91.) 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

UNIVERSITY GRADUATION REQUIREMENTS

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 1998	Active
Continued at an Arizona community college	Fall 1998	Active
	Spring 1999	
Nonattendance	Fall 1999	Inactive
Readmitted and earned course credit at an Arizona community college	Spring 2000	Active
Transferred to an Arizona university	Summer 2000	Student enrolled under 1998–1999 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 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, on this page.
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 88.

4. In areas of study in which the subject matter changes rapidly, material in courses taken long before graduation may become obsolete or irrelevant. 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.
5. 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.
6. 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 requirements 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 deadline dates listed in the “[University Calendar](#),” page 18.
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 ASU West, contact ASU West Admissions and Records, 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.

Main Campus Standards Committee. This committee advises the Office of the Senior 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 “[Overview of Graduation Requirements](#),” page 90, and “[Second Baccalaureate Degree](#),” page 90). To petition for a variance from such university requirements, the normal department, division, school, and college forms and procedures are used. Only petitions that have been denied at the college level are forwarded to the Main Campus Standards Committee.

OTHER REQUIREMENTS

The separate units of the university, 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.

UNIVERSITY GRADUATION REQUIREMENTS

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 the university requirements. For General Studies, a minimum of 35 semester hours in five core and three awareness areas is required. For more information, see “[General Studies](#),” page 91.

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 116. 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.

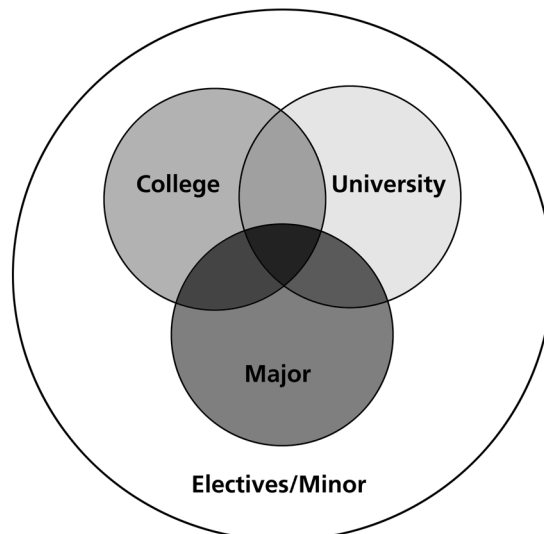
A student who has a baccalaureate degree from ASU and is pursuing a second baccalaureate degree at ASU (with a minimum of 30 hours of resident credit) is granted academic recognition on the second degree based on the semester hours earned subsequent to the posting of the first degree. If fewer than 60 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 60 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, 480/965-6980.

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 “[Graduate College](#),” page 491, and “[College of Law](#),” page 311, for graduate degrees offered and statements of requirements for graduate degrees. A *Graduate Catalog* may be obtained from the Graduate College or the ASU Bookstore.

Graduation Requirements



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 and fine arts;
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 ASU Main General Studies Council (for ASU Main and ASU East) 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 by the ASU West General Studies Council can be found in the *ASU West 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 “[Special Programs for Advanced Placement and Credit](#),” page 72. 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 college algebra 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 analyses or the use of the computer to assist in serious math analytical work.

MA and CS Requirement (Six Semester Hours). This requirement has two parts: (1) at least three semester hours

GENERAL STUDIES

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 and Fine Arts (HU)

The humanities and fine arts explore, through critical and creative activities, questions of human experience and expression as these articulate the human condition and reflect basic human values. Although differing in method, both probe the universality of human experience and promote a broader and deeper understanding of an individual's relationship to self, culture, and nature.

HU Requirement. The requirements for humanities and fine arts (HU) are combined with the requirements for social and behavioral sciences (SB). See "Combined HU and SB Requirement," on this page.

Social and Behavioral Sciences (SB)

The social and behavioral sciences provide scientific methods of inquiry and empirical knowledge about human behavior, both 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 and fine arts (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 area 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 the languages, art, music, literature, philosophy, religion, and the natural sciences, as well as in the social science traditionally called history.

Transfer Credit

The Arizona General Education Curriculum (AGEC), offered by Arizona community colleges, is composed of 35 semester hours of lower-division general education course work. Students who complete the 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 \(AGEC\)](#),” page 69.

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 ASU Main and ASU East courses in the “[General Studies Courses](#)” table, page 94, 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 ASU Main) and “W” (for ASU West) 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 and fine arts 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



A view of Manzanita Hall, along University Drive, at sunset

Tim Trumble photo

GENERAL STUDIES

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				
	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						
	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		
	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

General Studies Courses (continued)

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

GENERAL STUDIES

General Studies Courses (continued)

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

General Studies Courses (continued)

			L	MA	CS	HU	SB	SQ	SG	C	G	H
(BIO)	303	Radiation and Life	L									
	304	Radiation Medicine and Biology	L									
	314	Research Colloquium in Biology and Society I (if credit also earned in BIO 414)	L									
	316	History of Biology: Conflicts and Controversies (Cross-listed as HPS 330)										H
	318	History of Medicine (Cross-listed as HPS 331)										H
	319	Environmental Science (Nonmajor) (Cross-listed as PLB 320)									G	
	321	Introductory Ecology Laboratory	L									
	343	Genetic Engineering and Society (Cross-listed as MBB 343)	L									
	406	Computer Applications in Biology (Cross-listed as PLB 432)			CS							
	410	Techniques in Wildlife Conservation Biology	L									
	414	Research Colloquium in Biology and Society II (if credit also earned in BIO 314)	L									
	415	Biometry			CS							
	416	Professional Values in Science (Cross-listed as HPS 410)	L									
	426	Limnology	L									
	428	Biogeography	L									
	446	Principles of Human Genetics	L									
	470	Systematic Zoology	L									
	493	Honors Thesis	L									
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	Observational and Naturalistic Methods of Studying Children	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				
	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							

GENERAL STUDIES

General Studies Courses (continued)

			L	MA	CS	HU	SB	SQ	SG	C	G	H
(CHM)	348	Physical Chemistry Laboratory I (if credit also earned in 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									
	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							
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	Microcomputer System Hardware	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	100	Dance in World Cultures				HU					G	

General Studies Courses (continued)

			L	MA	CS	HU	SB	SQ	SG	C	G	H
(DAH)	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							
ECN	111	Macroeconomic Principles					SB					
	112	Microeconomic Principles					SB					
	306	Survey of International Economics (Cross-listed as IBS 306)					SB				G	
	313	Intermediate Macroeconomic Theory					SB					
	314	Intermediate Microeconomic Theory					SB					
	331	Alternative Economic Systems					SB				G	
	360	Economic Development					SB				G	
	365	Economics of Russia and Eastern Europe					SB				G	
	384	Economics of Social Behavior					SB					
	404	History of Economic Thought					SB					
	421	Earnings and Employment					SB					
	425	Introduction to Econometrics			CS							
	436	International Trade Theory					SB				G	
	438	International Monetary Economics					SB				G	
	441	Public Finance					SB					
	475	Capstone in Economics	L									
	493	Honors Thesis	L									
EDC	340	Writing and the Professional Educator	L									
EDP	303	Human Development	L									
	310	Educational Psychology					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									
	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						

GENERAL STUDIES

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(ENG) 326 English Drama 1660–1800				HU						
328 The Novel to Jane Austen				HU						H
329 19th-Century British Fiction				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						
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							

General Studies Courses (continued)

			L	MA	CS	HU	SB	SQ	SG	C	G	H
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					
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	
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				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					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	

GENERAL STUDIES

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(GCU) 351 Population Geography					SB				G	
352 Political Geography					SB				G	
357 Social Geography					SB					
359 Cities of the World I					SB				G	H
360 Cities of the World II					SB				G	
361 Urban Geography					SB					
364 Energy in the Global Arena					SB				G	
421 Geography of Arizona and Southwestern United States					SB			C		
423 Geography of South America					SB				G	
424 Geography of Mexico and Middle America					SB				G	
425 Geography of the Mexican American Borderland		L			SB				G	
426 Geography of Russia and Surroundings					SB				G	
432 Geography of China					SB				G	
441 Economic Geography					SB					
442 Geographical Analysis of Transportation					SB					
444 Geographic Studies in Urban Transportation					SB					
455 Historical Geography of U.S. and Canada					SB					H
474 Public Land Policy					SB					
495 Quantitative Methods in Geography			CS							
496 Geographic Research Methods		L								
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			
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							

General Studies Courses (continued)

			L	MA	CS	HU	SB	SQ	SG	C	G	H
(GPH)	371	Introduction to Cartography and Georepresentation			CS							
	373	Geographic Information Science I			CS							
	381	Geography of Natural Resources									G	
	414	Climate Change									G	
	418	Landforms of the Western United States	L									
	433	Alpine and Arctic Environments									G	
	471	Geographics: Interactive and Animated Cartography and Geovisualization			CS							
	473	Geographic Information Science II			CS							
GRA	111	Graphic Design History I				HU						
	345	Design Rhetoric	L									
GRK	301	Ancient Greek Literature I				HU						
	302	Ancient Greek Literature II				HU						
GRN	400	Aging in the New Millennium					SB					
	420	Health Aspects of Aging					SB					
	430	Multidisciplinary Approaches to Gerontology					SB					
HCR	210	Clinical Health Care Ethics				HU						
	220	Health Care Organizations (Cross-listed as HSA 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	
	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
	377	Nature in Context (Cross-listed as HON 377)	L			HU						
	410	Professional Values in Science (Cross-listed as BIO 416)	L									
HSA	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

GENERAL STUDIES

General Studies Courses (continued)

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

General Studies Courses (continued)

			L	MA	CS	HU	SB	SQ	SG	C	G	H
(HST)	370	Eastern Europe in Transition					SB				G	H
	372	The Modern Middle East					SB				G	H
	375	Colonial Latin America					SB					H
	376	Modern Latin America					SB					H
	377	Women in Colonial Latin America										H
	378	Latin American Women: The National Period					SB				G	H
	379	Rebellion and Revolution in South America					SB					H
	380	Cultural History of Latin America					SB					H
	383	China					SB					H
	384	China					SB				G	H
	385	Chinese Science and Medicine (Cross-listed as HPS 325)				HU					G	H
	386	Interpreting China's Classics (Cross-listed as HUM 312)	L			HU						H
	387	Japan	L				SB					H
	388	Japan					SB				G	H
	391	Modern Southeast Asia					SB				G	H
	405	Colonial American History to 1763					SB					H
	406	The American Revolution, 1763–1789					SB					H
	407	The Early U.S. Republic, 1789–1850	L				SB					H
	408	Civil War and Reconstruction	L				SB					H
	409	The Emergence of the Modern United States, 1877 to 1918					SB					H
	410	The Modern United States, 1918 to 1945					SB					H
	411	The Postwar United States, 1945 to 1973					SB					H
	412	The Contemporary United States, 1973 to the Present					SB					H
	414	The Modern U.S. Economy					SB					H
	415	Unequal Sisters: Women and Political and Cultural Change	L				SB			C		H
	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						
	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
	340	Contemporary American Film and Popular Culture				HU						
	401	The Culture and Legacy of the European Enlightenment				HU						H

GENERAL STUDIES

General Studies Courses (continued)

		L	MA	CS	HU	SB	SQ	SG	C	G	H
(HUM)	420				HU					G	H
	440				HU				C		
	450	L			HU						
	462	L			HU	SB					
	465				HU						
	498	L			HU						
IBS	300									G	
	306					SB				G	
	400								C	G	
	493	L									
IDN	201									G	
	202									G	
IED	410					SB			C		H
	430				HU	SB			C		
	444					SB					
	460				HU	SB			C		H
IEE	305			CS							
	376			CS							
	385			CS							
	463			CS							
	474			CS							
	475			CS							
	490	L									
IND	316				HU						H
	317				HU						H
	470	L									
INT	111				HU						
	121			CS							
	131					SB					
	310				HU						H
	311				HU						H
	412				HU						
ITA	201									G	
	202									G	
	311									G	
	312									G	
	314									G	
	325				HU						
	415				HU					G	
	425	L									
	430				HU						
	441	L			HU						
	443				HU						H
	446				HU						
	449				HU					G	
ITM	440									G	
JMC	201	L									
	202	L									
	301	L									
	315	L									
JPN	201									G	
	202									G	
	311									G	
	312									G	
	313									G	
	314									G	
	321	L			HU					G	

General Studies Courses (continued)

			L	MA	CS	HU	SB	SQ	SG	C	G	H
JUS	100	The Justice System					SB					
	200	Topics in Concepts and Issues of Justice					SB					
	302	Basic Statistical Analysis in Justice Studies			CS							
	320	Community and Social Justice					SB			C		
	321	Wealth Distribution and Poverty					SB			C		
	329	Domestic Violence					SB					
	350	Immigration and Justice					SB			C		
	360	Law and Social Control					SB					
	375	Crime and the Mass Media					SB					
	385	Justice and Everyday Life					SB					
	404	Imperatives of Proof	L									
	405	Economic Justice					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									
	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									
	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	468	Aerospace Systems Design	L									
	490	Projects in Design and Development	L									
MAT	113	College Algebra Plus		MA								
	114	College Mathematics		MA								
	117	College Algebra		MA								
	119	Finite 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								

GENERAL STUDIES

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(MAT) 270 Calculus with Analytic Geometry I		MA								
271 Calculus with Analytic Geometry II		MA								
272 Calculus with Analytic Geometry III		MA								
274 Elementary Differential Equations		MA								
275 Modern Differential Equations		MA								
290 Calculus I		MA								
300 Mathematical Structures	L									
351 Mathematical Methods for Genetic Analysis			CS							
419 Introduction to Linear Programming			CS							
421 Applied Computational Methods			CS							
423 Numerical Analysis I			CS							
425 Numerical Analysis II			CS							
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 450 Changing Business Processes	L									
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									
MUE 381 Music Therapy Research	L									
MUS 340 Survey of Music History				HU						H
347 Jazz in America (Cross-listed as AFH 347)				HU						
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							

General Studies Courses (continued)

			L	MA	CS	HU	SB	SQ	SG	C	G	H
(NTR)	344	Nutrition Services Management	L									
	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						

GENERAL STUDIES

General Studies Courses (continued)

			L	MA	CS	HU	SB	SQ	SG	C	G	H
PHS	110	Fundamentals of Physical Science						SQ				
	208	Patterns in Nature (Cross-listed as STE 208)						SQ				
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				HU					G	
	222	Computers in Landscape Architecture			CS							
	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 and Landscape Architecture (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					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					

General Studies Courses (continued)

			L	MA	CS	HU	SB	SQ	SG	C	G	H
(POS)	325	Public Policy Development					SB					
	330	Contemporary Controversies in Domestic Politics					SB					
	331	Public Opinion					SB					
	332	American Political Parties					SB					
	333	Interest Groups					SB					
	336	Voters in America					SB					
	340	History of Political Philosophy I				HU						H
	341	History of Political Philosophy II				HU						H
	346	Problems of Democracy				HU						
	350	Comparative Politics					SB				G	
	351	Democratization					SB				G	
	355	Russia and Successor States					SB				G	
	356	European Union					SB				G	
	357	South Asia Politics					SB				G	
	358	Southeast Asia					SB				G	
	359	African Politics and Society					SB				G	
	360	World Politics					SB				G	
	361	American Foreign Policy					SB				G	
	364	National Security, Intelligence, and Terrorism					SB					
	370	Law and Society					SB					
	401	Political Statistics			CS							
	410	Governing American Cities					SB					
	417	The Arizona Political System					SB					
	426	Elements of Public Policy					SB					
	431	Campaigns and Elections					SB					
	433	Money and Politics					SB					
	434	Media and Politics					SB					
	435	Women and Politics					SB			C		
	439	Minority Group Politics in America					SB			C		
	442	American Political Thought				HU						
	443	Topics in Contemporary Political Theory				HU						
	445	Asian Political Thought					SB				G	
	451	China, Japan, and the Koreas					SB				G	
	452	China					SB				G	
	453	South America					SB				G	
	454	Mexico					SB				G	
	455	Central America and the Caribbean					SB				G	
	459	South and Southern Africa					SB				G	
	463	Inter-American Relations					SB				G	
	465	International Organization and Law					SB				G	
	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									
	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

General Studies Courses (continued)

			L	MA	CS	HU	SB	SQ	SG	C	G	H
PUP	100	Introduction to Environmental Design (Cross-listed as APH 100)				HU					G	H
	200	The Planned Environment				HU						H
	236	Introduction to Computer Modeling			CS							
	301	Introduction to Urban Planning	L									
	412	History of the City (Cross-listed as APH 414)										H
	420	Theory of Urban Design				HU						
	445	Women and Environments								C		
	452	Ethics and Theory in Planning	L									
	485	International Field Studies in Planning and Landscape Architecture (Cross-listed as PLA 485) (Three hours must be taken to secure G credit.)									G	
QBA	221	Statistical Analysis			CS							
REC	120	Leisure and the Quality of Life					SB					
	160	Leisure and Society					SB					
	305	Introduction to Travel and Tourism									G	
	330	Programming of Recreation Services	L									
	380	Wilderness and Parks in America					SB					H
	458	International Tourism									G	
REL	100	Religions of the World				HU					G	
	200	The Study of Religious Traditions	L			HU					G	
	201	Religion and the Modern World	L			HU						
	202	Religion and Popular Culture				HU				C		
	203	Saints and Sinners: Explorations in Sacred Biography				HU						H
	210	Introduction to Judaism	L			HU						H
	225	African American Religion				HU				C		
	240	Introduction to Southeast Asia (Cross-listed as ASB 240/GCU 240/HST 240/POS 240)				HU					G	
	260	Introduction to Islam				HU					G	
	270	Introduction to Christianity				HU						
	301	Comparative Mysticism				HU						
	305	Ritual, Symbol, and Myth	L			HU						
	310	Western Religious Traditions				HU						H
	315	Hebrew Bible (Old Testament)	L			HU						H
	317	Introduction to Rabbinic Judaism				HU						H
	318	Contemporary American Jewish Identities (Cross-listed as SOC 375)				HU	SB			C		
	320	American Religious Traditions				HU				C		H
	321	Religion in America				HU				C		H
	322	Malcolm and Martin				HU				C		
	323	Black Religion: A Biographical Approach				HU				C		
	326	U.S. Latino Religion and Culture				HU				C		
	330	Native American Religious Traditions				HU				C		
	331	History of Native American Religious Traditions	L			HU				C		H
	332	South American Indian Religions				HU					G	
	343	Taoism	L			HU					G	H
	344	Religion and Values in Japanese Life				HU					G	
	345	Asian Religious Traditions				HU					G	
	350	Hinduism	L			HU					G	
	351	Buddhism	L			HU					G	
	355	Japanese Cities and Cultures to 1800 (Cross-listed as HUM 310)	L			HU						H
	365	Islamic Civilization				HU						H
	366	Islam in the Modern World				HU					G	H
	371	New Testament				HU						
	372	Formation of the Christian Tradition				HU						H
	374	Witchcraft and Heresy in Europe (Cross-listed as HST 361)	L			HU						H
	377	Religion in Russia				HU						H
	379	Religion, Nationalism, and Ethnic Conflict				HU					G	
	381	Religion and Moral Issues	L			HU						
	382	Religion, Magic, and Science	L			HU						

General Studies Courses (continued)

			L	MA	CS	HU	SB	SQ	SG	C	G	H
(REL)	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						
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	
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					
	375	Contemporary American Jewish Identities (Cross-listed as REL 318)				HU	SB			C		
	390	Social Statistics I			CS							
	391	Sociological Research					SB					

GENERAL STUDIES

General Studies Courses (continued)

	L	MA	CS	HU	SB	SQ	SG	C	G	H
(SOC) 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					
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					
301 Human Behavior in the Social Environment I	L				SB					
321 Statistics for Social Workers			CS							
340 Human Behavior in the Social Environment II					SB					
374 Diversity and Oppression in a Social Work Context								C		
493 Honors Thesis	L									

General Studies Courses (continued)

			L	MA	CS	HU	SB	SQ	SG	C	G	H
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									
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 117.

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/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.

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 119; “[ASU Postbaccalaureate Certificates](#)” table, page 121; and “[ASU Graduate Certificates](#)” table, page 121. 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 at ASU

Main or ASU East, see “[Bachelor of Interdisciplinary Studies](#),” page 123, or “[Interdisciplinary Studies—B.I.S.](#),” page 615.

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 Center for Environmental Studies encourages and coordinates interdisciplinary environment-related activities in the natural and social sciences within the university. The center 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 “[Center for Environmental Studies](#),” page 43.

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 677, call 602/543-6642, or access www.west.asu.edu/chs/grn on the Web. See also “[Gerontology](#),” page 695.

A graduate certificate and an undergraduate minor are available in Gerontology. The certificate consists of 21 semester hours—nine hours of required course work and 12 hours of electives. The minor consists of 18 semester hours—six hours of required course work and 12 hours of electives.

In addition, gerontology provides students with opportunities to gain practical experience in working with elderly

MINORS, CERTIFICATES, AND INTERDISCIPLINARY STUDIES

ASU Minors

Minor	Administered By	Campus	Page
African American Studies	African American Studies Program	Main	333
American Indian Studies	American Indian Studies Program	Main	466
American Studies	Department of American Studies	West	673
Anthropology	Department of Anthropology	Main	337
Applied Biological Sciences	East College	East	614
Applied Psychology	East College	East	622
Architectural Studies	School of Architecture	Main	133
Art History	School of Art	Main	273
Asian Languages (Chinese/Japanese)	Department of Languages and Literatures	Main	385
Astronomy	Department of Physics and Astronomy	Main	427
Biochemistry	Department of Chemistry and Biochemistry	Main	344
Biology	School of Life Sciences	Main	404
Business ¹	W. P. Carey School of Business	Main	165
Chemistry	Department of Chemistry and Biochemistry	Main	344
Chicana and Chicano Studies	Department of Chicana and Chicano Studies	Main	348
Communication	Hugh Downs School of Human Communication	Main	470
Communication Studies	Department of Communication Studies	West	675
Computational Mathematical Sciences	Department of Mathematics and Statistics	Main	417
Dance	Department of Dance	Main	289
Design Studies	School of Design	Main	144
Early Childhood Education	Division of Curriculum and Instruction	Main	—
Economics for Students Planning a Career in Law	Department of Economics	Main	351
English	Department of American Studies	West	675
English with a Concentration in Linguistics	Department of English	Main	353
English with a Concentration in Literature	Department of English	Main	353
Ethnic Studies	College of Arts and Sciences	West	675
Family and Human Development	Department of Family and Human Development	Main	359
Film and Video Studies	Department of Interdisciplinary Arts and Performance	West	675
Food and Nutrition Management	Department of Nutrition	East	636
French	Department of Languages and Literatures	Main	385
General Economics	Department of Economics	Main	351
Geography	Department of Geography	Main	363
Geological Sciences	Department of Geological Sciences	Main	367
German	Department of Languages and Literatures	Main	385
Gerontology ²	Gerontology Program	West	678
History	Department of American Studies	West	675
	Department of History	Main	371
Human Nutrition	Department of Nutrition	East	636
Humanities	Interdisciplinary Humanities Program	Main	377
Interdisciplinary Arts and Performance	Department of Interdisciplinary Arts and Performance	West	675
Interdisciplinary Organizational Studies	Department of Social and Behavioral Sciences	West	675
Interior Design History	School of Design	Main	133
Italian	Department of Languages and Literatures	Main	385
Justice Studies	School of Justice Studies	Main	478

¹ This minor is for nonbusiness majors only.

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

MINORS, CERTIFICATES, AND INTERDISCIPLINARY STUDIES

ASU Minors (continued)

Minor	Administered By	Campus	Page
Kinesiology	Department of Kinesiology	Main	380
Landscape Studies	School of Planning and Landscape Architecture	Main	154
Life Sciences	Department of Life Sciences	West	675
Mass Communication	Walter Cronkite School of Journalism and Mass Communication	Main	475
Mathematics	Department of Integrative Studies	West	675
	Department of Mathematics and Statistics	Main	417
Microbiology	School of Life Sciences	Main	402
Music	School of Music	Main	299
Philosophy	Department of Integrative Studies	West	675
	Department of Philosophy	Main	424
Physics	Department of Physics and Astronomy	Main	428
Plant Biology	School of Life Sciences	Main	403
Political Science	Department of Political Science	Main	434
	Department of Social and Behavioral Sciences	West	675
Prelaw	College of Human Services	West	675
Psychology	Department of Psychology	Main	438
	Department of Social and Behavioral Sciences	West	675
Public Relations and Strategic Communications	Department of Communication Studies	West	675
Recreation Management	Department of Recreation Management and Tourism	Main	483
Religious Studies	College of Arts and Sciences	West	675
	Department of Religious Studies	Main	441
Russian	Department of Languages and Literatures	Main	386
Small Business	East College	East	623
Social and Behavioral Sciences	Department of Social and Behavioral Sciences	West	675
Sociocultural Anthropology	Department of Social and Behavioral Sciences	West	675
Sociology	Department of Social and Behavioral Sciences	West	675
	Department of Sociology	Main	436
Spanish	Department of American Studies	West	675
	Department of Languages and Literatures	Main	386
Special Events Management	Department of Recreation and Tourism Management	West	675
Speech and Hearing Science	Department of Speech and Hearing Science	Main	448
Statistics	Department of Mathematics and Statistics	Main	414
Theatre	Department of Theatre	Main	307
Tourism	Department of Recreation Management and Tourism	Main	483
Tourism Management	Department of Recreation and Tourism Management	West	675
Urban Planning	School of Planning and Landscape Architecture	Main	155
Wellness Foundations	Department of Exercise and Wellness	East	629
Women's Studies	Women's Studies Program	Main	451
		West	675

¹ This minor is for nonbusiness majors only.

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

people. A practicum, held at the Veterans Administration Hospital, is available to students who have completed some gerontology course work. Gerontology also helps students find rewarding internships in community programs for older adults.

B.I.S. Concentration. A concentration in gerontology is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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,

MINORS, CERTIFICATES, AND INTERDISCIPLINARY STUDIES

ASU Undergraduate Certificates

Certificate	Administered By	Campus	Page
African American Studies Certificate	African American Studies Program	Main	333
American Indian Studies Certificate	American Indian Studies Program	Main	467
American Public Policy Certificate	Department of Political Science	Main	432
Asian Pacific American Studies Certificate	Asian Pacific American Studies Program	Main	468
Asian Studies	Center for Asian Studies	Main	326
Business English Certificate ¹	College of Extended Education	Extended	696
Civic Education Certificate	Department of Political Science	Main	432
Classical Studies Certificate	Department of Languages and Literatures and Interdisciplinary Humanities Program	Main	326
College of Liberal Arts and Sciences Enriched Certificate	College of Liberal Arts and Sciences	Main	326
Dealership Management, Certificate in ²	W. P. Carey School of Business	Main	170
East Asian Studies Certificate	Center for Asian Studies	Main	326
Ethics Certificate	Department of Philosophy	Main	424
Ethnic Studies, Certificate in	College of Arts and Sciences	West	675
Film and Video Studies, Certificate in	Department of Interdisciplinary Arts and Performance	West	675
Geographic Information Science Certificate	Department of Geography	Main	327
Hazardous Materials and Waste Management Certificate	Department of Information and Management Technology	East	654
Health Physics Certificate	Pre-Health Professions Office	Main	327
History and Philosophy of Science Certificate	School of Life Sciences	Main	327
Human Performance Improvement Certificate ¹	College of Extended Education and the American Society of Training and Development	Extended	696
International Business Studies Certificate	W. P. Carey School of Business	Main	181
International Studies Certificate	Department of Political Science	Main	433
Islamic Studies Certificate	Department of Religious Studies	Main	441
Jewish Studies Certificate	Jewish Studies Committee	Main	327
Latin American Studies Certificate	Latin American Studies Center	Main	328
Maintenance Management Certificate ¹	College of Extended Education	Extended	696
Medieval and Renaissance Studies Certificate	Arizona Center for Medieval and Renaissance Studies	Main	328
Multimedia Writing and Technical Communication Certificate	East College	East	633
Nonprofit Youth and Human Service Leadership and Management: American Humanities Certificate	Department of Recreation Management and Tourism	Main	483
Professional Purchasing Certificate ¹	College of Extended Education	Extended	696
Public Administration and Public Management Certificate	School of Public Affairs	Main	481
Quality Analysis Certificate	W. P. Carey School of Business	Main	170
Russian and East European Studies Certificate	Russian and East European Studies Center	Main	328
Scandinavian Studies Certificate	Department of Languages and Literatures	Main	329
Small Business and Entrepreneurship Certificate ²	W. P. Carey School of Business	Main	170
Southeast Asian Studies Certificate	Program for Southeast Asian Studies	Main	329
Supervisory and Management Skills Certificate ¹	College of Extended Education	Extended	697
Symbolic Systems, Certificate in	Department of Philosophy	Main	329

¹ This certificate is not for academic credit.

² This certificate is only for students in the WPCSB.

MINORS, CERTIFICATES, AND INTERDISCIPLINARY STUDIES

ASU Undergraduate Certificates (continued)

Certificate	Administered By	Campus	Page
Translation Certificate	Department of Languages and Literatures	Main	386
Women's Studies, Certificate in	Women's Studies Program	Main West	330 675
Writing, Certificate in	Department of American Studies Department of English	West Main	675 353

¹ This certificate is not for academic credit.

² This certificate is only for students in the WPCSB.

students in the B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see "Bachelor of Interdisciplinary Studies," page 123.



Bioengineering research is a key element in the future of ASU. The first of three buildings housing the Arizona Bodesign Institute is slated to open fall 2004.

Tim Trumble photo

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 330, and "Department of Military Science," page 422, for more information.

Defense Activity for Nontraditional Education Support.

ASU is a participating institution with 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 military services and (2) to facilitate the availability of high-quality independent institutions for 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 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 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

MINORS, CERTIFICATES, AND INTERDISCIPLINARY STUDIES

ASU Postbaccalaureate Certificates

Certificate	Administered By	Campus	Page
Accountancy, Postbaccalaureate Certificate in*	Department of Accounting and Information Systems Management	West	675
Communication and Human Relations, Postbaccalaureate Certificate in*	Department of Communication Studies	West	675
Multimedia Writing and Technical Communication, Postbaccalaureate Certificate in	East College	East Extended	633 696
Professional Accountancy, Postbaccalaureate Certificate in*	Department of Accounting and Information Systems Management	West	675

* For more information, see the *ASU West Catalog*.

ASU Graduate Certificates

Certificate	Administered By	Campus	Page
African and African Diaspora Studies, Graduate Certificate in ¹	African American Studies Program	—	—
Asian Studies, Graduate Certificate in ¹	Center for Asian Studies	Main Extended	— 695
Atmospheric Science, Graduate Certificate in ¹	College of Liberal Arts and Sciences and Ira A. Fulton School of Engineering	Main	—
Geographic Information Science, Interdisciplinary Certificate in ¹	College of Liberal Arts and Sciences and the Graduate College	Main	—
Gerontology, Certificate in ²	Gerontology Program	West Extended	678 695
Indian Law Certificate ¹	College of Law	Main	—
Institutional Research, Graduate Certificate in ¹	College of Education	Main	—
Law, Science, and Technology, Certificate in ¹	College of Law	Main	—
Linguistics, Graduate Certificate in ¹	Committee on Linguistics	Main	—
Medieval Studies Certificate ¹	Arizona Center for Medieval and Renaissance Studies (ACMRS)	Main	—
Museum Studies Certificate ¹	Department of Anthropology	Main	—
Nonprofit Leadership and Management Certificate	College of Public Programs	Main	466
Post-Bachelor's Artist Diploma ¹	School of Music	Main	—
Post-Master's Nurse Practitioner Certificate ¹	College of Nursing	Main	—
Renaissance Studies Certificate ¹	ACMRS	Main	—
Scholarly Publishing Certificate ¹	Department of History	Main	—
Statistics, Certificate in ¹	Committee on Statistics and the Graduate College	Main	—
Transportation Systems Certificate	Committee on Transportation Systems and the Graduate College	Main Extended	494 696

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

² This university-wide certificate program is administered by ASU West.

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 508, and the *Graduate Catalog*.

Division of Undergraduate Academic Services

www.asu.edu/duas

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Academic Success Programs	123
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General Studies	124

The Division of Undergraduate Academic Services (DUAS) is a primary source of academic support for students, faculty, and staff. The division coordinates and offers academic programs and services designed to enhance the academic experience of ASU undergraduate students. The goals of the division 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 division includes these units:

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

ACADEMIC ADVISING SERVICES

DUAS Academic Advising Services provides advising for a diverse group of students, including all undeclared or no preference majors, B.I.S. and pre-B.I.S. majors, and students in transition who may be changing majors or transferring to ASU.

Academic advising is a partnership between the student and the advisor. Each has a mutual investment in the advising and its outcome. 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. B.I.S. 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 supports community-based learning activities for service learning and work-study eligible students. 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 through 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 (grades 1–9) who live in low-income areas and are likely to drop out of high school. The goal of the America Reads tutoring program is to increase each child's literacy skills to grade level. In the after-school programs, tutors assist children with homework as well as create fun, hands-on activities to exercise academic skills. Tutors also assist preschool children in developing early literacy skills and their parents in learning English.

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 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 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 484 Service Learning Internship. (1–12)

fall, spring, summer

Fee.

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 conjunction with a rich student development experience. The program assists participants in acclimating to campus, accessing student support programs and services, and enhancing classroom and personal skills.

Writing Across the Curriculum (WAC)

Curriculum Development and Support. WAC Curriculum Development and Support is designed to assist in enhancing 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.

BACHELOR OF INTERDISCIPLINARY STUDIES

The Bachelor of Interdisciplinary Studies (B.I.S.) program is 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 B.I.S. program take an active role in creating their educational plans and defining their career goals. The B.I.S. 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.

At ASU Main, students must first complete the B.I.S. Cyber Workshop found at www.asu.edu/duas/bis and then meet with an advisor before declaring the B.I.S. major. For more information, visit UASB 203, or call 480/965-1970. For information about the program at ASU East, see “Interdisciplinary Studies—B.I.S.,” page 615.

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 B.I.S. 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 Principles	3
BIS 401 Applied Interdisciplinary Studies	3
BIS 402 Senior Seminar L.....	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 91.

DIVISION OF UNDERGRADUATE ACADEMIC SERVICES

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 B.I.S. Major. Completing the B.I.S. Cyber Workshop (located on the Web at www.asu.edu/duas/bis) and then receiving academic advising from B.I.S. Advising Services are required before being approved to declare the B.I.S. 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-B.I.S. 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 “**B.I.S. Concentrations**” table, page 125—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 B.I.S. 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: B.I.S. major; 2.00 GPA.

General Studies: L

BIS 302 Interdisciplinary Principles. (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 no preference and pre-B.I.S./B.I.S. 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 declare no preference major status must be in academic good standing as defined above. First-semester freshmen who do not enter ASU as a no preference major may declare no preference status before the registration transaction deadline during their first semester.

Students who wish to declare pre-B.I.S. major status must be in academic good standing as defined above. Students who wish to declare B.I.S. 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.

GENERAL STUDIES

All students enrolled in a baccalaureate degree program must satisfy the General Studies requirement. For more information, see “**University Graduation Requirements**,” page 87, and “**General Studies**,” page 91.

B.I.S. Concentrations

Concentration	College	Campus	Page
African American studies	College of Liberal Arts and Sciences	Main	333
American Indian studies	College of Public Programs	Main	467
Anthropology	College of Liberal Arts and Sciences	Main	337
Applied biological sciences	East College	East	619
Architectural studies	College of Architecture and Environmental Design	Main	140
Art history	Katherine K. Herberger College of Fine Arts	Main	273
Asian Pacific American studies	College of Public Programs	Main	468
Asian studies	College of Liberal Arts and Sciences	Main	326
Astronomy	College of Liberal Arts and Sciences	Main	428
Biology ¹	College of Liberal Arts and Sciences	Main	405
Business	W. P. Carey School of Business	Main	165
Chemistry	College of Liberal Arts and Sciences	Main	344
Chicana and Chicano studies	College of Liberal Arts and Sciences	Main	348
Chinese	College of Liberal Arts and Sciences	Main	387
Classical studies—Greek	College of Liberal Arts and Sciences	Main	326
Classical studies—Latin	College of Liberal Arts and Sciences	Main	326
Communication	College of Public Programs	Main	470
Computational mathematical sciences	College of Liberal Arts and Sciences	Main	418
Dance	Katherine K. Herberger College of Fine Arts	Main	289
Design studies	College of Architecture and Environmental Design	Main	145
East Asian studies	College of Liberal Arts and Sciences	Main	326
Economics	College of Liberal Arts and Sciences	Main	351
Economics for students planning a career in law	College of Liberal Arts and Sciences	Main	351
Education	College of Education	Main	201
English—creative writing ²	College of Liberal Arts and Sciences	Main	353
English—linguistics concentration ²	College of Liberal Arts and Sciences	Main	353
English—literature concentration ²	College of Liberal Arts and Sciences	Main	353
English—writing certificate ²	College of Liberal Arts and Sciences	Main	353
Environmental science ^{3, 4}	—	—	—
Ethics	College of Liberal Arts and Sciences	Main	326
Family studies/child development	College of Liberal Arts and Sciences	Main	359
French	College of Liberal Arts and Sciences	Main	387
Geography ⁵	College of Liberal Arts and Sciences	Main	363
Geography—environmental geography ⁵	College of Liberal Arts and Sciences	Main	363
Geography—geographical information science ⁵	College of Liberal Arts and Sciences	Main	363
Geography—geography for business ⁵	College of Liberal Arts and Sciences	Main	363
Geography—international geography ⁵	College of Liberal Arts and Sciences	Main	363
Geological sciences	College of Liberal Arts and Sciences	Main	368
German	College of Liberal Arts and Sciences	Main	387
Gerontology ⁶	College of Human Services	West	677

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 ASU West, the B.I.S. is available only to students at ASU Main and ASU East.

DIVISION OF UNDERGRADUATE ACADEMIC SERVICES

B.I.S. Concentrations (continued)

Concentration	College	Campus	Page
Global family ³	—	—	—
Hazardous materials and waste management	College of Technology and Applied Sciences	East	654
History	College of Liberal Arts and Sciences	Main	371
Humanities	College of Liberal Arts and Sciences	Main	377
Interior design history	College of Architecture and Environmental Design	Main	145
International business studies ³	W. P. Carey School of Business	Main	182
Italian	College of Liberal Arts and Sciences	Main	387
Japanese	College of Liberal Arts and Sciences	Main	387
Jewish studies	College of Liberal Arts and Sciences	Main	328
Justice studies	College of Public Programs	Main	478
Kinesiology	College of Liberal Arts and Sciences	Main	380
Landscape studies	College of Architecture and Environmental Design	Main	155
Latin American studies	College of Liberal Arts and Sciences	Main	328
Mass communication	College of Public Programs	Main	475
Mathematics	College of Liberal Arts and Sciences	Main	418
Medieval and Renaissance studies	College of Liberal Arts and Sciences	Main	328
Microbiology ¹	College of Liberal Arts and Sciences	Main	404
Multimedia writing and technical communication	East College	East	633
Music	Katherine K. Herberger College of Fine Arts	Main	300
Nonprofit/youth agency administration	College of Public Programs	Main	484
Nutrition—food and nutrition management	East College	East	636
Nutrition—human nutrition	East College	East	636
Organizational studies ⁴	—	—	—
Philosophy	College of Liberal Arts and Sciences	Main	425
Philosophy—history and philosophy of science	College of Liberal Arts and Sciences	Main	425
Philosophy—symbolic systems	College of Liberal Arts and Sciences	Main	425
Physics	College of Liberal Arts and Sciences	Main	428
Plant biology ¹	College of Liberal Arts and Sciences	Main	404
Plant biology—environmental science and ecology ¹	College of Liberal Arts and Sciences	Main	405
Plant biology—molecular biosciences/biotechnology ¹	College of Liberal Arts and Sciences	Main	406
Political science	College of Liberal Arts and Sciences	Main	434
Political science—American public policy	College of Liberal Arts and Sciences	Main	434
Political science—civic education	College of Liberal Arts and Sciences	Main	434
Political science—international studies	College of Liberal Arts and Sciences	Main	434
Psychology	College of Liberal Arts and Sciences	Main	438
Public administration	College of Public Programs	Main	482
Quality analysis	W. P. Carey School of Business	Main	171
Recreation management	College of Public Programs	Main	483
Religious studies	College of Liberal Arts and Sciences	Main	441
Russian	College of Liberal Arts and Sciences	Main	387

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 ASU West, the B.I.S. is available only to students at ASU Main and ASU East.

B.I.S. Concentrations (continued)

Concentration	College	Campus	Page
Russian and East European studies	College of Liberal Arts and Sciences	Main	329
Scandinavian studies	College of Liberal Arts and Sciences	Main	329
Small business	East College	East	623
Social welfare	College of Public Programs	Main	487
Sociology	College of Liberal Arts and Sciences	Main	446
Southeast Asian studies—area studies option	College of Liberal Arts and Sciences	Main	329
Southeast Asian studies—language option	College of Liberal Arts and Sciences	Main	329
Spanish	College of Liberal Arts and Sciences	Main	387
Spanish for native speakers	College of Liberal Arts and Sciences	Main	387
Speech and hearing science	College of Liberal Arts and Sciences	Main	448
Statistics	College of Liberal Arts and Sciences	Main	418
Theatre	Katherine K. Herberger College of Fine Arts	Main	307
Tourism management	College of Public Programs	Main	483
Translation (Spanish/English)	College of Liberal Arts and Sciences	Main	387
Urban planning	College of Architecture and Environmental Design	Main	155
Wellness foundations	East College	East	629
Women’s studies	College of Liberal Arts and Sciences	Main	451

ASU EXTENDED CAMPUS

The College of Extended Education was created in 1990 to extend the resources of ASU throughout Maricopa County, the state, and beyond. The College of Extended Education is a university-wide college that oversees the ASU Extended Campus and forms partnerships with other ASU colleges and the Division of Undergraduate Academic Services to meet the instructional and informational needs of a diverse community.

The ASU Extended Campus goes beyond the boundaries of the university’s physical campuses to provide access to quality academic credit and degree programs for working adults through flexible schedules; a vast network of off-campus sites; classes scheduled days, evenings, and weekends; and innovative delivery technologies including television, the Internet, and Independent Learning. The ASU Extended Campus also offers a variety of professional continuing education and community outreach programs.

For more information, see “ASU Extended Campus,” page 689, or access the Web site at www.asu.edu/xed.



The ASU Downtown Center, in Phoenix, is the administrative home for the ASU Extended Campus.

Tim Trumble photo

The Barrett Honors College

www.asu.edu/honors

Mark Jacobs, Ph.D., Dean

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MISSION

The Barrett Honors College is a community of learners dedicated to superior undergraduate education based on the pursuit of excellence, respect for the individual, commitment to integrity, and service to society.

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, mentors applicants for fellowships and scholarships, and assists students with application to graduate school.

The Barrett Honors College serves students seeking degrees at ASU Main, in Tempe; ASU West, in northwest Phoenix; and ASU East (Williams Campus) in southeast Mesa. 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 from all disciplinary colleges and academic majors can enroll in the Barrett 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.

SPECIAL PROGRAMS

Office of National Scholarship Advisement

The Office of National Scholarship Advisement assists honors and other high-achieving students by identifying nationally competitive programs appropriate to each person's intellectual and career goals, nurturing these prospective applicants, and advancing their candidacy. 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.

The Undergraduate Research Office

The Undergraduate Research Office maintains a database of research opportunities available throughout the university. This office is administered by the Barrett Honors College and serves the entire university.

Study Abroad

Barrett Honors College Students have access to honors study abroad programs and participate in ASU International Programs Office opportunities. These plans allow students to earn honors credit while overseas.

Internships/Mentorships/Opportunities

Students in the Barrett Honors College may participate in special internship opportunities or mentoring by leaders—in government, industry, and the private sector—throughout metropolitan Phoenix. The college also maintains a database of special opportunities, including community service and international and cultural events. For more information, call 480/965-2354.

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, and prolific and wide-ranging African American author and National Book Award recipient Charles Johnson.

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; faculty and academic advisors serve the students there. Classrooms, recreational and study lounges, and a state-of-the-art computing lab compose 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 18.

Students can 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 go on to 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 at the high school or university level are invited to apply for admission to the Barrett Honors College. All candidates for admission must file a separate application to the college.

Applicants are initially 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; or a student may possess other talents that contribute to academic leadership and community service. Continuing ASU or transfer students are evaluated on their college GPA.

All students who believe they can better succeed at the university by participating in the Barrett Honors College are encouraged to apply. Application forms and additional information about the college and its activities are available by calling 480/965-2359 or by accessing www.asu.edu/honors on the Web.



The Barrett Honors College provides academically talented students with consistently distinguished teaching and research.

Doug Crouch photo

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. Students must complete an average of one honors course each semester. The associate dean of the college must approve any deviation from this standard. Good standing in the college requires students to maintain the following cumulative ASU GPAs (4.00 = A):

1. fewer than 45 semester hours, 3.25;
2. between 45 and 80 semester hours, 3.33; and
3. above 80 semester hours, 3.40.

Students with a lower cumulative GPA or students who have failed to take at least one honors course each semester

L literacy and critical inquiry / MA mathematics / CS computer/statistics/quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

THE BARRETT HONORS COLLEGE

are placed on probation and withdrawn from the college unless reasonable progress is made in raising the cumulative GPA or taking honors course work during the following semester.

COURSE REQUIREMENTS

Only courses in which a student receives at least a grade of “C” (2.00) may be used to meet the Barrett Honors College requirements.

Students entering the college as freshmen or continuing ASU students must take 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.

Students transferring into the university after their sophomore year must take a 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. 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. Certain advanced courses, when taken in the freshman or sophomore year, also carry automatic honors credit, as long as the student receives a grade of “A” (4.00) or “B”

(3.00). Students in the Barrett Honors College may also enroll in graduate-level courses that automatically earn honors credit.

All courses a student takes for honors credit may be used toward graduation, even if the student does not graduate from the Barrett Honors College.

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 does not meet college requirements.

Lower Division

To receive transcript recognition for lower-division honors work, students must complete 18 semester hours of honors course work within 60 earned semester hours with a cumulative ASU GPA greater than or equal to 3.40 (4.00 = A).

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.

Intent to Graduate

Students must complete and file with the college an Intent to Graduate form no later than the semester in which they complete 75 earned semester hours (including advanced placement, International Baccalaureate Diploma/Certificate, College-Level Examination Program, and dual enrollment credits). This form is available on the college’s Web site, www.asu.edu/honors, in the forms section.

The Intent to Graduate form includes sections in which students indicate

1. their intended major(s), minor(s), and certificate program(s);
2. the courses they intend to use to satisfy the requirements for “Lower Division with Honors”; and
3. the courses they intend to use to satisfy the requirements for graduation through the Barrett Honors College.

Normally, only students who complete the requirements for “Lower Division with Honors” or their equivalent at the institutions from which they transfer are allowed to pursue completion of the requirements for graduation through the Barrett Honors College.

Upper Division/Graduation

To graduate through the Barrett Honors College, students must

1. complete HON 171 and 172 or, if they transfer to the university after their sophomore year, they must take one 300-level honors seminar course;
2. complete 18 additional semester hours of upper-division honors course work for an earned letter grade, unless otherwise provided for by the Barrett Honors College and the student’s disciplinary college; the additional hours must include three to six semester hours of Honors Thesis and six semester

- hours outside the academic major (these may include graduate courses);
- complete ASU graduation requirements in an academic major; and
 - earn a cumulative ASU GPA greater than or equal to 3.40 (4.00 = A).

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 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

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. Seminar, lecture, discussion.

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

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 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.

College of Architecture and Environmental Design

www.asu.edu/caed

Wellington Reiter, M.Arch., Dean

School of Architecture	137
School of Design	143
School of Planning and Landscape Architecture	154

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
- School of Design
- School of Planning and Landscape Architecture

Administration of the college is the responsibility of the dean, who in turn is responsible to the president of the university through the senior vice president and provost.

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 Gallery of Design is one of eight university galleries and museums. It provides space for traveling exhibits and exhibitions of student and faculty work.

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 Excellence; and the Joint Urban Design Program, which also has a studio at the ASU Downtown Center. 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. Acceptance into lower-division programs requires a TOEFL score of 500 or higher for international students whose native language is not English.

Transfer Credits. While the university accepts credits transferred from other accredited institutions, transfer credits are not applied to specific degree programs until reviewed and accepted by the appropriate academic units. Transfer course work must be equivalent in both content and level of offering. In addition, a review of samples of work (portfolio format) from previous studio classes is required. Students who change majors to transfer into the college or

College of Architecture and Environmental Design Baccalaureate Degrees and Majors

Major	Degree	Concentration	Administered By
Architectural Studies	B.S.D.	—	School of Architecture
Design Science*	B.S.D.	—	School of Design
Graphic Design	B.S.D.	—	School of Design
Housing and Urban Development	B.S.D.	—	School of Planning and Landscape Architecture
Industrial Design	B.S.D.	—	School of Design
Interior Design	B.S.D.	—	School of Design
Landscape Architecture	B.S.L.A.	—	School of Planning and Landscape Architecture
Urban Planning	B.S.P.	—	School of Planning and Landscape Architecture

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

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 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 141). 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 (B.S.D.) degree in Architectural Studies, Graphic Design, Housing and Urban Development, Industrial Design, and Interior Design; the Bachelor of Science in Landscape Architecture (B.S.L.A.) degree; and the Bachelor of Science in Planning (B.S.P.) degree in Urban Planning. Applications for the B.S.D. 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” table, on this page.

Each undergraduate program is divided into lower-division and upper-division programs. Completion of a lower-division program does not guarantee advancement to an upper-division program.

GRADUATE PROGRAMS

The faculty in the College of Architecture and Environmental Design offer the National Architectural Accrediting Board-accredited Master of Architecture (M.Arch.) professional degree; Planning Accreditation Board-accredited Master of Environmental Planning (M.E.P.) professional degree; M.S. degree in Building Design; Master of Science in Design (M.S.D.) degree; and Ph.D. degree in Environmental Design and Planning. For more information, see the “College of Architecture and Environmental Design Graduate Degrees and Majors” table, page 134, and the *Graduate Catalog*.

MINORS

The faculty in the School of Architecture offer a minor in Architectural Studies, see “**Architectural Studies Minor,**” page 140. The faculty in the School of Design offer minors in Design Studies and Interior Design History, see “**Minors,**” page 144. The faculty in the School of Planning and Landscape Architecture offer two minors: Landscape Studies and Urban Planning. See “**Minors,**” page 154, 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 91.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

College of Architecture and Environmental Design Graduate Degrees and Majors

Major	Degree	Concentration ¹	Administered By
Architecture	M.Arch.	—	School of Architecture
Building Design	M.S.	Design knowledge and computing, energy performance and climate-responsive architecture, or facilities development and management	School of Architecture
Design	M.S.D.	Graphic design, industrial design, or interior design	School of Design
Environmental Design and Planning ²	Ph.D.	Design; history, theory, and criticism; or planning	College of Architecture and Environmental Design
Environmental Planning	M.E.P.	Landscape ecological planning, urban and regional development, or urban design ²	School of Planning and Landscape Architecture

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

² Doctoral courses for these interdisciplinary programs administered by ASU Main are also offered at ASU East.

ASU EXTENDED CAMPUS

The College of Extended Education was created in 1990 to extend the resources of ASU throughout Maricopa County, the state, and beyond. The College of Extended Education is a university-wide college that oversees the ASU Extended Campus and forms partnerships with other ASU colleges, including the College of Architecture and Environmental Design, to meet the instructional and informational needs of a diverse community.

The ASU Extended Campus goes beyond the boundaries of the university's physical campuses to provide access to quality academic credit and degree programs for working adults through flexible schedules; a vast network of off-campus sites; classes scheduled days, evenings, and weekends; and innovative delivery technologies including television, the Internet, and Independent Learning. The Extended Campus also offers a variety of professional continuing education and community outreach programs.

For more information, see "[ASU Extended Campus](#)," page 689, 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 87.

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 91. 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 (B.S.D.), Bachelor of Science in Landscape Architecture (B.S.L.A.), or Bachelor of Science in Planning (B.S.P.) 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 B.S.D., B.S.L.A., or B.S.P. 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 90.

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 an official “Request for Grade of Incomplete” form from their academic units. 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 80.

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 80.

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, Interior Design, or Urban Planning 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 and Housing and Urban Development 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 24.

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 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

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 702.

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 702.

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

www.asu.edu/caed/SOA

480/965-3536

AED 162

Ronald McCoy, Director

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

Associate Professors: Ellin, Hartman, Kroloff, Loope, Spellman, Van Duzer, Zygas

Assistant Professors: Burnette, Hejduk, Innes, Kobayashi, Lerum, Martin, Murff, Petrucci, Vekstein

PURPOSE

The architecture program at ASU offers an integrated curriculum of professional courses and focuses on the design laboratory. The program reflects an awareness of the complex factors affecting the quality of the built environment. The program seeks 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, 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's program is 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 offer the Bachelor of Science in Design (B.S.D.) degree with a major in Architectural Studies.

The program in architecture culminates with the professional degree Master of Architecture (M.Arch.), which is accredited by the National Architectural Accrediting Board (NAAB). Completion of the program is intended to take six years.

In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The NAAB, which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes two types of degrees: the Bachelor of Architecture and the Master of Architecture. A program may be granted a five-year, three-year, or two-year term of accreditation, depending on its

degree of conformance 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 138. The professional program includes two years of upper-division study leading to the B.S.D. and two years of graduate study leading to the M.Arch., as described in "Upper-Division Professional Program," on this page.

Applicants who already hold a bachelor's degree in another field should apply to the 3+ year M.Arch. degree program. See the *Graduate Catalog* for more information.

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 as their major are admitted to the lower-division architecture program without separate application to the School of 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 degree requirements.

Upper-Division Professional Program. Admission to the upper-division professional program is competitive and limited by available resources. Admission is awarded to those applicants demonstrating the highest promise for professional success.

Transfer students who have completed the equivalent required lower-division course work may apply to the upper-division program. Prior attendance at ASU is not required for application to the upper-division program.

To be eligible for admission to the upper-division program, the following requirements must be met:

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

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 B.S.D. 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/SOA for the application form well in advance of the application deadline. The following dates and procedures are for students applying to 2005–2006 upper-division programs.

Upper-Division Application Deadlines. *April 29, 2005.* Portfolio and application documents are due in the school office by 5 P.M. Applications received after the deadline are not accepted.

June 3, 2005. If the spring 2005 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 3. 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 1, 2005. Acceptance notices are mailed no later than July 1.

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/SOA 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, 2005. If the applicant provides written permission, another person may claim the portfolio. After one year, unclaimed portfolios are discarded. While care is taken in handling the portfolios, no liability for lost or damaged materials is assumed by the college or school.

ADVISING

Advising for the lower-division curriculum is through the college Academic Advising Office. Advising for upper-division 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 141) 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 91, 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 87, and “College Degree Requirements,” page 134.

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—B.S.D.
Lower-Division Requirements
Option A¹**

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
Elective	3
Elective	3
SB 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
MAT 210 Brief Calculus <i>MA</i>	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
Elective	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 141.

**Architectural Studies—B.S.D.
Upper-Division Requirements
Option A**

Third Year

Fall

ADE 321 Architectural Studio I	5
APH 313 History of Architecture I <i>L/HU, G, H*</i>	3
ATE 353 Architectural Construction	3
Elective*	3
Total	14

Spring

ADE 322 Architectural Studio II	5
ANP 331 Programming for Design	3
APH 314 History of Architecture II <i>L/HU, G, H*</i>	3
ATE 361 Building Structures I	3
Total	14

Summer

ARP 484 Clinical Internship	3
Total	3

Fourth Year

Fall

ADE 421 Architectural Studio III	5
ATE 451 Building Systems I	3
ATE 462 Building Structures II	3
Elective*	3
Professional elective*	3
Total	17

Spring

ADE 422 Architectural Studio IV	5
ATE 452 Building Systems II	3
Architectural history elective	3
Elective*	3
Total	14
Option A upper-division total	62
B.S.D. option A minimum total	120

* These courses may be completed before admission into the upper division.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

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	
Professional elective	3	
Total	14	

Sixth Year

Fall

AAD 551 Architectural Management I.....	3	
ADE 621 Advanced Architectural Studio III.....	5	
ANP 681 Project Development.....	3	
Professional elective	3	
Total	14	

Spring

AAD 552 Architectural Management II.....	3	
ADE 622 Advanced Architectural Studio IV.....	5	
Approved elective	3	
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, but who are pursuing another major. 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
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* These courses require a petition to the School of Architecture.

A minimum GPA of 3.00 is required to pursue the minor in Architectural Studies.

B.I.S. CONCENTRATION

A concentration in architectural studies is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “Bachelor of Interdisciplinary Studies,” page 123.

INQUIRIES

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

COLLEGE OF ARCHITECTURE AND
ENVIRONMENTAL DESIGN
ACADEMIC ADVISING/STUDENT
SERVICES OFFICE
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 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 M.S. 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 Ph.D. 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.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

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.

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.

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.

School of Designwww.asu.edu/caed/SOD

480/965-4135

AED 154

Jacques Giard, Director**Professors:** Brandt, Giard**Associate Professors:** Bernardi, Cutler, Johnson, McDermott, Patel, Ratner, Rothstein, Sanft, Witt**Assistant Professors:** Bender, Boradkar, Brungart, Herring, McCoy, Schoenhoff, Thibeau Catsis, Weed**Adjunct Professors:** Heywood, Kendle, Moore**Faculty Associates:** Johannes, Montgomery, Sola, White**PURPOSE**

The School of Design educates individuals for the professional worlds 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.

DEGREES

The faculty in the School of Design offer the Bachelor of Science in Design degree with three majors: 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 91.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

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 not only prepares individuals for the graphic design profession, but also for graduate work. The goal of the faculty is to offer the best graphic design education, allowing the graduating student every option available. Studio classroom projects are planned to strengthen and refine students' proficiency in the language, process, and technical aspects of the profession. Projects are intended to help students think critically, both as individuals and as members of a group. Students opting for the profession can expect to work in the areas of advertising design, brand identity, broadcast graphics, corporate identity, environmental graphics, informational graphics, in-house corporate design, museum informational design, publication design, and Web site design. Students pursuing graduate studies can expect to be equally well prepared with critical and analytical thinking skills coupled with a diversified portfolio. The program is dedicated to a comprehensive education in graphic design as it relates to the changing communication standards of today and in the future.

Industrial Design. The program in Industrial Design prepares creative individuals to design manufactured objects used by people on a daily basis. The industrial design profession serves the needs of consumers and manufacturers by developing products that are attractive, useful, safe, convenient, and comfortable to use. The designer's special talents and skills include a sense of the aesthetic, knowledge of materials and processes, and an understanding of the physical and psychological needs of the user. Industrial designers often serve as a catalyst among management, marketing, and engineering.

By way of studio projects, students learn to visualize ideas, to communicate them to others, and to refine their skills in freehand sketching, computer-aided design, and model making. Assignments are a balance of conceptual aspects and practical techniques. Typical projects include electronics, toys, furniture, 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 a corporation or in a consulting design agency.

Interior Design. The School of Design is accredited by the Foundation for Interior Design Education Research, the national accrediting agency. The four-year curriculum emphasizes design process, technical skill development, problem solving, and the management skills needed to work in collaboration with the allied design professions. The goal of interior design is to create high-quality environments for human use.

Significant changes in the interior design profession over the last two decades are reflected in the program. The school is committed to integrating computer technology into each level of the curriculum. In doing so, the program offers an excellent environment for experimenting with and testing innovative applications of computer-aided design and simulation to interior design.

MINORS

Design Studies

The minor in Design Studies is available to students interested in design courses but who do not wish to major in graphic, industrial, or interior design. The courses are designed to appeal especially to students who have not been accepted to the upper-division of graphic, industrial, or interior design but who wish to pursue the study of design within the Bachelor of Interdisciplinary Studies degree.

The selected courses satisfy the minimum requirement (18 semester hours) for the minor. Furthermore, 12 semester hours must be taken in upper-division course work. To enhance understanding of the subject matter, some of the selected courses are sequential in nature and require certain prerequisites. Consequently, students should carefully note the semester in which these particular courses are offered. All courses are non-studio 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 <i>HU, G</i>	3
DSC 236 Introduction to Computer Modeling <i>CS</i>	3
DSC 344 Human Factors in Design.....	3
DSC 440 Finding Purpose	3

Graphic Design

GRA 111 Graphic Design History I <i>HU</i>	3
GRA 194 ST: Graphic Design History II	3
GRA 294 ST: Communication/Interaction Design Theory	3
GRA 494 ST: Advanced Interaction Design	3
GRA 494 ST: Exhibit Design.....	3
GRA 494 ST: Motion Graphics and Interaction Design	3

Industrial Design

IND 242 Materials and Design	3
IND 243 Process and Design	3
IND 316 20th-Century Design I <i>HU, H</i>	3
IND 317 20th-Century Design II <i>HU, H</i>	3
IND 354 Principles of Product Design	3
IND 470 Professional Practice for Industrial Design <i>L</i>	3

Interior Design

INT 111 Interior Design Issues and Theories <i>HU</i>	3
INT 121 Introduction to Computer Modeling for Interior Design	3
INT 131 Design and Human Behavior <i>SB</i>	3
INT 238 Introduction to Computer-Aided Design of Built Environments	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
INT 413 History of Textiles in Interior Design	3

Interior Design History

The minor in Interior Design History is available to students interested in design and culture. The courses designated for the minor are part of the professional studies in interior design within the School of 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 Design		.....3
Total				.....18

The minor in Interior Design History is open to students majoring in Architectural Studies, Art, Communication, Psychology, or Sociology and students in any W. P. Carey School of Business major or the Bachelor of Interdisciplinary Studies program. All other majors are considered on an individual basis and approved by the 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.

B.I.S. CONCENTRATIONS

Concentrations in design studies and interior design history are available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

GRADUATE PROGRAMS

The School of Design offers a Master of Science in Design (M.S.D.) degree with concentrations in graphic design, industrial design, and interior design. The faculty also participates in a collegewide, interdisciplinary Ph.D. 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 2005–2006 upper-division programs.

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

April 15, 2005. Portfolio and application documents are due in the school office by 5 P.M.

June 1, 2005. If the spring 2004 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 141, 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

July 1, 2005. Acceptance notices are mailed no later than July 1.

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 141. 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 2004 semester. Copies are acceptable. An academic advisor forwards 2005 ASU transcripts. (Applicants wishing to transfer spring semester 2005 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 2005 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 141, 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, 2005. 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 141).

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 includes 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 program	61
Professional program	59
Total	120

The preprofessional curriculum balances a foundation in academic subjects such as English, numeracy, and psychology with design courses that include history and theory, as well as studio courses in drawing and design fundamentals as they relate to conceptual design. Students apply for entry into the professional program after fulfilling two years of the preprofessional program. The upper-division curriculum

includes studio work in graphic design and its relationship to problem solving at multiple scales. Projects are intended to educate students to think critically as individuals and as team participants in small and large corporate facilities. A formal eight-week summer internship is required in the professional program. The internship is coordinated by the faculty. Students intern in a variety of settings, including in-house corporate design, publication design, and advertising design agencies.

General Studies Requirement. The following curriculum includes sufficient approved course work to fulfill the General Studies requirement. See “General Studies,” page 91, 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 87, and “College Degree Requirements,” page 134.

**School of Design
Graphic Design—B.S.D.**

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 if qualified (3)	
GRA 111 Graphic Design History I <i>HU</i>	3
GRA 121 Principles for Graphic Design I ¹	3
MA elective ²	3
Total	15

Spring	
ARS 102 Art from Renaissance to Present <i>HU, H</i>	3
ENG 102 First-Year Composition.....	3
or elective if ENG 105 is taken (3)	
GRA 122 Principles for Graphic Design II ¹	3
GRA 194 ST: Graphic Design History II.....	3
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 294 ST: 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 361 Visual Communication III ¹	5
GRA 394 ST: Technology for Design I.....	3
Natural Science Elective with Laboratory <i>SQ, SG</i> ²	4
Total	15

Spring	
GRA 345 Design Rhetoric <i>L</i>	3
GRA 362 Visual Communication IV ¹	5
GRA 394 ST: Technology for Design II.....	3
Social/Behavioral Science Elective (upper division) <i>SB</i> ²	3
Total	14

Summer	
GRA 484 Internship.....	2
Total	2

Fourth Year

Fall	
GRA 461 Visual Communication V ¹	5
GRA 494 ST: Exhibit Design.....	3
GRA 494 ST: Motion Graphics and Interaction Design.....	3
Cultural Awareness elective ²	3
Total	14

Spring	
GRA 462 Visual Communication VI ¹	5
GRA 494 ST: Advanced Interaction Design.....	3
GRA 494 ST: Advanced Media.....	3
Elective ²	3
Total	14
Professional program total.....	59
B.S.D. 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 141. 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.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See “General Studies,” page 91.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

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, transportation, 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 91](#), 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 87](#), and [“College Degree Requirements,” page 134](#).

Industrial Design—B.S.D. 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
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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 141. 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—B.S.D. 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
	SQ, SG elective with approved laboratory	4
Total		15
Professional program total		59
B.S.D. 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 91, 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 87, and “College Degree Requirements,” page 134.

**Interior Design—B.S.D.
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 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 211 Concepts for Interior Design ¹	3
INT 261 Interior Design Studio I: Residential ¹	3
CS elective	3
Total	12
Lower-division total	59

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 141. 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—B.S.D.
Professional Program Requirements**

Third Year

Fall

INT 310 History of Interior Design I <i>HU, H</i>	3
INT 341 Interior Codes: Public Welfare and Safety	2
INT 352 Construction Methods in Interior Design	3
INT 362 Interior Design Studio II: Hospitality and Retail	5
INT 381 Preinternship Seminar	1
Total	14

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
L elective (upper division)	3
Total	17

Summer

INT 484 Internship	2
Total	2

Fourth Year

Fall

INT 464 Interior Design Studio IV: Work Environments	5
INT 471 Facilities Management	3
SQ or SG elective	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 91.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

Elective.....	3
Total	15
Spring	
INT 451 Ambient Environment.....	3
INT 465 Interior Design Studio V: Institutional Design.....	5
INT 472 Professional Practice for Interior Design.....	2
Elective.....	3
Total	13
Upper-division total	61
B.S.D. minimum total	120

INQUIRIES

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

COLLEGE OF ARCHITECTURE AND
ENVIRONMENTAL DESIGN
ACADEMIC ADVISING/STUDENT SERVICES
OFFICE
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 120 Drawing for Graphic Design. (3)

spring

Drawing as language to explore and communicate ideas. Development of drawing aptitude as language and process for graphic design thinking. Studio. Prerequisite: GRA 121. Corequisite: GRA 122.

GRA 283 Letterform I. (3)

Effective through fall 2004

Drawing of letterforms with focus on proportion and structure. Introduces letterform nomenclature and classifications. 6 hours a week. Fee. Prerequisites: GRA 122; acceptance into Graphic Design professional program. Corequisite: GRA 284.

GRA 284 Visual Communication I. (3)

Effective through fall 2004

Theoretical and applied studies in shape, drawing, and color. 6 hours a week. Fee. Prerequisite: acceptance into Graphic Design professional program. Corequisite: GRA 283.

GRA 286 Visual Communication II. (3)

Effective through spring 2005

Transition from theoretical to applied problems. Emphasizes refinement of visual skills. 6 hours a week. Fee. Prerequisites: GRA 284; acceptance into Graphic Design professional program. Corequisite: GRA 287.

GRA 287 Letterform II. (3)

Effective through spring 2005

Continuation of GRA 283 with emphasis on lowercase letters; basics of pen writing and font design. 6 hours per week. Fee. Prerequisites: GRA 284; acceptance into Graphic Design professional program. Corequisite: GRA 286.

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. Prerequisites: GRA 286, 287. 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 poster, packaging, publications. Emphasizes development of concepts in visual communications. 6 hours a week. Fee. Prerequisites: GRA 286, 287. 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 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 194 Graphic Design History II.

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

Topics may include the following:

- 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 220 Design Drawing I. (3)*Effective fall 2005*

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)*Effective fall 2005*

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)*Effective fall 2005*

Theoretical and applied studies in shape, drawing, and color. 6 hours a week. Fee. Prerequisite: GRA 122. Corequisite: GRA 221.

GRA 223 Typography. (3)*Effective spring 2006*

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)*Effective spring 2006*

Transition from theoretical to applied problems. Emphasizes refinement of visual skills. 6 hours a week. Fee. Prerequisite: GRA 222. Corequisite: GRA 223.

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

Topics may include the following:

- Communication/Interaction Design Theory. (3)

Effective fall 2005

Theory related to the design of communication artifacts and interaction within various media environments. Prerequisite: GRA 122 or instructor approval.

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 394 Technology for Design I.

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 394 Technology for Design II.

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*

Topics may include the following:

- 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.

- Technology for Design II. (3)

Effective spring 2007

Emphasizes advanced technology in design problems. Projects interface with GRA 362. Prerequisite: GRA 394 Technology for Design I. Corequisite: GRA 362.

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*

- Advanced Interaction Design. (3)

Effective spring 2008

Advanced discussion and exploration of theory related to the design of interaction. Prerequisite: GRA 494 Motion Graphics and Interaction Design or instructor approval.

- Advanced Media. (3)

Effective spring 2008

Advanced exploration of digital media for communication. Studio. Prerequisite: GRA 494 Motion Graphics and Interaction Design. Corequisite for Graphic Design majors: GRA 462.

- Exhibit Design. (3)

Effective fall 2007

Familiarization with the processes associated with the design of exhibits, especially visual communication in 3-D. Studio. Prerequisite: GRA 362 or instructor approval.

- Motion Graphics and Interaction Design. (3)

Effective fall 2007

Discusses and explores theory related to the design of motion graphics and interaction through lectures and studio projects. Prerequisite: GRA 394 Technology for Design II 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 91.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

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 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 236 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.

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***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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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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 and Landscape Architecture

www.asu.edu/caed/SPLA

480/965-7167

AED 158

Hemalata Dandekar, Director

Professors: Dandekar, Kihl, Lai, Pijawka

Associate Professors: Cameron, Cook, Fish Ewan, Guhathakurta, Kim, Yabes

Assistant Professors: Crewe, Ewan

Faculty Associates: Abele, Dollin, Gammage

PURPOSE

The faculty in the School of Planning and Landscape Architecture offer curricula that provide an education for careers in environmental planning, housing and urban development, landscape architecture, urban and regional planning, and urban design. The goal of the faculty is to advance the professions of planning and landscape architecture through scholarship, teaching, research, and community service.

Planners and landscape architects work on projects that range in scale from site and landscape development to the design of entire communities and the formulation of policies that shape urban and regional growth. Planning and landscape architecture 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 transporta-

tion, 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 and Landscape Architecture offer the Bachelor of Science in Planning degree in Urban Planning, Bachelor of Science in Landscape Architecture degree, and Bachelor of Science in Design degree in Housing and Urban Development.

Bachelor of Science in Planning (B.S.P.)

The B.S.P. 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 Landscape Architecture (B.S.L.A.)

The B.S.L.A. 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 B.S.L.A. is an accredited program.

Bachelor of Science in Design (B.S.D.)

A B.S.D. 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 B.S.D. degree with a major in Housing and Urban Development is offered in conjunction with the College of Extended Education.

MINORS

Landscape Studies

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 <i>HU, G</i>	3
PLA 310 History of Landscape Architecture <i>H</i>	3
PLA 311 Contemporary Landscape Architecture.....	3
PLA 410 Social Factors in Landscape and Urban Planning.....	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 and Landscape Architecture <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 Planning and Landscape Architecture.

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 200 The Planned Environment <i>HU, H</i>	3
PUP 301 Introduction to Urban Planning <i>L*</i>	3
PUP 363 History of Planning.....	3
PUP 412 History of the City <i>H</i>	3
PUP 420 Theory of Urban Design <i>HU</i>	3
PUP 425 Urban Housing Analysis.....	3
PUP 430 Transportation Planning and the Environment.....	3
PUP 432 Planning and Development Control Law.....	3
PUP 433 Zoning Ordinances, Subdivision Regulations, and Building Codes.....	3
PUP 434 Urban Land Economics.....	3
PUP 436 City Structure and Planning.....	3
PUP 442 Environmental Planning.....	3
PUP 444 Preservation Planning.....	3
PUP 445 Women and Environments <i>C</i>	3
PUP 452 Ethics and Theory in Planning <i>L</i>	3
PUP 475 Environmental Impact Assessment.....	3
PUP 485 International Field Studies in Planning and Landscape Architecture <i>G</i>	3
PUP 494 Special Topics.....	3
PUP 510 Citizen Participation.....	3

* PUP 301 Introduction to Urban Planning is required. Landscape Architecture students must choose another class with an advisor's approval since PUP 301 is already required for the B.S.L.A.

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 B.S. in Planning coordinator in the School of Planning and Landscape Architecture.

B.I.S. CONCENTRATIONS

Concentrations in landscape studies and urban planning are available under the Bachelor of Interdisciplinary Studies

(B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see "[Bachelor of Interdisciplinary Studies](#)," page 123.

GRADUATE PROGRAMS

The faculty in the School of Planning and Landscape Architecture offer concentrations in landscape ecological planning, urban and regional development, and urban design under the Master of Environmental Planning (M.E.P.) degree. Faculty also participate in offering a collegewide, interdisciplinary Ph.D. degree in Environmental Design and Planning with concentrations in design; history, theory, and criticism; and planning. For more information, see the *Graduate Catalog*.

ADMISSION

Lower-Division Program. New and transfer students who have been admitted to the university and who have selected a program in the School of Planning and Landscape Architecture 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 write to a college academic advisor for the application form well in advance of the application deadline. For more infor-

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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mation on portfolios, students should ask a college academic advisor for a copy of the portfolio *guidelines*.

Landscape Architecture students in good standing who will complete all required lower-division courses by the end of the fall semester of their sophomore year may apply for admission to the upper-division in November of their sophomore year. 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. *November 15, 2004.* Landscape Architecture portfolio and application documents are due in the school office by 5 P.M.

December 17, 2004. Acceptance notices are mailed to Landscape Architecture students no later than December 17.

January 3, 2005. Landscape Architecture students must submit transcripts of non-ASU course work if their fall semester includes course work taken at another institution. These transcripts may be unofficial copies.

April 15, 2005. Urban Planning, and Housing and Urban Development application and optional portfolio documents due in the school office by 5 P.M.

June 1, 2005. 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 1, 2005. Acceptance notices are mailed no later than July 1.

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, or the immediate spring term for Landscape Architecture. Deferrals are not allowed.

Portfolio Format Requirements. Each applicant is responsible for obtaining the following documents and including them in a presentation binder (portfolio) with plastic sleeves (8.5" x 11" format only) and a label, with the student's name, affixed to the outside:

1. evidence of graphic and design work shown in 35 mm slides or 3" x 5" or other appropriately sized photographs (20 maximum), optional for B.S.D. students;
2. a statement of intent describing the applicant's specific background and interest in the major;
3. latest college-level transcript(s) (no high school transcripts are required);

4. one example of written work (e.g., a class paper); and
5. 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 B.S.D.-HUD program should submit similar material from PCC.

Students should obtain portfolio guidelines for their major from the college's Academic Advising Office, ARCH 141, 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.

Return of Portfolios. Application documents remain the property of the School of Planning and Landscape Architecture. However, the remainder of the portfolio, if required and submitted, 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 the letter of response is submitted. If the applicant provides written permission, another person may claim the portfolio. After one year, unclaimed portfolios are discarded. While care is taken in handling the portfolios, no liability for lost or damaged materials is assumed by the college or school.

ADVISING

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

DEGREE REQUIREMENTS

Urban Planning

The Bachelor of Science in Planning degree requires a total of 120 semester hours.

Preprofessional program courses	60
Professional program courses	60
Total	120

General Studies Requirement. The following curriculum includes sufficient approved course work to fulfill the General Studies requirement. See "[General Studies](#)," page 91, 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 87, and "[College Degree Requirements](#)," page 134.

**Bachelor of Science in Planning,
Major in Urban Planning
Preprofessional Program Requirements¹**

First Year

Fall

ENG 101 First-Year Composition.....	3
or ENG 105 Advanced First-Year Composition (3)	
MAT 117 College Algebra <i>MA</i>	3
or approved more advanced <i>MA</i> elective (3)	
PUP 100 Introduction to Environmental Design <i>HU, G, H</i>	3
G electives.....	6
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

PLA 101 Landscape and Society <i>HU, G</i>	3
or any <i>HU</i> or <i>SB</i> elective.....	
PUP 200 or any <i>HU</i> elective.....	3
Electives.....	6
SB elective.....	3
Total	15

Spring

PUP 301 Introduction to Urban Planning <i>L</i>	3
or elective.....	
Approved program elective ²	3
Elective.....	3
Free elective.....	1
SQ or SG elective.....	4
Total	14
Preprofessional program total.....	60

¹ 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.

² Approved program elective: Select a minimum of four classes (12 semester hours) from the approved SPLA list.

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 Urban Planning III.....	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 elective*.....	3
Elective.....	3
Total	15

Summer

PUP 484 Internship.....	3
or PUP 484 Study Abroad (3)	
or PUP 485 International Field Studies in Planning and Landscape Architecture <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 Urban Planning VI.....	4
PUP 510 Citizen Participation.....	3
Approved program elective*.....	3
Total	13
Professional program total.....	60
B.S.P. minimum total.....	120

* Approved program elective: Select a minimum of four classes (12 semester hours) from the approved SPLA list.

Landscape Architecture

The Bachelor of Science in Landscape Architecture degree requires a total of 120 semester hours.

Preprofessional program courses.....	47
Professional program courses.....	73
Total	120

General Studies Requirement. The following curriculum includes sufficient approved course work to fulfill the General Studies requirement. See “[General Studies](#),” page 91, 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 87, and “[College Degree Requirements](#),” page 134.

L literacy and critical inquiry / *MA* mathematics / *CS* computer/statistics/quantitative applications / *HU* humanities and fine arts / *SB* social and behavioral sciences / *SG* natural science—general core courses / *SQ* natural science—quantitative / *C* cultural diversity in the United States / *G* global / *H* historical / See “General Studies,” page 91.

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Bachelor of Science in Landscape Architecture Preprofessional Requirements¹

First Year

Fall	
ENG 101	First-Year Composition.....3 or ENG 105 Advanced First-Year Composition (3)
MAT 117	College Algebra <i>MA</i>.....3
PLA 101	Landscape and Society <i>HU, G</i>.....3
PLA 161	Graphic Communication ².....3
	Elective.....3
Total	.....15

Spring

ARS 102	Art from Renaissance to Present <i>HU, H</i>.....3
ENG 102	First-Year Composition.....3
GPH 111	Introduction to Physical Geography <i>SQ</i>.....4
PLA 194	ST: Presentation Graphics ².....3
	Elective.....3
Total	.....16

Second Year

Fall	
PLA 240	Landscape Survey Techniques.....3
PLA 261	Landscape Architecture I ².....4
PLA 310	History of Landscape Architecture <i>H</i>.....3
PLA 494	ST: Plant Materials.....3
PUP 301	Introduction to Urban Planning <i>L</i>.....3
Total	.....16
Preprofessional program total.....47	

¹ 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.

² Portfolio review is required for transfer studio work. Samples of studio work to be accepted for credit must be submitted for evaluation through the college's Academic Advising office, ARCH 141. Most studio courses and some lecture courses are sequential. They must be taken in, and may be offered only during, the semester noted.

Bachelor of Science in Landscape Architecture Professional Program Requirements

Second Year

Spring	
PLA 222	Computers in Landscape Architecture <i>CS</i>.....3
PLA 242	Landscape Construction I.....4
PLA 262	Landscape Architecture II.....4
SQ or SG	elective.....4
Total	.....15

Third Year

Fall	
PLA 311	Contemporary Landscape Architecture.....3
PLA 344	Landscape Construction II.....4
PLA 361	Landscape Architecture III.....4
C	elective.....3
SB	elective.....3
Total	.....17

Spring

PLA 345	Professional Practice Seminar.....1
PLA 362	Landscape Architecture IV.....4
PLA 363	Landscape Planting Design.....4

Elective.....	3
HU elective.....	3
Minimum total.....	15

Summer

PLA 484	Internship (optional) (3) or PLA 485 International Field Studies in Planning and Landscape Architecture <i>G</i> (6) (optional)*
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Fourth Year

Fall

PLA 410	Social Factors in Landscape and Urban Planning.....3
PLA 461	Landscape Architecture V.....4
PUP 432	Planning and Development Control Law.....3
	Elective.....3
Total	.....13

Spring

PLA 411	Landscape Architecture Theory and Criticism <i>L</i>.....3
PLA 446	Landscape Construction III.....3
PLA 462	Landscape Architecture VI.....4
	Electives.....3
Total	.....13
Professional program total.....73	
B.S.L.A. minimum total.....120	

* PLA 484 or 485 would be used as an elective in the fourth year.

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 91](#), 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 87](#), and [“College Degree Requirements,” page 134](#).

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
MAT 117	College Algebra <i>MA</i>.....3 or MAT 170 Precalculus <i>MA</i> (3) or MAT 210 Brief Calculus <i>MA</i> (3)
	Elective.....3
	SB elective.....3
Total15

Spring

ENG 102	First-Year Composition.....3
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SCHOOL OF PLANNING AND LANDSCAPE ARCHITECTURE

HUD 201 Introduction to Housing and Urban Development.....	3
HU, H elective.....	3
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
PLA 261 Landscape Architecture I.....	4
or PUP 261 Urban Planning I (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 History of Graphic Design I <i>HU</i>	3
GRA 194 ST: History of Graphic Design 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)	
Elective.....	3
Total.....	14
Professional program total.....	60
B.S.D.-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

COLLEGE OF ARCHITECTURE AND
ENVIRONMENTAL DESIGN
ACADEMIC ADVISING/STUDENT SERVICES
OFFICE
ARIZONA STATE UNIVERSITY
PO BOX 871905
TEMPE AZ 85287-1905

HOUSING AND URBAN DEVELOPMENT (HUD)

HUD 161 Graphic Communication. (3)

fall

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.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See “General Studies,” page 91.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

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.

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: HU, G

PLA 161 Graphic Communication. (3)

fall

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)



ASU Main has many buildings featuring unique architectural elements. The Ross-Blakley Law Library (shown here) is one example.

Tim Trumble Photo

PLA 222 Computers in Landscape Architecture. (3)

spring

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

General Studies: CS

PLA 240 Landscape Survey Techniques. (3)

fall

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)

spring

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)

fall

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)

fall

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 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 462 Landscape Architecture VI. (4)

spring

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

PLA 485 International Field Studies in Planning and Landscape Architecture. (1–12)

fall, spring, summer

Organized field study of planning and landscape architecture in specified international locations. May be repeated for credit with school approval. Study abroad. 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.

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

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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

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 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.

PUP 361 Urban Planning III. (4)

fall

Site planning: analysis of natural and cultural features; site systems and implications for plan making and design. Studio. Fee. Prerequisite: school major or instructor approval.

PUP 362 Urban Planning IV. (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.

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.

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

Tools useful for urban planning research; emphasizes research design and survey methods. Studio. Prerequisite: PUP 301 or instructor approval.

PUP 425 Urban Housing Analysis. (3)

fall

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

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: admission to upper division or instructor approval.

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. Prerequisite: PUP 301.

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. Prerequisite: PUP 301 or instructor approval.

PUP 444 Preservation Planning. (3)

spring

History, theory, and principles of historic preservation. Emphasizes legal framework and methods practiced. Lecture, off-campus field study. Prerequisite: instructor approval.

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: admission to upper division or graduate 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 V. (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 Urban Planning VI. (4)

spring

Capstone studio: project focusing on synthesis aspects of plan making. Studio. Fee. Prerequisite: PUP 461 or instructor approval.

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 and Landscape Architecture. (1–12)

fall, spring, summer

Organized field study of planning and landscape architecture in specified international locations. May be repeated for credit with school approval. Study abroad. 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)

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: instructor approval.

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: Planning Research Methods. (3)

fall

Tools useful for urban planning research; emphasizes research design and survey methods. Pre- or corequisite: PUP 501 or instructor approval.

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 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

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:

- Air Transportation Regulation
- Airport Systems
- 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.

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 91.

W. P. Carey School of Business

wpcarey.asu.edu

Philip R. Regier, Ph.D., Interim 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 22 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 betagammastigma.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 Administration 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 are required to 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 <i>SB</i>	3
ECN 112 Microeconomic Principles <i>SB</i>	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 119 Finite Mathematics MA.....	3
MAT 210 Brief Calculus MA.....	3
QBA 221 Statistical Analysis CS.....	3
Total	27 or 30

Accountancy and Computer Information Systems majors should refer to their specific requirements under the “School of Accountancy,” page 173, and the “Department of Information Systems,” page 179, 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 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 175).

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 Interdis-

ciplinary Studies (B.I.S.) degree. For details about the B.I.S. degree, refer to “Bachelor of Interdisciplinary Studies,” page 123.

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 ASU East. 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 ASU East 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 175).

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—B.A.E.

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 191, 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:

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

W. P. CAREY SCHOOL OF BUSINESS

ACC 230	Uses of Accounting Information I.....	3
ACC 240	Uses of Accounting Information II.....	3
CIS 200	Computer Applications and Information Technology or EDT 321 Computer Literacy	3

In addition, the following courses may be in progress when applying to the ITC but must be completed before starting the program:

ECN 111	Macroeconomics Principles <i>SB</i>	3
ECN 112	Microeconomic Principles <i>SB</i>	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
BUS 301	Fundamentals of Management Communication <i>L</i>	3
CIS 200	Computer Applications and Information Technology <i>CS</i>	3
	or EDT 321 Computer Literacy <i>CS</i> (3)	
ECN 111	Macroeconomic Principles <i>SB</i>	3
ECN 112	Microeconomic Principles <i>SB</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
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)	
SCM 300	Global Supply Operations.....	3
Electives*	.....	6
Total	.....	45

* Approved courses in computer, business education, administration.

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 119	Finite Mathematics <i>MA</i>	3
	Laboratory science <i>SQ</i>	4
Total	.....	16

Second Year

Third Semester

ACC 230	Uses of Accounting Information I <i>SB</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 <i>CS</i>	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 173, and the “[Department of Information Systems](#),” page 179, which list course requirement variations. Management majors should refer to their specific course requirements under the “[Department of Management](#),” page 182.

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 BUS 301, COB 301, and SCM 300 during their first semester in the professional program. Accountancy and Management students substitute ENG 301 for BUS 301.

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.*

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

Major	Degree	Concentration	Administered By
Accountancy	B.S.	—	School of Accountancy
Business Administration	B.S.	—	East College
Computer Information Systems	B.S.	—	Department of Information Systems
Economics ¹	B.S.	—	Department of Economics
Finance	B.S.	—	Department of Finance
Management	B.S.	—	Department of Management
Marketing	B.S.	—	Department of Marketing
Real Estate ²	B.S.	—	Department of Supply Chain Management
Supply Chain Management	B.S.	—	Department of Supply Chain Management

¹ This major is offered by the College of Liberal Arts and Sciences as well, with different requirements.

² Beginning in fall 2005, Real Estate studies will be taught on only the ASU East campus.

Students may transfer a maximum of nine semester hours of approved upper-division business course work required for the business degree to ASU Main. Professional business courses taught in the junior or senior year in the state universities may not be completed at a two-year college for transfer credit in the business core or major. The introductory course in the legal, ethical, and regulatory issues in business is accepted as an exception to this policy, but only lower-division credit is granted. Such courses may be utilized in the free elective category subject to the 30-hour limitation. Courses taught as vocational or career 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 B.S. degree in Accountancy, Business Administration (ASU East campus), Computer Information Systems, Economics, Finance, Management, Marketing, Real Estate, 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 168. 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:

- M.B.A./M.A.I.S.
- M.B.A./M.H.S.A.
- M.B.A./M.S. degree in Information Management
- M.B.A./M.S. degree in Economics
- M.B.A./M.Tax.

Other concurrent degrees available are as follows:

- M.B.A./J.D.
- M.B.A./M.Arch.
- M.B.A./M.I.M. with American Graduate School of International Management (Thunderbird), 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)

In addition to the full-time W. P. Carey M.B.A., the school of business offers the Evening M.B.A. and the Technology M.B.A. The Executive M.B.A. is available to those with significant work experience.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

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

Major	Degree	Concentration ¹	Administered By
Accountancy and Information Systems	M.A.I.S.	—	School of Accountancy
Business Administration	M.B.A.	—	W. P. Carey School of Business
	Ph.D.	Accountancy, computer information systems, finance, health services research, ² management, marketing, or supply chain management	W. P. Carey School of Business
Economics	M.S., Ph.D.	—	Department of Economics
Health Services Administration	M.H.S.A.	—	School of Health Administration and Policy
Information Management	M.S.	—	Department of Information Systems
Public Health ³	M.P.H.	Community health practice ⁴ or health administration and policy	School of Health Administration and Policy
Statistics ⁵	M.S.	—	Committee on Statistics
Taxation	M.Tax.	—	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 collaborative program is offered by the three state universities.

⁴ This concentration is administered by the College of Nursing.

⁵ This program is administered by the Graduate College.

For more information about the W. P. Carey M.B.A. program, see the *Graduate Catalog*.

ASU EXTENDED CAMPUS

The College of Extended Education was created in 1990 to extend the resources of ASU throughout Maricopa County, the state, and beyond. The College of Extended Education is a university-wide college that oversees the ASU Extended Campus and forms partnerships with other ASU colleges, including the W. P. Carey School of Business, to meet the instructional and informational needs of a diverse community.

The ASU Extended Campus goes beyond the boundaries of the university’s physical campuses to provide access to quality academic credit and degree programs for working adults through flexible schedules; a vast network of off-campus sites; classes scheduled days, evenings, and weekends; and innovative delivery technologies including television, the Internet, and Independent Learning. The Extended Campus also offers a variety of professional continuing education and community outreach programs.

For more information, see “ASU Extended Campus,” page 689, or access the Web site at www.asu.edu/xed.

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 87.

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 91. 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 210 (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. 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 91) 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,” on this page, to be eligible for the B.S. degree in the W. P. Carey School of Business, a student must

1. have completed at least 30 semester hours at ASU Main;
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 accomplishing successful completion of 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 B.S. 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 167.

Major Proficiency Requirements. Students must receive grades of “C” (2.00) or higher in upper-division courses for the major. If a student receives a grade below “C” (2.00) in any course in the major, this course must be repeated. If a second grade below “C” (2.00) is received in either an upper-division course in the major already taken or in a different upper-division course in the major, the student is no longer eligible to take additional upper-division courses in that major. University policy states a course may be repeated only one time.

Business Core Requirements

The business core is designed to provide an understanding of the fundamentals of business and to develop a broad business background. The faculty designed the core to cover the impact of information technology and e-business practices on business. By educating and training students in the use of data-driven decision-making tools and applications software, the school provides greater opportunity for its students. All students seeking a B.S. 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
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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

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Upper-Division Business Core

BUS 301 Fundamentals of Management Communication L (first semester).....	3
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
Upper-division business core total.....	22
Business core total.....	31

Accountancy, Computer Information Systems, and Management majors should refer to their specific requirements under the “[School of Accountancy](#),” page 173, and “[Department of Information Systems](#),” page 179, and “[Department of Management](#),” page 182, 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 these standards are not maintained, the student is placed on probation. Students on probation must see an advisor before further registration.

Students on probation must obtain a semester GPA of 2.50 with no grade lower than a “C” (2.00). If a student on probation meets this requirement, but the cumulative GPA remains below 2.00, the student is given an additional semester on continued probation. At the end of continued probation, the student must return to good standing (a 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 B.S. 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.....	1–3
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 to only 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 181, 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 Applied Quality Analysis I.....	3
QBA 421 Applied Quality Analysis II.....	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.

B.I.S. Concentration. A concentration in quality analysis is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies,](#)” page 123.

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 career 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. Students are also encouraged to participate in the Mentoring Program, which allows students the opportunity to interact with local business professionals.

An academic advisor is assigned strictly 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 128, 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 ASU business honors students and their business faculty advisors on a substantial challenge: developing and implementing strategies to assist high-potential, at-risk students in three 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 both 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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

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and co-ops is a learning opportunity. Students use the same job-search skills and resources that are utilized 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 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.

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 eight 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:

Arizona Real Estate Center
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 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. 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. 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. 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. 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. 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. Prerequisites: COB 380; 2.00 GPA; 56 hours; non-business major.

COB 394 Special Topics. (1–4)
fall and spring

COB 492 Honors Directed Study. (2)
fall and spring

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

Topics may include the following:

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

COB 497 Honors Colloquium. (1–6)
selected semesters

Topics may include the following:

- Professional Leadership Forum. (3)

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

School of Accountancy

wpcarey.asu.edu/acc

480/965-3631

BA 223

James R. Boatsman, Director

Professors: J.R. Boatsman, Christian, Gupta, Johnson, Kaplan, 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, 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 located in the professional program application. Current admission statistics are available in Undergraduate Programs, BA 109, in the W. P. Carey School of Business.

ACCOUNTANCY—B.S.

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 ² <i>SB</i>	3
or COM 230 Small Group Communication <i>SB</i> (3) ²	3
COM 259 Communication in Business and the Professions	3
ECN 306 Survey of International Economics <i>SB, G</i> ³	3
ENG 301 Writing for the Professions <i>L</i> ⁴	3
Electives ⁵	9
Total	28

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 ENG 301 is counted in the business core in place of BUS 301.

⁵ 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

L literacy and critical inquiry / *MA* mathematics / *CS* computer/statistics/quantitative applications / *HU* humanities and fine arts / *SB* social and behavioral sciences / *SG* natural science—general core courses / *SQ* natural science—quantitative / *C* cultural diversity in the United States / *G* global / *H* historical / See "General Studies," page 91.

W. P. CAREY SCHOOL OF BUSINESS

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 87, and “[School Degree Requirements](#),” page 168.

ACCOUNTANCY (ACC)

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. Fee. 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. 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. 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. 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. Fee. 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. 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

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. 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. 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. 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. 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. 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

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 primary focus of the Business Administration degree program is 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 for 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.

BUSINESS ADMINISTRATION—B.S.

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 ASU East.

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

B.I.S. 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 B.I.S. degree requirements, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

Department of Economics

wpcarey.asu.edu/ecn

480/965-3531

BAC 659

Arthur E. Blakemore, Chair

Professors: Blakemore, Boyes, Brada, Burdick, Burgess, DeSerpa, Faith, Happel, Hoffman, Kingston, Low, Manelli, Mayer, McDowell, McPheters, Melvin, Méndez, Ormiston, Rogerson, Santos, Schlee, Zhou

Associate Professors: Ahn, Chade, Datta, Reffett, Reiser

Senior Lecturer: Roberts

The W. P. Carey School of Business offers a Bachelor of Science (B.S.) degree in Economics. The B.S. program of study can be designed for students intending to seek employment in the private or public sector of the economy 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 B.S. program of study can also be tailored to prepare students for graduate programs in economics, business, or law.

ECONOMICS—B.S.

Requirements for the W. P. Carey School of Business B.S. in Economics consist of three parts: university requirements, see “[University Graduation Requirements](#),” page 87, 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 B.S. 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 425 or QBA 321 or QBA 410;
3. A Capstone course or Honors Thesis: ECN 475 or 493; and
4. Economics electives at the 300-level or above to fill out the remaining hours. At least two of these courses

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

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.

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 87, and “[School Degree Requirements](#),” page 168.

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 172.

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 181.

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 170.

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. In addition, an ASU GPA of 2.50 or higher is a prerequisite for ECN 313 and 314.

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)

summer

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. Cross-listed as QBA 410. Credit is allowed for only ECN 410 or QBA 410. Prerequisite: 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 or QBA 410.

*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 Applied Quality Analysis I. (3)***once a year*

Applies statistical tools employed in quality analysis. Primary emphasis on regression analysis using a variety of statistical software packages. Prerequisite: QBA 221.

QBA 410 Applied Business Forecasting. (3)*once a year*

Applies forecasting techniques in business and institutional environments. Cross-listed as ECN 410. Credit is allowed for only ECN 410 or QBA 410. Prerequisite: QBA 221.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

QBA 421 Applied Quality Analysis II. (3)

once a year

Applies statistical tools employed in quality analysis. Topics include experimental design, customer surveys, and process control and 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.

Department of Finance

wpcarey.asu.edu/fin

480/965-3131

BAC 519

Herbert M. Kaufman, Chair

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

Associate Professors: Cesta, Gallinger, Hoffmeister

Assistant Professors: Deli, Juergens, Lindsey, Martin, Nardari, Perry

Clinical Assistant Professors: Licon, Simonson

FINANCE—B.S.

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 87, and "School Degree Requirements," page 168.

FINANCE (FIN)

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. 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. 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. Prerequisites: minimum cumulative GPA of 2.00; junior standing; non-Finance major.

FIN 394 Special Topics. (1–4)

selected semesters

FIN 421 Security Analysis and Portfolio Management. (3)

fall, spring, summer

Security analysis theory and practice. Selection and management of financial asset portfolios. Securities markets and portfolio risk-return analysis. Lecture, discussion. Prerequisite: professional program business student majoring in Finance. Prerequisites with a grade of "C" (2.00) or higher: ACC 315; FIN 331, 361.

FIN 427 Derivative Financial Securities. (3)

fall, spring, summer

Study of stock options, index options, convertible securities, financial futures, warrants, subscription rights, and arbitrage pricing theory. Lecture, discussion. Prerequisite: professional program business student majoring in Finance. Prerequisite with a grade of "C" (2.00) or higher: FIN 421.

FIN 431 Management of Financial Institutions. (3)

fall, spring, summer

Asset/liability and capital management in financial institutions. Influence of market factors and regulatory agencies. Emphasizes commercial banks. Lecture, discussion. Prerequisite: professional program business student majoring in Finance. Prerequisites with a grade of "C" (2.00) or higher: ACC 315; FIN 331, 361.

FIN 456 International Financial Management. (3)

fall, spring, summer

Exchange rate determination, financial markets, managing multinational corporations, capital budgeting, and hedging currency risk exposure from an international perspective. Prerequisite: professional program business student majoring in Finance. Prerequisites with a grade of "C" (2.00) or higher: ACC 315; FIN 331, 361.

General Studies: G

FIN 461 Financial Cases and Modeling. (3)

fall and spring

Case-oriented capstone course in managerial finance. Contemporary issues of liquidity management, capital budgeting, capital structure, and financial strategy. Lecture, discussion, group work. Prerequisite: professional program business student majoring in Finance. Prerequisites with a grade of "C" (2.00) or higher: ACC 315; FIN 331, 361.

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. 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. Prerequisites: FIN 331, 361; instructor approval.

FIN 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.

**School of Health Administration
and Policy**

wpcarey.asu.edu/hap

480/965-7778

BA 318

Jeffrey R. Wilson, Director

Professors: Baldwin, Johnson, Kirkman-Liff, Schneller

Associate Professor: Wilson

Assistant Professor: Rivers

While the School of Health Administration 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 SERVICES ADMINISTRATION (HSA)

HSA 220 Health Care Organizations. (3)

selected semesters

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 HSA 220.

General Studies: H

HSA 498 Pro-Seminar. (1–7)

selected semesters

Topics may include the following:

- Health Care Finance. (3)
- Health Economics. (3)
- Health Service Administration and Policy. (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, Steinbart, St. Louis, 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 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.

Due to resource limitations, admission to the program is very competitive. Applicants are reviewed using a portfolio approach. Among the factors considered are cumulative

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

W. P. CAREY SCHOOL OF BUSINESS

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 located 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—B.S.

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 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 15 public and private programs.

The major in Computer Information Systems consists of the following courses:

ACC 330 Enterprise Process Analysis and Design	3
CIS 340 Object-Oriented Modeling and Programming	3
CIS 360 Business Database Concepts	3
CIS 425 Electronic Commerce Strategy	3
CIS 430 Networks and Distributed Systems	3
CIS 440 Systems Design and Electronic Commerce L	3
Total	18

All Computer Information Systems majors must complete an introductory computer science course as specified by the department, which may be used as a school of business requirement, and CIS 235 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 87, and "School Degree Requirements," page 168.

COMPUTER INFORMATION SYSTEMS (CIS)

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. Prerequisites: CSE 181; MAT 119 (or 210).

CIS 300 Computers in Business. (3)

selected semesters

Introduces information systems in business. Use of computers for business problem solving. Prerequisites: CIS 200; professional program business student.

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. 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. Prerequisite: professional program business student majoring in Computer Information Systems. Prerequisite with a grade of "C" (2.00) or higher: CIS 235.

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. 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 ASU East.

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. 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. 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. 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

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)
IBS 400	Cultural Factors in International Business <i>C, G*</i>3
	or MGT 494 ST: Cultural Factors in International Business (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 .....3
	or IBS 494 ST: International Management (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 15 hours of international 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, 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.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 91.

W. P. CAREY SCHOOL OF BUSINESS

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 ASU Main.

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.

B.I.S. CONCENTRATION

A concentration in international business studies is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies,](#)” page 123.

INTERNATIONAL BUSINESS STUDIES (IBS)

IBS 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. In addition, an ASU GPA of 2.50 or higher is a prerequisite for ECN 313 and 314.

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. 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 Note 1. Prerequisites: ECN 111, 112.

General Studies: SB, G

IBS 394 Special Topics. (1–4)

fall and spring

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, spring, summer

Cultural role in international business relations; applied principles of cross-cultural communications, negotiations, and management;

regional approaches to business relations. Prerequisites: IBS 300, 306 (or ECN 306); MGT 300 (or 320).

General Studies: C, G

IBS 484 International Business Internship. (3)

selected semesters

Academic credit for professional work organized through the internship/international program. 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

General Studies: L

IBS 494 Special Topics. (1–4)

fall and spring

Topics may include the following:

- International Management. (3)
Prerequisite: IBS 300 or MGT 300.
- Multinational Management. (3)
- Regional Business Environment of Southeast Asia. (3)

Credit is allowed for only IBS 494 ST: International Management or ST: Multinational Management or MGT 459.

IBS 499 Individualized Instruction of International Business. (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 Management

wpcarey.asu.edu/mgt

480/965-3431

BA 323

William H. Glick, Chair

Regents' Professor: Gomez-Mejia

Professors: Ashforth, Cardy, Glick, Hershauer, Hom, Kinicki, Roberson, Tsui

Associate Professors: Boyd, Hillman, Keats, Keller, Moorhead, Olivas, Van Hook

Assistant Professors: Blancero, Koka

Clinical Professor: Keim

Lecturers: Beer, Davila

The faculty in the ASU Department of Management is 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 faculty has distinguished itself through research and contributions to premier journals. The department ranks

12th internationally for its rate of publication in academic journals and ranks sixth internationally in premier journal articles that impact practice in operations and management science.

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—B.S.

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 communications skills and 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 both not-for-profit and 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 will recruit Management graduates for challenging trainee positions or entry-level management positions and immediately benefit from their preparation.

Program Requirements

The major in Management consists of the following courses:

MGT 320 Managing People in Organizations3
 MGT 410 Responsible Leadership3
 MGT 420 Performance Management3

MGT 450 Changing Business Processes *L*3
 MGT 460 Strategic Leadership *L*3
 Management electives*6
 Total21

* 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 Professions¹ *L*3
 COM 225 Public Speaking *L*3
 or COM 259 Communication in Business and the Professions² (3)
 IBS 300 Principles of International Business³ *G*3
 MGT 310 Collaborative Team Skills⁴3
 Total12

- ¹ ENG 301 is counted in the business core in place of BUS 301.
- ² COM 225 is recommended over COM 259. Either is counted in the school communication requirement.
- ³ IBS 300 is counted in the business core in place of the international business course.
- ⁴ 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 Accounting3
 IBS 400 Cultural Factors in International Business *C, G*3
 MGT 433 Management Decision Analysis.....3
 MGT 440 Small Business and Entrepreneurship.....3
 MGT 445 Business Plan Development.....3
 MGT 459 International Management3
 MGT 484 Management Internship3
 MGT 494 Special Topics3
 MKT 302 Fundamentals of Marketing Management *L*3

Undergraduate Internships in Management. The Department of Management strongly supports the concept of student internships, believing all students can benefit from the experience. Undergraduate internships in management provide an opportunity for students to gain on-the-job work experience related to their academic preparation and to increase their employment potential at graduation. For more information about the management internship program and the application process, access the department internship Web site at www.wpcarey.asu.edu/mgt/internships.cfm. Management majors may use a maximum of three semester hours of MGT 484 for the major. Any additional internship credits may be used for nonmanagement electives.

Certificates. The Department of Management also strongly supports certification in key areas that strengthen the Management degree and help to differentiate individual students for recruiters. The certificates allow students to gain particular analytical skills related to their education and to increase

L literacy and critical inquiry / *MA* mathematics / *CS* computer/statistics/quantitative applications / *HU* humanities and fine arts / *SB* social and behavioral sciences / *SG* natural science—general core courses / *SQ* natural science—quantitative / *C* cultural diversity in the United States / *G* global / *H* historical / See "General Studies," page 91.

W. P. CAREY SCHOOL OF BUSINESS

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 87, and “[School Degree Requirements](#),” page 168.

GRADUATE PROGRAMS

The Department of Management participates actively in several master’s and Ph.D. programs, particularly the technology M.B.A. and executive M.B.A. For a detailed description of these programs, see the *Graduate Catalog*.

The Department of Management has adopted a modular approach to Ph.D. 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 Ph.D. 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 Ph.D. program in Management can be found on the Web at wpcarey.asu.edu/mgt/degree/phd.

MANAGEMENT (MGT)

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. 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. 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. 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. Prerequisites: 2.00 ASU GPA; junior standing.

MGT 394 Special Topics. (3)

selected semesters

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. 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. Prerequisites: MGT 310, 320.

MGT 433 Management Decision Analysis. (3)

selected semesters

Decision-making concepts and methods in the private and public sectors and their application to organizational problems. Understanding of individual and group decision making. Prerequisites: only MGT 300 or both MGT 310 and 320.

MGT 440 Small Business and Entrepreneurship. (3)

fall and spring
Opportunities, risks, and problems associated with small business development and operation.

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. Prerequisite: MGT 440.

MGT 450 Changing Business Processes. (3)

once a year

Describes and analyzes business processes. Generates and evaluates alternatives. Creates improvement and implementation plans. 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. Credit is allowed for only MGT 459 or IBS 494 ST: International Management or ST: Multinational Management. Prerequisite: IBS 300.

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.

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, spring, summer

Internships are strongly recommended to improve employment potential. The Department of Management internship coordinator must approve all internships to receive credit.

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 at ASU Main and East. 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.

Department of Marketing

wpcarey.asu.edu/mkt

480/965-3621

BAC 460

Michael P. Mokwa, Chair

Professors: Bitner, Brown, Hutt, Jackson, Kumar, Lastovicka, Mokwa, Nowlis, L. Ostrom, Reingen, Walker, Ward

Associate Professors: Blasko, A. Ostrom, Sinha, Stephens

Assistant Professors: Hunter, 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—B.S.

The major in Marketing consists of 18 semester hours. The following courses must be included:

MKT 302 Fundamentals of Marketing Management <i>L</i>	3
MKT 304 Consumer Behavior	3
MKT 451 Marketing Research <i>L</i>	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 87, and “School Degree Requirements,” page 168.

GRADUATE PROGRAMS

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

MARKETING (MKT)

MKT 300 Principles of Marketing. (3)

fall, spring, summer

Role and process of marketing within the society, economy, and business organization. Prerequisite: ECN 112. Pre- or corequisite: SCM 300.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

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. 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. 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. 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. 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. Prerequisites: junior or senior standing; 2.00 ASU GPA.

MKT 394 Special Topics. (1–4)

fall

Not open to Marketing majors. 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. 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. 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. 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. 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. 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. Prerequisites: MKT 302 (or instructor approval); professional program business student.

MKT 451 Marketing Research. (3)

fall and spring

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

General Studies: L

MKT 460 Strategic Marketing. (3)

fall and spring

Policy formulation and decision making by the marketing executive. Integrates marketing programs and considers contemporary

marketing issues. Prerequisite: professional program business student. Prerequisites with a grade of "C" (2.00) or higher: MKT 302, 304, 451.

MKT 484 Internship. (3)

fall, spring, summer

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. 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.

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, Dooley, Ellram, Guntermann, Jennings, Kirkwood, Pearson, Smeltzer, V. Smith-Daniels

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

Assistant Professors: Barratt, Petersen, Rabinovich

Research Professor: Monczka

Senior Lecturer: Langdon

The faculty in the Department of Supply Chain Management offer courses in four separate areas: legal and ethical studies, management communication, real estate, 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.

Management Communication

The management communication faculty serve the W. P. Carey School of Business by teaching the B.S. core requirement BUS 301 Fundamentals of Management Communication.

SUPPLY CHAIN MANAGEMENT—B.S.

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 managing linkages between organizations.

The competitive and global nature of today’s business environment dictates that this direction and transformation take place in a way that is as efficient and effective as possible. Continuing emphases on time, cost, and quality improvements have sharpened the need to coordinate and cooperate with trading partners around the world to achieve results that allow customers to be successful. 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.....	3
SCM 440 Quality Management and Measurement	3
SCM 455 Research and Negotiation	3
SCM 479 Supply Chain Strategy	3
Total	18

REAL ESTATE—B.S.

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.

Beginning in fall 2005, Real Estate studies will be taught on only the ASU East campus. For more information, call 480/727-1055.

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 87, and “School Degree Requirements,” page 168.

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” (2.00) or higher: ENG 102.

General Studies: L

BUS 394 Special Topics. (1–4)

selected semesters

See current *Schedule of Classes* for offerings of courses at ASU East.

Topics may include the following:

- Professional Development

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

BUS 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

LEGAL AND ETHICAL STUDIES (LES)

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. Fee.

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. 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. 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.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "**Omnibus Courses,**" page 63.

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

REAL ESTATE (REA)

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. 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. 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. 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. 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. 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. 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.

SUPPLY CHAIN MANAGEMENT (SCM)

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. 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. 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. 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. Prerequisites: SCM 300; professional program business student majoring in Supply Chain Management.

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. 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. Prerequisites: SCM 300, 345; professional program business student majoring in Supply Chain Management. Pre- or corequisite: SCM 355.

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. 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. 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. 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. 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. Prerequisite: professional program business student majoring in Supply Chain Management. Prerequisites with a grade of "C" (2.00) or higher: SCM 345, 355, 432.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "**Omnibus Courses,**" page 63.

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

College of Education

coe.asu.edu

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

Division of Curriculum and Instruction	202
Division of Educational Leadership and Policy Studies	206
Division of Psychology in Education	207

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. Support experiences also come from the Division of Psychology in Education and the Division of Educational Leadership and Policy Studies. 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 192.

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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

COLLEGE OF EDUCATION

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, curriculum, and commercialism in schools. EPSL disseminates its analyses and reports to policy makers and educators and also concentrates on providing the public with readable accounts of research.

EPSL houses two research units—the Commercialism in Education Research Unit (CERU), which is the only national academic research center dedicated to schoolhouse commercialism; and the Education Policy Research Unit (EPRU), which conducts original research and facilitates implementation of educational innovations.

For more information, contact Alex Molnar, director and professor of Educational Leadership and Policy Studies, EDB L1-01, call 480/965-1886, or access the laboratory's Web site at asu.edu/educ/epsl.

Office of Professional Field Experiences. Part of the Office of Student Services, 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 (AEPA) exam.

For more information about services, or to schedule an appointment with an advisor, call 480/965-5555, or access the Web site at coe.asu.edu/oss.

Southwest Center for Education Equity and Language Diversity. 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 non-native 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) for certification, and a formal application must be submitted to the ITC program. For more information, see [“Initial Teacher Certification Professional Program Admission,”](#) page 191.

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/programs.php. For descriptions of graduate degree programs, see the *Graduate Catalog*. For more information, see the [“College of Education Graduate Degrees and Majors,”](#) page 200.

ADMISSION

Preprofessional Admission

All newly admitted students to the ASU College of Education are admitted as preprofessional education majors. Preprofessional students are advised by a team of academic advisors whose primary focus is on preparing students for admission into the Initial Teacher Certification (ITC) program during their junior year. Admission to ASU with preprofessional status in the College of Education does not guarantee admission to the ITC program. Admission to the ITC is a separate, competitive process. Preprofessional students are strongly encouraged to meet each semester with the preprofessional team of advisors to ensure proper progression through their chosen major. It is crucial that all applicants seeking application to the ITC program gain valuable experience with the population of students they intend to teach; the Office of Student Services can provide information on various opportunities to gain such experience. To schedule an appointment with a preprofessional advisor, call 480/965-5555.

Initial Teacher Certification Professional Program Admission

Undergraduate students are eligible for admission consideration into the Initial Teacher Certification (ITC) program if they meet the following criteria:

1. admission to ASU as a classified student. For students planning to begin the ITC program in spring semester, university admission materials should be submitted by May. For students planning to begin the ITC in fall semester, application materials must be submitted to university admissions by October. For more information on applying to ASU, access the Web site at www.asu.edu/admissions;
2. a minimum 2.50 cumulative GPA (ASU GPA and transfer GPA combined);
3. a minimum 2.50 cumulative ASU GPA by the time the student begins the ITC program;
4. completion of at least 56 semester hours by the time the student begins the ITC program;
5. completion of ENG 101 and 102, the Mathematics (MA) requirement, and the Literacy and Critical Inquiry (L) requirement or the Natural Science (SQ or SG) requirement, all with a grade of "C" (2.00) or higher, all of which must be completed by the time the student submits application materials;
6. demonstrated experience within the population the student plans to teach; and
7. formal application to the ITC must be made by February 1 for fall admission and 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 Office of Student Services (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. 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) postbaccalaureate program. 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 "[Application Materials Required](#)," 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 advisement 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, but 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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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. (Special education students must qualify for, and be concurrently admitted to, a master's degree program in special education. For more information, call 480/965-4602). 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 cumulative GPA of 2.50 or higher in the most recent 60 semester hours of college course work; 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 an Academic Specialization Form. Visit the Office of Student Services, EDB L1-13, for this form.

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.

FRESHMEN ADVISING

All new students are required to meet with an academic advisor before registering for their first semester. In order 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 students are notified of "Freshmen Priority 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 (B.A.E.) degree programs. See the "[College of Education Baccalaureate Degrees and Majors](#)" table, page 193, for more information on these degrees and their concentrations. Candidates for the B.A.E. 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 10 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 (EED) (K–8);
5. Integrated Certification in Teacher Education (INCITE) (secondary or elementary education—postbaccalaureate only);
6. Multilingual/Multicultural Education Program (MLMC) (K–8);
7. Secondary Education (SED) (7–12);
8. Special Education (SPE) (K–12); and
9. 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.

College of Education Baccalaureate Degrees and Majors

Major	Degree	Concentration ¹	Administered By
Early Childhood Education	B.A.E.	—	Division of Curriculum and Instruction
Elementary Education	B.A.E.	Optional: multilingual/multicultural education ¹	Division of Curriculum and Instruction
Secondary Education	B.A.E.	Academic specializations: biological sciences, business, chemistry, Chicana and Chicano studies, economics, English, family and human development, ² French, geography, German, history, Japanese, mathematics, physical education, physics, political science, social studies, or Spanish	Division of Curriculum and Instruction
Selected Studies in Education ²	B.A.E.	—	College of Education
Special Education	B.A.E.	—	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.

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 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 (ECD) (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 196.

Elementary Education Partnership Program. 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. Optional 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 196.

Integrated Certification in Teacher Education (INCITE). INCITE is a flexible program that prepares working adults for teaching. This school-based program offers both secondary education and elementary education options, including an optional middle school endorsement. 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. Some daytime

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

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field experience internship hours may be required. INCITE is designed for postbaccalaureate students only.

Multilingual/Multicultural (MLMC) 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 197.

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 18 academic specializations, and have the option of adding a middle school endorsement. In addition to these 18 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 and physical education majors receive a K–12 endorsement. Students with a major in Secondary Education have two academic advisors: one in the college and department of the academic specialization and one in the Office of Student Services in the College of Education. For course requirements, see “[Course Requirements](#),” page 198.

Special Education (SPE). The SPE program leads to the B.A.E. degree in Special Education and to certification in K–12 special education for children with learning disabilities, mild mental retardation, or emotional/behavioral disorders. This program provides preparation in each of the three disability areas; however, the student only qualifies for a teaching certificate in one area, which is determined by the area of student teaching placement. A school internship is required for each semester. For course requirements, see “[Course Requirements](#),” page 199.

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 87.

DEGREE REQUIREMENTS

A minimum of 120 semester hours is required for the Bachelor of Arts in Education (B.A.E.) degree. The B.A.E. 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 areas listed under “[Bachelor of Arts in Education](#),” page 192.

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 91. 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 87.

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 87.

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 below.

Academic Specializations

Academic Specialization	Page
Art education ¹	275
Biological sciences	405
Business	165
Chemistry	344
Chicana and Chicano Studies ²	348
Dance education ¹	288
Economics	351
English	354
Family and human development ³	360
French	387
Geography	363
German	387
History	371
Japanese	387
Mathematics	418
Music education ⁴	293
Physical education	379
Physics	428
Political science	434
Social studies	371
Spanish	387

¹ Art education and dance education concentrations are under corresponding B.F.A. majors.

² See a College of Education advisor.

³ Applications are not being accepted at this time.

⁴ Students focus on either the choral-general music or instrumental music concentration under the B.M. degree.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

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For approval to student teach, ITC students must

1. have attained a high level of professional standard 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;
4. not have an incomplete grade in any ITC course;
5. complete all ITC courses (with a “C” [2.00] or higher);
6. have all General Studies, College of Education, and academic specialization course work completed; and
7. have an approved Declaration of Graduation (undergraduates) or Program Agreement (postbaccalaureates) on file.

Students may be provisionally approved to start the paperwork for a student teaching placement if final course work and Fingerprint Clearance Card are 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—B.A.E.

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*

BLE 409 Methods in Language-Sensitive Content Teaching.....	3
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 <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</i> ...3	
Fine arts requirement	9
Total	33

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

ITC Program Courses*

(Any Semester in Program)	
BLE 335 Language Diversity in Classrooms	3

RDG 415 Teaching Phonics	3
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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	0
EDT 300 Computers in Education.....	1
SPF 401 Theory and Practice in Education	1
Total	11

Semester II

ECD 300 Principles of Interprofessional Collaboration	3
ECD 402 Integrated Curriculum and Assessment: Math and Science	3
ECD 496 Field Experience	0
SPE 394 ST: Quality Practices in the Collaborative Classroom...3	
Total	9

Semester III

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	0
Total	7

Semester IV

EED 478 Student Teaching in the Elementary School	10–15
ITC program course total	43–48

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

Elementary Education (Partnership Program)—B.A.E.

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. Optional 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

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</i>	3
Total		18

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

ITC Program Courses*

Semester I

BLE	409 Methods in Language-Sensitive Content Teaching	3
EED	433 Language Arts Methods, Management, and Assessment in the Elementary School	3
EED	496 Field Experience	0
EED	498 PS: Integrated Children’s Literature	1
RDG	415 Teaching Phonics	3
RDG	494 ST: Teaching Reading/Practicum Grades K–3	3
SPE	394 ST: Quality Practices in the Collaborative Classroom	1
SPF	401 Theory and Practice in Education	1
Total		15

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	0
EED	498 PS: Integrated Children’s Literature	1
RDG	494 ST: Teaching Reading/Practicum Grades 4–8	3
SPE	394 ST: Quality Practices in the Collaborative Classroom	1
Total		9

Semester III

EED	420 Science Methods, Management, and Assessment in the Elementary School	3
EED	444 Organizing the Classroom Culture	1
EED	480 Mathematics Methods, Management, and Assessment in the Elementary School	3
EED	496 Field Experience	0
SPE	394 ST: Quality Practices in the Collaborative Classroom	1
SPF	301 Culture and Schooling <i>L</i>	3
Total		11

Semester IV

EED	478 Student Teaching in the Elementary School	10–15
ITC program course total		45–50

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

Elementary Education (Apprentice Teacher Program)—B.A.E.

Offered jointly with the local school districts, the Apprentice Teacher Program (ATP) is a concentrated, full-time, daytime certification program option that is completed in one calendar year, with all course work based in the participating schools. This full-immersion program begins each January and leads to K–8 teacher certification.

Course Requirements. The Initial Teacher Certification (ITC) program is completed in one calendar year, spring admission only. All course work (General Studies and College of Education requirements) not included in the ATP program, must be completed before beginning the program.

Additionally, undergraduate students must complete 73 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</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

DCI	498 PS: Field Experience	2
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
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	498 PS: Field Experience	3
SPE	394 ST: Quality Practices in the Collaborative Classroom	3
Total		16

Semester III: Fall

EED	478 Student Teaching in the Elementary School	12
ITC program course total		47

* A minimum grade of “C” (2.00) is required in all 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 91.

Elementary Education (Multilingual/Multicultural Education Concentration)—B.A.E.

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	0–7

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)	
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</i> ...	3

Fine arts requirements.....	9
Language proficiency ²	0–6
Total	27–33

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

RDG 415 Teaching Phonics	3
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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	0
EDT 300 Computers in Education.....	1
SPF 301 Culture and Schooling <i>L</i>	3
SPF 401 Theory and Practice in Education	1
Total	11

Semester II

BLE 409 Methods in Language-Sensitive Content Teaching.....	3
BLE 420 Science Methods, Management, and Assessment in BLE/ESL Settings	3
BLE 480 Mathematics Methods, Management, and Assessment in Elementary BLE/ESL Settings	3
BLE 496 Field Experience	0
MCE 447 Diversity in Families and Communities in Multicultural Settings.....	3
Total	12

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	0
SPE 394 ST: Quality Practices in the Collaborative Classroom...	3
Total	12

Semester IV

BLE 478 Student Teaching in the Elementary School	10–15
ITC program course total	48–53

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

Secondary Education—B.A.E.

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 195.

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. Physical Education and 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 <i>SB</i> ...	3
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Academic Specialization¹

Academic specialization ²	30–60
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ITC Program Courses¹

EDP 303 Human Development <i>L</i>	3
or EDP 313 Childhood and Adolescence ³ (3)	
EDP 310 Educational Psychology <i>SB</i>	3
EDT 300 Computers in Education.....	1
RDG 301 Literacy and Instruction in the Content Area.....	3
SED 403 Middle and Secondary School Principles, Curricula, and Methods ⁴	3
SED 478 Student Teaching in Secondary Schools.....	10–12
SED 496 Field Experience.....	0
SED 496 Field Experience.....	0
SED 496 Field Experience.....	0
SPE 394 ST: Inclusion Practices at the Secondary Level.....	3
SPF 301 Culture and Schooling <i>L</i>	3
SPF 401 Theory and Practice in Education.....	1
Methods in Academic Specialization I ⁴	3
Methods in Academic Specialization II ⁴	3
ITC program course total.....	36–38

- 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—B.A.E.

Course Requirements. Many courses are held at local elementary schools during the regular school day. Field Experience requires a minimum commitment of six hours a week during the regular school day. Field-based courses are taken in semester blocks in sequential order. Program courses and requirements are subject to change depending on the ITC admission date.

Required

ENG 101 First-Year Composition.....	3
ENG 102 First-Year Composition.....	3
General Studies.....	35–37
Total	41–43
Electives.....	7–17

College of Education Requirements¹

MTE 180 Theory of Elementary Mathematics.....	3
MTE 181 Theory of Elementary Mathematics.....	3
Fine Arts requirement	9
Total	15

ITC Program Courses¹

Semester I

SPE 309 Basic Special Education Curriculum ²	3
SPE 311 Orientation to Education of Exceptional Children ² <i>SB</i>	3
SPE 314 Introduction to Bilingual/Multicultural Special Education	3
SPE 361 Introduction to Learning Disabilities.....	3
SPE 496 Field Experience	0
SPF 301 Culture and Schooling <i>L</i>	3
Total	15

Semester II

EDT 300 Computers in Education.....	1
SPE 312 Mental Retardation.....	3
SPE 336 Behavioral and Emotional Problems in Children	3
SPE 412 Evaluating Exceptional Children	3
SPE 413 Methods in Language, Reading, and Arithmetic for Exceptional Children	3
SPE 496 Field Experience	0
Total	13

Semester III

SPE 411 Parent Involvement and Regulatory Issues.....	3
SPE 414 Methods and Strategies in Behavior Management	3
SPE 415 Social Behavioral Problems of Exceptional Children ...	3
SPE 494 ST: Instruction in Content Areas: Science/Social Studies.....	3
SPE 496 Field Experience (7.5 hours/week).....	0
Total	12

Semester IV

SPE 478 Student Teaching in Special Education.....	10–15
ITC program course total.....	50–55

- ¹ A minimum grade of “C” (2.00) is required in all courses.
- ² This course may be taken before being admitted to the ITC.

Selected Studies in Education—B.A.E.

Applications are not being accepted for the major in Selected Studies in Education at this time.

ASU EXTENDED CAMPUS

The College of Extended Education was created in 1990 to extend the resources of ASU throughout Maricopa County, the state, and beyond. The College of Extended Education is a university-wide college that oversees the ASU Extended Campus and forms partnerships with other ASU colleges, including the College of Education, to meet the instructional and informational needs of a diverse community.

The ASU Extended Campus goes beyond the boundaries of the university’s physical campuses to provide access to

L literacy and critical inquiry / *MA* mathematics / *CS* computer/statistics/ quantitative applications / *HU* humanities and fine arts / *SB* social and behavioral sciences / *SG* natural science—general core courses / *SQ* natural science—quantitative / *C* cultural diversity in the United States / *G* global / *H* historical / See “General Studies,” page 91.

COLLEGE OF EDUCATION

College of Education Graduate Degrees and Majors

Major	Degree	Concentration ¹	Administered By
Counseling	M.C.	—	Division of Psychology in Education
Counseling Psychology	Ph.D.	—	Division of Psychology in Education
Counselor Education	M.Ed.	—	Division of Psychology in Education
Curriculum and Instruction	M.A.	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
	M.Ed.	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
	Ed.D.	Bilingual education, curriculum studies, early childhood education, elementary education, ² English as a second language, Indian education, language and literacy, mathematics education, science education, secondary education, ² or social studies education	Division of Curriculum and Instruction
	Ph.D. ³	Art education, ⁴ curriculum studies, early childhood education, elementary education, English education, exercise and wellness education, ⁵ language and literacy, mathematics education, physical education, science education, or special education	Interdisciplinary Committee on Curriculum and Instruction
Educational Administration and Supervision	M.Ed., Ed.D.	—	Division of Educational Leadership and Policy Studies
Educational Leadership and Policy Studies	Ph.D.	—	Division of Educational Leadership and Policy Studies
Educational Psychology	M.A., M.Ed.	—	Division of Psychology in Education
	Ph.D.	Learning; lifespan developmental psychology; measurement, statistics, and methodological studies; or school psychology	Division of Psychology in Education
Educational Technology	M.Ed., Ph.D.	—	Division of Psychology in Education
Higher and Postsecondary Education	M.Ed., Ed.D.	Optional: higher education ¹	Division of Educational Leadership and Policy Studies
Social and Philosophical Foundations of Education	M.A.	—	Division of Educational Leadership and Policy Studies
Special Education	M.A.	—	Division of Curriculum and Instruction
	M.Ed.	Gifted, mildly disabled, multicultural exceptional, or severely/multiply disabled	Division of Curriculum and Instruction

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

² Applications are not being accepted at this time.

³ Program is administered in collaboration with the Graduate College.

⁴ This concentration is administered in collaboration with the Katherine K. Herberger College of Fine Arts.

⁵ Doctoral courses for this interdisciplinary program administered by ASU Main are offered at ASU East.

quality academic credit and degree programs for working adults through flexible schedules; a vast network of off-campus sites; classes scheduled days, evenings, and weekends; and innovative delivery technologies including television, the Internet, and Independent Learning. The Extended Campus also offers a variety of professional continuing education and community outreach programs.

For more information, see “[ASU Extended Campus](#),” page 689, or access the Web site at www.asu.edu/xed.

ACADEMIC STANDARDS

Professional Program Status

Students admitted to the ITC program within the College of Education must maintain academic standards and demonstrate requisite qualifications for successful teaching, including sound physical and mental health, interpersonal skills, basic communication skills, a positive attitude, appropriate professional conduct, and satisfactory performance in field experiences. Because ITC standards are higher than those for the university, a student who is suspended from the ITC program may still be eligible to enroll in other non-ITC courses.

A copy of the Retention and Disqualification 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 Division of Curriculum and Instruction Standards and Appeals Committee and the dean of the College of Education.

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.

B.I.S. CONCENTRATION

A concentration in education is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

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 200, and the *Graduate Catalog*.

COLLEGE OF EDUCATION (COE)

COE 501 Introduction to Research and Evaluation in Education. (3)

fall, spring, summer

Overview of educational inquiry from controlled, quantitative to qualitative, naturalistic. Emphasizes locating and critically interpreting published research.

COE 502 Introduction to Data Analysis. (3)

fall, spring, summer

Descriptive statistics, visual approaches, estimation, and inferential methods for univariate and bivariate educational research problems. Experience using statistical software. Cross-listed as EDP 502. Credit is allowed for only COE 502 or EDP 502.

COE 503 Introduction to Qualitative Research. (3)

fall, spring, summer

Terminology, historical development, approaches (including ethnography, ethnomethodology, critical theory, grounded theory, and hermeneutics), and qualitative versus quantitative social sciences; methods

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

COLLEGE OF EDUCATION

of inquiry. Cross-listed as EDP 503. Credit is allowed for only COE 503 or EDP 503.

COE 504 Learning and Instruction. (3)

fall, spring, summer

Introduces psychology of learning and instruction. Includes the foundations of learning theories and their application to educational practice. Cross-listed as EDP 504. Credit is allowed for only COE 504 or EDP 504.

COE 505 American Education System. (3)

fall, spring, summer

Political, social, historical, and philosophical analyses of American education at all levels. Examines primary sources, legal findings, and case studies.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see “[Omnibus Courses](#),” page 63.

Division of Curriculum and Instruction

coe.asu.edu/programs

480/965-1644

ED 426

Thomas E. Barone, Interim Director

Professors: Appleton, Baker, Barone, Bitter, 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, McCoy, Middleton, Rader, Smith, Vallejo

Assistant Professors: Baek, Clark, Fischman, Lamorey, MacSwan, Manuelito, Martinez-Roldan, Rolstad, Young

Clinical Associate Professors: P. Garcia, Mathur

Clinical Assistant Professor: Christine

Lecturers: Atkinson, Burstein, Cocchiarella, Devitt, Harrison, Kastre, Kortman, Maderazo, Roanhorse-Dineyazhe, Rutowski, Soroka, Spanias, Stahlman, Wellner

Academic Professional Senior: Enz

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 for Arizona Mathematics and Science (TEAMS) (for postbaccalaureate students only)

Degrees: B.A.E., M.A., M.Ed., Ed.D., Ph.D.

Bachelor of Arts in Education—B.A.E.

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 in the mentally disabled, emotionally disabled, and learning disabilities. 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 200, 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 B.I.S. student.

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 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)

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.

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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

COLLEGE OF EDUCATION

ECD 405 Practicum in Teaching Reading and Language Arts in Early Childhood. (2)

fall and spring

Supervised experience teaching reading and language arts at the preschool, kindergarten, and primary-grade (1–3) levels. Developmentally appropriate strategies to promote young children's speaking, listening, reading, and writing abilities. Prerequisite: ITC admission.

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 496 Field Experience. (0)

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)

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 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 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.

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 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 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.

RDG 415 Teaching Phonics. (3)

fall, spring, summer

Provides training in research-based systematic phonics instruction as specified in HB2130 with the study of related research. 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.

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.

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)

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

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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

COLLEGE OF EDUCATION

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 students with special needs in middle and secondary levels. Lecture, group activities, field experience. Prerequisites: SPE 311; 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)

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 within their majors. Fee.

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/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, Fenske, González, Hanson, Molnar, Norton, Tobin, Turner, Valverde, Webb, Wiley

Associate Professors: Danzig, Hunnicutt, Margolis, Rund, Wilkinson

Assistant Professors: Begaye, 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: M.A., M.Ed., Ed.D., Ph.D.

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 200, 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.

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.

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: Barona, Bernstein, Bitter, Blanchard, Claiborn, Green, Hackett, Horan, Kerr, Kinnier, Klein, Krus, Moore, Robinson Kurpius, Santos de Barona, Strom, Sullivan, Tracey

Associate Professors: Abreu, Arciniega, Arredondo, Brown, Hood, Nakagawa, Savenye, Wodrich

Assistant Professors: Arzubigiaga, Atkinson, Brem, Gorin, Husman, Ladd, Mann, Rayle, Thompson

Clinical Associate Professor: Homer

Clinical Assistant Professors: Glidden-Tracey, Igoe, Stamm

Program Areas

- Counseling
- Counseling Psychology
- Counselor Education
- Educational Psychology
- Learning
- Lifespan Developmental Psychology
- Measurement, Statistics, and Methodological Studies

Named after Hiram Bradford Farmer, the first principal of what is now ASU, Farmer Education Building houses classrooms, offices, and a child care center.

Tim Trumble photo

School Psychology
Educational Technology

Degrees: M.A., M.C., M.Ed., Ph.D.

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 200, 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

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 91.

COLLEGE OF EDUCATION

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 a specific interest or topic.

Topics designed to engage students in intellectual dialogue on one of the themes of leadership, diversity, and service/civic responsibility. Pass/fail elective; taught in the classroom of McClintock Residence Hall. Open to freshmen through senior undergraduates; all majors welcome.

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. Prerequisites: CDE 232 (or its equivalent); education major.

General Studies: L

EDP 310 Educational Psychology. (1–6)

fall, spring, summer

Presents human behavior in educational situations through instructional modules. May be repeated for credit for total of 6 hours.

General Studies: SB

EDP 313 Childhood and Adolescence. (3)

fall, spring, summer

Principles underlying total development of pre- and early-adolescent children. Emphasizes physical, intellectual, social, and emotional development with practical implications for teachers grades 5–9. Prerequisite: EDP 303 or 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, Ph.D., Dean

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PURPOSE

The purpose of the Ira A. Fulton School of Engineering is to provide students with a range of educational opportunities by which they may achieve competence in the major branches of engineering, in computer science, and construction. Considerable effort is spent on the development and delivery of well-rounded programs that enhance student preparation for professional careers, entrepreneurship, lifelong learning, and responsible participation as a member of society.

For more information, access the school's Web site at www.fulton.asu.edu.

ORGANIZATION

The Fulton School of Engineering is composed of the following 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 educa-

tional role. The school encourages the participation of qualified undergraduate students and graduate students in various research activities. Most of the faculty are involved in government or industry-sponsored research programs in a wide variety of topics. A partial list of these topics includes aerodynamics, biotechnology, computer design, computer-integrated manufacturing, environmental fluid dynamics, innovative engineering education, microelectronics manufacturing, power systems, semiconductor materials and devices, signal processing, solar energy, solid-state electronic devices, structural dynamics, telecommunications, thermosciences, and transportation systems. This research is carried out in the academic units listed under "Organization," on this page, and in the following interdisciplinary research institutes and centers:

- Arizona BioDesign Institute
- Center for Low Power Electronics
- Center for Research on Education in Science, Mathematics, Engineering, and Technology
- Center for Solid State Electronics Research
- Institute for Computing and Information Science and Engineering
- Institute for Manufacturing Enterprise Systems
- Institute for Studies in the Arts

Center for Professional Development. As a service unit of the Ira A. Fulton School of Engineering, the Center for Professional Development (CPD) offers engineering and technical professionals the skills and knowledge necessary to master new methods, lead projects and teams, and to advance professionally. By leveraging the nationally renowned faculty in the Fulton School of Engineering and affiliate experts, CPD offers online master's degree programs. The programs allow students with complex schedules to complete graduate degrees from remote locations. They complete the same requirements and receive the same degree that students do on campus. CPD also administers short courses and conferences, professional certification programs, and customized programs at company sites. For more information, call 480/965-1740, or access the center's Web site at www.asuengineeringonline.com.

ADMISSION

Individuals wishing to be admitted to freshman standing in the Fulton School of Engineering should have completed certain secondary-school units. These units are identified in

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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.

the text that follows. If these conditions are not met, additional university course work, possibly unacceptable for degree credit, may be required.

Entrance requirements of this school may differ from those of other ASU academic units. Students may be admitted under one of two different classifications, professional or preprofessional.

Professional Status. For admission to professional status, Arizona residents and nonresidents must meet one of the requirements as listed in the appropriate section of the “[Professional Status Requirements](#)” table, on this page. 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 (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.

For Computer Science and Computer Systems Engineering professional status requirements, see “[Admission Requirements](#),” page 242.

Preprofessional Status. In the Fulton School of Engineering, there are two versions of *preprofessional status*. One applies to a school-level preprofessional status; the conditions associated with the school of engineering preprofessional status are described in the following material. The second version is of concern only to students interested in pursuing majors within the Department of Computer Science and Engineering (CSE); for descriptive material on the CSE preprofessional status, see “[Department of Computer Science and Engineering](#),” page 242, or access the CSE Web site at cse.asu.edu.

A student not admissible to professional status within the school but otherwise regularly admissible to ASU as stated in “[Undergraduate Admission](#),” page 65, may be admitted as a *preprofessional* student to any one of the academic programs of the school. A student admitted into this classification follows the freshman-sophomore sequence of courses as required by the chosen major. Courses are selected with the assistance of an academic advisor. After completing a minimum of 30 semester hours of required or approved elective courses *with a cumulative GPA equivalent to that*

required of transfer students and corresponding to the chosen major, students may apply for admission to professional status. Preprofessional students are not permitted to register for 300- and 400-level courses in this school until the student’s status is changed to professional.

Readmission. Students applying for readmission to professional status for any program in this school must have a cumulative GPA for all college course work equal to that of the transfer admission requirements shown in the “[Professional Status Requirements](#)” table, on this page.

Transfer into and Within the School. Students transferring between academic programs within the school or from other colleges or schools within the university must meet both the cumulative GPA requirement and the catalog requirements of the desired program in effect at the time of transfer. Students who are transferring from an Arizona community college and who have been in continuous attendance may continue under the catalog in effect at the time of their entrance into the community college. See “[Guidelines for Determination of Catalog Year](#),” page 87.

Transfer Students. A student who contemplates transferring into this school from another institution, whether a community college or four-year institution, should carefully study the catalog material pertaining to the particular program and consult an advisor in this school before enrolling in the other institution. These steps assure a smooth transition at the time of transfer. Transfer students may request admission to either preprofessional or professional status in any of the programs offered by this school.

The minimum requirements for admission of resident, nonresident, and transfer students to the professional program are shown in the “[Professional Status Requirements](#)” table, on this page. The academic units may impose additional admission and graduation requirements beyond the minimum specified by the school.

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

Ira A. Fulton School of Engineering Baccalaureate Degrees and Majors

Major	Degree	Concentration ¹	Administered By
Aerospace Engineering ²	B.S.E.	—	Department of Mechanical and Aerospace Engineering
Bioengineering ²	B.S.E.	—	Harrington Department of Bioengineering
Chemical Engineering ²	B.S.E.	—	Department of Chemical and Materials Engineering
Civil Engineering ²	B.S.E.	Construction engineering or environmental engineering	Department of Civil and Environmental Engineering
Computer Science ²	B.S.	Optional: software engineering ¹	Department of Computer Science and Engineering
Computer Systems Engineering ²	B.S.E.	—	Department of Computer Science and Engineering
Construction ²	B.S.	General building construction, heavy construction, residential construction, or specialty construction	Del E. Webb School of Construction
Electrical Engineering ²	B.S.E.	—	Department of Electrical Engineering
Engineering Interdisciplinary Studies ³	B.S.	—	Ira A. Fulton School of Engineering
Engineering Special Studies ²	B.S.E.	Optional: premedical engineering ¹	Ira A. Fulton School of Engineering and the Harrington Department of Bioengineering
Industrial Engineering ²	B.S.E.	—	Department of Industrial Engineering
Materials Science and Engineering ²	B.S.E.	—	Department of Chemical and Materials Engineering
Mechanical Engineering ²	B.S.E.	—	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.

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.

ADVISING

For assistance and counseling in planning a program of study, each student in this school is assigned a faculty advisor who is familiar with the chosen field of specialization and who must be consulted before registering each semester. The student should inform the advisor of any outside work or activity so that course loads may be adjusted accordingly.

Most students attending college find it necessary to obtain part-time employment; consequently, it is suggested that a careful balance of work and class requirements be considered to avoid academic problems.

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.

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 director of Student Academic Services. For more information, see “Admission of Undergraduate Nondegree Applicants,” page 71.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

IRA A. FULTON SCHOOL OF ENGINEERING

Ira A. Fulton School of Engineering Graduate Degrees and Majors

Major	Degree	Concentration ¹	Administered By
Aerospace Engineering	M.S., M.S.E., Ph.D.	—	Department of Mechanical and Aerospace Engineering
Bioengineering	M.S., Ph.D.	—	Harrington Department of Bioengineering
Chemical Engineering	M.S., M.S.E., Ph.D.	—	Department of Chemical and Materials Engineering
Civil Engineering	M.S., M.S.E., Ph.D.	—	Department of Civil and Environmental Engineering
Computer Science	M.C.S.	—	Department of Computer Science and Engineering
	M.S., Ph.D.	Optional: arts, media, and engineering ¹	Department of Computer Science and Engineering
Construction	M.S.	Construction science, facilities, or management	Del E. Webb School of Construction
Electrical Engineering	M.S., Ph.D.	Optional: arts, media, and engineering ¹	Department of Electrical Engineering
	M.S.E.	—	Department of Electrical Engineering
Engineering	M.Eng.	—	Ira A. Fulton School of Engineering
Engineering Science	M.S., Ph.D.	—	Ira A. Fulton School of Engineering
	M.S.E.	Optional: executive embedded systems ¹	Ira A. Fulton School of Engineering
Industrial Engineering	M.S., M.S.E., Ph.D.	—	Department of Industrial Engineering
Materials Engineering	M.S., M.S.E.	—	Department of Chemical and Materials Engineering
Materials Science	M.S. ²	—	Committee on the Science and Engineering of Materials
Mechanical Engineering	M.S., M.S.E., Ph.D.	—	Department of Mechanical and Aerospace Engineering
Science and Engineering of Materials	Ph.D. 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 Graduate College.

UNDERGRADUATE DEGREES

The faculty in the Fulton School of Engineering offer programs leading to the B.S. and B.S.E. degrees with majors in the subjects shown in the “[Ira A. Fulton School of Engineering Baccalaureate Degrees and Majors](#)” table, page 211. Each major is administered by the academic unit indicated.

Integrated B.S.E.-M.S. Program. To provide greater program flexibility, qualified engineering students may undertake a program with an integrated fourth- and fifth-year sequence of study in one of several fields of specialization in engineering. This program provides an opportunity to meet the increasing demands of the profession for graduates who can begin their engineering careers at an advanced level.

Students admitted to this program are assigned a faculty committee that supervises a program of study in which there is a progression in the course work and in which earlier work is given application in the later engineering courses for both the bachelor’s and master’s degrees.

Entry into the integrated program requires an application submitted to the dean through the faculty advisor and the department chair. Applications are reviewed by a school committee that recommends the appropriate action to the dean. The application may be submitted in the fifth semester.

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, on this page. Engineering faculty participate in offering the Master of Engineering (M.Eng.) as a collaborative degree program offered by Arizona’s three state universities. For more information, see the *Graduate Catalog*.

ASU EXTENDED CAMPUS

The College of Extended Education was created in 1990 to extend the resources of ASU throughout Maricopa County, the state, and beyond. The College of Extended Education is a university-wide college that oversees the

ASU Extended Campus and forms partnerships with other ASU colleges, including the Fulton School of Engineering, to meet the instructional and informational needs of a diverse community.

The ASU Extended Campus goes beyond the boundaries of the university's physical campuses to provide access to quality academic credit and degree programs for working adults through flexible schedules; a vast network of off-campus sites; classes scheduled days, evenings, and weekends; and innovative delivery technologies including television, the Internet, and Independent Learning. The Extended Campus also offers a variety of professional continuing education and community outreach programs.

For more information, see "ASU Extended Campus," page 689, or access the Web site at www.asu.edu/xed.

UNDERGRADUATE DEGREE REQUIREMENTS

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.

UNIVERSITY GRADUATION REQUIREMENTS

In addition to department and school requirements, students must meet all university graduation requirements (see "University Graduation Requirements," page 87). 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 87. 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.

DEGREE REQUIREMENTS

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 school's Student Academic Services. 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 consult them for details.

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.

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.

ACADEMIC STANDARDS

Probation. A student is expected to make satisfactory progress toward completion of degree requirements to continue enrollment in the school. Any one of the following conditions is considered unsatisfactory progress and results in the student being placed on probationary status:

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 less than 2.00.

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 Student 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 91.

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Services. Special permits are not given until grades are recorded by the registrar for the current semester.

Disqualification. During a semester on academic probation, a student who fails to meet the retention standards specified above is disqualified. Students may request a review of their disqualification status by contacting the director of Student Academic Services. Any disqualified student who is accepted by another college or school at ASU may not register for courses in this school unless the courses are required for the new major. Disqualified students who do register for courses in this school may be withdrawn from these courses any time during that semester. Furthermore, students at the university who have been disqualified academically by this school are not eligible to enroll in summer session courses in this school until the disqualification period has expired and they have been reinstated.

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.

Student Academic Services. The Ira A. Fulton School of Engineering maintains a unit to assist individual students in various matters. This office coordinates the work of the Academic Standards Committee; administers the probation, disqualification, and readmission processes, student disciplinary actions, and grade grievances; and reviews and processes requests for medical and compassionate withdrawal. This office also administers the school's scholarship program. Additional information is available at www.fulton.asu.edu/sas.

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 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, the director of Student Academic Services, or the dean of the college. In such cases, students will not receive monetary reimbursement. However, such withdrawal is considered to be unrestricted as described under "**Withdrawals,**" page 81, and does not count against the number of restricted withdrawals allowed.

SPECIAL OPPORTUNITIES

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 Student Academic Services, 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 128.

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 Student Academic Services or the various department or school offices. Other scholarships may be available through the university Student Financial Assistance Office. For application and more information, access the Web site at www.fulton.asu.edu/sas.

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 Depart-

ment 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, Ernzen, Kashiwagi, Sawhney, Weber, Wiesel

Assistant Professors: Fiori, Knutson, Martin

Visiting Eminent Scholar: 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 management and 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—B.S.

The faculty in the Del E. Webb School of Construction offer the B.S. degree in Construction. Four concentrations are available: general building construction, heavy construction, residential construction, and specialty construction.

Each concentration is arranged to accent requisite technical skills and to develop management, leadership, and competitive qualities in the student. Prescribed are a combination of General Studies courses, technical courses basic to engineering and construction, and courses on a broad range of applied management subjects fundamental to the business of construction contracting.

Construction—M.S.

The faculty in the school also offer the M.S. 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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

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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 65; “Admission,” page 209; and “Degree Requirements,” page 213. 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 Requirements,” page 87) 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 91, and all university graduation requirements as noted in “University Graduation Requirements,” page 87. 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	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 total ³	36

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	0
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 <i>CS</i>	3
CON 424 Structural Design	3
CON 450 Soil Mechanics in Construction	3
CON 453 Construction Labor Management	3
CON 455 Construction Project Management.....	3
CON 463 Foundations.....	3
CON 495 Construction Planning and Scheduling <i>CS</i>	3
ECE 100 Introduction to Engineering Design <i>CS</i>	3
LES 305 Legal, Ethical, and Regulatory Issues in Business.....	3
or LES 306 Business Law (3) (ASU West)	
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 <i>HU, G, H</i>	3
ECN 111 Macroeconomic Principles <i>SB</i>	3
ENG 101 First-Year Composition	3
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
PHY 111 General Physics <i>SQ</i> ¹	3
PHY 113 General Physics Laboratory <i>SQ</i> ¹	1
Total	17

Second Semester

ECE 100 Introduction to Engineering Design <i>CS</i>	3
ECN 112 Microeconomic Principles <i>SB</i>	3
ENG 102 First-Year Composition	3
PHY 112 General Physics <i>SQ</i> ²	3
PHY 114 General Physics Laboratory <i>SQ</i> 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 <i>CS</i>	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 <i>L</i>	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 <i>L</i>	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 technical 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, bridges, canals, sewerage and water works, and mass earth-work.

Requirements

CON 484 Managerial Internship	3
CON 486 Heavy Construction Estimating	3
Upper-division business electives	6
Upper-division technical elective	3
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
CON 484 Internship	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)	
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 business electives	6
Total	15

L literacy and critical inquiry / *MA* mathematics / *CS* computer/statistics/quantitative applications / *HU* humanities and fine arts / *SB* social and behavioral sciences / *SG* natural science—general core courses / *SQ* natural science—quantitative / *C* cultural diversity in the United States / *G* global / *H* historical / See "General Studies," page 91.

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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, connections, and moment distribution. 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." Lecture, lab. Fee.

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. (0)

summer

Participation as interns on construction projects to observe and experience the daily activities. Internship.

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 Soil Mechanics in Construction. (3)

fall and spring

Soil mechanics as applied to the construction field, including foundations, highways, retaining walls, and slope stability. Relationship between soil characteristics and geologic formations. Not open to engineering students. Lecture, lab. Fee. Prerequisite: CON 223.

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. Lecture, lab. Fee. Prerequisites: CON 371; ECN 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 463 Foundations. (3)

spring

Subsurface construction theory and practice for description, excavations, exploration, foundations, pavements, and slopes. Evaluation of specifications and plans of work. Lecture, recitation, field trips. Prerequisite: CON 450.

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. (3)
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

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.

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 program is designed to develop a balance between science and engineering and an understanding of the economic and social consequences of engineering activity. The goals 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 wish to have one or two years of training in mathematics, applied science, and engineering in preparation for some other technical career;

4. those who desire preengineering for the purpose of deciding which program to undertake or those who desire to transfer to another college or university; and
5. 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 65; "Admission," page 209; "Degree Requirements," page 213; and "Academic Standards," page 213.

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 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 (B.S.E.) degree consists of three parts:

1. university requirements (e.g., General Studies, First-Year Composition);
2. an engineering core; and
3. a major.

The B.S. 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 91). There 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 91.

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also requirements for historical awareness, global awareness, and cultural diversity in the United States. ABET imposes additional requirements, particularly in mathematics and 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 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 may vary 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, on this page, 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 Microeconomic 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 87), and the literacy and critical inquiry component (see "Five Core Areas," page 91) 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 B.S. and B.S.E. degrees follow.

First-Year Composition

Choose among the course combinations below

- 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)

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 Sciences¹

ECN 111 Macroeconomic Principles <i>SB</i>	3
or ECN 112 Macroeconomic 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.....	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>SQ²</i>	3
PHY 122 University Physics Laboratory I <i>SQ²</i>	1
PHY 131 University Physics II: Electricity and Magnetism <i>SQ³</i>	3
PHY 132 University Physics Laboratory II <i>SQ³</i>	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 fulfill 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

L literacy and critical inquiry / *MA* mathematics / *CS* computer/statistics/quantitative applications / *HU* humanities and fine arts / *SB* social and behavioral sciences / *SG* natural science—general core courses / *SQ* natural science—quantitative / *C* cultural diversity in the United States / *G* global / *H* historical / See “General Studies,” page 91.

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ECE 340	Thermodynamics.....	3
	or CHE 342 Applied Chemical Thermodynamics (4)	
	or MSE 430 Thermodynamics of Materials (3)	
ECE 350	Structure and Properties of Materials	3
	or ECE 351 Civil Engineering Materials (3)	
	or 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 CS (2)	
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 CS (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 B.S. 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, spring, summer

Fundamental network theorems for dc and ac analysis. Utilization of SPICE. Design and measurement of linear analog electrical systems. Lecture, lab. Fee. Prerequisite: ECE 100 or 200. Pre- or corequisites: 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, spring, summer

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.

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.

**Harrington Department of
Bioengineering**

www.fulton.asu.edu/~bme

480/965-3028

ECG 334

Eric J. Guilbeau, Chair

Olin Endowed Professor: Guilbeau

Professors: He, Towe

Associate Professors: Abbas, Garcia, Iasemidis, Joshi, Jung, Massia, Pizziconi, Sweeney

Assistant Professors: Caplan, Muthuswamy, Panitch, Vernon

Affiliated Faculty: Kim, Kozicki, Macia, Santello

Research Professors: Brophy, Herman, Khairallah, Yamaguchi

Research Associate Professor: Singh

Research Assistant Professors: Helms Tillery, Shimansky

Senior Research Professional: Brandon

Research Scientists: Coursen, Ehteshami, Pauken

The faculty in the Harrington Department of Bioengineering offer the B.S.E. 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 264.

BIOENGINEERING—B.S.E.

Bioengineering (synonyms: biomedical engineering, medical engineering) is the discipline of engineering that applies principles and methods from engineering, the physical sciences, the life sciences, and the medical sciences to understand, define, and solve problems in medicine, physiology, and biology. The mission of the bioengineering program at ASU is to educate students to use engineering and scientific principles and methods to develop instrumentation, materials, diagnostic and therapeutic devices, artificial organs, or other equipment and technologies needed in medicine and biology and to discover new fundamental princi-

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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ples 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 students with 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 B.S.E. 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 87.

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)

Total6

General Studies/School Requirements

Humanities and Fine Arts/Social and Behavioral Sciences

ECN 111 Macroeconomic Principles *SB*3

or ECN 112 Macroeconomic Principles *SB* (3)

HU/SB and awareness area courses12

Total15

Literacy and Critical Inquiry

BME 413 Biomedical Instrumentation *L*3

BME 423 Biomedical Instrumentation Laboratory *L*1

ECE 300 Intermediate Engineering Design *L*3

Total7

Natural Sciences/Basic Sciences

CHM 113 General Chemistry *SQ*4

CHM 116 General Chemistry *SQ*4

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

Total16

Mathematical Studies

ECE 100 Introduction to Engineering Design *CS*3

ECE 384 Numerical Methods for Engineers4

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

Total22

General Studies/school requirements total60

Engineering Core

ECE 201 Electrical Networks I4

ECE 214 Engineering Mechanics4

ECE 334 Electronic Circuits4

ECE 340 Thermodynamics3

ECE 350 Structure and Properties of Materials3

Total18

Major

BIO 188 General Biology II *SQ*4

BME 101 Introduction to Bioengineering3

BME 235 Physiology for Engineers4

BME 318 Biomaterials3

BME 331 Biomedical Engineering Transport: Fluids3

BME 350 Signals and Systems for Bioengineers3

BME 417 Biomedical Engineering Capstone Design I3

BME 470 Microcomputer Applications in Bioengineering4

BME 490 Biomedical Engineering Capstone Design II3

CSE 100 Principles of Programming with C++ *CS*³3

ECE 380 Probability and Statistics for Engineering

Problem Solving *CS*3

Technical electives8

Total44

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 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 following 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 the following 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 334 Bioengineering Heat and Mass Transfer.....3

Students should choose additional technical electives from the following:

BCH 361 Principles of Biochemistry.....3
 or BCH 461 General Biochemistry (3)

BCH 462 General Biochemistry3

CHE 475 Biochemical Engineering3

CHE 476 Bioreaction Engineering3

CHE 477 Bioseparation Processes.....3

CHM 331 General Organic Chemistry3

CHM 332 General Organic Chemistry3

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, medical instrumentation, neural engineering, or electrophysiology should consider this area of study. Students should choose technical electives from the following:

BME 419 Biocontrol Systems3

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 334 Bioengineering Heat and Mass Transfer.....3

BME 494 ST: Biopolymeric Drug Delivery3

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 Biomechanics3

Recommended subarea selections are as follows:

Movement Biomechanics

BME 419 Biocontrol Systems3

KIN 334 Functional Anatomy and Kinesiology3

KIN 414 Electromyographic Kinesiology *L*3

Rehabilitation Engineering

IEE 437 Human Factors Engineering3
 or DSC 344 Human Factors in Design (3)

IND 354 Principles of Product Design3

KIN 334 Functional Anatomy and Kinesiology3

MAE 341 Mechanism Analysis and Design3

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,

L literacy and critical inquiry / *MA* mathematics / *CS* computer/statistics/ quantitative applications / *HU* humanities and fine arts / *SB* social and behavioral sciences / *SG* natural science—general core courses / *SQ* natural science—quantitative / *C* cultural diversity in the United States / *G* global / *H* historical / See “General Studies,” page 91.

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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
BME 334 Bioengineering Heat and Mass Transfer.....	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.....	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 is required in addition to the 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>	4
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> ³	3
PHY 132 University Physics Laboratory II <i>SQ</i> 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 <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 ⁴	3
Total.....	17

Second Semester

BME 331 Biomedical Engineering Transport: Fluids.....	3
BME 350 Signals and Systems for Bioengineers.....	3
ECE 334 Electronic Circuits.....	4
ECE 340 Thermodynamics.....	3

HU/SB and awareness area course ⁴	3
Total	16

Fourth Year

First Semester

BME 413 Biomedical Instrumentation L ⁵	3
BME 417 Biomedical Engineering Capstone Design I.....	3
BME 423 Biomedical Instrumentation Laboratory L ⁵	1
ECE 380 Probability and Statistics for Engineering Problem Solving CS	3
HU/SB and awareness area course ⁴	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 ⁴	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 Both PHY 131 and 132 must be taken to secure SQ credit.
- ⁴ Engineering students may not use aerospace studies (AES) or military science (MIS) courses to fulfill HU and SB requirements.
- ⁵ Both BME 413 and 423 must be taken to secure L credit.

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

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)

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 Biomedical Engineering Transport: Fluids. (3)

fall

Transport phenomena with emphasis on biomedical engineering fluid systems. Prerequisites: MAT 274; PHY 131.

BME 334 Bioengineering Heat and Mass Transfer. (3)

spring

Applies the principles of heat and mass transfer phenomena to solution of problems in medicine and medical device design. Prerequisite: ECE 340. Prerequisite with a grade of "C" (2.00) or higher: BME 331.

BME 350 Signals and Systems for Bioengineers. (3)

spring

Applies principles of calculus and ordinary differential equations to modeling and analysis of responses, signals, and signal transfers in 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 334.

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 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. 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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BME 490 Biomedical Engineering Capstone Design II. (1–5)

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. (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, Krause, Mahajan, Newman, Picraux, Raupp, Sieradzki

Associate Professors: Beckman, Burrows, Chawla, Rivera, Sierks, Van Schilfgaarde

Assistant Professors: Allen, Dillner, Park, Razatos

The faculty in the Department of Chemical and Materials Engineering offer the B.S.E. 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—B.S.E.

Chemical engineers are generally concerned with transfer within and between liquid, gas, and solid phases and the chemical changes that may also occur. The 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 the students by providing a unique learning environment that encourages the students to

take responsibility for their education; exposes the students to a diversity of viewpoints and teaching/learning styles; prepares the students to work in teams to solve real-world, multidisciplinary problems; and sets them on a path of life-long learning. The faculty demand high quality work. They are fair, honest, courteous, and professional. They are sensitive to students' needs and dedicated to student success. They are interested in capitalizing on the nontraditional student demographics, including cultural background, age group, and the full- and part-time employed, to develop a vibrant and flexible education and research environment.

To achieve this commitment, the following program educational objectives were established by the chemical engineering faculty:

1. Graduates will have a strong foundation in mathematics, science, and engineering with a balance of theoretical understanding and ability to apply modern techniques, skills, and tools to solve real-world chemical engineering problems.
2. Graduates will have the skills and experience necessary to design component systems and processes for the manufacturing of chemical engineering products.
3. Graduates will have the skills and experience necessary to communicate effectively in oral, written, and graphical forms to various types of audiences.
4. Graduates will have the skills necessary to perform as engineers in a professional and ethical manner.
5. Graduates will have the skills and attitudes for continued life-long learning of new technologies and concepts.
6. Graduates will have opportunities to interact with local industries, educational institutions, and constituent populations.

DEGREE REQUIREMENTS

A minimum of 128 semester hours is necessary for the B.S.E. 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 87.

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)
- ENG 108 English for Foreign Students (3)

Total6

General Studies/School Requirements

Humanities and Fine Arts/Social and Behavioral Sciences

- ECN 111 Macroeconomic Principles *SB*3
- or ECN 112 Microeconomic Principles *SB* (3)

HU/*SB* and awareness area courses¹12

Total15

Literacy and Critical Inquiry

- CHE 462 Process Design *L*3
- ECE 300 Intermediate Engineering Design *L*3

Total6

Natural Sciences/Basic Sciences

- CHM 113 General Chemistry *SQ*4
- CHM 116 General Chemistry *SQ*4
- CHM 331 General Organic Chemistry3
- CHM 335 General Organic Chemistry Laboratory1
- PHY 121 University Physics I: Mechanics *SQ*²3
- PHY 122 University Physics Laboratory I *SQ*²1
- PHY 131 University Physics II: Electricity and Magnetism *SQ*³3

Total19

Mathematical Studies

- ECE 100 Introduction to Engineering Design *CS*3
- ECE 384 Numerical Methods for Engineers4
- 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

Total22

General Studies/school requirements total62

Engineering Core

- CHE 311 Introduction to Chemical Processing3
- CHE 342 Applied Chemical Thermodynamics4
- CHE 461 Process Control *CS*4
- ECE 350 Structure and Properties of Materials3
- ECE Core elective3

Total17

Major

- CHE 331 Transport Phenomena I: Fluids3
- CHE 334 Transport Phenomena II: Heat and Mass Transfer4
- CHE 352 Transport Laboratories2
- CHE 432 Principles of Chemical Engineering Design2
- CHE 433 Modern Separations3
- CHE 442 Chemical Reactor Design3
- CHE 451 Chemical Engineering Laboratory2
- CHM 332 General Organic Chemistry3
- ECE 380 Probability and Statistics for Engineering Problem Solving *CS*3

¹ literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/ quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 91.

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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 B.S.E. degree in Chemi-

cal 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

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>	3
or ECN 112 Microeconomic Principles <i>SB</i> (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 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 Transport Phenomena II: Heat and Mass Transfer.....	4
CHE 342 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 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—
B.S.E.**

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

L literacy and critical inquiry / *MA* mathematics / *CS* computer/statistics/quantitative applications / *HU* humanities and fine arts / *SB* social and behavioral sciences / *SG* natural science—general core courses / *SQ* natural science—quantitative / *C* cultural diversity in the United States / *G* global / *H* historical / See "General Studies," page 91.

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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 national organization of 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 B.S.E. 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 87.

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)	
————— <i>or</i> —————	
ENG 105 Advanced First-Year Composition (3)	
Elective chosen with an advisor (3)	
————— <i>or</i> —————	

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	12
Total	15

Literacy and Critical Inquiry

ECE 300 Intermediate Engineering Design <i>L</i>	3
MSE 482 Materials Engineering Design <i>L</i>	3
Total	6

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> 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

Mathematical Studies

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

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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.

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 CS	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 processing of metals and alloys should choose from the following technical electives:

MAE 351 Manufacturing Processes	3
MSE 431 Corrosion and Corrosion Control	3
MSE 441 Analysis of Material Failures	3

Polymers and Composites. Students who desire to build an understanding of the chemical and processing basis for the properties of polymers and their applications, including composite systems, should select from the following technical electives:

CHM 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

L literacy and critical inquiry / *MA* mathematics / *CS* computer/statistics/quantitative applications / *HU* humanities and fine arts / *SB* social and behavioral sciences / *SG* natural science—general core courses / *SQ* natural science—quantitative / *C* cultural diversity in the United States / *G* global / *H* historical / See "General Studies," page 91.

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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
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 M.S., M.S.E., and Ph.D. 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 Transport Phenomena I: Fluids. (3)

spring

Transport phenomena, with emphasis on fluid systems. Prerequisites: CHE 311; MAT 274; PHY 131.

CHE 334 Transport Phenomena II: Heat and Mass Transfer. (4)

fall

Applies heat and mass transport principles. Design of heat exchangers and continuous contactors. Prerequisite: CHE 331.

CHE 342 Applied Chemical Thermodynamics. (4)

fall

Applies conservation and accounting principles with nonideal property estimation techniques to model phase and chemical equilibrium processes. Lecture, recitation. Prerequisite: CHE 311; ECE 350; PHY 131. Pre- or 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. Fee. 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 Chemical Reactor Design. (3)

spring

Applies kinetics to chemical reactor design. 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.

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. Pre- or corequisite: ECE 100.

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 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)

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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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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

ECCG 252

Sandra L. Houston, Chair

Richard Snell Presidential Chair Professor: Crittenden

Professors: Fox, S. Houston, Johnson, Mamlouk, Mays, Rajan, Singhal, Witczak

Associate Professors: Abbaszadegan, Fafitis, Hinks, Mobasher, Muccino, Westerhoff

Assistant Professors: Allen, Dillner, Kaloush, Owusu-Antwi, Peccia

Research Faculty: Alum, Esparza-Soto, Febres, Hokanson, Lee, Mash, 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 B.S.E. 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, 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 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 considerations to cost, 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

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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 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
CEE 475	Highway Geometric Design.....	3

Technical Courses for the Degree Without a Concentration

From 15 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 SQ*.....	3

* Both CHM 231 and 235 must be taken to secure SQ credit.

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.....	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 SQ.....	4
	or CHM 116 General Chemistry SQ (4)	
ECE 100	Introduction to Engineering Design CS.....	3
ENG 101	First-Year Composition.....	3
MAT 270	Calculus with Analytic Geometry I MA.....	4
Total	.....	14

Second Semester

CEE 296	Civil Engineering Systems.....	4
ECN 111	Macroeconomic Principles SB.....	3
	or ECN 112 Microeconomic Principles SB (3)	
ENG 102	First-Year Composition.....	3
MAT 271	Calculus with Analytic Geometry II MA.....	4
PHY 121	University Physics I: Mechanics SQ ¹	3

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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)	
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 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

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
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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 91.

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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.....	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.

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 87.

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—B.S.D. Lower-Division Requirements Option A¹](#),” page 139.

GRADUATE STUDY

The Department of Civil and Environmental Engineering also offers graduate programs leading to the M.S., M.S.E., and Ph.D. degrees. These programs provide a blend of classroom instruction and research. Many topics and relevant research projects are available for thesis programs. Students interested in these programs should review the *Graduate Catalog* for up-to-date literature.

CIVIL AND ENVIRONMENTAL ENGINEERING (CEE)

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, free-

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

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ways, and interchanges. Lecture, computer lab. Fee. 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)

once a year

Properties of highway materials, including aggregates, asphalt concrete, and portland cement concrete; construction practice; material delivery, placement, and compaction; quality control. Lecture, field trips. 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, Golshani, Kambhampati, Lee, Lewis, Nielson, Panchanathan, Tsai, J. Urban, S. Urban, Yau

Associate Professors: Bazzi, Bhattacharya, Candan, Dasgupta, Dietrich, Faltz, Gupta, Huey, Liu, Miller, O'Grady, Sen, Xue

Assistant Professors: Cam, Chatha, Davulcu, Gannod, Konjevod, Richa, Ryu, Sarjoughian, Sundaram, Syrotiuk

Senior Lecturer: DeLibero

Lecturers: Boyd, Chen, 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; and for the automatic control and simulation of processes.

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 B.S. degree in Computer Science and a B.S.E. 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 continue to learn independently and grow 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 <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

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 B.S. degree in Computer Science and the B.S.E. 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 which 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 87.

DEGREES

Computer Science—B.S.

The faculty in the Department of Computer Science and Engineering offer a B.S. degree that prepares the student for a career in computer science. A student pursuing a B.S. 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 B.S. degree in Computer Science may choose to concentrate their studies on software engineering. The B.S. 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.

The following table specifies departmental requirements for the B.S. 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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

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Science elective ³	4
Total	12
<i>Mathematical Studies</i>	
ECE 380 Probability and Statistics for Engineering Problem Solving CS	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
MAT 342 Linear Algebra	3
or MAT 343 Applied Linear Algebra (3)	3
Total	21
General Studies/department requirement total	57
Computer Science Core	
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)	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
CSE 430 Operating Systems	3
Total computer science core	34
400-level CSE computer science breadth requirement ⁴	18
Technical electives ⁵	6
Unrestricted electives	7
Total	31
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 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 Composition	3
MAT 270 Calculus with Analytic Geometry I MA	4
HU/SB and awareness area course ¹	3
Unrestricted elective	3
Total	16

Second Semester

CSE 120 Digital Design Fundamentals	3
CSE 210 Object-Oriented Design and Data Structures CS	3
ENG 102 First-Year Composition	3
MAT 271 Calculus with Analytic Geometry II MA	4
Unrestricted elective	3
Total	16

Second Year

First Semester

CSE 240 Introduction to Programming Languages	3
MAT 243 Discrete Mathematical Structures	3
MAT 272 Calculus with Analytic Geometry III MA	4
PHY 121 University Physics I: Mechanics SQ ²	3
PHY 122 University Physics Laboratory I SQ ²	1
HU/SB and awareness area course ¹	3
Total	17

Second Semester

CSE 225 Assembly Language Programming and Microprocessors (Motorola)	4
or CSE 226 Assembly Language Programming and Microprocessors (Intel) (4)	4
MAT 342 Linear Algebra	3
or MAT 343 Applied Linear Algebra (3)	3
PHY 131 University Physics II: Electricity and Magnetism SQ ³	3
PHY 132 University Physics Laboratory II SQ ³	1
HU/SB and awareness area course ¹	3
L elective	3
Total	17

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
HU/SB and awareness area course ¹	3
Laboratory Science SQ ⁴	4
Total	16

Second Semester

CSE 340 Principles of Programming Languages	3
CSE 355 Introduction to Theoretical Computer Science	3
ECE 380 Probability and Statistics for Engineering Problem Solving CS	3
HU/SB and awareness area course ¹	3
Technical elective	3
Total	15

Fourth Year

First Semester

CSE 430 Operating Systems	3
ECE 400 Engineering Communications	3
or approved CSE L course (3)	3
400-level CSE computer science breadth electives	9
Unrestricted elective	1
Total	16

Second Semester

400-level CSE computer science breadth electives	9
HU/SB and awareness area course ¹	3

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Technical elective.....	3
Total	15

- 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—B.S.E.

The Department of Computer Science and Engineering offers a B.S.E. degree that prepares the student for a career 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 requirement of the B.S.E. degree in Computer Systems Engineering. The following table specifies departmental requirements for the B.S.E. 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

<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 and SB electives	12
Total	15

Literacy and Critical Inquiry

CSE 423 Microcomputer System Hardware <i>L</i>	3
or CSE 438 Systems Programming <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

<i>Mathematical Studies</i>	
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 Microeconomic Principles <i>SB</i> (3)	
ENG 101 First-Year Composition.....	3
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
Total	16

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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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 <i>L</i>	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 <i>CS</i>	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 Microcomputer System Hardware <i>L</i>	3
or CSE 438 Systems Programming <i>L</i> (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 solution 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 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 Microcomputer System Hardware. (3)
fall and spring
 Information and techniques presented in CSE 422 are used to develop the hardware design of a multiprocessor, multiprogramming, microprocessor-based system. 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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 problem. 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 / 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: Backus, Crouch, Goodnick, Gorur, Hoppensteadt, Hui, Karady, Kiaei, Kozicki, Lai, Palais, Pan, Phillips, Roedel, Schroder, Shen, Si, Spanias, Tao, Thornton, Y. Zhang

Associate Professors: Aberle, Allee, Bird, Chakrabarti, Cochran, Diaz, El-Sharawy, Grondin, Holbert, Karam, Kim, Morrell, Rodriguez, Skromme, Tsakalis, Tylavsky

Assistant Professors: Ayyanar, Duman, Joo, Papandreou-Suppappola, Qian, Reisslein, Tepedelenioglu, 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 B.S.E. 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—B.S.E.

The goal of the Electrical Engineering undergraduate program is to prepare the graduates for entry-level positions as

electrical engineers for the broad range of opportunities available in industrial, commercial, and governmental organizations, and to prepare the 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 serve to provide students with an opportunity either to broaden their background in electrical engineering or to study, in greater depth, technical subjects in which they have special interests. Successful completion of the curriculum leaves the student prepared to embark on a career in electrical engineering or to pursue 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 B.S.E. 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 87.

COURSE REQUIREMENTS

The specific course requirements for the B.S.E. 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)	—
————— <i>or</i> —————	
ENG 105 Advanced First-Year Composition (3)	—
Elective (requires departmental approval) (3)	—
————— <i>or</i> —————	
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

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 91.

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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++ CS*	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 not less than 3.00 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 one area.

Communications and Signal Processing

EEE 407 Digital Signal Processing	4
EEE 455 Communication Systems	4
EEE 459 Communication Networks	3

Computer Engineering

CSE 330 Computer Organization and Architecture	3
CSE 420 Computer Architecture I	3
CSE 421 Microprocessor System Design I	4
CSE 422 Microprocessor System Design II	4

Controls

EEE 480 Feedback Systems	4
EEE 482 Introduction to State Space Methods	3

Electromagnetics

EEE 440 Electromagnetic Engineering II	4
EEE 443 Antennas for Wireless Communications	3
EEE 445 Microwaves	4
EEE 448 Fiber Optics	4

Electronic Circuits

EEE 405 Filter Design	3
EEE 425 Digital Systems and Circuits	4
EEE 433 Analog Integrated Circuits	4

Power Systems

EEE 460 Nuclear Concepts for the 21st Century	3
EEE 463 Electrical Power Plant	3
EEE 470 Electric Power Devices	3
EEE 471 Power System Analysis	3
EEE 473 Electrical Machinery	3

Solid-State Electronics

EEE 434 Quantum Mechanics for Engineers	3
EEE 435 Microelectronics	3
EEE 436 Fundamentals of Solid-State Devices	3
EEE 437 Optoelectronics	3
EEE 439 Semiconductor Facilities and Cleanroom Practices	3

Electrical Engineering Program of Study Typical Four-Year Sequence

First Year

First Semester

CHM 114 General Chemistry for Engineers SQ	4
or CHM 116 General Chemistry SQ (4)	—
ECE 100 Introduction to Engineering Design CS ¹	3
or EEE 120 Digital Design Fundamentals (3)	—
ENG 101 First-Year Composition	3
MAT 270 Calculus with Analytic Geometry I MA	4
Total	14

Second Semester

EEE 120 Digital Design Fundamentals ¹	3
or ECE 100 Introduction to Engineering Design CS (3)	—
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	14

Second Year

First Semester

CSE 100 Principles of Programming with C++ CS ³	3
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 ⁴	3
PHY 132 University Physics Laboratory II SQ ⁴	1
Total	17

Second Semester

ECE 201 Electrical Networks I	4
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 Scientists	3
PHY 241 University Physics III	3
HU/SB and awareness area course ⁵	3
Total	17

Third Year

First Semester

ECE 334 Electronic Circuits	4
EEE 302 Electrical Networks II	3
EEE 340 Electromagnetic Engineering I	4
MAT 342 Linear Algebra	3
or MAT 343 Applied Linear Algebra (3)	
HU/SB and awareness area course ⁵	3
Total	17

Second Semester

ECE 300 Intermediate Engineering Design L	3
ECE 352 Properties of Electronic Materials	4
EEE 303 Signals and Systems	3
EEE 360 Energy Conversion and Transport	4
HU/SB and awareness area course ⁵	3
Total	17

Fourth Year

First Semester

ECE 214 Engineering Mechanics	4
EEE 350 Random Signal Analysis	3
EEE 488 Senior Design Laboratory I L ⁶	2
Technical electives	7
Total	16

Second Semester

EEE 489 Senior Design Laboratory II L ⁶	2
HU/SB and awareness area course ⁵	3
Technical electives	11
Total	16

- ¹ Both ECE 100 and 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 satisfy 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, spring, summer
Analyzes linear and nonlinear networks. Analytical and numerical methods. Prerequisite: ECE 201. Pre- or corequisite: MAT 362.

EEE 303 Signals and Systems. (3)

fall, spring, summer
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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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EEE 437 Optoelectronics. (3)

selected semesters

Basic operating principles of various types of optoelectronic devices which 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 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, Roberts, Villalobos

Assistant Professors: Gel, Keha, Kulahci, Wu

The industrial engineer (IE) provides leadership for American organizations in reestablishing 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.

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 flow in a medical laboratory, 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. These skills include 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 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—B.S.E.

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 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 advanced education in graduate school.

The 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 careers 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 B.S.E. 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 87. For information concerning admission, degree, course, and graduation requirements for the School of Engineering, see “[Admission](#),” page 219, and subsequent sections.

COURSE REQUIREMENTS

Students take 59 semester hours of university English proficiency and general studies course work, 19 hours of engineering core, 35 hours of industrial engineering courses, three hours of industrial engineering electives, and 12 hours of career-focused study area electives. Each study area has an associated list of recommended General Studies, IE electives, and study area courses. The course work for

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

IRA A. FULTON SCHOOL OF ENGINEERING

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 <i>SB</i>	3
or ECN 111 Macroeconomic 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
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)	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 294 ST: Industrial Engineering Applications Seminar	2
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	35

Industrial Engineering Electives Area

Students select three semester hours of industrial engineering electives. IEE 361 Manufacturing Processes Lab is highly recommended. 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 the following recommended electives in one of the 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

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 294	ST: Industrial Engineering Applications Seminar.....	2
MAT 274	Elementary Differential Equations <i>MA</i>	3
Basic science elective ⁵	.....	3
Total	.....	17

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	.....	3
Total	.....	18

Second Semester

IEE 490	Project in Design and Development.....	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 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.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 91.

IRA A. FULTON SCHOOL OF ENGINEERING

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 modelling 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

Topics may include the following:

- Introduction to Manufacturing Engineering (Intel). (3)

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. 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, Liu, Mignolet, Reed, Saric, Wie

Associate Professors: Lee, Wells

Assistant Professor: Mikellides

Mechanical Engineering

Professors: Boyer, Davidson, Fernando, Peck, Roy, Shah, Sieradzki, Squires, Tseng, Yao

Associate Professors: Chen, Kuo, McNeill, Phelan, Van Schilfgaarde

Assistant Professors: Calhoun, Peralta, 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 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 perhaps 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—B.S.E.

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 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. *Technical Competency.* Graduates have an understanding of the fundamental principles of mathematics, physics, and chemistry and will use this knowledge to model and predict the behavior of aerospace engineering systems.
2. *Design Aptitude.* Graduates gain the ability to design a system appropriate to the field of aerospace engineering. Graduates perform conceptual and preliminary design of aircraft systems or subsystems. This takes into account life-cycle cost and environmental impact in the design process.
3. *Communication Skills.* Graduates are skilled at making effective oral and written technical presentations and documenting analysis and design processes.
4. *Professionalism.* Graduates have the professional attributes necessary for success in the current work environment. They will be prepared for modern engineering practice by effectively working in teams, showing a propensity 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 four major wind tunnels, an integrated mechanical-testing laboratory, a controls laboratory, and a vibrations laboratory.

DEGREE REQUIREMENTS

A minimum of 128 semester hours of course work is necessary for the B.S.E. degree in Aerospace Engineering, including a minimum of 50 upper-division semester hours. All students must satisfy the university First-Year Composi-

tion 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 at the option of the department, courses taken more than five years before admission to the programs 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 those students who have demonstrated a trend toward academic difficulties.

COURSE REQUIREMENTS

The specific course requirements for the B.S.E. 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)	
— or —	
ENG 105 Advanced First-Year Composition (3)	
Approved elective (3)	
— or —	
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
<i>SB</i> course(s)	3-6
Minimum total	15
<i>Literacy and Critical Inquiry</i>	
ECE 300 Intermediate Engineering Design <i>L</i>	3
MAE 468 Aerospace Systems Design <i>L</i>	3
Total	6
<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
<i>Mathematical Studies</i>	
MAT 242 Elementary Linear Algebra ¹	2
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

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 91.

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MAT 274 Elementary Differential Equations <i>MA</i> ¹	3
Total	17
General Studies school requirements total.....	53
Engineering Core ⁵	
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 313 Introduction to Deformable Solids.....	3
ECE 340 Thermodynamics.....	3
ECE 350 Structure and Properties of Materials	3
Total	22
Aerospace Engineering Major ⁶	
ECE 384 Numerical Methods for Engineers.....	4
MAE 101 Introduction to Aerospace Engineering ⁷	2
MAE 317 Dynamic Systems and Control.....	3
MAE 319 Measurements and Data Analysis	3
MAE 361 Aerodynamics I.....	3
MAE 413 Aircraft Performance, Stability, 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 467 Aircraft Performance (3)	
MAE 469 Projects in Astronautics or Aeronautics (3)	
Technical elective(s).....	3
Total	47
<i>Total for the program</i>	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 A minimum grade of “C” (2.00) is required. With engineering core courses that are prerequisite to any course in the Aerospace Engineering major, a student must attain a minimum grade of “C” in order to receive prerequisite credit.

⁶ A “C” (2.00) average or higher is required for all classes listed under the major plus MAE 468.

⁷ 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 stu-

dent has at least a 3.00 GPA and approval of the instructor, advisor, and the college dean.

IEE 300 Economic Analysis for Engineers.....	3
IEE 385 Introduction to Engineering Probability Models <i>CS</i>	3
IEE 463 Computer-Aided Manufacturing and Control <i>CS</i>	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 <i>CS</i>	3
MAT 423 Numerical Analysis I <i>CS</i>	3
MAT 425 Numerical Analysis II <i>CS</i>	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 <i>SQ</i>	4
or CHM 116 General Chemistry <i>SQ</i> (4)	
ECE 100 Introduction to Engineering Design <i>CS</i>	3
or HU/SB elective ¹ (3)	
ENG 101 First-Year Composition.....	3
MAE 101 Introduction to Aerospace Engineering	2
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
Total	16

Second Semester

ENG 102 First-Year Composition.....	3
MAT 242 Elementary Linear Algebra	2
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 and awareness area course ¹	3
or ECE 100 Introduction to Engineering Design <i>CS</i> (3)	
Total	16

Second Year

First Semester

ECE 210 Engineering Mechanics I: Statics.....	3
ECE 350 Structure and Properties of Materials	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> ³	3
PHY 132 University Physics Laboratory II <i>SQ</i> ³	1
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 340 Thermodynamics.....	3
ECE 384 Numerical Methods for Engineers	4
Total	17

Third Year

First Semester

ECE 300 Intermediate Engineering Design L	3
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 Performance, Stability, and Control	3
MAE 444 Fundamentals of Aerospace Design.....	3
MAE 460 Gas Dynamics	3
PHY 361 Introductory Modern Physics.....	3
HU/SB and awareness area course ¹	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 and awareness area course ¹	3
Total	16

Second Semester

MAE 468 Aerospace Systems Design L.....	3
HU/SB and awareness area courses ¹	6
Required design technical elective.....	3
Technical elective.....	3
Total	15

¹ Engineering students may not use aerospace studies (AES) or military science (MIS) courses to satisfy HU or SB requirements.

² Both PHY 121 and 122 must be taken to secure SQ credit.

³ Both PHY 131 and 132 must be taken to secure SQ credit.

MECHANICAL ENGINEERING —B.S.E.

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, an integrated mechanical-testing laboratory, a controls laboratory, and a manufacturing laboratory.

DEGREE REQUIREMENTS

A minimum of 128 semester hours is necessary for the B.S.E. degree in Mechanical Engineering, including 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 91.

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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 at the option of the department, courses taken more than five years before admission to the programs 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 those students who have demonstrated a trend toward academic difficulties.

COURSE REQUIREMENTS

The specific course requirements for the B.S.E. 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)	
— or —	
ENG 105 Advanced First-Year Composition (3)	
Approved elective (3)	
— or —	
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 Macroeconomic Principles <i>SB</i> (3)	
HU courses	6–9
SB course(s)	3–6
Minimum total	15

Literacy and Critical Inquiry

ECE 300 Intermediate Engineering Design <i>L</i>	3
MAE 490 Projects in Design and Development <i>L</i>	3
Total	6

Natural Sciences/Basic Sciences

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

Mathematical Studies

MAT 242 Elementary Linear Algebra ¹	2
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
Total	17
General Studies school requirements total	53

Engineering Core⁵

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 313 Introduction to Deformable Solids	3
ECE 340 Thermodynamics	3
ECE 350 Structure and Properties of Materials	3
Total	22

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 443 Engineering Design	3
MAE 491 Experimental Mechanical Engineering	3
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)	
Areas of study (technical electives)	11–12
Total	47
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) is required. With 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 490.

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

DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING

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 Performance, Stability, 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
MAE 465 Rocket Propulsion	3
MAE 466 Rotary Wing Aerodynamics and Performance	3
MAE 467 Aircraft 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	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 Performance, Stability, and Control	3
MAE 417 Control System Design	3
MAE 462 Space Vehicle Dynamics and Control	3
MAE 467 Aircraft Performance	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 Performance, Stability, 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
MAE 467 Aircraft Performance	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 Performance, Stability, 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

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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.



Mill Avenue, a short walk from campus, offers students a break from studies with restaurants, movie theatres, and unique shops. The Brickyard building is home to many of the Ira. A. Fulton School of Engineering offices. Tim Trumble photo

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
or HU/SB elective ¹ (3).....	
ENG 101 First-Year Composition.....	3
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
HU/SB and awareness area course ¹	3
Total	17

Second Semester

ENG 102 First-Year Composition.....	3
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MAT 242 Elementary Linear Algebra.....	2
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 and awareness area course ¹	3
or ECE 100 Introduction to Engineering Design <i>CS</i> (3).....	
Total	16

Second Year

First Semester

ECE 210 Engineering Mechanics I: Statics.....	3
ECE 350 Structure and Properties of Materials.....	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> ³	3
PHY 132 University Physics Laboratory II <i>SQ</i> ³	1
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 340 Thermodynamics.....	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 422 Mechanics of Materials.....	4
Total	16

Second Semester

MAE 388 Heat Transfer.....	3
MAE 441 Principles of Design.....	3
HU/SB and awareness area courses ¹	3
Technical elective.....	6
Total	15

Fourth Year

First Semester

MAE 491 Experimental Mechanical Engineering.....	3
PHY 361 Introductory Modern Physics.....	3
HU/SB and awareness area course ¹	3
Technical electives.....	6
Total	15

Second Semester

MAE 443 Engineering Design.....	3
MAE 490 Projects in Design and Development <i>L</i>	3
HU/SB and awareness area course ¹	3
Technical electives.....	6
Total	15

¹ Engineering students may not use aerospace studies (AES) or military science (MIS) courses to satisfy HU or SB requirements.

² Both PHY 121 and 122 must be taken to secure SQ credit.

³ Both PHY 131 and 132 must be taken to secure SQ credit.

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 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 Performance, Stability, and Control. (3)

spring

Aircraft performance, cruise, climbing and turning flights, energy maneuverability, 6 DOF equations for aircraft, aerodynamic stability derivatives, flight stability/control. Prerequisites: MAE 317, 361.

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).

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

IRA A. FULTON SCHOOL OF ENGINEERING

MAE 443 Engineering Design. (3)

fall and spring

Group projects to design engineering components and systems. Problem definition ideation, modeling, and analysis; emphasizes decision making and documentation activities. 6 hours lab. Fee. Prerequisite: MAE 441.

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 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 467 Aircraft Performance. (3)

once a year

Integrates aerodynamic and propulsive forces into aircraft performance design. Estimation of drag parameters for design. Engine, airfoil selection. Conceptual design methodology. Lecture, design projects. Prerequisite: MAE 361 or 371. Pre- or corequisite: MAE 444.

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 490 Projects in Design and Development. (3)

fall and spring

Capstone projects in fundamental or applied aspects of engineering. Fee. Prerequisite: MAE 441. Pre- or corequisite: MAE 491.

General Studies: L

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.

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.

IRA A. FULTON SCHOOL OF ENGINEERING

CHM 336 General Organic Chemistry Laboratory.....	1
CSE 100 Principles of Programming with C++ CS ⁶	3
ECE 380 Probability and Statistics for Engineering Problem Solving CS	3
Total	52

- ¹ ECN 111 or 112 must be included to fulfill the HU and SB requirements.
- ² Engineering students may not use aerospace studies (AES) or military science (MIS) courses to fulfill HU and 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 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 Macroeconomic 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 Engineering Transport: Fluids.....	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.

The Katherine K. Herberger College of Fine Arts

herbergercollege.asu.edu

J. Robert Wills, Ph.D., Dean

School of Art	272
Department of Dance	287
School of Music	292
Department of Theatre	305

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 and involvement 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 concerts, 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 68. Transfer students are encouraged to contact their department or school or the Katherine K. Herberger College of Fine Arts Undergraduate Student Academic Services (GHALL 127) 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 ag.transfer.org/cag.

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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

Katherine K. Herberger College of Fine Arts Baccalaureate Degrees and Majors

Major	Degree	Concentration ¹	Administered By
Art	B.A.	Art history, digital art, museum studies, or studio art	School of Art
	B.F.A.	Art education, ceramics, drawing, fibers, intermedia, metals, painting, photography, printmaking, or sculpture	School of Art
Dance	B.F.A.	Choreography, dance education, dance studies, or performance	Department of Dance
Music	B.A.	—	School of Music
Music Education ²	B.M.	Choral-general, instrumental, or string	School of Music
Music Therapy ²	B.M.	—	School of Music
Performance	B.M.	Guitar, jazz, keyboard, music theatre, orchestral instrument, piano accompanying, or voice	School of Music
Theatre	B.A.	Optional: acting or scenography ²	Department of Theatre
Theory and Composition	B.M.	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.

ADVISING

Advising is handled as a centralized and decentralized 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 central office of their department or school.

Baccalaureate Degrees

The three baccalaureate degrees differ in curricula with respect to the amount of specialization permitted in the major field. The B.A. 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 91, 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 making application 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 190.

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 22. 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 269, 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 87.

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 91. Note that all three General Studies awareness areas are required. Consult with an advisor for an approved list of courses. General Studies courses are listed in the “[General Studies](#)” table, 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

Katherine K. Herberger College of Fine Arts Graduate Degrees and Majors

Major	Degree	Concentration ¹	Administered By
Art	M.A.	Art education or art history	School of Art
	M.F.A.	Ceramics, digital technology, drawing, fibers, intermedia, metals, painting, photographic studies, photography, printmaking, sculpture, or wood	School of Art
Composition	M.M.	Optional: interdisciplinary digital media and performance ¹	School of Music
Creative Writing	M.F.A. ²	—	Creative Writing Committee
Curriculum and Instruction	Ph.D. ³	Art education	School of Art
Dance	M.F.A.	Optional: interdisciplinary digital media and performance ¹	Department of Dance
History and Theory of Art ⁴	Ph.D.	—	School of Art
Music	M.A.	Ethnomusicology, music history and literature, or music theory	School of Music
	D.M.A.	Conducting, interdisciplinary digital media and performance, music composition, music education, or performance	School of Music
Music Education	M.M.	Choral music, general music, instrumental music, or jazz studies	School of Music
Performance	M.M.	Music theatre/opera musical direction, music theatre/opera performance, performance, performance pedagogy, or piano accompanying	School of Music
Theatre	M.A.	—	Department of Theatre
	M.F.A.	Interdisciplinary digital media, performance, scenography, or theatre for youth	Department of Theatre
	Ph.D.	Optional: 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 Graduate College.

³ This program is administered in collaboration with the College of Education and the Graduate College.

⁴ This major is jointly offered with the University of Arizona.

General Studies requirement. Concurrent listings in the literacy areas, numeracy (computer applications) areas, and awareness areas are an exception. Students are encouraged to consult with an academic advisor to ensure that they comply with all necessary requirements.

COLLEGE DEGREE REQUIREMENTS

The Katherine K. Herberger College of Fine Arts degree requirements supplement the General Studies requirement. Descriptions of additional required courses follow. Students are encouraged to consult with an academic advisor to ensure that they comply with all necessary requirements.

Fine arts majors must take at least six semester hours of fine arts course work in areas outside of the major school or department. These courses may be in art, dance, music, or theatre. A student may concurrently fulfill this requirement and the humanities and fine arts portion of the General Studies requirement by selecting approved courses as indicated in the *Schedule of Classes*. This requirement may also be met by taking *any* Katherine K. Herberger College of Fine Arts course outside of the student’s major.

All B.A. degrees require the equivalent of 16 semester hours in one foreign language except for the B.A. 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 B.M. 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 B.F.A. or B.M. 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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

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.



The Katherine K. Herberger College of Fine Arts offers one of the few college-based neon sculpture programs in the country.

Tim Trumble photo

All academic disciplinary action is the function of the Katherine K. Herberger College of Fine Arts Student Services Office, GHALL 127, 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 majors. 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 (B.A.) Degree. The B.A. 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 rules and regulations of the department or school concerned. A successful entrance audition is also required for admission to the B.A. degree in Music program.

Bachelor of Fine Arts (B.F.A.) Degree. The B.F.A. 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 B.F.A. program in Dance. Specific information can be obtained through the department's Advisement Office.

Bachelor of Music (B.M.) Degree. The B.M. 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 268, 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, The Art Gallery, 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 and trained to meet the demands of professional preparations. An environment that encourages creative collaboration, interdisciplinary views, and community awareness is central to the mission of the department.

School of Music. Ranked among the top programs in the United States, the School of Music offers a broad scope of degree options for the study of performance, music education, music therapy, composition, theory, history and literature, jazz, music theatre, ethnomusicology, pedagogy, interdisciplinary digital media, accompanying, and conducting. This wide spectrum of areas is supported by special programs and facilities that enrich the opportunities for professional training and musical growth. Music education and pedagogy are supplemented by the Piano and Guitar Preparatory Programs, the Music for Tots series, special classes for certification in Orff and Kodály methods, and the publication on campus of a major research journal. Performance opportunities are enhanced by a wide variety of ensembles, including such groups as Mexican 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 both nationally and internationally.

Department of Theatre. The Department of Theatre's B.A. degree features a broad liberal arts education, which cultivates in the student the ability to understand human behavior and values in societies of the past and present, an essential element in the creation of and response to theatre. 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 scenography concentration 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 often attracts professionals to ASU. Four to six subscription series plays are produced annually in the 496-seat Galvin Playhouse and the smaller Lyceum Theatre. An additional ten to 15 student-directed shows are presented.

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, theatre tours to area schools, and opportunities to 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 Engineering 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.

ASU EXTENDED CAMPUS

The College of Extended Education was created in 1990 to extend the resources of ASU throughout Maricopa County, the state, and the region. The College of Extended

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

Education is a university-wide college that oversees the ASU Extended Campus and forms partnerships with other ASU colleges, including the Katherine K. Herberger College of Fine Arts, to meet the instructional and informational needs of a diverse community.

The ASU Extended Campus goes beyond the boundaries of the university's physical campuses to provide access to quality academic credit for working adults through flexible schedules; a vast network of off-campus sites; classes scheduled days, evenings, and weekends; and innovative delivery technologies including television, the Internet, and Independent Learning.

For more information, see "ASU Extended Campus," page 689, 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 Graduate College 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 instructor of the class 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

Topics may include the following:

- Basic Concepts of Digital Signal Processing and Programming for Artists. (3)

spring

Introduces the basic concepts behind the functioning of existing, widely used digital arts/media tools. Covers basic DSP concepts generic to all such tools (time-frequency relationships, basic signal theory [such as representational models, quantization, filtering, compression]). Concepts embellished using standard image/video/audio manipulation tools.

CFA 498 Pro-Seminar. (1–7)

fall and spring

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/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.

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, Pimentel, Pittsley, Risseuw, Schmidt, Schoebel, Sharer, Stokrocki, Sweeney, Verstegen, White, Young

Associate Professors: Brown, Collins, Gully, Jenkins, McIver, Newport, Pessler, Schleif, Schutte, Segura, Serwint, Umberger, Wolfthal

Assistant Professors: 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 particulars of course sequence and special requirements. Check sheets are available in the School of Art Undergraduate Advising Center.

Art majors seeking a second B.A. or B.F.A. 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 which 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 in these programs (300 and 400 levels): B.A. in Art with a concentration in digital art; B.F.A. 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 B.F.A. programs and the B.A. in Art with a concentration in digital art program must success-

fully 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—B.A.

The faculty in the School of Art offer four concentrations for students in the B.A. 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. B.A. 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 87, and “**College Degree Requirements,**” page 269.

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

B.I.S. CONCENTRATION

A concentration in art history is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining

their career goals. For more information, see “**Bachelor of Interdisciplinary Studies,**” page 123.

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 383. (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/ug_advising/UG_index.

Portfolio Review. Admission to digital art upper-division courses require both a portfolio review and 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 274, 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 <i>CS</i>	3
ART 348 Animation Motion Studies.....	3
ART 440 New Media Concepts.....	3
ART 441 Video Art.....	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 91.

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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)	

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 Though 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
ARS 480 Research Methods <i>L</i>	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 <i>L</i>	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

COB 380 Small Business Leadership	3
COB 381 Small Business Accounting and Finance	3
COB 382 Small Business Sales and Market Development.....	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 383. (SHS courses are not acceptable.)

Studio Art

Core Curriculum. The following courses make up the core curriculum:

ARS 101 Art from Prehistory Though 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 (including 12 hours of upper-division study) of ART focus courses must be selected from the following areas: ceramics, drawing, fibers, intermedia, metals, painting, photography, printmaking, and sculpture.

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 ASU Main 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 Though 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—B.F.A.

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 to the student: art education, ceramics, drawing, fibers, intermedia, metals, painting, photography, printmaking, and sculpture. A portfolio 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 B.F.A. 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/ug_advising/UG_index.

B.F.A. 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 87, and “[College Degree Requirements](#),” page 269.

Art Education

Core Curriculum. See “[B.F.A. Core Curriculum](#),” on this page, for the courses that make up the core curriculum.

Specialization. The following courses make up the specialization:

ARE 440 Disciplines of Art Education	3
ARE 450 Teaching Inquiry in Art	3
ARE 470 Teaching Visual Culture	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. 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.

A student pursuing a B.F.A. 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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

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The B.F.A. 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 195. Students who are not recommended may complete the B.F.A. degree in Art with a concentration in art education without certification or may reapply after meeting deficiencies in knowledge and skills related to the teaching of art.

Ceramics

Core Curriculum. See “**B.F.A. Core Curriculum**,” page 275, 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 “**B.F.A. Core Curriculum**,” page 275, 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 “**B.F.A. Core Curriculum**,” page 275, 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.

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 “B.F.A. Core Curriculum,” page 275, 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 non-electronic media and three hours of digital imaging. The remaining 15 to 16 hours are completed in either non-electronic media or digital imaging, depending on the emphasis selected.

Non-electronic. Select 15 hours from the following non-electronic 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*.....	3
ART 494 ST: Digital.....	3
ART 494 ST: Intermedia.....	3

* This course can be repeated for credit.

Non-Electronic. Select three to four semester hours from electronic courses above.

Electronic. Select three semester hours from non-electronic 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 “B.F.A. Core Curriculum,” page 275, 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

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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

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Painting

Core Curriculum. See “B.F.A. Core Curriculum,” page 275, 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 non-Western. 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 “B.F.A. Core Curriculum,” page 275, 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 “B.F.A. Core Curriculum,” page 275, 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 “B.F.A. Core Curriculum,” page 275, 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
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 M.A. 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, photographic studies, photography, printmaking, sculpture, or wood, and a Ph.D. degree in History and Theory of Art. In cooperation with the College of Education, the Doctor of Education degree is offered with a concentration in art education. See the *Graduate Catalog* for requirements for all graduate degrees.

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. 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

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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 470 Teaching Visual Culture. (3)

fall

Explores issues and applications of everyday aesthetics that contain powerful technological, social, and economic factors. Lecture, discussion. Prerequisite: ARE 440 or instructor approval.

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 470 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 students who have completed ARS 100 or used as art history credit by Art majors.

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 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***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 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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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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 Joman 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 211 and 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.

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, felmaking, 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

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)
- Intermedia. (3)
- Intermedia Elective. (3)
- Mixed Media. (3)
- Nonelectronic Intermedia. (3)
- Visualization and Prototyping II. (3)

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

ART 308 Digital Photographic Images I. (3)

fall and spring

Scanning, manipulation, refinement, and compositing of photographic images in 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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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 433 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.

Department of Dance

herberger/dance

480/965-5029

PEBE 107A

Professors: Kaplan, Keuter, Murphey

Associate Professor: Jackson

Assistant Professors: Fitzgerald, Lindholm Lane, Parrish, Tsukayama, Vissicaro

Associate Research Professional: Mitchell

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 designated into a preprofessional status. Individuals intending to enroll in the undergraduate dance degree program and participate in dance major classes are required to pass an entrance audition before being admitted to the department's dance major classes. These auditions take place in the fall and spring of each academic year. Auditions, conducted by the Dance faculty, determine technical proficiency, placement, and scholarship awards. Criteria for placement in dance technique classes are published in the department's student handbook. The handbook is available through the Dance Advisement Office and on the department's Web site. Students who do not successfully complete the audition are allowed to remain in preprofessional status for two semesters. At the end of that term they are allowed to re-audition.

By the second semester of their sophomore year all dance preprofessional students who have passed the audition must petition for admission into one of the four concentrations: choreography, dance education, dance studies, or performance. Depending upon the concentration selected, the petition process may include a technique audition, and the

submission of video tapes of choreographed works, an artistic portfolio, a writing sample, 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 B.I.S. 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—B.F.A.

The faculty in the Department of Dance offer a Bachelor of Fine Arts (B.F.A) 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 87, and "College Degree Requirements," page 269.

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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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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 100 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 from 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](#),” on this page.

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](#),” on this page.

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 484 Dance Internship	2
DAN 494 ST: Senior Dance Education Project.....	4
Total	22

A student pursuing the dance education concentration may also choose to become certified to teach dance (K–12) in Arizona public schools. Students should apply to the College of Education in the middle of the sophomore year. To be considered for admission to the teacher certification program students must complete an admission portfolio specified by the College of Education. Students should be advised that at least 20 additional semester hours are required to complete certification requirements. For more information, consult the dance education advisor and College of Education Office of Student Services, or phone 480/965-5555.

For specific information related to the Initial Teacher Certification (ITC) application deadlines and eligibility for admission, see “[Initial Teacher Certification Professional Program Admission](#),” page 191.

Additional requirements are listed on the check sheet available from the Department of Dance.

Dance Studies Concentration

Core Curriculum. See “[Core Curriculum](#),” on this page.

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	4
Total	7

Eighteen additional semester hours in related fields must be approved by the B.F.A. Dance Studies Committee. The content of related fields should support the research project. Students also have a flexible two to four semester hour option to fulfill dance science requirements for the Dance major core curriculum by taking courses such as Kinesiology, Feldenkrais, Bodywork for Dancers, and Pilates.

Additional requirements are listed on the check sheet available from the Department of Dance.

Performance Concentration

Core Curriculum. See “[Core Curriculum](#),” on this page.

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 three courses (six semester hours are required):

DAN 371 Dance Theatre Performance/Production	1-3
DAN 471 Dance Arizona Repertory Theatre	3-4
DAN 472 Concert Dance.....	2
DAN 494 ST: Guest Artists	3

Additional requirements are listed on the check sheet available from the Department of Dance.

MINOR

All students interested in a Dance minor must successfully complete the Audition/Admission. For more information, see “Audition/Admission,” page 287. 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 specific requirements and audition/admission procedures.

B.I.S. CONCENTRATION

A concentration in dance is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “Bachelor of Interdisciplinary Studies,” page 123.

All students interested in the dance concentration must successfully complete the Audition/Admission. For more information, see “Audition/Admission,” page 287.

GRADUATE PROGRAM

Dance—M.F.A.

The M.F.A. 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 100 Dance in World Cultures. (3)

fall, spring, summer

Orientation to the field of dance focusing on history, styles, cultural, and theatrical aspects of the art form from a global perspective. Fee. *General Studies: HU, G*

DAH 190 Introduction to the Dance Profession. (3)

fall

Orientation to the dance profession introducing career options, wellness, technical, historical, and cultural aspects. Designed for premajors in Dance.

DAH 191 First-Year Seminar. (1-3)

selected semesters

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

Introduces the anthropology of dance. Examines comparative frameworks for studying dance in diverse contexts. Ethnographic dance research project. Lecture, field experience. Prerequisite: completion of First-Year Composition requirement. Pre- or corequisite: DAN 100 or 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 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. Prerequisite: instructor approval. Pre- or corequisite: DAN 301 or 302.

DAH 496 Senior Dance Studies. (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: DAN 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
- Ballet II
- Beginning Modern I

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

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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. 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. Prerequisite: placement audition.

DAN 194 Special Topics. (1–4)

selected semesters

Topics may include the following:

- African Dance
- Argentine Tango I
- Ballet I
- Beginning Ballet
- 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
- Latin/Swing/Ballroom I
- Strictly Ballroom
- Swing/Lindy I
- 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.

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. 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. 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. 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
- Competitive International Ballroom II
- Country Western II
- 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 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. 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. 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. 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. Prerequisite: DAN 237 or instructor approval.

DAN 340 Dance Kinesiology. (4)

fall and spring

Principles of kinesiology applied to the lower extremity, including identification of muscular imbalances, inherited anatomical differences, and pathomechanics in dance movement. Prerequisites: both BIO 201 and admission to a Dance B.F.A. concentration or only instructor approval.

DAN 342 Ideokinesis. (2)

fall

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. Prerequisite: Dance major or instructor approval.

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 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. 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 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. 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. 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 B.F.A. 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. 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. 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 credits. 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.
- Performance Technology I
Fee.
- Performance Technology II
Fee.
- Senior Dance Education Project
- Sound Lab
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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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, Solís, Spring, Stauffer, Sunkett, Swaim, Thompson, Williamson, Wytko

Associate Professors: E. Buck, N. Buck, Bush, E. Carpenter, Haefer, Holbrook, Kopta, Lyman, May, Rockmaker, Schuring, Smith, Wilson

Assistant Professors: Barefield, Bryan, A. Campbell, Cuciurean, Ericson, Feisst, Jiang, Landschoot, Lingas, McLin, Meir, Norton, Province, Rio, Schmidt, Sullivan, Swartz

Senior Lecturer: Shellans

Lecturer: Tongret

Academic Professional: G. Campbell

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 sup-

portive 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. 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 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 reauditions are heard and evaluated by School of Music faculty.

Admission to the composition concentration is subject to the approval of the composition faculty based upon an evaluation of the student's compositions and/or interview.

Diagnostic Examinations. All 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—B.A.

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 87, and “College Degree Requirements,” page 269.

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)	3
MTC 422 Musical Acoustics	3
Total	<u>17</u>

Music History. Three semester hours of MHL 341 Music History and three semester hours of MHL 342 Music History are required. Students are also required to complete six semester hours of upper-division music history courses beyond the basic sequence. Nine elective upper-division hours in music history and/or theory are required.

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. Areas of study may include ethnomusicology, music education, music history, music theory, and performance. At least 23 semester hours, 12 in the field of specialization, must be in the upper division. Students must select sufficient elective courses to complete the 120 hours required for graduation.

BACHELOR OF MUSIC DEGREE

All Bachelor of Music (B.M.) degree programs require 120 semester hours for graduation excluding Music Education (125 to 128 semester hours) and Music Therapy (126 semester hours). The B.M. 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 B.M. majors on the pages that follow consists 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 87, and “College Degree Requirements,” page 269.

MUSIC EDUCATION—B.M.

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	<u>12</u>

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	<u>9</u>

Conducting. The following conducting courses are required:

MUP 209 Beginning Choral Conducting	1
MUP 339 Choral Conducting	2
Total	<u>3</u>

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	<u>9</u>

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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

Minor Performing Medium. A proficiency equal to six semesters of study in keyboard or voice (whichever is not the major performing medium) is required. Students wishing to extend their proficiency beyond this level may continue to study in MUP 321 Studio Instruction.

Ensemble. Eight different semesters of participation, including at least six semesters of MUP 352 Concert Choir and/or MUP 353 University Choir, four of which must be at ASU, are required.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Instrumental Concentration

It is strongly recommended that this degree program include courses in choral music or courses in jazz education.

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
Total	12

Music History. The following music history courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History	3
MHL 342 Music History	3
Total	9

Conducting. The following conducting courses are required:

MUP 210 Beginning Instrumental Conducting	1
MUP 340 Instrumental Conducting	2
Total	3

Music Education. The following music education courses are required:

MUE 110 Introduction to Music Education	1
MUE 315 General Music in the Secondary Schools	2
MUE 317 Educational Methods for Violin and Viola	1
MUE 318 Educational Methods for Cello and String Bass	1
MUE 327 Educational Methods for Trumpet and Horn	1
MUE 328 Educational Methods for Trombone, Euphonium, and Tuba	1
MUE 336 Educational Methods for Percussion	1
MUE 337 Educational Methods for Flute, Clarinet, and Saxophone	1
MUE 338 Educational Methods for Double Reed Instruments	1
MUE 481 Instrumental Practicum/Methods	5
MUE 482 Instrumental Practicum/Methods	5
Total	20

Major Performing Medium. Eight semester hours of MUP 111 Studio Instruction and eight semester hours of MUP 311 Studio Instruction are required to obtain a proficiency level necessary to meet the graduation recital requirement. MUP 495 Performance completes the requirement.

Ensemble. Eight different semesters of participation in an ensemble are required, four of which must be at ASU. Two of the four ASU semesters must be in marching band. Wind and percussion players must have a minimum of six semesters of MUP 361 Marching and Concert Bands or 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 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 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 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 small ensemble are required.

MUSIC THERAPY—B.M.

Students are eligible to apply for the Certification Exam offered by the Certification Board for Music Therapists upon completion of the requirements for graduation.

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
Total	12

Music History. The following music history courses are required:

MHL 194 ST: Music and Culture	3
MHL 201 MacLiteracy for Musicians CS	3
MHL 341 Music History	3
MHL 342 Music History	3
Total	12

Conducting. One of the following two courses is required:

MUP 209 Beginning Choral Conducting	1
MUP 210 Beginning Instrumental Conducting	1

Music Education. The following music education courses are required:

MUE 211 Music in Recreation	2
MUE 313 Elementary Music Methods	3
MUE 335 Educational Methods for Guitar	1
MUE 336 Educational Methods for Percussion	1
MUE 389 Repertoire for Music Therapy	3
Total	10

Music Therapy. The following music therapy courses are required:

MUE 161 Introduction to Music Therapy	2
MUE 261 Music Therapy as a Behavioral Science	2
MUE 361 Music Therapy Theory and Practice in Psychopathology	3
MUE 362 Music Therapy Techniques	3
MUE 381 Music Therapy Research L	3
MUE 384 Therapy Preclinical I	1
MUE 385 Therapy Preclinical II	1
MUE 386 Therapy Preclinical III	1
MUE 387 Therapy Preclinical IV	1
MUE 388 Therapy Preclinical V (elective)	1
MUE 441 Psychology of Music	3
MUE 475 Group Process and Music Therapy	1
MUE 476 Internship in Music Therapy	1
Total	23

Major Performing Medium. A minimum of 12 semester hours are required in the major performing medium, which must include at least four semester hours of MUP 311 Studio Instruction.

Voice. Two semesters of study in voice are required.

Ensembles. Six semesters of ensemble participation are required with at least four semesters in large groups.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Additional Requirements. These courses are also required:

BIO 201 Human Anatomy and Physiology I SG	4
CDE 232 Human Development SB	3
PGS 101 Introduction to Psychology SB	3
PGS 466 Abnormal Psychology SB	3
PSY 230 Introduction to Statistics CS	3
or STP 226 Elements of Statistics CS (3)	
SOC 101 Introductory Sociology SB	3
SPE 311 Orientation to Education of Exceptional Children SB	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—B.M.

Guitar Concentration

Music Theory. The following music theory courses 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 91.

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MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
MTC 320 Modal Counterpoint	2
or MTC 321 Tonal Counterpoint (2)	—
Total	14

Music History. The following music history courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History	3
MHL 342 Music History	3
MHL upper-division course	3
Total	12

Repertoire and Pedagogy. The following courses are required:

MUP 451 Repertoire	2
MUP 481 Performance Pedagogy and Materials	2
Total	4

Conducting. MUP 210 Beginning Instrumental Conducting is required.

Major Performing Medium. Sixteen semester hours of MUP 127 Studio Instruction and 16 semester hours of MUP 327 Studio Instruction are required to attain a proficiency level necessary to meet the graduation recital requirements. A half recital (MUP 495 Performance) and a full recital (MUP 496 Performance) are also required.

Ensemble. Eight semester hours of ensemble are required within a minimum of six different semesters. Four of the eight semester hours must be MUP 379 Chamber Music Ensembles: Guitar.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Diagnostic Examination. Four semesters of class piano (MUP 131, 132, 231, 232), unless waived by a diagnostic examination at the time of entrance, are required.

Jazz Concentration

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
MTC 315 Modern Arranging	2
MTC 316 Modern Arranging	2
MTC 440 Jazz Theory and Ear Training	2
MTC 441 Jazz Composition	2
Total	20

Music History. The following music history courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History	3

MHL 342 Music History	3
MHL 352 The Evolution of Jazz <i>H</i>	3
Total	12

Conducting. MUP 210 Beginning Instrumental Conducting is required.

Major Performing Medium. Eight semester hours of MUP 111 Studio Instruction and eight semester hours of MUP 311 Studio Instruction are required to obtain a proficiency level necessary to meet the graduation recital requirements. Two half recitals (MUP 495 Performance) are required, with one in the jazz idiom.

Four semesters of MUP 379 Chamber Music Ensembles: Jazz are required.

Improvisation. The following courses are required:

MUP 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

Harpsichord. One semester hour of harpsichord is required.

Major Performing Medium. Sixteen semester hours of MUP 127 Studio Instruction and 16 semester hours of MUP 327 Studio Instruction are required to attain a proficiency level necessary to meet the graduation recital requirements. A half recital (MUP 495 Performance) and a full recital (MUP 496 Performance) are required.

Ensemble. Eight semester hours of ensemble within a minimum of six different semesters are required, including two semesters of accompanying and two semesters of chamber music.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

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, and 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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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 elective (minimum of six different semesters) are required.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Voice Concentration

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
Total	12

Music History. The following music history courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History	3
MHL 342 Music History	3
MHL upper-division course	3
Total	12

Repertoire and Pedagogy. Two semester hours of MUP 451 Repertoire and two semester hours of MUP 481 Performance Pedagogy and Materials are required.

Also required are two semester hours selected from MUP 453 Song Literature or 454 Song Literature or a repeated enrollment of MUP 451 Repertoire.

Diction. Three semester hours of MUP 250 Diction for Singers is required, which includes one hour each of Italian, German, and French.

Conducting. MUP 209 Beginning Choral Conducting is required.

Major Performing Medium. Sixteen semester hours of MUP 127 Studio Instruction and 16 semester hours of MUP 327 Studio Instruction are required to attain a proficiency level necessary to meet the graduation recital requirements. A half recital (MUP 495 Performance) and a full recital (MUP 496 Performance) are required.

Ensemble. Four different semesters of large vocal ensembles are required plus four semester hours of ensembles within four different semesters to be selected from large and/or small ensembles.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Language. Sixteen semester hours are required in more than one foreign language, chosen from French, German, and Italian. A student may select one year of one language and one semester of the others, chosen in conference 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—B.M.

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 432 Instrumentation	2
MTC 433 Orchestration	2
MTC 436 Electronic Studio Techniques I	2
Total	22

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 four 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

B.I.S. CONCENTRATION

A concentration in music is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

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 269, 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

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 432 Instrumentation. (2)*fall in even years*

Study of the characteristics and performance techniques of individual orchestral instruments. Prerequisite: MTC 223.

MTC 433 Orchestration. (2)*spring in odd years*

Theoretical and practical study of scoring music for orchestra. Prerequisite: MTC 432.

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: non-music 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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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.

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 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 130 Beginning Group Piano. (1)

fall and spring

Provides a basic introduction to playing piano through music reading, chords, rhythmic, and written activities. Prerequisite: non-music major.

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 142 Jazz Listening Lab. (1)

spring

Focuses on the development of jazz through classic performances and recordings.

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 Improvisation Workshop. (2)*fall and spring*

Emphasizes basic jazz literature, chord symbol reading, melodic patterns, ear training, melodic concepts, analysis of improvised solos, and pedagogical issues. Prerequisites: MTC 125; MUP 111 (1 semester).

MUP 218 Improvisation Workshop. (2)*fall and spring*

Continuation of MUP 217. Prerequisite: MUP 217.

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 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 320 MIDI Workshop. (2)*fall*

Presents hardware and software applications for sequencing and music printing. 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

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 woodwinds 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 417 Advanced Improvisation. (2)

fall and spring

Emphasizes analysis and performance of advanced jazz literature; composition in contemporary styles. Must be taken in sequence with MUP 418. May not be taken for audit. Prerequisite: MUP 218.

MUP 418 Advanced Improvisation. (2)

fall and spring

Continuation of MUP 417. Prerequisite: MUP 417.

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.

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 B.M. degree in which 1/2 recital is a requirement. Prerequisite: B.M. degree candidate.

MUP 496 Performance. (0)

fall

For candidates of a B.M. degree in which a full recital is a requirement. Prerequisites: B.M. 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 non-music 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 not applicable toward any music degree. 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 not applicable toward any music degree. Lecture, discussion. Cross-listed as AFH 347. Credit is allowed for only AFH 347 or MUS 347. Fee.

General Studies: HU

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 not applicable toward any music degree. Fee.

General Studies: HU

MUS 355 Survey of American Music. (3)

fall, spring, summer

Growth and development of American music. Credit not applicable toward any music degree. 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 not applicable toward any music degree. 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.

possess that can contribute to the study and creation of the-
atre at ASU? 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 consid-
ered.

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 B.A. 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 require-
ments by the end of the first year (two semesters) are asked
to seek advising regarding other majors.

THEATRE—B.A.

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 B.A. degree candidates:

THE 125 Orientation to Theatre	1
THE 220 Principles of Dramatic Analysis L	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 Theatre Forms and Contexts	3
THP 102 Acting: Fundamentals	3
THP 218 The Director's Vision	3
THP 301 Theatre Production: Running Crew	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., play-
writing, 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 semes-
ter hours can constitute an optional focus area for the stu-
dent, which involves enrolling in related course work from
one of five specialty areas in Theatre: directing and stage

L literacy and critical inquiry / MA mathematics / CS computer/statistics/
quantitative applications / HU humanities and fine arts / SB social and
behavioral sciences / SG natural science—general core courses / SQ natural
science—quantitative / C cultural diversity in the United States / G global /
H historical / See "General Studies," page 91.

Department of Theatre

theatre.asu.edu

480/965-5337

GHALL 232

Professors: Barker, Bedard, Eckard, Giner, Honegger,
Knapp, Saldaña, Thomson, Wills

Associate Professors: Acker, Edwards, Furr-Soloman,
Holloway, Reyes, Riske

Assistant Professors: Gharavi, Rivera-Servera,
Steenerson, Sterling, Underiner, Woodson

Senior Lecturer: McMahan

For advising purposes, all students registering in a The-
atre degree program enroll through the Katherine K. Her-
berger College of Fine Arts. Special advising check sheets,
providing complete information regarding requirements and
suggested electives, are available in the Department of The-
atre office and on its Web site for the B.A. degree program.

For eligibility to enroll in theatre courses as majors,
incoming freshman and transfer students must submit a
two-page, typed, double-spaced letter of intent that answers
the questions (1) How did you first become interested in or
involved with theatre? and (2) What are the qualities you



Jason Acton and Kindra Steenerson perform in the Archibald MacLeish Pulitzer Prize-winning play, “J.B.,” a Herberger College Mainstage Theatre production.

Lyle Beitman photo

management; playwriting; history, theory, and criticism; film; and theatre for youth. 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 interview 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:

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 cadre. 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 87.

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 <i>HU</i>	3
THE 300 Film: The Creative Process I <i>HU</i>	3
THE 320 History of the Theatre I <i>HU, H</i>	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.

B.I.S. CONCENTRATION

A concentration in theatre is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

GRADUATE PROGRAMS

The faculty in the Department of Theatre offer programs leading to the M.A. degree in Theatre; the Master of Fine Arts degree in Theatre with concentrations in interdisciplinary digital media, performance, scenography, and theatre for youth; the Ph.D. 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 B.A. 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
Elements of theatrical film: cinematography, sound, editing, directing, acting, scriptwriting, producing, and criticism. 3 hours lecture, demonstration via film and videotape. Fee.
General Studies: HU

THE 301 Film: The Creative Process II. (3)

fall and spring
Advanced study of selected films, analyzing cinematography, sound, editing, directing, acting, screenwriting, producing, and criticism. Prerequisite: THE 300.
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 91.

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

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 independent films and filmmakers in the United States, 1968 to the present.

General Studies: HU

THE 404 Foreign Films and Filmmakers. (3)

fall and spring

Films and filmmakers from Europe, Asia, Australia, Far East, South America, and 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. Fee. Prerequisite: THE 300.

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 Theatre Forms and Contexts. (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. (4)

spring

Applies materials, techniques, and theories for theatre with 9th-through 12th-grade students. Emphasizes curriculum development and praxis. Prerequisite: written 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 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.

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 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

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 Playwright's Workshop. (3)

fall and spring

Practice and study of creating characters, dialogue, scenes, plays, and monologues for the stage. May be repeated for credit. Studio, lecture. Prerequisite: written 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)

once a year

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.

College of Law

www.law.asu.edu

Patricia D. White, J.D., 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 main campus. The Law Building provides every modern facility for legal education and has been described by experts involved in the planning of law buildings 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.

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 implication of new technologies. The center anticipates issues raised by new knowledge, stimulates dialogue between legal and scientific scholarship, 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—19 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 at the college was established in 1988 to provide legal education to law students on topics in Indian law, generate scholarships 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

COLLEGE OF LAW

nations and individuals. Through a Certificate in Indian Law, the college provides its students with a quality legal education and an opportunity to gain specific knowledge and expertise in Indian law.

Students have the opportunity to participate in all phases of the Indian Legal Program and gain an in-depth understanding of the legal issues affecting Indian tribes and people. Courses on Federal Indian law and seminars on advanced Indian law topics such as tribal law and government, gaming, and American Indian cultural resources protection are part of the curriculum. Students also have the opportunity to participate in internships with local tribal courts, the Native American Rights Fund, the U.S. Department of the Interior, or the Senate Committee on Indian Affairs in Washington, D.C. This variety of academic and work experience provides the 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 five real-client clinics: the Civil Justice Clinic, the Criminal Practice Clinic, the Public Defender Clinic, the Mediation Clinic and the newly designed Technology Ventures Clinic. The college's extensive and diverse clinical program allows students to choose among a variety of different work environments.

The Civil Practice Clinic, for example, operates as a functioning law firm within the college, while students in the criminal litigation clinics work in prosecution or public defender agencies in the Phoenix area. Students in the Medication 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. Finally, 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. 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 by 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 school 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 the 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, Brennan, Calleros, Clinton, Ellman, Feller, Fidel, Gorman, Gover, Grey, Guerin, Herrera, Jones, Kader, Karjala, Lowenthal, Lynk, Matheson, Nickel, O’Grady, Rose, Saks, Schatzki, Schroeder, Stanton, Strouse, Trotta, Tsosie, Tucker, Weinstein, M. White, P. White, Winer, Woodley

Visiting Professor: Spritzer

Associate Professors: Marchant, Noreuil, Sigler, Sylvester

Clinical Professors: Dallyn, Dauber

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, Ph.D., 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 Graduate College 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 a School of Life Sciences, 20 academic departments, several interdisciplinary programs, 10 centers, and several research institutes and laboratories. The college offers 36 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 “no preference” prelaw or “no preference” 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 68. All students who meet the university standards are admissible to CLAS, but students desiring to major in Economics must have transfer GPAs of at least 2.50. Transfer students are urged to contact the relevant academic department or the Office for Academic Programs in SS 111, 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 SS 111. 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 68).

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 regarding 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 91, “**University Graduation Requirements**,” page 87, “**CLAS Graduation Requirements**,” page 319, 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 for Academic Programs, in SS 111, 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)	SS 111 (480/965-6506)
Declared majors	Department of major
No preference, prelaw	SS 111 (480/965-6506)
No preference, 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 for Academic Programs in SS 111).

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 encouraged to check their mandatory advising status each semester before attempting registration transactions.

Advising for Preprofessional Programs. Special advising is available for students planning to enter the fields listed in the “**Advising for Preprofessional Programs**” table, page 316. 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.

Pre-Health Professions. Students pursuing professional schools in the health professions must choose a major offered by ASU. However, certain 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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “**General Studies**,” page 91.

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 for Academic Programs, SS 111
Medicine ¹	Pre-Health Professions, LSC 206C
Ministry	Department of Religious Studies, ECA 377
Occupational therapy ¹	Pre-Health Professions, LSC 206C
Optometry ^{1, 2}	Pre-Health Professions, LSC 206C
Osteopathy ¹	Pre-Health Professions, LSC 206C
Pharmacy ¹	Pre-Health Professions, LSC 206C
Physical therapy ¹	Pre-Health Professions, LSC 206C
Podiatry ^{1, 2}	Pre-Health Professions, LSC 206C

¹ Students preparing for a career in these areas should register in the Pre-Health Professions office, 480/965-2365.

² No school in Arizona offers a program in dentistry, optometry, or podiatry. Students interested in pursuing these professions should confer with Pre-Health Professions advisors concerning out-of-state schools where they may complete their training.

profession should meet regularly with the Pre-Health Professions office for guidance. While this guidance does not replace the need to meet with an advisor in the department of the student’s major, pre-health advising is a necessary supplement. To schedule a meeting with Pre-Health Professions, located in LSC 206, call 480/965-2365.

Prelaw. The American Bar Association does not recommend any specific major for students who wish to apply to law school upon graduation. ASU does not have a “prelaw” degree program. Therefore, students should select a major that interests them. Recent surveys of law school graduates indicate that students would be well advised to take one or two semesters of accounting as a supplement to their major curriculum. In addition, the American Bar Association recommends a variety of courses in the classics, in economics, and in mathematical reasoning. Courses that engage the student in intense critical analysis and a substantial amount of writing are also recommended. As the student approaches the second semester of his or her junior year, the student should contact the prelaw advisor in the college or department of his or her major to obtain information regarding the procedure to apply to law school.

Career Advising: CLASWorks. A degree in the liberal arts and sciences prepares a student for careers that include but are not limited to business, government/public service, nonprofit organizations, the arts, science and research, and most corporate environments. By the time of graduation, CLAS students have developed the ability to solve problems, analyze data, communicate ideas, and execute complex plans. To identify career paths that best fit a student’s interests and talents, the Office of Academic

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 CLASWorks for a career advising session soon after arriving on campus.

DEGREES

Majors. Programs leading to the B.A. and B.S. 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 317. 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 ASU Main.

University policies prohibit the “double-counting” of courses from the major for the minor. Specific questions concerning double-counting, as well as general questions about the approval processes for minors, should be taken up with an academic advisor in the department offering the minor or the Office for Academic Programs in SS 111.

Refer to the CLAS portion of the “ASU Minors” table, page 117.

ASU EXTENDED CAMPUS

The College of Extended Education was created in 1990 to extend the resources of ASU throughout Maricopa County, the state, and beyond. The College of Extended Education is a university-wide college that oversees the ASU Extended Campus and forms partnerships with other ASU colleges, including the College of Liberal Arts and Sciences, to meet the instructional and informational needs of a diverse community.

The ASU Extended Campus goes beyond the boundaries of the university’s physical campuses to provide access to quality academic credit and degree programs for working

College of Liberal Arts and Sciences Baccalaureate Degrees and Majors

Major	Degree	Concentration ¹	Administered By
African American Studies	B.A.	Humanities/arts, politics and society, or social and behavioral sciences	African American Studies Program
Anthropology	B.A.	—	Department of Anthropology
Asian Languages (Chinese/Japanese)	B.A.	—	Department of Languages and Literatures
Biochemistry	B.A. B.S.	— Optional: medicinal chemistry ¹	Department of Chemistry and Biochemistry
Biology	B.S.	Optional: biology and society ¹	School of Life Sciences
Chemistry	B.A. B.S.	— Optional: environmental chemistry ¹	Department of Chemistry and Biochemistry
Chicana and Chicano Studies	B.A.	Humanities/cultural sciences or social sciences/policy	Department of Chicana and Chicano Studies
Clinical Laboratory Sciences	B.S.	—	School of Life Sciences
Computational Mathematical Sciences	B.S.	—	Department of Mathematics and Statistics
Conservation Biology	B.S.	—	School of Life Sciences
Economics	B.A., B.S.	—	Department of Economics ²
English	B.A.	Linguistics or literature	Department of English
Family and Human Development	B.S.	Optional: family studies/child development ¹	Department of Family and Human Development
French	B.A.	—	Department of Languages and Literatures
Geography	B.A., B.S.	Meteorology-climatology or urban studies	Department of Geography
Geological Sciences	B.S.	—	Department of Geological Sciences
German	B.A.	—	Department of Languages and Literatures
History	B.A.	—	Department of History
Humanities	B.A.	—	Interdisciplinary Humanities Program
Integrated Studies	B.A., B.S.	—	College of Liberal Arts and Sciences
Italian	B.A.	—	Department of Languages and Literatures
Kinesiology	B.S.	Exercise science, movement science, or teacher preparation	Department of Kinesiology
Mathematics	B.A. B.S.	— Optional: statistics ¹	Department of Mathematics and Statistics Department of Mathematics and Statistics
Microbiology	B.S.	—	School of Life Sciences
Molecular Biosciences/Biotechnology	B.S.	—	School of Life Sciences
Philosophy	B.A.	—	Department of Philosophy
Physics	B.S.	—	Department of Physics and Astronomy
Plant Biology	B.S.	Environmental science and ecology or plant biochemistry and molecular biology	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 Baccalaureate Degrees and Majors (continued)

Major	Degree	Concentration ¹	Administered By
Political Science	B.A.	—	Department of Political Science
	B.S.	Optional: public policy advocacy and lobbying or public policy analysis ¹	Department of Political Science
Psychology	B.A., B.S.	—	Department of Psychology
Religious Studies	B.A.	—	Department of Religious Studies
Russian	B.A.	—	Department of Languages and Literatures
Sociology	B.A.	—	Department of Sociology
Spanish	B.A.	—	Department of Languages and Literatures
Speech and Hearing Science	B.S.	—	Department of Speech and Hearing Science
Women's Studies	B.A.	—	Women's 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.

adults through flexible schedules; a vast network of off-campus sites; classes scheduled days, evenings, and weekends; and innovative delivery technologies including television, the Internet, and Independent Learning. The Extended Campus also offers a variety of professional continuing education and community outreach programs.

For more information, see “ASU Extended Campus,” page 689, 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 87.

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 91. 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 ASU Main.
- 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:
 - African American Studies (AFH)
 - Asian Languages (Chinese/Japanese) (CHI/JPN)
 - Chicana and Chicano Studies (CSH)
 - English (ENG)

- French (FRE)
 - German (GER)
 - Humanities (HUM)
 - 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)
 - Women's Studies (WSH)
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)
 - Mathematics (MAT)
 - Microbiology (MIC)
 - Molecular Biosciences/Biotechnology (MBB)
 - Physics (AST, PHS, PHY)
 - Plant Biology (PLB)
 3. Social and behavioral sciences:
 - African American Studies (AFS)
 - Anthropology (ASB)
 - Chicana and Chicano Studies (CSS)
 - Economics (ECN)
 - Family and Human Development (Students majoring in this field must satisfy the CLAS graduation requirements in all three divisions.) (CDE, FAS)
 - Geography (GCU)
 - History (HST)
 - Kinesiology (Students majoring in this field must satisfy the CLAS graduation requirements in all three divisions.) (KIN)
 - Political Science (POS)
 - Psychology (PGS, PSY)
 - Sociology (SOC)
 - Speech and Hearing Science (Students majoring in this field must satisfy the CLAS graduation requirements in all three divisions.) (SHS)
 - Women's Studies (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 Family and Human Development, Kinesiology, and Speech and Hearing Science must satisfy CLAS graduation requirements in social behavioral sciences as well as in the other two divisions.

Students majoring in 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's 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 American Studies Program)
2. CSH (Department of Chicana and Chicano Studies)
3. ENG (Department of English)
4. 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)
5. HPS (School of Life Sciences)
6. HUM (Interdisciplinary Humanities Program)
7. PHI (Department of Philosophy)
8. 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.
9. WSH (Women's Studies 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 91.

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- 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 mathematics courses for which MAT 117 or a higher-level mathematics course is a prerequisite 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 and behavioral 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 American Studies Program)
2. ASB (Department of Anthropology)
3. CSS (Department of Chicana and Chicano Studies)
4. ECN (Department of Economics)
5. GCU (Department of Geography)
6. HST (Department of History)
7. PGS (Department of Psychology)
8. POS (Department of Political Science)
9. SOC (Department of Sociology)
10. WST (Women's 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.

The following courses have been approved as CLAS bridge courses (access the Web site at asu.edu/clas/bridgecourses for any additional bridge courses approved after the *General Catalog* was published):

- ASB 240 Introduction to Southeast Asia
(Cross-listed as GCU 240/HST 240/
POS 240/REL 240)
- ASB 326 Human Impacts on Ancient
Environments
- ASB 350 Anthropology and Art
- ASB 353 Death and Dying in Cross-Cultural
Perspective (This course is also offered
at ASU East)
- ASB 462 Medical Anthropology: Culture and
Health
- ASM 248 Bioarchaeology of Cannibalism,
Violence, and Social Pathology
- ASM 345 Disease and Human Evolution
- BIO 311 Biology and Society
(Cross-listed as HPS 340)
- BIO 316 History of Biology: Conflicts and
Controversies
(Cross-listed as HPS 330)
- BIO 318 History of Medicine
(Cross-listed as HPS 331)
- BIO 319 Environmental Science (nonmajor
only) (Cross-listed as PLB 320)
- BIO 427 Fire
- ENG 312 English in Its Social Setting
- ENG 469 Science and Literature
- GCU 344 Geography of Hispanic Americans
- GPH 210 Society and Environment
- GPH 314 Global Change
- GPH 405 Energy and Environment
- GPH 422 Plant Geography
(Cross-listed as PLB 422)
- HPS 322 History of Science
- HPS 330 History of Biology: Conflicts and
Controversies
(Cross-listed as BIO 316)
- HPS 331 History of Medicine
(Cross-listed as BIO 318)
- HPS 340 Biology and Society
(Cross-listed as BIO 311)
- HST 436 The Soviet Experiment
- HST 460 History of Fire
- HUM294 ST: Introduction to Southeast Asia
- HUM420 Interpreting Latin America
- KIN 422 Motor Control in Special Populations
- KIN 452 Exercise Psychology
- MIC 394 ST: HIV Disease and AIDS in America
- PGS 394 ST: Disease and AIDS in America
- PLB 320 Environmental Science (nonmajor)

- only) (Cross-listed as BIO 319)
- PLB 322 Environmental Science (majors only)
- PLB 422 Plant Geography
(Cross-listed as GPH 422)
- POS 305 Politics and Film
- PSY 424 Genetic Psychology
- PSY 425 Biological Bases of Behavior
- PSY 426 Neuroanatomy
- PSY 470 Psychopharmacology
- REL 379 Religion, Nationalism, and Ethnic
Conflict
- REL 382 Religion, Magic, and Science
- REL 390 Women and Religion
- REL 480 Religion and Global Politics
- SCA 250 Introduction to Scandinavian Culture
- SHS 394 ST: Brain, Memory, and Language
- SOC 334 Technology and Society
- SOC 420 Sociology of Religion
- SOC 451 Comparative Sociology
- SOC 483 History of Social Thought
- WST 394 ST: Women and Religion

Note: With the exception of ASB 353 only the main campus courses listed above will fulfill the bridge course requirement.

- E. Second Language Requirement. Each student is required to demonstrate proficiency by completing courses in a second language. Each student must demonstrate proficiency by completing the courses specified below with a grade of “C” (2.00) or higher in each course. Second language course requirements consist of
 - 1. completion of second language course work at the intermediate level (202 or equivalent, those students completing this requirement in 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 114 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 120 semester hours required for graduation. The 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 DARS report every semester to gauge how well they are meeting all requirements for graduation. Students should contact the Office for Academic Programs, in SS 111, 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 B.A. and B.S. 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 for Academic Programs, in SS 111, 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 will be granted for overload.

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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

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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 79.

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 the 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 students, should contact the Office for Academic Programs in SS 111, 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 possi-

bility of successful reinstatement is enhanced. Academic discipline is one of the functions of the Office for Academic 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 for Academic Programs, in SS 111, 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 128.

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 B.A. or B.S. degree provides students of outstanding ability in the humanities, natural sciences and mathematics, and social and behavioral sciences opportunities to pursue courses of studies 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 for Academic Programs in SS 111.

Learning Communities. CLAS Learning Communities are nine to 12 semester hour clusters of courses organized around a common theme and taught by prominent faculty from different disciplines. Course material and extracurricular activities are integrated to enhance the student's intellectual development and fulfill lower-division portions of the General Studies requirement. Each Learning Community is

College of Liberal Arts and Sciences Graduate Degrees and Majors

Major	Degree	Concentration ¹	Administered By
Anthropology	M.A.	Archaeology, bioarchaeology, linguistics, museum studies, physical anthropology, or social-cultural anthropology	Department of Anthropology
	Ph.D.	Archaeology, physical anthropology, or social-cultural anthropology	Department of Anthropology
Asian Languages and Civilizations—Chinese/Japanese	M.A.	—	Department of Languages and Literatures
Audiology	Au.D.	—	Department of Speech and Hearing Science
Biology	M.S., Ph.D.	Optional: ecology ¹	School of Life Sciences
Chemistry	M.S., Ph.D.	Analytical chemistry, biochemistry, geochemistry, inorganic chemistry, organic chemistry, physical chemistry, or solid-state chemistry	Department of Chemistry and Biochemistry
Communication Disorders	M.S.	—	Department of Speech and Hearing Science
Computational Biosciences	M.S.	—	College of Liberal Arts and Sciences
Creative Writing ²	M.F.A.	—	Creative Writing Committee
English	M.A.	Comparative literature, English linguistics, literature and language, or rhetoric and composition	Department of English
	Ph.D.	Literature or rhetoric/composition and linguistics	Department of English
Exercise Science ²	Ph.D.	Biomechanics, motor behavior/sport psychology, or physiology of exercise	Committee on Exercise Science
Family and Human Development	M.S.	Optional: family studies ¹	Department of Family and Human Development
Family Science	Ph.D.	Optional: marriage and family therapy ¹	Department of Family and Human Development
French	M.A.	Comparative literature, linguistics, or literature	Department of Languages and Literatures
Geography	M.A., Ph.D.	—	Department of Geography
Geological Sciences	M.S., Ph.D.	—	Department of Geological Sciences
German	M.A.	Comparative literature, language and culture, or literature	Department of Languages and Literatures
History	M.A.	Asian history, British history, European history, Latin American history, public history, U.S. history, or U.S. Western history	Department of History
	Ph.D.	Asian history, British history, European history, Latin American history, or U.S. history	Department of History
Humanities	M.A.	—	Graduate Committee on Humanities
Kinesiology	M.S.	—	Department of Kinesiology
Materials Science ²	M.S.	—	Committee on the Science and Engineering of Materials
Mathematics	M.A., Ph.D.	—	Department of Mathematics and Statistics

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

² This program is administered by the Graduate College.

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College of Liberal Arts and Sciences Graduate Degrees and Majors (continued)

Major	Degree	Concentration ¹	Administered By
Microbiology	M.S., Ph.D.	—	School of Life Sciences
Molecular and Cellular Biology	M.S., Ph.D.	—	Interdisciplinary Committee on Molecular and Cellular Biology
Natural Science	M.N.S.	Biology, microbiology, 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	M.A., Ph.D.	—	Department of Philosophy
Physical Education	M.P.E.	—	Department of Kinesiology
Physics	M.S., Ph.D.	—	Department of Physics and Astronomy
Plant Biology	M.S., Ph.D.	Optional: ecology or photosynthesis ¹	School of Life Sciences
Political Science	M.A., Ph.D.	American politics, comparative politics, international relations, or political theory	Department of Political Science
Psychology	Ph.D.	Behavioral neuroscience, clinical psychology, cognitive/behavioral systems, developmental psychology, quantitative research methods, or social psychology	Department of Psychology
Religious Studies	M.A., Ph.D.	—	Department of Religious Studies
Science and Engineering of Materials ²	Ph.D.	High-resolution nanostructure analysis or solid-state device materials design	Committee on the Science and Engineering of Materials
Sociology	M.A., Ph.D.	—	Department of Sociology
Spanish	M.A.	Comparative literature, language and culture, linguistics, or literature	Department of Languages and Literatures
	Ph.D.	Cultural studies or literature	Department of Languages and Literatures
Speech and Hearing Science ²	Ph.D.	Developmental neurolinguistic disorders, neuroauditory processes, or neurogerontologic communication disorders	Committee on Speech and Hearing Science
Statistics ²	M.S.	—	Committee on Statistics
Teaching English as a Second Language	M.TESL	—	Department of English

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

² This program is administered by the Graduate College.

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.

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 Wash-

ington 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

CLAS Certificates

Certificate Program	Administered By	Page
College of Liberal Arts and Sciences Enriched Certificate	CLAS	326
African and African Diaspora Studies, Graduate Certificate in ²	African American Studies Program	—
African American Studies Certificate	African American Studies Program	333
American Public Policy Certificate	Department of Political Science	432
Asian Studies, Graduate Certificate ¹	Center for Asian Studies	326
Atmospheric Sciences Certificate ²	CLAS and Ira A. Fulton School of Engineering	—
Civic Education Certificate	Department of Political Science	432
Classical Studies Certificate	Department of Languages and Literatures and Interdisciplinary Humanities Program	326
East Asian Studies Certificate	Center for Asian Studies	326
Ethics Certificate	Department of Philosophy	326
Geographic Information Science Certificate	Department of Geography	327
Geographic Information Science, Interdisciplinary Certificate in ²	CLAS and Graduate College	—
Health Physics Certificate	Pre-Health Professions Office	327
History and Philosophy of Science Certificate	School of Life Sciences	327
International Studies Certificate	Department of Political Science	433
Islamic Studies Certificate	Department of Religious Studies	327
Jewish Studies Certificate	Jewish Studies Committee	327
Latin American Studies Certificate ¹	Latin American Studies Center	328
Linguistics, Graduate Certificate in ²	Committee on Linguistics	—
Medieval and Renaissance Studies Certificate	Arizona Center for Medieval and Renaissance Studies (ACMRS)	328
Medieval Studies Certificate ²	ACMRS	—
Museum Studies Certificate ²	Department of Anthropology	—
Renaissance Studies Certificate ²	ACMRS	—
Russian and East European Studies Certificate ¹	Russian and East European Studies Center	328
Scandinavian Studies Certificate	Department of Languages and Literatures	329
Scholarly Publishing Certificate ²	Department of History	—
Southeast Asian Studies Certificate	Program for Southeast Asian Studies	329
Statistics, Certificate in ²	Committee on Statistics and the Graduate College	—
Symbolic Systems, Certificate in	Department of Philosophy	329
Translation Certificate	Department of Languages and Literatures	386
Women's Studies Certificate	Women's Studies Program	330
Writing Certificate	Department of English	353

¹ Emphases are also available in these programs.

² For more information, see the *Graduate Catalog*.

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, on this page. Areas of emphasis are also

available in some of the same subjects (e.g., Latin American 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 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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 of 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 for Academic Programs, in SS 111, or call 480/965-6506.

American Public Policy. See “Certificate in American Public Policy,” page 432.

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.

B.I.S. Concentrations. Concentrations in Asian studies and East Asian studies are available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “Bachelor of Interdisciplinary Studies,” page 123.

Civic Education. See “Certificate in Civic Education,” page 432.

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.

B.I.S. Concentration. Concentrations in (1) classical studies—Greek or (2) classical studies—Latin are available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “Bachelor of Interdisciplinary Studies,” page 123.

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.

B.I.S. Concentration. A concentration in ethics is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies,](#)” page 123.

Geographic Information Science. The cross-disciplinary undergraduate certificate in Geographic Information Science (GIS) is designed for undergraduates wishing to pursue a GIS-related career. The certificate is awarded to students completing the following 19 semester hours with a grade of “C” (2.00) or higher.

Required Courses

CSE 100 Principles of Programming with C++	CS	3
GCU 495 Quantitative Methods in Geography	CS	3
GPH 370 Geographic Information Technologies	CS	3
GPH 373 Geographic Information Science I	CS	4
GPH 473 Geographic Information Science II	CS*	3
Elective (choose from the courses below)		3
ABS 485 GIS in Natural Resources	(3)	
ABS 586 Remote Sensing in Environmental Resources	(3)	
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 GIS-Based Internship	(3)	
PLB 434 Landscape Ecological Modeling	(3)	

For more information, call the Department of Geography at 480/965-7533.

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 B.S. 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 B.S. degree in a physical or life science that follows a prescribed program. For more information, visit the Pre-Health Professions 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 philosophical issues surrounding science and the historical development of concrete scientific theories and ideas. The philosophical 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 philosophical 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 433.

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 focus 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;

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “[General Studies,](#)” page 91.

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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.

B.I.S. Concentration. A concentration in Jewish studies is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see "[Bachelor of Interdisciplinary Studies](#)," page 123.

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.

B.I.S. Concentration. A concentration in Latin American studies is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see "[Bachelor of Interdisciplinary Studies](#)," page 123.

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 examina-

tions 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 \(ACMRS\)](#)," page 36, for information about the center.

B.I.S. Concentration. A concentration in medieval and Renaissance studies is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see "[Bachelor of Interdisciplinary Studies](#)," page 123.

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 leading to a bachelor's degree with a major in the chosen field with an emphasis in Russian and East European studies. The requirements for the Russian and East European Studies Certificate comprise (1) three years (22 hours) of Russian or another Eurasian or East European language and (2) 30 upper-division semester hours in Russian/East European area-related course work.

At least three disciplines must be represented in the area-related course work, and at least 12 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], Emphasis 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 major in any department may elect this emphasis.

For more information, call 480/965-4188, or visit COOR 4465.

B.I.S. Concentration. A concentration in Russian and East European studies is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

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 under advisement 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.

B.I.S. Concentration. A concentration in Scandinavian studies is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

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.

B.I.S. Concentrations. Concentrations in Southeast Asian studies (area studies option or language option) are available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “[General Studies](#),” page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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 386, for information about the Certificate in Translation.

Women's Studies. Women's 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's Studies must consult with the Women's Studies advisor to select appropriate courses and fulfill requirements.

A Certificate of Concentration in Women's 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's Studies courses.

Inquiries about the certificate program should be addressed to the Women's 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 34, for more information.

Courses. The faculty also offer the following LIA course to familiarize students with available resources and services for research purposes.

For information on LIA courses, see the *Schedule of Classes*, visit the Office for Academic Programs in SS 111, 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.

Department of Aerospace Studies

Air Force ROTC

www.asu.edu/clas/afrotc

480/965-3181

PSYN 324

Col. David W. Guthrie, Chair

Professor: Guthrie

Assistant Professors: Greensfelder, Head, Kwazoski

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 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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 American Studies Program

www.asu.edu/clas/afamstu

480/965-4399

COWDN 227

Patricia Neff, Interim Director

CORE FACULTY

Professor: Reyes

Associate Professors: Bontemps, Boulin Johnson

Assistant Professors: Hinds, Usman

Clinical Associate Professor: Cox

AFFILIATED FACULTY

Anthropology

Senior Lecturer: Winkelman

Art

Professors: Sweeney, Young

Associate Professor: Umberger

Asian Pacific American Studies

Assistant Professor: Rosa

English

Professors: Lester, Miller

Associate Professors: Chancy, DeLamotte

Assistant Professor: 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 Studies

Professors: Figueria-McDonough, Jurik, Romero, Zatz

Life Sciences (ASU West)

Professor: Graves

Music

Professors: Pilafian, Solís, Sunkett

Associate Professor: Smith

Political Science

Professor: McGowan

Associate Professor: Mitchell

Psychology in Education

Associate Professor: Hood

Recreation Management and Tourism

Associate Professor: Teye

Religious Studies

Associate Professor: Moore

Sociology

Professor: Cobas

Associate Professor: Keith

Instructor: Williams

Theatre

Associate Professor: Edwards

Women's Studies

Professor: Rothschild

Assistant Professors: Anderson, Leong

African American Studies (AAS) is interdisciplinary and focuses on people of African descent throughout the world. Focus is given to 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. As an institutional program with a bidisciplinary emphasis, AAS is structured to

1. prepare students of all ethnicities to better understand, value, and more effectively participate in our increasingly diverse society;
2. 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; and
3. provide 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 and utilize channels for informing policies which affect the life of Blacks in the diaspora.

AFRICAN AMERICAN STUDIES—B.A.

Course Requirements. The major in 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 AAS 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, AAS 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, AAS majors are required to take a minor or a certificate program of a minimum of 18 hours in another academic field.

CERTIFICATE IN 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 AMERICAN STUDIES

Course Requirements. The minor requires 18 semester hours. All 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 the 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.

B.I.S. Concentration. A concentration in African American studies is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

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

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 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 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

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.

Department of Anthropology

www.asu.edu/clas/anthropology

480/965-6213

ANTH 233

Sander van der Leeuw, Chair

Regents' Professor: Clark

Professors: Barton, Brandt, Carr, Chance, Cowgill, Eder, Hegmon, Hudak, Johanson, Kimbel, Kintigh, Marean, Martin, Nash, B. Nelson, M. Nelson, Redman, Spielmann, Stark, van der Leeuw, Williams

Associate Professors: Baker, Falconer, Reed, Rice, Stone, Welsh

Assistant Professors: Haenn, Isaac, Jonsson, Steadman

Senior Lecturer: Winkelman

Associate Research Professors: Simon, Sugiyama

ANTHROPOLOGY—B.A.

Course Requirements. The Anthropology major consists of a minimum of 39 or 40 semester hours in anthropology and a minimum of six semester hours in related fields in other departments. At least 18 of the semester hours must be in upper-division courses (300–400 level). Three of the six hours in related fields must be in statistics. Related fields are determined by the students in consultation with their advisor. 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 <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 (3)</i>	
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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

Elective

Anthropology	2-3
Total	39-40

Related Fields

Statistics	3
Approved course	3
Total	45-46

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)	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* (minimum hours)	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* (minimum hours)	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* (minimum hours)	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

Archaeology or Physical Anthropology

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 <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 485 U.S.-Mexico Border in Comparative Perspective (3)	

Anthropology Elective

Any anthropology course (minimum)	2-3
Total	39-40

Related Fields

One lower- or upper-division statistics course in mathematics, sociology, psychology, political science, or history	3
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One course from a field related to but outside of anthropology chosen with advisor	3
Total	6

* 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. The particular introductory courses selected may limit the anthropology courses available in the upper division however. 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” table, page 335, 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.

B.I.S. CONCENTRATION

For students pursuing the Bachelor of Interdisciplinary Studies (B.I.S.) 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” table, page 335. A minimum grade of “C” (2.00) is required for all courses taken for the minor in Anthropology for B.I.S. 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 328.

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 M.A. and Ph.D. degrees. See the *Graduate Catalog* for requirements.

SECONDARY EDUCATION—B.A.E.

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 189, 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

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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

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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, 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 is 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.

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***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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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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 bi-cultural 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.

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, Gust, Holloway, Kouvetakis, Lohr, A. Moore, T. Moore, Petuskey, Rose, Shock, Skibo, Steimle, Williams, Woodbury

Associate Professors: Booksh, Hayes, Richert, Wolf

Assistant Professors: Caudle, Francisco, Ghirlanda, Gould, Matyushov, Seo, Wachter

Senior Lecturer: White

Lecturers: Bauer, Marks

CHEMISTRY—B.A.

The B.A. 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 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)

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CHM 336 General Organic Chemistry Laboratory (1)	
CHM 325 Analytical Chemistry	3
CHM 326 Analytical Chemistry Laboratory	1
CHM 341 Elementary Physical Chemistry	3
CHM 343 Physical Chemistry Laboratory	1
CHM 453 Inorganic Chemistry	3
CHM electives	2
Minimum total	29–30

* 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 <i>MA</i> ¹	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i> ¹	4
PHY 111 General Physics <i>SQ</i> ^{2,3}	3
PHY 112 General Physics <i>SQ</i> ^{2,3}	3
PHY 113 General Physics Laboratory <i>SQ</i> ^{2,3}	1
PHY 114 General Physics Laboratory <i>SQ</i> ^{2,3}	1
Total	16

- ¹ Equivalent courses may be taken in place of MAT 270 and 271.
- ² More advanced PHY courses may be taken in place of PHY 111, 112, 113, and 114.
- ³ 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—B.S.

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 <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 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 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 ²	3
CHM 346 Physical Chemistry II ²	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 Completion of MAT 274 and 342 satisfies the 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.

A course in a computer language, such as CSE 181 Applied Problem Solving with Visual BASIC is strongly recommended.

Transfer students are interviewed and advised of possible preparatory work. They must contact the department to arrange for the interview in advance of registration. See "College Degree Requirements," page 318.

CHEMISTRY—B.S.

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	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)	

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 91.

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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

* 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

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)	
MIC 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 B.S. in Chemistry program is certified by the Department of Chemistry and Biochemistry to the American Chemical Society (ACS) as having met the specific requirements for undergraduate professional training in chemistry. Graduates meeting ACS guidelines can receive a certificate to indicate this fact.

BIOCHEMISTRY—B.A.

The program consists of a minimum of 38 semester hours in chemistry or 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 <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 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 Biochemistry	3
BCH 462 General Biochemistry	3
BCH 467 Analytical Biochemistry Laboratory <i>L</i>	3
Choose between the course combinations below	3
CHM 302 Environmental Chemistry (3)	
—— or ——	
CHM 325 Analytical Chemistry (3)	
CHM 341 Elementary Physical Chemistry*	3
Chemistry electives (choose from the courses below)	6
BCH 392 Introduction to Research Techniques (1–3)	
BCH 463 Biophysical Chemistry (3)	
BCH 464 Biophysical Chemistry Laboratory (2)	
BCH 465 Protein and Nucleic Acid Biochemistry (3)	
CHM 302 Environmental Chemistry (3)	
CHM 325 Analytical Chemistry (3)	
CHM 326 Analytical Chemistry Laboratory (1)	
CHM 327 Instrumental Analysis (3)	
CHM 328 Instrumental Analysis Laboratory (2)	
CHM 392 Introduction to Research Techniques (1–3)	
CHM 424 Separation Science (3)	
CHM 452 Inorganic Chemistry Laboratory <i>L</i> (1–2)	
CHM 453 Inorganic Chemistry (3)	
CHM 471 Solid-State Chemistry (3)	
CHM 481 Geochemistry (3)	
Total	21

* CHM 345 may be taken in place of CHM 341.

Additional required related field courses are as follows:

Choose between the course combinations below	11 or 12
BIO 187 General Biology I <i>SG</i> (4)	
BIO 188 General Biology II <i>SQ</i> (4)	
BIO 340 General Genetics (4)	
—— or ——	
BIO 187 General Biology I <i>SG</i> (4)	
BIO 188 General Biology II <i>SQ</i> (4)	
BIO 353 Cell Biology (3)	
—— or ——	
MBB 245 Cellular and Molecular Biology (3)	
MBB 343 Genetic Engineering and Society <i>L</i> (4)	
MBB 350 Applied Genetics (4)	
Choose between the course combinations below	7
MAT 251 Calculus for Life Sciences <i>MA</i> ¹ (3)	
PHY 101 Introduction to Physics <i>SQ</i> ² (4)	

DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

	— 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—B.S.

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 Biochemistry	3
BCH 462 General Biochemistry	3
BCH 463 Biophysical Chemistry	3
BCH 464 Biophysical Chemistry Laboratory	2
BCH 467 Analytical Biochemistry Laboratory L	3
CHM 341 Elementary Physical Chemistry*	3
Chemistry elective (choose from the courses below)	3
BCH 392 Introduction to Research Techniques (1–3)	
BCH 465 Protein and Nucleic Acid Biochemistry (3)	
CHM 327 Instrumental Analysis (3)	
CHM 424 Separation Science (3)	
CHM 431 Qualitative Organic Analysis (3)	
CHM 453 Inorganic Chemistry (3)	
CHM 471 Solid-State Chemistry (3)	
Total	20

* CHM 345 may be taken in place of CHM 341.

Additional required related field courses are as follows:

BIO 187 General Biology I SG	4
BIO 188 General Biology II SQ	4
BIO 340 General Genetics	4
BIO 353 Cell Biology	3

MAT 270 Calculus with Analytic Geometry I MA	4
MAT 271 Calculus with Analytic Geometry II MA	4
PHY 111 General Physics SQ ¹	3
PHY 112 General Physics SQ ²	3
PHY 113 General Physics Laboratory SQ ¹	1
PHY 114 General Physics Laboratory SQ ²	1
Total	31

¹ Both PHY 111 and 113 must be taken to secure SQ credit.

² Both PHY 112 and 114 must be taken to secure SQ credit.

Additional biology courses selected from BIO 343, 351, 360, 441, 450, and 465 are strongly recommended.

Additional biochemistry and chemistry courses, including CHM 392 Introduction to Research Techniques, may be taken by students and should be chosen in consultation with an advisor.

BIOCHEMISTRY—B.S.

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 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 Biochemistry	3
BCH 462 General Biochemistry	3
BCH 463 Biophysical Chemistry	3
BCH 467 Analytical Biochemistry Laboratory L	3
CHM 341 Elementary Physical Chemistry	3
CHM 343 Physical Chemistry Laboratory	1
CHM 433 Advanced Organic Chemistry I	3
CHM 435 Medicinal Chemistry	3

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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Chemistry or biochemistry elective (choose from the courses below).....	3
BCH 465 Protein and Nucleic Acid Biochemistry (3)	
CHM 434 Advanced Organic Chemistry II (3)	
CHM 453 Inorganic Chemistry (3)	
Total	25

Additional required related field courses are as follows:

Choose between the course combinations below.....	4
BIO 187 General Biology I <i>SG</i> (4)	
_____ or _____	
BIO 188 General Biology II <i>SQ</i> (4)	
_____ or _____	
MBB 245 Cellular and Molecular Biology <i>SQ*</i> (3)	
MBB 246 Cellular and Molecular Biology Laboratory <i>SQ*</i> (1)	
Total	4

* 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 I <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)	
_____ 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 <i>L</i> ³ (1)	

CHM 349 Physical Chemistry Laboratory II <i>L</i> ³ (1)	
Minimum total	24

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.

³ CHM 348, 349, and 452 must all be taken to secure L 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.

B.I.S. CONCENTRATION

A concentration in chemistry is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see "[Bachelor of Interdisciplinary Studies](#)," page 123.

SECONDARY EDUCATION—B.A.E.

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 189, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more informa-

tion, 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, 131, 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 consists of 43 semester hours in chemistry plus work in related fields. 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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Minor Teaching Field. The minor teaching field consists of the following required courses:

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.....	10 or 8
BCH 361 Principles of Biochemistry (3)	
CHM 231 Elementary Organic Chemistry <i>SQ</i> * (3)	
CHM 325 Analytical Chemistry (3)	
CHM 326 Analytical Chemistry Laboratory (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.....	3
Total.....	20 or 22

* Both CHM 231 and 235 must be taken to secure *SQ* credit.

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, M.S., and Ph.D. See the *Graduate Catalog* for requirements.

The department participates in the interdisciplinary program for the M.S. and Ph.D. 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

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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

BCH 467 Analytical Biochemistry Laboratory. (3)

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

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

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" (3.00) or higher: CHM 101 or 114 or 115 or 116 or 117 or 1 year of high school chemistry or instructor approval.

General Studies: SQ (if credit also earned in CHM 235)

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. Prerequisite: CHM 231 or 331. Pre- or corequisite: CHM 302.

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, spring, 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, spring, 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 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 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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

Professor: Candelaria

Associate Professor: Escobar

Assistant Professors: Garcia, Leaños, Magaña, 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 current status of people of Mexican descent and other Latinas and Latinos living in the United States. The curriculum combines a research-based understanding of the humanities, social sciences, and the arts with practical CCS applications (studio formats, internships, community research projects, etc.) as preparation for successful careers and productive public service in diverse communities.

CHICANA AND CHICANO STUDIES—B.A.

The major in Chicana and Chicano Studies requires 45 semester hours of course work. A minimum of 30 semester hours must be in CCS, CSH, and CSS courses. The remaining course work must be in a related field and approved by an advisor. All CCS majors must take 15 semester hours in the following core courses:

CCS 101 Introduction to Chicana and Chicano Studies C.....	3
CCS 111 Introduction to Chicana and Chicano Culture C.....	3
CCS 498 Pro-Seminar	3
HST 331 Mexican American History to 1900 SB, C, H.....	3
HST 332 Mexican American History Since 1900 SB, C, H.....	3

Within the 45 semester hours, CCS majors must also take 18 semester hours in one of two concentrations—humani-

ties/cultural studies or social sciences/policy—and 12 hours in the other concentration for a total of 45 semester hours.

Majors are expected to fulfill the college’s language requirement in Spanish. Although the department advisor can make exceptions on a case by case basis, all majors must demonstrate proficiency in Spanish.

All Chicana and Chicano Studies majors must take an established minor or credential of at least 18 semester hours in another field.

CHICANA AND CHICANO STUDIES MINOR

The Chicana and Chicano Studies minor requires 18 semester hours of course work. All Chicana and Chicano Studies minors must take the following courses:

CCS 101 Introduction to Chicana and Chicano Studies C.....	3
or CCS 111 Introduction to Chicana and Chicano Culture C (3)	
HST 417 Topics in Mexican American History SB, C, H.....	3
Total	6

Students must also take at least three credits 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.

B.I.S. CONCENTRATION

A concentration in Chicana and Chicano studies is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “Bachelor of Interdisciplinary Studies,” page 123.

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.](#)

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See ["General Studies," page 91.](#)

Computational Biosciences

Interdisciplinary Master's Degree

www.asu.edu/compbiosci

480/965-5519

PSA 216

Rosemary Renaut, Director

GRADUATE PROGRAMS

The master's degree in Computational Biosciences is administered by an interdisciplinary committee. The faculty participating in this M.S. program are drawn from departments including Biology, Chemistry and Biochemistry, Computer Science Engineering, 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 (B.A.) degree and a Bachelor of Science (B.S.) degree in Economics. The B.S. degree is designed primarily for students intending to seek employment upon completion of their undergraduate studies. The B.A. 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 B.S. degree in Economics. Faculty, course descriptions, and the major requirements in the W. P. Carey School of Business are listed under "Department of Economics," see page 175.

ECONOMICS—B.A.

The B.A. 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 B.A. program in economics.

The requirements for the B.A. in Economics consist of three parts: the university requirements for all students at ASU, see "University Graduation Requirements," page 87; the requirements of the College of Liberal Arts and Sciences, see "College Degree Requirements," page 318; 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. Transfer students wanting to major in Economics must have a transfer GPA of at least 2.50 and are given a one-semester period to register and establish a GPA at ASU. In addition, students must meet all prerequisites and course requirements as listed in the catalog. These include

- A. Mathematics and Statistics: MAT 270, 271, and 272 or MAT 290 and 291; STP 226 or QBA 221; and ECN 470
- B. Principles of Economics: ECN 111 and 112
- C. Completion of 21 semester hours in economics courses and quantitative business analysis courses at the 300-level or above. These 21 hours must include
 1. Economic Theory: ECN 313 and 314;
 2. Econometrics and Statistics: ECN 425 or QBA 321 or QBA 410 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—B.S.

The B.S. 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 B.S. in Economics consist of three parts: the university requirements for all students at ASU, see "University Graduation Requirements," page 87; the requirements of the College of Liberal Arts and Sciences, see "College Degree Requirements," page 318; 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. Transfer students wanting to major in Economics must have a transfer GPA of at least 2.50 and are given a one-semester period to register and establish a GPA at ASU. In addition, 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 425 or QBA 321 or QBA 410 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 328, 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 181.

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 170.

MINOR IN ECONOMICS

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. The W. P. Carey School of Business does not permit its professional program students to enroll in this minor. 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 or accounting 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.

B.I.S. CONCENTRATIONS

Concentrations in (1) economics and (2) economics for students planning a career in law are available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies,](#)” page 123.

SECONDARY EDUCATION—B.A.E.

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 189, 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 425 Introduction to Econometrics <i>CS</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 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

QBA 321 Applied Quality Analysis I (3)	
QBA 410 Applied Business Forecasting (3)	
Choose one of the following courses.....	3
ECN 475 Capstone in Economics L (3)	
ECN 493 Honors Thesis L (3)	
Upper-division economics electives.....	12
Related area course*	9
Total	45

* Choose 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.

Minor Teaching Field. The minor teaching field consists of 21 semester hours. ECN 111 Macroeconomic Principles and ECN 112 Microeconomic Principles and MAT 210 Brief Calculus are required. The remainder must be approved by the economics advisor in consultation with the student.

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 189, 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 Economics offer programs leading to the M.S. and Ph.D. degrees. See the *Graduate Catalog* for requirements.

For faculty and course descriptions see “Department of Economics,” page 175.

COURSES

For courses, see “Economics (ECN),” page 176.

Department of English

www.asu.edu/clas/english

480/965-3168

LL 542

Neal 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, Chancy, Corse, DeLamotte, M. Goggin, Johnson, Lussier, Mahoney, McNally, Morgan, Nelson, Perry, Pritchard, Ramage, Savard, Schwalm, Tohe, Voaden

Assistant Professors: Blasingame, Fox, Fuse, P. Goggin, Lockard, Milun, Parchesky, Webb Peterson

Senior Lecturers: Cook, Cooper, Duerden, Dugan, Dwyer, Heenan, Norton, Sudol, Wheeler

Lecturers: Binkley, Dutttagupta, Stancliff

Academic Associate: McNeil

Academic Professional: Glau

ENGLISH—B.A.

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 B.A. degree in English, with a concentration in either linguistics or literature, and a Secondary Education Bachelor of Arts in Education degree. The faculty also offer a Writing Certificate. Students interested in creative writing are encouraged to use electives to pursue a creative writing emphasis. 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 B.A. 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 <i>LHU</i>	3
ENG 213 Introduction to the Study of Language	3
ENG 221 Survey of English Literature <i>HU</i>	3
or ENG 222 Survey of English Literature <i>HU, H</i> (3)	
or ENG 241 Literatures of the United States to 1860 <i>HU</i> (3)	
or ENG 242 Literatures of the United States, 1860–Present <i>HU</i> (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-credit 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 B.A. 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 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 Language3
 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.

B.I.S. CONCENTRATIONS

Four concentrations in English (creative writing, linguistics concentration, literature concentration, and writing certificate) are available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies,](#)” page 123.

WRITING CERTIFICATE

The Writing Certificate consists of 19 semester hours. Initial entry into the program requires a minimum GPA of 3.00 in ENG 101 and 102, 105, or 107 and 108. Students must also have completed at least 30 hours of course work and must have a minimum GPA of 3.00. Required courses are as follows:

ENG 216 Persuasive Writing on Public Issues *L*.....3
 or ENG 412 Creative Nonfiction (3)
 ENG 301 Writing for the Professions *L*.....3
 ENG 372 Document Production *L*.....3
 ENG 472 Rhetorical Studies *L*.....3
 ENG 484 Internship: Writing Certificate3
 ENG 498 PS: Writing Certificate Portfolio.....1
 Total16

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.

L literacy and critical inquiry / *MA* mathematics / *CS* computer/statistics/ quantitative applications / *HU* humanities and fine arts / *SB* social and behavioral sciences / *SG* natural science—general core courses / *SQ* natural science—quantitative / *C* cultural diversity in the United States / *G* global / *H* historical / See “[General Studies,](#)” page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

SECONDARY EDUCATION—B.A.E.

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 189, 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

Minor Teaching Field. The minor teaching field consists of the following required courses:

ENG 200 Critical Reading and Writing About Literature <i>L/HU</i>	3
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 321 Introduction to Shakespeare <i>L/HU</i>	3
or ENG 421 Shakespeare <i>HU</i>	

ENG 470 Symbols and Archetypes in Children’s Literature <i>L/HU</i>	3
ENG 471 Literature for Adolescents <i>HU</i>	3
ENG 480 Methods of Teaching English: Composition <i>L</i>	3
ENG 482 Methods of Teaching English: Language <i>L</i>	3
Choose from among the courses below	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)	
ENG 352 Short Story <i>L/HU</i> (3)	
A course in women’s or American ethnic literatures (3)	
Total	24

GRADUATE PROGRAMS

The faculty in the Department of English offer programs leading to the M.A. 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 Ph.D. 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 76, and “First-Year Composition Requirement,” page 87.

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 76, and “First-Year Composition Requirement,” page 87.

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***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 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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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: HU

ENG 330 19th-Century British Poetry. (3)

selected semesters

Romantic and Victorian poets studied in context. May be repeated for credit when topics vary. 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. May be repeated for credit when topics vary. 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

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. See ENG Notes 1, 2. Prerequisite: ENG 310 or 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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. 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 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 455 Forms of Verse: Theory and Practice. (3)

selected semesters

Types, history, analysis of traditional poetic forms and contemporary adaptations. Writing of poetry in forms such as sonnet, villanelle, sestina. See ENG Notes 1, 2. Prerequisite: ENG 310 or instructor approval.

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

Studies in African American or Caribbean literatures according to genre, period, theory, or selected authors. May be repeated for credit when topics vary. Cross-listed as AFH 459. Credit is allowed for only AFH 459 or ENG 459. See ENG Notes 1, 2, 3. Topics may include the following:

- African American Short Story

General Studies: L

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

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 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:

- 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, Spinrad, Valiente

Senior Lecturers: Bodman, Weigand

FAMILY AND HUMAN DEVELOPMENT—B.S.

For the B.S. degree in Family and Human Development at ASU Main, students must pursue the concentration in family studies/child development. The mathematics proficiency must be met by completing MAT 117 or higher.

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 430 Infant/Toddler Development in the Family <i>SB</i>	3
CDE 338 Child Development Practicum	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 Observational and Naturalistic Methods of Studying Children <i>L/SB</i>	3
CDE 444 Children and Poverty	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 Children and Poverty	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

B.I.S. CONCENTRATION

A concentration in family studies/child development is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see "Bachelor of Interdisciplinary Studies," page 123.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

SECONDARY EDUCATION—B.A.E.

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 M.S. and Ph.D. 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. Prerequisites: PGS 101; SOC 101.

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

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. Pre- or corequisite: CDE 337.

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 Observational and Naturalistic Methods of Studying Children. (3)

selected semesters

In-depth examination of implementing observational and naturalistic studies of children in a variety of settings. 2 hours lecture, 3 hours lab. Prerequisites: CDE 430; 6 hours in psychology.

General Studies: L/SB

CDE 444 Children and Poverty. (3)

fall

Impact that poverty has on children and their families. 2 hours lecture, 3 hours lab. Prerequisites: CDE 232 (or its equivalent); 6 hours in upper-division social sciences.

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

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. (1–3)

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.

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 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.

Department of Geography

geography.asu.edu
480/965-7533
SCOB 330

Breandán Ó hUallacháin, Chair

Professors: Arreola, Balling, Brazel, Burns, Cervený, Dorn, Gober, Ó hUallacháin, Pasqualetti, Zehnder

Associate Professors: Fall, Kuby, McHugh

Assistant Professors: Edsall, Ellis, Keys, Li, Lukinbeal, Schmeckle, Wentz

Lecturer: 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 B.A. degree in Geography, B.S. degree in Geography, B.A.E. 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 B.A. and B.S. degrees in Geography consist of a minimum of 45 semester hours. A minor consists of a minimum of 18 semester hours.

GEOGRAPHY—B.A.

A student choosing a B.A. degree in Geography may be interested in a liberal arts and sciences focus on the breadth of the field. A B.A. 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 B.A. 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>SO</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

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)	
GCU 323 Geography of Latin America <i>SB, G</i> (3)	
GCU 325 Geography of Europe <i>SB, G</i> (3)	
GCU 326 Geography of Asia <i>SB, G</i> (3)	
GCU 327 Geography of Africa <i>SB, G</i> (3)	
GCU 328 Geography of Middle East and North Africa <i>SB, G</i> (3)	
GCU 332 Geography of Australia and Oceania <i>SB, G</i> (3)	
GCU 344 Geography of Hispanic Americans <i>SB, C</i> (3)	
GCU 421 Geography of Arizona and Southwestern United States <i>SB, C</i> (3)	
GCU 423 Geography of South America <i>SB, G</i> (3)	
GCU 424 Geography of Mexico and Middle America <i>SB, G</i> (3)	
GCU 425 Geography of the Mexican American Borderland <i>L/SB, G</i> (3)	
GCU 426 Geography of Russia and Surroundings <i>SB, G</i> (3)	
GCU 433 Geography of Southeast Asia (3)	
GPH 433 Alpine and Arctic Environments <i>G</i> (3)	

A student can design, in consultation with an advisor, a general B.A. degree in Geography. In addition, there are three cooperative programs whereby a student receives a B.A. 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 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 326, and “Southeast Asian Studies,” page 329.

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

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See “General Studies,” page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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 328, for more information.

GEOGRAPHY—B.S.

The B.S. 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> or GPH 411 Physical Geography (3)	4
Total	<u>10–11</u>

* 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	<u>12</u>

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 B.S. 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 B.S. 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> or GPH 411 Physical Geography (3)	4
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	<u>25–26</u>

* 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	<u>15</u>

* 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	<u>20</u>

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> or GPH 411 Physical Geography (3)	4
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	<u>26–27</u>

* 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 one upper-division elective 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 or graduate-level GCU 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 total	15

MINOR IN GEOGRAPHY

A minor in Geography is awarded to students who complete a minimum of 18 hours in geography. A letter 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 (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
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 (Capstone course) <i>CS</i>	3

Elective Courses

Choose one courses below	3
ABS 485 GIS in Natural Resources (3)	
ABS 586 Remote Sensing in Environmental Resources (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)	
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 Three credit hour GIS based internship (3)	

PLB 434 Landscape Ecological Modeling (3)	
Total	19

B.I.S. 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 (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies,](#)” page 123.

SECONDARY EDUCATION—B.A.E.

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 189, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

Academic Specialization ITC Admission Requirements.

At least three required courses in the academic specialization must be completed with a grade of “C” (2.00) or higher before applying to the ITC professional program.

Geography. The major teaching field consists of 30 semester hours and six hours in teaching methods. A grade of “C” (2.00) or higher is required in all academic specialization courses. Required major courses are as follows:

GCU 102 Introduction to Human Geography <i>SB</i>	3
GCU 121 World Geography <i>SB, G</i>	4
GPH 111 Introduction to Physical Geography <i>SQ</i>	4
GPH 210 Society and Environment <i>G</i>	3-4
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)	
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)	
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 level geography courses chosen in conjunction with 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 91.

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Teaching Methods

GCU 414 Teaching Geography Standards	3
SED 480 Social Studies Methods.....	3
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, 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 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***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)

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See [“General Studies,” page 91.](#)

COLLEGE OF LIBERAL ARTS AND SCIENCES

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 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

Topics may include the following:

- Physical Geography Internship. (3)
fall and spring
Assist in teaching sixth-grade students a simplified version of GPH 111 using hands-on activities.
- Service Learning
fall, spring, summer
Fee.

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.

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 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, Holloway, Knauth, Peacock, Reynolds, Shock, Stump, Tyburczy, Williams

Associate Professors: Anbar, Arrowsmith, Sharp

Assistant Professors: Clarke, Fouch, Garnero, Hartnett, Semken

GEOLOGICAL SCIENCES—B.S.

The B.S. 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

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 318.

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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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.

B.I.S. CONCENTRATION

A concentration in geological sciences is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “Bachelor of Interdisciplinary Studies,” page 123.

GRADUATE PROGRAMS

The faculty in the Department of Geological Sciences offer programs leading to the degrees of Master of Natural Science, M.S., and Ph.D. 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 which 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 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 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.

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

Topics may include the following:

- Geology Internship. (3)

fall and spring

Assist in teaching fifth-grade students a simplified version of GLG 103 using hands-on activities.

- Service Learning

fall, spring, summer

Fee.

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.



Old Main

Tim Trumble photo

Department of History

www.asu.edu/clas/history

480/965-5778

COOR 4595

Noel J. Stowe, Chair

CORE FACULTY

Regents' Professor: Iverson

Professors: Adelson, Batalden, Burg, Davis, Fuchs, Gratton, Green, Lavrin, MacKinnon, Rosales, Simpson, Stowe, Tillman, Warricke

Associate Professors: Barnes, Carroll, El Hamel, Gray, Gullett, Longley, Powers, Rush, Samuelson, Smith, Soergel, Stoner, Thompson, Thornton, VanderMeer, Warren-Findley, Wright

Assistant Professors: Kaplan, Koopmans, Manchester, 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's Studies

Professor: Rothschild

HISTORY—B.A.

The B.A. 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 ASU Main. 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 326, 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 327, 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 328, 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 328, 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 328, 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 329, for more information.

Women's Studies Certificate. Students majoring in History may elect to pursue a Women's Studies Certificate by successfully completing the requirements. See “[Women's Studies](#),” page 330, 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 ASU Main.

B.I.S. CONCENTRATION

A concentration in history is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

SECONDARY EDUCATION—B.A.E.

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 189, 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 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 should 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 189, 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 M.A. and Ph.D. 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

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See “[General Studies](#),” page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

HST 108 Introduction to Japan. (3)

fall

Historical survey of the people, culture, politics, and economy of Japan, supplemented by audiovisual presentations. Intended for non-majors.

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, 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***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 B.C.E. 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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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***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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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)

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Interdisciplinary Humanities Program

www.asu.edu/clas/humanities

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LL 641

Peter Lehman, Director

Interdisciplinary Humanities

Professors: Kugelmass, Lehman

Associate Professors: Baker, Privateer, Taylor

Assistant Professors: Duncan, Lund, Romeyn

Academic Professional: Gonzales-Macias

Languages and Literatures

Regents' Professor: Foster

The humanities are those learned bodies of knowledge that are used to express ideas, to understand the meaning of words, and to explore the values and beliefs that underlie our culture and the cultures of others. As defined by the U.S. Congress, the humanities include archaeology, comparative religion, ethics, history, jurisprudence, literature, linguistics, philosophy, the history and criticism of the arts, and those aspects of the social sciences that employ a philosophical or historical rather than quantitative approach to knowledge.

HUMANITIES—B.A.

The major in Humanities is interdisciplinary and may be intercollegiate. In consultation with an advisor, the student takes a minimum of 42 semester hours of interdisciplinary humanities courses from two components: (1) an interdisciplinary core of 18 hours and (2) an area of concentration of 24 hours.

Interdisciplinary Core

Issues, Methods, and Theory

HUM 200 Encountering the Humanities.....	3
HUM 394 ST: Humanities in the Western World.....	3
HUM 440 Los Angeles and Cultural Theory <i>HU, C</i>	3
HUM 498 Pro-Seminar in the Humanities.....	3

Electives

Three semester hours in each of the remaining areas of study	6
Total	18

Areas of Study

Required courses from list obtained from advisor.....	24
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Courses must be selected from an approved list or be approved in advance by the undergraduate advisor. Areas of study include cultures in contact, visual culture, and the body. An undergraduate major may also earn a certificate in Classical Studies.

Students must receive grades of “C” (2.00) or higher in all courses for the major.

MINOR IN HUMANITIES

The following courses are required for the minor:

HUM 110 Contemporary Issues in Humanities <i>HU</i>	3
or HUM 200 Encountering the Humanities <i>HU</i> (3)	
HUM 394 ST: Humanities in the Western World.....	3
HUM 440 Los Angeles and Cultural Theory <i>HU, C</i>	3
Three approved upper-division HUM courses	9
Total	18

B.I.S. CONCENTRATION

A concentration in humanities is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “Bachelor of Interdisciplinary Studies,” page 123.

GRADUATE PROGRAM

The faculty in the program also offer the M.A. degree in Humanities through the Graduate Committee on Humanities. See the *Graduate Catalog* for requirements.

HUMANITIES (HUM)

HUM 110 Contemporary Issues in Humanities. (3)

fall and spring

Responses of literature, art history, history, philosophy, religion, and other disciplines to common problems affecting modern American life. *General Studies: HU*

HUM 194 Special Topics in the Humanities. (1–4)

selected semesters

Open to all students. Topics may include the following:

- American Fine Arts. (3)
- Comparative Fine and Performing Arts. (3)
- Cultures of Ethnic Minorities. (3)
- Non-Western Cultures. (3)
- Western Historical or Contemporary Cultures. (3)

HUM 200 Encountering the Humanities. (3)

fall and spring

Introduces the languages, methods, and objectives of the study of the interdisciplinary humanities. Intersections of ideas, values, and cultural institutions. Lecture, studio, workshop. Prerequisite: Humanities major.

General Studies: HU

HUM 294 Special Topics in the Humanities. (1–4)

selected semesters

Open to all students. Topics may include the following:

- American Fine Arts. (3)
- Comparative Fine and Performing Arts. (3)
- Cultures of Ethnic Minorities. (3)
- Film and Media Studies. (3)
- Introduction to Film

Fee.

- Introduction to Southeast Asia

- Non-Western Cultures. (3)

HUM 310 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 REL 355. Credit is allowed for only HUM 310 or REL 355.

General Studies: L/HU, H

HUM 312 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 HST 386. Credit is allowed for only HST 386 or HUM 312.

General Studies: L/HU, H

HUM 331 Sexuality, Race, and Power. (3)

fall

Sexuality as an expression of identity politics, social transgression, and racial inequality, as portrayed in international literature, art, and film. Lecture, discussion.

HUM 340 Contemporary American Film and Popular Culture. (3)

fall

Study of American film, television, and popular music of past three decades as cultural documents. Fee.

General Studies: HU

HUM 371 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/REL 383. Credit is allowed for only BIO 344 or HPS 311 or HUM 371 or REL 383.

HUM 372 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/HPS 332. Credit is allowed for only BIO 346 or HPS 332 or HUM 372.

HUM 394 Special Topics in the Humanities. (1–4)

selected semesters

Open to all students. Topics may include the following:

- Art and Politics. (3)
- Culture and Society of Contemporary China. (3)
- Film History

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 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

- Humanities in the Western World. (3)
- Immigration and Ethnicity in American Culture. (3)
- The Holocaust and Social Theory. (3)

HUM 401 The Culture and Legacy of the European Enlightenment. (3)

spring
Historical survey of 18th-century European enlightenment and its status within contemporary intellectual culture. Lecture, discussion.
General Studies: HU, H

HUM 420 Interpreting Latin America. (3)

spring
Introduces protocols and methodologies for cultural interpretation of Latin America, with emphasis on four principal cities as cultural space.
General Studies: HU, G, H

HUM 440 Los Angeles and Cultural Theory. (3)

spring
Analyzes representations of Los Angeles in literary, film, and musical texts and broader implications for contemporary American society.
General Studies: HU, C

HUM 441 American Jewry Through Film and TV. (3)

fall
Examines the connection between Jews and the entertainment industry with reference to the constructions of race, class, and ethnicity. Lecture, discussion.

HUM 450 Technology and Culture. (3)

spring
Explores sociocultural, ideological, and postmodern implications of technology and the role technology plays in social constructions as well as the spaces it creates. Seminar, discussion.
General Studies: L/HU

HUM 451 Virtual Reality: The Culture of Cyberspace. (3)

once a year
Socioeconomic, cultural, aesthetic, postmodern, theoretical, and human implications of virtual reality technologies. Themes: cultural ideological productions of cyberspace. Collaborative and research based.

HUM 461 Postcolonial Studies. (3)

selected semesters
Interdisciplinary approach to the culture of European imperialism, independence movements, and contemporary postcolonial societies, focusing on literature, film, and theory. Lecture, discussion.

HUM 462 Psychoanalysis and Culture. (3)

fall
Introduces intellectual history of psychoanalytic movement of the 20th century and its contribution to humanities disciplines.
General Studies: L/HU/SB

HUM 465 Narrative in the Human Sciences. (3)

fall
Theories of narrative and narrativity in the humanities, concentrating on the problems of specific disciplines and interdisciplinary solutions.
General Studies: HU

HUM 494 Special Topics in the Humanities. (1-4)

selected semesters
Open to all students. Topics may include the following:

- Comedy and Culture. (3)
- Gender and Sexuality in the Ancient World. (3)
- Global Media Studies. (3)
- Italian/American Culture. (3)

HUM 498 Pro-Seminar in the Humanities. (1-7)

fall and spring
Methodologies and comparative theories for the study of relationships between various aspects of culture, the history of ideas, and the arts. For students with a major in Humanities with upper-division standing. May be repeated for a total of 6 semester hours when topics vary. Topics may include the following:

- Theory and Culture. (3)
- General Studies: L/HU*

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

Daniel M. Landers, Interim Chair

Regents' Professor: Landers

Professors: Darst, Matt, Stelmach

Associate Professors: Hinrichs, Morgan, Treasure, Willis

Assistant Professors: Etnier, Kulinna, Ringenbach, Santello

Senior Lecturer: Landers

Lecturers: Broman, Orlowicz

KINESIOLOGY—B.S.

The B.S. 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 117 College Algebra <i>MA</i>	3
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 below9

- KIN 334 Functional Anatomy and Kinesiology (3)
- KIN 448 Applied Sport Psychology *L* (3)
- KIN 484 Internship (6)
- KIN 494 ST: Interpretation of Exercise Performance (3)

Choose from among the courses below12

- KIN 283 Prevention and Care of Athletic Injuries (3)
- KIN 348 Psychological Skills for Optimal Performance *SB* (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 *L* (3)
- KIN 442 Fuel Metabolism (3)
- KIN 444 Metabolic Adaptations to Exercise Training (3)
- KIN 445 Exercise Physiology for Children and Adolescents (3)
- KIN 450 Biopsychosocial Perspectives on Physical Activity and Health (3)
- KIN 460 Theory of Strength Training *L* (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.

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 below9

- 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 below12

- 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 *L* (3)
- KIN 421 Human Motor Control (3)

- KIN 422 Motor Control in Special Populations (3)
- KIN 423 Motor Control and Aging (3)
- KIN 440 Exercise Biochemistry (3)
- KIN 442 Fuel Metabolism (3)
- KIN 443 Exercise Endocrinology *L* (3)
- KIN 445 Exercise Physiology for Children and Adolescents (3)
- KIN 450 Biopsychosocial Perspectives on Physical Activity and Health (3)
- KIN 452 Exercise Psychology *SB* (3)
- KIN 494 ST: Muscle Physiology (3)
- KIN 494 ST: Voluntary and Reflex Control of Movement (3)

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 below12

- KIN 100 Introduction to Health Wellness *SB* (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 *SB* (3)
- KIN 370 Advanced First Aid (3)
- KIN 400 Teaching Physical Activity Concepts *L* (3)
- KIN 413 Qualitative Analysis in Sport Biomechanics (3)
- KIN 441 Physiology of Women in Sport *L* (3)
- KIN 445 Exercise Physiology for Children and Adolescents (3)
- KIN 448 Applied Sport Psychology *L* (3)
- KIN 460 Theory of Strength Training *L* (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)

SECONDARY EDUCATION—B.A.E.

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 189, 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.

Physical Education. Candidates for the B.A.E. degree are required to complete the following courses in physical education in addition to the required KIN core courses:

L literacy and critical inquiry / *MA* mathematics / *CS* computer/statistics/quantitative applications / *HU* humanities and fine arts / *SB* social and behavioral sciences / *SG* natural science—general core courses / *SQ* natural science—quantitative / *C* cultural diversity in the United States / *G* global / *H* historical / See “General Studies,” page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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 <i>MA</i>	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>	3
BIO 202 Human Anatomy and Physiology II.....	3
CHM 101 Introductory Chemistry <i>SQ</i>	3
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).

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

The minor is not open to Kinesiology majors or Secondary Education majors in the College of Education pursuing an academic specialization in physical education.

B.I.S. CONCENTRATION

A concentration in kinesiology is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

GRADUATE PROGRAMS

The faculty in the Department of Kinesiology offer programs leading to the Master of Physical Education degree and the M.S. degree in Kinesiology. The department also participates with the Graduate College in the program leading to the Ph.D. degree in Exercise Science and with the College of Education and the Graduate College in the program leading to the Ph.D. 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.

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.

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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.



ASU's newest building, Lattie F. Coor Hall, was dedicated in January 2004. Named in honor of ASU's 15th president, the facility is the largest building on campus, housing 25 state-of-the-art mediated classrooms.

Tim Trumble photo

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/index.htm

480/965-6281

LL 440

Deborah N. Losse, Chair

Regents' Professors: Foster, Keller

Professors: Alexander, Baldini, Ballon-Aguirre, Chambers, Croft, Carlos Garcia-Fernández, Horwath, Losse, Volek, Wetsel, Williams, T. Wong

Associate Professors: Acereda, Candela, Canovas, Choi, Colina, Carmen Garcia-Fernández, Hernández-G., B. Lafford, Orlich, Ossipov, Rees, Reiman, Sanchez, Suwarno, Tompkins, Urioste-Azcorra, Vitullo

Assistant Professors: Cashman, George, Gilfillan, Ginsburg, Gruzinska, Haberman, Owen, Siegel-Valdes

Senior Lecturer: Foard

Lecturers: Deal, Garcia, Hendrickson, Lage, Le, Martinez, Oh, Pang, Petersen, Poudrier, Shimomura, Siriprakob, Stiftel, Walton-Ramirez, E. Wong, Zhang

Associate Research Professional: P. Lafford

Academic Associate: Glessner-Calkins

Research Associate Professor: Sipka

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 318. Consult the Languages and Literatures Web site at asu.edu/languages/index.htm for assessment requirements.

MAJORS

Asian Languages (Chinese/Japanese)—B.A.

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 which provides an overview of Chinese history, or six semester hours from appropriate courses in art, humanities, social and behavioral sciences, and business.

Recommended

Two 200-level CHI courses.....6

Required

CHI 313 Third-Year Chinese I *G*.....3
 CHI 314 Third-Year Chinese II *G*.....3
 CHI 321 Chinese Literature *HU*.....3
 CHI 322 Chinese Literature *HU, G*.....3
 or FLA 420 Foreign Literature in Translation *HU, G* (3)
 CHI 413 Introduction to Classical Chinese *HU*.....3
 CHI 414 Introduction to Classical Chinese *HU*.....3
 Total18

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)

Total6

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 *LHU, G*.....3
 JPN 313 Third-Year Japanese I *G*.....3
 JPN 314 Third-Year Japanese II *G*.....3
 JPN 321 Japanese Literature *LHU, G*.....3
 JPN 414 Introduction to Classical Japanese.....3
 Total15

Electives

Choose nine semester hours from the courses below.....9
 JPN 309 Intermediate Japanese Conversation (2)
 JPN 310 Intermediate Japanese Conversation (2)
 JPN 311 Japanese Conversation and Composition *G* (3)
 JPN 312 Japanese Conversation and Composition *G* (3)
 JPN 321 Japanese Literature *LHU, G* (3)
 JPN 394 Special Topics (1–4)
 JPN 435 Advanced Readings (3)
 JPN 485 Problems of Translation (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 91.

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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—B.A.

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>HU</i>	3
Total	12

Select 18 semester hours from the following list, including at least 12 semester hours from the 400 level:

FRE 315 French Phonetics	3
FRE 319 Business French <i>G</i>	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 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—B.A.

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)	
Total	30

In addition to these courses, the student must meet with an advisor and choose at least 15 semester hours of related courses from appropriate social and behavioral sciences, humanities, business courses, and other language courses.

Italian—B.A.

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</i> <i>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—B.A.

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*	3
or SLV 498 PS: Senior Seminar (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	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—B.A.

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

Electives

Two upper-division (300–400-level) SPA courses.....6

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>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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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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.

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 325.

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 328.

Scandinavian Studies Certificate. Any undergraduate major can earn a Scandinavian Studies Certificate.

Southeast Asian Studies Certificate. To earn a Southeast Asian Studies Certificate, a student must complete a minimum of 40 semester hours of course work related to Southeast Asia, including two years (20 semester hours) of a Southeast Asian language.

Translation Certificate (Spanish/English). The Translation Certificate program is designed to provide the advanced training required for professional translation in both public and private sectors, preparation for the rigorous examinations required by national and international agencies, and training as an ancillary skill for professional fields, such as international business, public health and medicine, and law, in accordance with guidelines recommended by the American Translators’ Association. The certificate is a nondegree program consisting of 15 semester hours of course work and two hours of in-service practicum primarily into the receptor language of English from the source language of Spanish. It may be taken simultaneously with course work leading to an undergraduate degree, as a related area sequence, or as the sole program of study for members of the community who meet the admission requirements of the certificate program and are enrolled in the university. A complete brochure is available at the Department of Languages and Literatures in LL 440.

While the certificate program is not yet available in French, FRE translation courses may be available. See the *Schedule of Classes* for course offerings.

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 494 ST: Introduction to Hispanic 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

B.I.S. 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, Spanish for native speakers, and translation (Spanish/English). They may also choose from any of the approved certificate programs. The requirements for the Bachelor of Interdisciplinary Studies (B.I.S.) concentrations are the same as for the minor in that language. See “[Minors](#),” page 385, for specific course requirements. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

SECONDARY EDUCATION—B.A.E.

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 189, 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 394 ST: Introduction to Teaching Foreign Languages and FLA 480 Methods of Teaching Foreign Languages are required courses.

Applications are not being accepted at this time for Chinese and Russian.

GRADUATE PROGRAMS

The faculty in the Department of Languages and Literatures offer programs leading to the M.A. degree in French, German, and Spanish and the Ph.D. 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “[General Studies](#),” page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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 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 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 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.

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.

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.

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.

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. (1–12)*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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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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.

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 B.C.E. 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: 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 Mir-

beau. 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 91.

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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)

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.](#)

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See ["General Studies," page 91.](#)

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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.

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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***POR 314 Portuguese Composition and Conversation. (3)***spring*

Continuation of POR 313. Prerequisite: POR 313 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 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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 B.A. 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 B.A. 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 B.A. 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 B.A. 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.

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 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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 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.

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

SWEDISH (SWE)

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 its 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 its 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 its 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 its equivalent).

General Studies: G

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

VIETNAMESE (VTN)

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

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 91.

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**Andrew N. Webber,
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**Willem F. J. Vermaas,
 Associate Director for Research Initiatives**

Regents' Professors: Alcock, Arntzen, Maienschein, Pyne

Professors: Burke, Capco, Chandler, Church, Collins, Creath, Deviche, Dowling, Elser, Faeth, Fisher, Frasch, Grimm, Harrison, Hedrick, Jacobs, Klopatek, Lawson, Misra, Moore, Mossman, Munk, Nash, Rutowski, Satterlie, Schmidt, Smith, Sommerfeld, Trelease, Vermaas, Walsberg, Webber

Associate Professors: Armendt, Briggs, Chang, Clark, Day, Fewell, Fouquette, Garcia-Pichel, Goldstein, Hoffman, Hogue, Kumar, Mason, McGregor, Orchinik, Pigg, Ramakrishna, Rawls, Roberson, Stout, Stromberg, Szarek, Towill, Wu

Assistant Professors: Anderies, DeNardo, Gerber, Kaye, Kinzig, Laubichler, Mor, Newfeld, Rhoads, Rosenberg, Sabo, Wilson-Rawls, Wojciechowski

Clinical Faculty: Downs, Lefevre, Mass, Roberts

Research Professors: Cardineau, Davidson, Lyubchenko, Mahoney

Associate Research Professor: Lopez

Assistant Research Professors: Hope, Hu, Minter, Neuer, Walmsley

Senior Research Scientists: Bingham, Landrum, LoBrutto

Curator: Gill

Senior Research Professional: Kazilek

BIOLOGY—B.S.

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 as follows:

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

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 as follows:

CHM 113 General Chemistry <i>SQ</i>	4
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i>	5
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 ST: Statistics for Biosciences (3)	
Total.....	23 or 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 46 semester hours in life sciences and societal interface courses, and 12 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. 10 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—B.S.

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 B.S. 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—B.S.

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
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)	
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)	

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

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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—B.S.

The B.S. 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, 290, or 294) as their MA course and BIO 406 (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
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—B.S.

The B.S. 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 (22 total semester hours) are as follows:

BIO 340	General Genetics	4
MBB 245	Cellular and Molecular Biology <i>SQ</i>	3
MBB 246	Cellular and Molecular Biology Laboratory <i>SQ</i>	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> *	1
MIC 220	Biology of Microorganisms	3
Total	.....	30

* Both MIC 205 and 206 must be taken for SG credit.

Choose at least one of the following courses (or combinations) for a minimum of one to five semester hours. Although only one advanced lab course is required, students are encouraged to take two:

BIO 451	Cell Biotechnology Laboratory	3
MBB 350	Applied Genetics	4
MBB 445	Techniques in Molecular Biology/Genetics	2
MBB 446	Techniques in Molecular Biology/Genetics Lab ¹	2
MIC 420	Immunology: Molecular and Cellular Foundations	3
MIC 421	Experimental Immunology ²	2
MIC 442	Bacterial Genetics Laboratory	1

¹ MBB 446 is taken with MBB 445.

² MIC 421 is taken with MIC 420.

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—B.S.

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 B.S. 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 B.S. 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 —	
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)	

L literacy and critical inquiry / MA mathematics / CS computer/statistics/quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

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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 B.S. 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

Biology

The Biology minor consists of 24 semester hours, including BIO 187 General Biology I and BIO 188 General Biology II, and 16 hours selected with approval of an advisor; at least 12 hours must be in the upper division. Courses not available for credit in the life sciences majors (BIO, MBB, MIC, and PLB) cannot be used for the minors (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.

Microbiology

The minor in Microbiology consists of a minimum of 24 semester hours. 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

MIC 206 Microbiology Laboratory <i>SG</i> ¹	1
MIC 220 Biology of Microorganisms	3
MIC 302 Advanced Bacteriology Laboratory <i>L</i> ²	2
MIC 360 Bacterial Physiology	3
Total	21

¹ Both MIC 205 and 206 must be taken to secure SG credit.

² Both MIC 302 and 401 must be taken to secure L credit.

The remaining upper-division microbiology courses are chosen in consultation with an advisor. Students majoring in Biology may not minor in Microbiology.

Plant Biology

The minor can be designed after the curricular options offered. Variations to the minor for the plant biochemistry and molecular biology option are also listed below. Courses not available for credit for majors in the life sciences cannot be used for the minor. A Plant Biology minor is not available to students majoring in the life sciences.

The minor consists of a minimum of 24 semester hours. Required courses are as follows:

PLB 200 Biology of Plants <i>SQ</i> *	3
PLB 201 Biology of Plants Laboratory <i>SQ</i> *	1
PLB 306 Plant Anatomy	4
or PLB 308 Plant Physiology (4)	
or PLB 310 The Flora of Arizona (4)	
Total	8

* Both PLB 200 and 201 must be taken to secure SQ credit.

The remaining 16 hours are selected by the student through consultation with an academic advisor. Eight of these 16 hours must be in upper-division courses in the life sciences or other advisor-approved areas.

Plant Biochemistry and Molecular Biology Option

BIO 353 Cell Biology	3
or PLB 308 Plant Physiology (4)	
or PLB 350 Applied Genetics (4)	
MBB 245 Cellular and Molecular Biology <i>SQ</i> *	3
MBB 246 Cellular and Molecular Biology Laboratory <i>SQ</i> *	1
Total	7-8

* Both MBB 245 and 246 must be taken to secure SQ credit.

The remaining 16 to 17 hours are selected by the student through consultation with an academic advisor. Eight to nine of these 16 to 17 hours must be in upper-division courses in the life sciences or other advisor-approved areas.

B.I.S. 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 (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see ["Bachelor of Interdisciplinary Studies," page 123.](#)

SECONDARY EDUCATION—B.A.E.

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 189,](#) 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 major teaching field consists of a minimum of 39 semester hours, at least 22 hours in supporting courses, 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>	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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See ["General Studies," page 91.](#)

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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

The minor teaching field consists of 24 semester hours as follows: BIO 187, 188; 16 additional hours in BIO, MIC, and PLB courses selected to reflect a balance across the disciplines and subdisciplines in biology. BIO 480 is required in addition to the 24 semester hours in biological sciences.

Graduate Programs

The School of Life Sciences offers programs leading to the degrees of Master of Natural Sciences, M.S., and Ph.D. See the *Graduate Catalog* for requirements. A combined B.S.-M.S. degree in Biology is also available.

MOLECULAR AND CELLULAR BIOLOGY

The school participates in the interdisciplinary program for the M.S. and Ph.D. degrees in Molecular and Cellular Biology as well.

The interdisciplinary M.S. and Ph.D. degrees with a major in Molecular and Cellular Biology are administered by the Interdisciplinary Committee on Molecular and Cellular Biology. The participating faculty are drawn primarily from the School of Life Sciences and the Department of Chemistry and Biochemistry, with additional faculty from the 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 institution-alization 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 vary. Prerequisite: junior standing.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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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)

fall

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 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. 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)

spring

Microscopic study of animal tissues. 3 hours lecture, 3 hours lab. Fee. Prerequisite: BIO 187 or 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:

- Cell Biotechnology. (4)

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 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.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 91.

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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.](#)

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 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 and spring

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 and spring

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)

fall and 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)

fall and spring

Applies concepts of molecular and cellular biology of bacteria, animals, and plants to real-world problems. Lab. 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; mutageneses; hybridization and sequence analysis; protein quantitation, immunologic detection, and electrophoresis. Cross-listed as MIC 445. Credit is allowed for only MBB 445 or MIC 445. Prerequisites: both BIO 340 and MIC 302 or only instructor approval.

MBB 446 Techniques in Molecular Biology/Genetics Lab. (2)*fall and spring*

Molecular genetic techniques; plasmid construction, purification, and characterization; PCR; mutageneses; hybridization and sequence analysis; protein quantitation; immunologic detection and electrophoresis. Cross-listed as MIC 446. Credit is allowed for only MBB 446 or MIC 446. Pre- or corequisite: MBB 445 or MIC 445.

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 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 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; mutageneses; hybridization and sequence analysis; protein quantitation; immunologic detection and electrophoresis. Cross-listed as MBB 445. Credit is allowed for only MBB 445 or MIC 445. Prerequisites: both BIO 340 and MIC 302 or only instructor approval.

MIC 446 Techniques in Molecular Biology/Genetics Lab. (2)*fall and spring*

Molecular genetic techniques; plasmid construction, purification, and characterization; PCR; mutageneses; hybridization and sequence

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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 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 484 Internship. (1–12)

fall, spring, summer

Topics may include the following:

- Service Learning Internship. (3)
Fee.

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 402 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 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.



Recently renovated, the Memorial Union provides many community needs. In addition to a large amount of meeting space, it features a variety of amenities including a bowling alley, a food court, and a convenience store.

Tim Trumble photo

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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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.

Department of Mathematics and Statistics

math.la.asu.edu

480/965-3951

PS A216

Andrew Bremner, Chair

Professors: Armbruster, Bremner, Gardner, Hoppensteadt, Ihrig, Z. Jackiewicz, Kadell, Kawski, Kierstead, Kostelich, Kuang, Kuiper, Lai, Lohr, Lopez, Mahalov, Mittelman, Nicolaenko, Quigg, Renaut, Ringhofer, Smith, Thieme, Young

Associate Professors: Baer, Barcelo, Blount, Carlson, Childress, Farmer, Gelb, Hurlbert, D. Jones, J. Jones, McCarter, Moore, Nikitin, Prewitt, Spielberg, Suslov, Taylor, Welfert

Assistant Professors: Czygrinow, Kaliszewski, Oehrtman, Oleson, Zandieh

Senior Lecturers: Abramson, Isom, Kolossa, Miller, Odish, Rody, Ruedemann, Surgent, Trapuzzano, Vaz, Zhu

Lecturers: Arce, Ashbrook, Bloom, Coombs, Downs, Gust, E. Jackiewicz, E. Jones, Kellgren, Kim, Maris, Martin, Masilamani, Pecuch-Herrero, Reynolds, Tracogna, Turner, Ward, Williams

The Department of Mathematics and Statistics offers the B.A. and B.S. degrees in Mathematics. Students who plan to attend graduate school in mathematics or statistics should choose the B.S. degree.

The department also offers the B.S. degree in Computational Mathematical Sciences.

The department also offers a minor in Mathematics and an academic specialization in mathematics for students pursuing the B.A.E. degree in Secondary Education.

Related Field Course List. All students majoring in Mathematics need to refer to the related field course list. It is available from an advisor in PS A211, or from the department Web site at math.la.asu.edu/~undergrd/underprog/degree/related-fields.html.

MATHEMATICS—B.A.

The B.A. 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
MAT 342 Linear Algebra	3
or MAT 343 Applied Linear Algebra (3)	
MAT 370 Intermediate Calculus	3
or MAT 371 Advanced Calculus I (3)	
Total	21

Computer Science Requirement

CSE 100 Principles of Programming with C++ <i>CS</i>	3
or CSE 110 Principles of Programming Java (3)	
or CSE 200 Concepts of Computer Science <i>CS</i> (3)	
Total	3

Advanced Courses in Mathematics and Statistics

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 <i>CS</i> (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 <i>CS</i> (3)	
MAT 423 Numerical Analysis I <i>CS</i> (3)	
MAT 425 Numerical Analysis II <i>CS</i> (3)	
MAT 427 Computer Arithmetic <i>CS</i> (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 <i>CS</i> (3)	

Statistics and Probability

STP 420 Introductory Applied Statistics <i>CS</i> (3)	
STP 421 Probability (3)	
STP 425 Stochastic Processes (3)	
STP 427 Mathematical Statistics (3)	
STP 429 Experimental Statistics <i>CS</i> (3)	

Additional Course Work in Mathematics and Statistics
 Three courses in mathematics and statistics¹.....9

Related Field Course Work
 Course work in mathematics, statistics, or related fields²12

¹ Acceptable mathematics courses are MAT 243, 274, and upper-division MAT courses, with the exception of MAT 362, 485, and ASU West MAT 411. Acceptable statistics courses are upper-division STP courses.

² See “[Related Field Course List](#),” page 414.

MATHEMATICS—B.S.

The Department of Mathematics and Statistics has three avenues for earning a B.S. degree. The B.S. requirements are similar to the B.A. 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 B.S. degree with the statistics concentration are a subset of those for the B.S. degree. The requirements for the B.S. degree and for the B.S. degree with the computational mathematical sciences concentration are distinct; neither is a subset of the other.

B.S. Requirements. The B.S. 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)	3
MAT 371 Advanced Calculus I	3
Total	21

Computer Science Requirement	
CSE 200 Concepts of Computer Science <i>CS</i>	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 <i>CS</i> (3)	
MAT 425 Numerical Analysis II <i>CS</i> (3)	
MAT 442 Advanced Linear Algebra (3)	
MAT 444 Intermediate Abstract Algebra (3)	
MAT 462 Applied Partial Differential Equations (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

<i>Algebra, Topology, and Number Theory</i>	
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)	
<i>Analysis and Applications</i>	
MAT 372 Advanced Calculus II (3)	
MAT 461 Applied Complex Analysis (3)	
MAT 472 Intermediate Real Analysis I (3)	
<i>Applied Mathematics and Dynamics</i>	
MAT 451 Mathematical Modeling <i>CS</i> (3)	
MAT 452 Introduction to Chaos and Nonlinear Dynamics (3)	
MAT 455 Introduction to Fractals and Applications (3)	
<i>Computational Mathematics</i>	
MAT 420 Scientific Computing (3)	
MAT 421 Applied Computational Methods <i>CS</i> (3)	
MAT 423 Numerical Analysis I <i>CS</i> (3)	
MAT 425 Numerical Analysis II <i>CS</i> (3)	
MAT 427 Computer Arithmetic <i>CS</i> (3)	
<i>Differential Equations</i>	
MAT 462 Applied Partial Differential Equations (3)	
MAT 475 Differential Equations (3)	
MAT 476 Partial Differential Equations (3)	
<i>Discrete Mathematics</i>	
MAT 415 Introduction to Combinatorics (3)	
MAT 416 Introduction to Graph Theory (3)	
MAT 419 Introduction to Linear Programming <i>CS</i> (3)	
<i>Statistics and Probability</i>	
STP 420 Introductory Applied Statistics <i>CS</i> (3)	
STP 421 Probability (3)	
STP 425 Stochastic Processes (3)	
STP 427 Mathematical Statistics (3)	
STP 429 Experimental Statistics <i>CS</i> (3)	

Additional Course Work in Mathematics and Statistics²
 Three courses in mathematics and statistics9

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 ASU West MAT 411. Acceptable statistics courses are 400-level STP courses.

³ See “[Related Field Course List](#),” page 414.

COMPUTATIONAL MATHEMATICAL SCIENCES—B.S.

The B.S. degree in Computational Mathematical Sciences curriculum strives to provide students with a background in

L literacy and critical inquiry / *MA* mathematics / *CS* computer/statistics/quantitative applications / *HU* humanities and fine arts / *SB* social and behavioral sciences / *SG* natural science—general core courses / *SQ* natural science—quantitative / *C* cultural diversity in the United States / *G* global / *H* historical / See “[General Studies](#),” page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

computer science and the natural or physical sciences in addition to a core of course work in mathematics. The requirements for the B.S. degree in Computational Mathematical Sciences and for the B.S. 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 B.S. 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 <i>L</i> (3)	
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
Total	11

Core Courses in Computational Mathematics

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)	
MAT 420 Scientific Computing	3
MAT 421 Applied Computational Methods <i>CS</i>	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 <i>CS</i> (3)
MAT 415 Introduction to Combinatorics (3)
MAT 416 Introduction to Graph Theory (3)
MAT 419 Introduction to Linear Programming <i>CS</i> (3)
MAT 423 Numerical Analysis I <i>CS</i> (3)
MAT 425 Numerical Analysis II <i>CS</i> (3)
MAT 447 Cryptography (3)
MAT 451 Mathematical Modeling <i>CS</i> (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 <i>CS</i> (3)
STP 421 Probability (3)
STP 425 Stochastic Processes (3)
STP 427 Mathematical Statistics (3)
STP 429 Experimental Statistics <i>CS</i> (3)

Computer Science Requirement

CSE 200 Concepts of Computer Science <i>CS</i>	3
CSE 210 Object-Oriented Design and Data Structures <i>CS</i>	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 14–17 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 <i>SQ</i> ¹ (1)	
AST 114 Astronomy Laboratory II <i>SQ</i> ¹ (1)	
AST 321 Introduction to Planetary and Stellar Astrophysics <i>SQ</i> ¹ (3)	
AST 322 Introduction to Galactic and Extragalactic Astrophysics <i>SQ</i> ¹ (3)	

Biology

Choose one of the following sequences	8
BIO 187 General Biology I <i>SG</i> (4)	
BIO 188 General Biology II <i>SQ</i> (4)	
— or —	
BIO 188 General Biology II <i>SQ</i> (4)	
BIO 193 The Nature of Biological Science <i>SQ</i> (4)	

Chemistry

Choose one of the following sequences	5–9
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 115 General Chemistry with Qualitative Analysis <i>SQ</i> ² (4)	
CHM 117 General Chemistry for Majors I <i>SQ</i> ² (4)	
— or —	
CHM 114 General Chemistry for Engineers <i>SQ</i> ³ (4)	
CHM 231 Elementary Organic Chemistry <i>SQ</i> ⁴ (3)	
CHM 235 Elementary Organic Chemistry Laboratory <i>SQ</i> ³ (1)	

Geology

Geology sequence	8
GLG 101 Introduction to Geology I (Physical) <i>SQ</i> , <i>G</i> ⁴ (3)	
GLG 103 Introduction to Geology I—Laboratory <i>SG</i> ⁴ (1)	
GLG 102 Introduction to Geology II (Historical) <i>SG</i> , <i>H</i> ⁴ (3)	
GLG 104 Introduction to Geology II—Laboratory <i>SG</i> ⁴ (1)	

Microbiology and Molecular Biosciences/Biotechnology

Choose one of the following sequences	4
MBB 245 Cellular and Molecular Biology <i>SQ</i> ⁶ (3)	
MBB 246 Cellular and Molecular Biology Laboratory <i>SQ</i> ⁶ (1)	
— or —	
MIC 205 Microbiology <i>SG</i> ⁵ (3)	
MIC 206 Microbiology Laboratory <i>SG</i> ⁵ (1)	
— or —	
MIC 206 Microbiology Laboratory <i>SG</i> ⁵ (1)	
MIC 220 Biology of Microorganisms (3)	

Physics

Choose one of the following sequences	8
PHY 121 University Physics I: Mechanics <i>SQ</i> ⁷ (3)	
PHY 122 University Physics Laboratory I <i>SQ</i> ⁷ (1)	

DEPARTMENT OF MATHEMATICS AND STATISTICS

PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ⁷ (3)	
PHY 132 University Physics Laboratory II <i>SQ</i> ⁷ (1)	
— or —	
PHY 150 Physics I <i>SQ</i> (4)	
PHY 151 Physics II <i>SQ</i> (4)	

Plant Biology
 Choose one of the following sequences.....4

PLB 200 Biology of Plants <i>SQ</i> ⁸ (3)	
PLB 201 Biology of Plants Laboratory <i>SQ</i> ⁸ (1)	
— or —	
MBB 245 Cellular and Molecular Biology <i>SQ</i> ⁶ (3)	
MBB 246 Cellular and Molecular Biology Laboratory <i>SQ</i> 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

- ¹ Both AST 113 and 321 or both AST 114 and 322 must be taken to secure SQ credit.
- ² CHM 115 and 117 are strongly recommended for qualified students.
- ³ Both CHM 231 and 235 must be taken to secure SQ credit.
- ⁴ Both GLG 101 and 103 must be taken to secure SQ credit, and both GLG 102 and 104 must be taken to secure SG credit.
- ⁵ Both MIC 205 and MIC 206 must be taken to secure SG credit.
- ⁶ Both MBB 245 and 246 must be taken to secure SQ credit.
- ⁷ Both PHY 121 and 122 and both PHY 131 and 132 must be taken to secure SQ credit.
- ⁸ Both PLB 200 and 201 must be taken to secure SQ credit.
- ⁹ This course requires prior department approval.
- ¹⁰ 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 B.S. 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 (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

* See “[Related Field Course List](#),” page 414.

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 ASU Main 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	

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “[General Studies](#),” page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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.

B.I.S. CONCENTRATIONS

Concentrations in computational mathematical sciences, mathematics, and statistics are available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

SECONDARY EDUCATION—B.A.E.

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 189, 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
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)	
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 Mathemat-

ics 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.

Minor Teaching Field. The minor teaching field is a minor in mathematics for presecondary teachers, consisting of the following required courses:

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 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)	
Total		.....20

GRADUATE PROGRAMS

The faculty in the Department of Mathematics and Statistics offer programs leading to the degrees of Master of Natural Science, M.A., and Ph.D. 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.

General Studies: MA

MAT 114 College Mathematics. (3)

fall, spring, summer

Applications of 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 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.

General Studies: MA

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 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 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***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).

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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.

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. Prerequisite: MAT 272 or 300 or instructor approval.

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 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

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, 114 (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 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*

Topics may include the following:

- Theory of Elementary Mathematics Internship. (1–4)
fall and spring
Employs hands-on activities and manipulatives to advance mathematical understanding in second- to fourth-grade students.
- Service Learning
fall, spring, summer
Fee.

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, 114 (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, 114 (or 117 or its equivalent).

*General Studies: CS***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).

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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 non-parametric 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.

Department of Military Science

Army ROTC

www.asu.edu/clas/military

480/965-3318

SS 330

Major Herbert M. Chong, Chair

Professor: Chong

Assistant Professors: Caryl, Hopkins, Ramer, Rollins

Instructors: Fox, Ringenoldus, Suiter

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 27.

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 National Advanced Leadership Camp (NALC) 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 423). 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 five-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 the students in the four-year ROTC program; for the 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 the 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 Reserves 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 furnished by 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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*

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.](#)

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 318.](#)

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

Department of Philosophy

www.asu.edu/philosophy

480/965-3394

COOR 3307

Steven L. Reynolds, Interim 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—B.A.

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)	

courses must be passed with a minimum grade of “C” (2.00).

B.I.S. 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 (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

GRADUATE PROGRAM

The faculty in the Department of Philosophy offer a graduate program leading to the M.A. and Ph.D. 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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “[General Studies](#),” page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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

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 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, Bauer, Bennett, Burstein, Chamberlin, Comfort, Cowley, Doak, Dow, Hester, Lindsay, Menéndez, Ponce, Rez, Ritchie, Sankey, Schmidt, Tillery, Treacy, Tsen, Tsong, Venables, Windhorst

Associate Professors: Culbertson, Drucker, Herbots, Marzke, Morse, Newman

Assistant Professors: Desch, Lebed, Ortiz, Shumway

PHYSICS—B.S.

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

DEPARTMENT OF PHYSICS AND ASTRONOMY

PHY 314 Quantum Physics I.....	3
PHY 315 Quantum Physics II.....	3
PHY 333 Electronic Circuits and Measurements	3
PHY 334 Advanced Laboratory I <i>L</i>	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.

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 <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
PHY 315 Quantum Physics II.....	3
PHY 333 Electronic Circuits and Measurements	3
PHY 334 Advanced Laboratory I <i>L</i>	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.

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, sci-

entific journalism, and premedical and prelaw programs. French, German, or Russian is strongly recommended to fulfill the foreign language requirement.

Supporting mathematics courses are as follows:

Choose between the course combinations below..... 12 or 10

- MAT 270 Calculus with Analytic Geometry I *MA* (4)
- MAT 271 Calculus with Analytic Geometry II *MA* (4)
- MAT 272 Calculus with Analytic Geometry III *MA* (4)

— or —

- MAT 290 Calculus I *MA* (5)
- MAT 291 Calculus II (5)

Emphasis in Astronomy

The astronomy faculty offer courses in astronomy both for nonscience majors and for science and physics majors. For an emphasis in astronomy, the following courses (or their equivalents) should be taken:

AST 321 Introduction to Planetary and Stellar Astrophysics <i>SQ</i> ¹	3
AST 322 Introduction to Galactic and Extragalactic Astrophysics <i>SQ</i> 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 <i>SQ</i> ¹	1
AST 114 Astronomy Laboratory II <i>SQ</i> ²	1
AST 321 Introduction to Planetary and Stellar Astrophysics <i>SQ</i> ¹	3
AST 322 Introduction to Galactic and Extragalactic Astrophysics <i>SQ</i> ²	3
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> ³ (3)	
PHY 122 University Physics Laboratory I <i>SQ</i> ³ (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> ⁴ (3)	
PHY 132 University Physics Laboratory II <i>SQ</i> ⁴ (1)	
PHY 252 Physics III <i>SQ</i>	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.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

Electives are chosen with the approval of an astronomy advisor from upper-division courses in physics and astronomy.

MINOR IN PHYSICS

The minor in Physics consists of a minimum of 29 semester hours. Required courses are as follows:

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 the approval of the physics advisor from upper-division courses in physics and astronomy.

B.I.S. CONCENTRATIONS

Concentrations in astronomy and physics are available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

SECONDARY EDUCATION—B.A.E.

Physics. 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 189, 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; and PHY 252.

The major teaching field consists of 42 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
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.....	3
Total.....	6

Minor Teaching Field. The minor teaching field consists of 24 semester hours. Required courses are as follows:

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 314 Quantum Physics I.....	3
or PHY 361 Introductory Modern Physics (3)	
PHY 480 Methods of Teaching Physics.....	3
or PHY 484 Internship: Physics Teaching (1–4)	
Approved elective ³	3
Total.....	24

¹ Both PHY 121 and 122 must be taken to secure SQ credit.

² Both PHY 131 and 132 must be taken to secure SQ credit.

³ Electives are chosen in physics or other closely related fields, subject to the approval of the advisor.

GRADUATE PROGRAMS

The faculty in the Department of Physics and Astronomy offer programs leading to the degrees of Master of Natural

Science, M.S., and Ph.D. 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. 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. 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 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.

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 484 Internship. (1–12)

selected semesters

Topics may include the following:

- Physical Science Internship. (3)

fall and spring

Applies scientific concepts discussed and demonstrated in PHS 208 to teach middle school students. Focuses on hands-on experience.

- Service Learning

fall, spring, summer

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.

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.

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.

General Studies: SQ (if credit also earned in PHY 112)

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "**General Studies**," page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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. 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. 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. Prerequisite: MAT 270 or 290 (or its equivalent).

General Studies: SQ

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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. 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. Prerequisite: PHY 334.

PHY 466 Advanced Laboratory III. (1–3)

fall and spring

Continuation of PHY 465. 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

Topics may include the following:

- Materials Physics II. (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 Political Science

www.asu.edu/clas/polisci

480/965-6551

COOR 6801

Patrick Kenney, Chair

Professors: Ball, Dagger, Jones, Kahn, Kenney, Simon, Youngblood

Associate Professors: Ashley, Crittenden, Dantico, Doty, M. Elman, Herrera, Keating, Mitchell, Simhony, Warner

Assistant Professors: Chin, C. Elman, Goren, Hoekstra

POLITICAL SCIENCE—B.A.

The B.A. 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, and the African American Studies and the Women’s 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 318. No more than six hours of POS 484 Internship may be applied to the major.

POLITICAL SCIENCE—B.S.

The B.S. 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 American Studies and the Women’s Studies programs. At least 21 hours in political science must be in upper-division courses.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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 318](#). No more than six hours of POS 484 Internship may be applied to the major.

B.S. in Political Science with a Concentration in Public Policy Analysis

This degree and concentration combination is intended for students with a strong interest in public policy. It is designed to help students develop perspectives and skills applicable to public policy analysis and program evaluation. This concentration consists of a minimum of 36 semester hours in political science and 12 hours in related fields.

Required Courses

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 220 Political Issues and Public Policy <i>SB</i>	3
POS 301 Empirical Political Inquiry <i>SB</i>	3
POS 325 Public Policy Development <i>SB</i>	3
POS 401 Political Statistics <i>CS</i>	3
POS 426 Elements of Public Policy <i>SB</i>	3
POS 484 Internship ¹	1–6
POS electives ²	6–9
Electives ³	12

¹ As approved by the political science internship coordinator.

² Additional POS elective courses are required.

³ In closely related fields, approved by a departmental academic advisor.

B.S. in Political Science with a Concentration in Public Policy Advocacy and Lobbying

This degree and concentration combination is intended for students interested in affecting public policy. It is designed to help students develop perspectives and skills useful to activists engaged in shaping public policy. This concentration consists of a minimum of 36 semester hours in political science and 12 hours in related fields.

Required Courses

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 220 Political Issues and Public Policy <i>SB</i>	3
or POS 325 Public Policy Development <i>SB</i> (3)	
or POS 426 Elements of Public Policy <i>SB</i> (3)	
POS 301 Empirical Political Inquiry <i>SB</i>	3
POS 313 The Congress <i>SB</i>	3
POS 333 Interest Groups <i>SB</i>	3
POS 401 Political Statistics <i>CS</i>	3
POS 484 Internship ¹	1–6
POS electives ²	6–9
Electives ³	12

¹ As approved by the political science internship coordinator.

² Additional POS elective courses are required.

³ In closely related fields, approved by a departmental academic advisor.

CERTIFICATES

Certificate in American Public Policy. The American Public Policy Certificate is designed for undergraduate students who are anticipating careers in government, public service, or public administration and/or who are interested in understanding the dynamics of policy making and administration in American government.

Students majoring in any subject at the university may pursue the American Public Policy Certificate. To be awarded the certificate, the student must complete at least 15 semester hours of political science courses as follows:

Choose one from the courses below	3
POS 110 Government and Politics <i>SB</i> (3)	
POS 310 American National Government <i>SB</i> (3)	
Choose two or three from the courses below	6 or 9
POS 220 Political Issues and Public Policy <i>SB</i> (3)	
POS 325 Public Policy Development <i>SB</i> (3)	
POS 426 Elements of Public Policy <i>SB</i> (3)	
Choose one or two from the courses below	3 or 6
POS 316 State and Local Government <i>SB</i> (3)	
POS 320 Public Administration <i>SB</i> (3)	
POS 410 Governing American Cities <i>SB</i> (3)	
Choose one from the courses below	3
POS 313 The Congress <i>SB</i> (3)	
POS 314 The American Presidency <i>SB</i> (3)	
POS 484 Internship (up to 3 semester hours for a policy/administration-related internship) (3)	
Minimum 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.

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 326](#), for more information.

Certificate in Civic Education. The Civic Education Certificate is designed to contribute to the preparation of undergraduate students for

- 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 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 328, 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 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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.

B.I.S. CONCENTRATIONS

Concentrations in political science (with American public policy, civic education, and international studies options) are available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see [“Bachelor of Interdisciplinary Studies,” page 123](#).

SECONDARY EDUCATION—B.A.E.

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 189](#), 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 311 Arizona Constitution and Government	2
or POS 417 The Arizona Political System <i>SB</i> (3)	
POS 417 The Arizona Political System	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

The minor teaching field consists of 24 semester hours in political science courses.

The following six courses are required:

HST 480 Methods of Teaching History: Classroom Resources	3
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 417 The Arizona Political System <i>SB</i>	3
Total	18

Courses may be substituted for POS 417 and 480 with departmental approval.

Students who pursue this academic specialization in political science must have a minimum GPA of 2.00 for all courses that count toward the academic specialization. Upper-division courses that count toward the academic specialization 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 minor.

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 189](#), 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 M.A. and Ph.D. 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, G

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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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.

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 Koreas. (3)*once a year*

Comparative analysis of the political modernization experiences of China, Japan, and the two Koreas, focusing on their differing reactions to the West.

*General Studies: SB, G***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***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 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

Darwyn E. Linder, Chair

Regents' Professors: Cialdini, Eisenberg, Russo, Sandler

Professors: Aiken, Barrera, Braver, Castro, Chassin, Homa, Karoly, Kenrick, Killeen, Knight, Lanyon, Linder, MacKinnon, Millsap, Neisewander, Neuberg, Okun, Parkinson, Presson, Reich, Sadalla, Somerville, Van Orden, West, Wolchik, Zautra

Associate Professors: Alexander, Castaneda, Conrad, Davis, Fabricius, Goldinger, Gonzales, Leshowitz, McBeath, Nagoshi, Nemeroff, Saenz, Stone

Assistant Professors: E. Amazeen, P. Amazeen, Khoo, Lemery, Luecken

Senior Lecturers: Barton, Wosinski

Lecturer: Palmer

The Department of Psychology maintains an undergraduate advisement 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.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

PSYCHOLOGY—B.A.

The B.A. 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
Personality/Mental Health: PGS 315, 366
Cognitive/Learning: PSY 320, 323, 324
Developmental: PGS 341
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
Personality/Mental Health: PGS 315, 365, 443, 444, 462, 464, 465, 466, 468, 471, 472
Cognitive/Learning: PSY 320, 323, 324, 420, 434, 437
Developmental: PGS 344, 427, 441, 445, 446
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 and 394 or 494. 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.

VI. Foundations of Behavior (nine semester hours)

Any three courses from among the following prefixes: ASB, ASM, BIO, GCU, SOC, PHI, and HPS.

For more information, see “College Degree Requirements,” page 318.

PSYCHOLOGY—B.S.

The B.S. 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 B.S. degree in Psy-

chology are identical to the requirements for the B.A. 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. All courses must be passed with a minimum grade of “C” (2.00).

B.I.S. CONCENTRATION

A concentration in psychology is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “Bachelor of Interdisciplinary Studies,” page 123.

GRADUATE PROGRAMS

The faculty in the Department of Psychology offer a program leading to the Ph.D. 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***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*

Topics may include the following:

- Disease and AIDS in America

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: both PGS 101 and 315 (or 341 or 350) or only instructor approval.

*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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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 the "Faculty of Applied Psychology" under "East College" at "ASU East."

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 290.

General Studies: L

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.

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

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, Coudert, Feldhaus, Foard, Morrison, Samuelson

Associate Professors: Clay, Fessenden, Gereboff, Moore, Schober, Swanson, Woodward

Assistant Professors: Benn, Damrel, Leon, Park, Umar

RELIGIOUS STUDIES—B.A.

The B.A. 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.

B.I.S. CONCENTRATION

A concentration in religious studies is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

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 325, 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 327.

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 328.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See “[General Studies](#),” page 91.



Teaching Assistant Marea Baggetta leads a freshman-level BIO 188 lab. As part of the College of Liberal Arts and Sciences living-learning community concept, students learn scientific methods together during class and share the same residence hall.

Tim Trumble photo

Southeast Asian Studies Emphasis. Students majoring in Religious Studies may elect to earn a Southeast Asian Studies Certificate by successfully completing the requirements.

Women's Studies. Students majoring in Religious Studies may elect to earn a Women's Studies Certificate by successfully completing the requirements.

GRADUATE PROGRAM

The faculty in the Department of Religious Studies offer a graduate program leading to the M.A. 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, 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

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 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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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, i.e., Jonathan 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.

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

Verna M. Keith, Chair

Professors: Bolin, 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—B.A.

The B.A. 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 ASU Main 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 SS 321, and on the Internet at www.asu.edu/clas/sociology/undergraduate/advising.

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 ASU Main 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

B.I.S. CONCENTRATION

A concentration in sociology is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

GRADUATE PROGRAMS

The faculty in the Department of Sociology offer programs leading to the M.A. and Ph.D. 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)

fall and spring

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)

fall

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)

fall

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, spring, summer*

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***SOC 417 Family Violence. (3)***fall and spring*

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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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

David Ingram, Chair

Professors: S. Bacon, Dorman, D. Ingram, Sinex, Wilcox

Associate Professor: Liss

Assistant Professors: Azuma, Edgar, Gray

Clinical Professors: Mathy, Wiley

Clinical Associate Professors: C. Bacon, Brown, Mintz

Clinical Assistant Professors: K. Ingram, McBride, Wexler

Lecturers: Amann, Barto, Howard, O'Brien, Quinn, Vicencio

SPEECH AND HEARING SCIENCE—B.S.

The B.S. degree in Speech and Hearing Science consists of 43 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 384 Hearing Disorders.....	3
SHS 401 Introduction to Audiologic Evaluation.....	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.....	40

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
SHS 496 Aural Rehabilitation.....	3
Total.....	40

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 384 Hearing Disorders.....	3
SHS 394 ST: Brain, Memory, and Language.....	3
SHS 401 Introduction to Audiologic Evaluation.....	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

B.I.S. CONCENTRATION

A concentration in speech and hearing science is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see "Bachelor of Interdisciplinary Studies," page 123.

GRADUATE PROGRAMS

The faculty in the Department of Speech and Hearing Science offer programs leading to the M.S. degree in Communication Disorders, the Au.D degree in Audiology, and the Ph.D. 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.

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 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 384 Hearing Disorders. (3)*fall*

Pathologies of the ear and associated peripheral and central hearing disorders: characteristics, management, and effects on communication. Prerequisites: SHS 311, 376.

SHS 394 Special Topics. (1–4)*selected semesters*

Topics may include the following:

- Brain, Memory, and Language

SHS 401 Introduction to Audiologic Evaluation. (3)*fall*

Measurement of the basic audiologic test battery, including audiograms, immittance, masking, and speech recognition. Prerequisites: SHS 311 and 376 and 384 (or their equivalents).

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's Studies Program

www.asu.edu/clas/womens_studies

480/965-2358

ECA 209

Mary L. Rothschild, Director

CORE FACULTY

Professors: Koblitz, Rothschild

Associate Professor: Scheiner

Assistant Professors: Anderson, Leong

AFFILIATED FACULTY

African American Studies

Professor: Reyes

Anthropology

Professor: Brandt

Architecture

Associate Professor: Fish Ewan

Art

Professors: Codell, Fahlman, Magenta

Associate Professors: Schleif, Wolfthal

Asian Pacific American Studies

Assistant Professor: de Jesús

Curriculum and Instruction

Professors: Edelsky, Guzzetti

Educational Leadership and Policy Studies

Professor: Turner

English

Professors: Adams, Crowley, Gutierrez, Horan, Nilsen, Reyes, Rhodes

Associate Professors: Chancy, DeLamotte, Pritchard, Tohe

Assistant Professors: Fox, Parchesky, Webb Peterson

Senior Lecturers: Heenan, Norton

Exercise and Wellness (ASU East)

Associate Professor: Swan

Family and Human Development

Professor: Martin

Geography

Professor: Burns

History

Professors: Fuchs, Lavrin, Warnicke

Associate Professors: Gray, Gullett, Stoner

Human Communication

Professors: Carlson, Nakayama

Associate Professors: Davis, Martinez

Assistant Professor: Park-Fuller

Interdisciplinary Humanities

Assistant Professor: Duncan

Interdisciplinary Studies

Lecturers: Lattouf, Nelson

Justice Studies

Professors: Jurik, Romero, Zatz

Associate Professor: Menjivar

Assistant Professor: Adelman

Kinesiology

Professor Emerita: Wells

Languages and Literatures

Regents' Professor: Foster

Professors: Honegger, Losse, Williams

Associate Professors: Choi, Pritchard, Rees, Tompkins

Assistant Professors: George, Gruzinska, Orlich

Management

Associate Professor: Cook

Music

Professor: Williamson

Assistant Professor: Sullivan

Philosophy

Associate Professor: McGregor

Psychology

Regents' Professors: Eisenberg, Russo

Professor: Chassin

Associate Professor: Saenz

Psychology in Education

Professors: Bernstein, Hackett, Kerr, Moore

Associate Professor: Arredondo

Recreation Management and Tourism

Professor: Allison

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

Theatre

Professor: Knapp

Assistant Professor: Woodson

Women's Studies (ASU West)

Professor: Stage

The Women's Studies Program is an interdisciplinary university program housed in the College of Liberal Arts and Sciences. Information on faculty affiliation is provided for reference.

WOMEN'S STUDIES—B.A.

Women's Studies provides our students with an intensive interdisciplinary liberal arts education that enables them to write well, think critically, and analyze problems effectively. Our 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 B.A. degree in Women's 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's Studies majors are encouraged to compile a portfolio to leave on file in the Women's 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's Studies must complete four courses (12 semester hours) chosen from the WST or WSH course list.

Related Fields. Students majoring in Women's 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's 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'S STUDIES

The Women's 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's studies courses must be taken after consultation with the women's studies advisor.

Students pursuing a minor must register at least one semester before graduation and are encouraged to meet with the women's studies academic advisor early in their course of studies.

CERTIFICATE PROGRAM IN WOMEN'S 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's studies advisor. See "Women's Studies," page 330, for a description of the certificate program.

B.I.S. CONCENTRATION

A concentration in women's studies is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see "Bachelor of Interdisciplinary Studies," page 123.

GRADUATE STUDIES

Although the Women's Studies Program does not offer a graduate degree, 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's 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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF LIBERAL ARTS AND SCIENCES

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

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PURPOSE

The faculty in the College of Nursing acknowledge their responsibility to health care consumers for the preparation of individuals who provide nursing care of professional quality through teaching, research, practice, and service. 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 health/psychosocial nursing systems.

The college offers an undergraduate program leading to a Bachelor of Science in Nursing (B.S.N.) degree, a Master of Science (M.S.) degree in Nursing with preparation for

advanced practice in nursing, and continuing and extended education opportunities for RNs, which include RN-B.S.N. and RN-B.S.N.-M.S. programs. A Post-Master's Nurse Practitioner Certificate program is also available.

The college also participates with the University of Arizona and Northern Arizona University in offering the Master of Public Health (M.P.H.) degree and a combined M.S./M.P.H. degree.

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 B.S.N. 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:

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 91.

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1. regular admission to the College of Nursing at ASU Main as a premajor Nursing student;
2. academic good standing at ASU and in the College of Nursing;
3. minimum prerequisite GPA of 2.75;
4. completion of designated prerequisite courses with an earned grade of “C” (2.00) or higher in each course;
5. completion of all application materials;
6. submission of all required health and immunization requirements;
7. a Test of English as a Foreign Language (TOEFL) score of 550 or higher for international students (see “TOEFL,” page 70);
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 ASU Main, ASU East, and ASU West. 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 65) 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 with accompanied 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. An RN must submit a photocopy of his or her current license to practice nursing as an RN in Arizona. 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 advisor in planning their program of study. See “Professional Program Admission,” page 453, for admission criteria into the B.S.N. professional program. Registered nurses are admitted into the RN-B.S.N. program twice a year, in January and in August.

Additional admission criteria required for application to the RN-B.S.N.-M.S. 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 3.0; and
7. other required materials.

RNs are accepted into the RN-B.S.N.-M.S. 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 453.

Arizona State Board of Nursing Requirement. To be eligible to write 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. current American Heart Association Level C CPR Certification;
5. proof of tetanus, diphtheria immunization (TD);
6. proof of varicella (chicken pox) immunization; and
7. 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 65, and “[Immunization Requirements](#),” page 71.

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.

ADVISING

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 459). Advisors assist students with program planning, registration, preparation of needed petitions, verification of graduation requirements, referrals to university and community resources, and career planning.

Student responsibilities include following university guidelines regarding submission of transcripts from all colleges other than ASU, obtaining the necessary signatures or

computer verifications required by the university, and following university procedures for matriculation.

Mandatory Advising. All premajor Nursing students are required to meet with an academic advisor before registering for each semester of classes. All students on probation are required to meet with an advisor to plan strategies for improving their academic standing.

Declaration of Graduation. Students following the curriculum requirements of the 1996–1998 or later catalog editions must file a Declaration of Graduation form using the Degree Audit Reporting System during enrollment in the first semester of the professional program.

Student Employment. Each of the four semesters in the 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—B.S.N.

The completion of the curriculum leads to a Bachelor of Science in Nursing (B.S.N.) 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, population groups, and communities. The undergraduate program provides students with a foundation for graduate studies in nursing at the master’s level.

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 an understanding of client, health environment, and nursing;
2. organize the nursing process to provide safe, competent, and effective nursing care using principle-based communication, technical/psychomotor, teaching, management, and therapeutic skills;
3. design and generate comprehensive therapeutic nursing care in partnership with individuals, families, groups, and communities, including those who are culturally diverse and/or vulnerable;
4. generate their own professional practice that focuses on health promotion, health restoration, health maintenance, and illness care from a holistic perspective;

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

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5. analyze and apply research findings to nursing practice and identify nursing research problems;
6. display values and behavior consistent with the culture of professional nursing;
7. display personal and leadership characteristics appropriate for professional nursing practice;
8. display responsibility and accountability for professional nursing practice;
9. collaborate with nurses, other health care providers, and clients in the delivery of holistic care that is responsive to changing needs and societal trends; and
10. analyze current nursing and health care services and trends, and identify future health care needs.

Nursing—RN Programs

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-B.S.N. *only* and the RN-B.S.N.-M.S. program tracks are structured to provide an accessible, accelerated, and predictable pathway through the program.

RN-B.S.N. Only. The RN-B.S.N. *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-B.S.N. *only* program track twice a year (January and August). See “[Admission of Registered Nurses \(RNs\)](#),” page 454.

RN-B.S.N.-M.S. The RN-B.S.N.-M.S. program track, designed for highly motivated and experienced RNs, reflects an expansion of the RN-B.S.N. *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 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 454.

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. Graduate courses completed toward the B.S.N. degree are not applicable toward this requirement.

Nursing—M.S.

The faculty in the College of Nursing offer a program leading to an M.S. degree in Nursing with concentrations in

1. adult health nursing with tracks in the primary care of chronically ill adults or the care of acutely ill;
2. community health nursing with additional options of a dual Master of Public Health degree;
3. psychiatric/mental health nursing;
4. family health nursing;
5. women’s health; and
6. parent-child nursing with the tracks in the childbearing family, primary or acute care nursing of children, and neonatal program.

The program requires a minimum of 40 semester hours with an earned grade of “B” (3.00) or higher in all courses in the program of study. Students in the nurse practitioner options are required to complete additional semester hours. Requirements for this program are described in the *Graduate Catalog*. Persons interested in applying for admission to the program should write to the Graduate College for a *Graduate Catalog* and application form (see “[Admission to the Graduate College](#),” page 496) and contact the College of Nursing Student Services Office.

Public Health—M.P.H.

The School of Health Administration and Policy and the College of Nursing, at ASU, in conjunction with the University of Arizona and Northern Arizona University, offer courses leading to the Master of Public Health (M.P.H.) degree. Two concentrations are offered: (1) community health practice (coordinated by the College of Nursing) and (2) health administration and policy (coordinated by the School of Health Administration and Policy). Students may pursue a joint M.S. in Nursing/M.P.H. degree. For more information, see the *Graduate Catalog*.

ASU EXTENDED CAMPUS

The College of Extended Education was created in 1990 to extend the resources of ASU throughout Maricopa County, the state, and beyond. The College of Extended Education is a university-wide college that oversees the ASU Extended Campus and forms partnerships with other ASU colleges, including the College of Nursing, to meet the instructional and informational needs of a diverse community.

The ASU Extended Campus goes beyond the boundaries of the university’s physical campuses to provide access to quality academic credit and degree programs for working adults through flexible schedules; a vast network of off-campus sites; classes scheduled days, evenings, and weekends; and innovative delivery technologies including television, the Internet, and Independent Learning. The ASU Extended Campus also offers a variety of professional continuing education and community outreach programs.

For more information, see “[ASU Extended Campus](#),” page 689, or access the Web site at www.asu.edu/xed.

UNIVERSITY GRADUATION REQUIREMENTS

In addition to fulfilling college and major requirements, students must meet all university graduation requirements. For more information, see “[University Graduation Requirements](#),” page 87.

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 91. 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 B.S.N. degree requires 120 semester hours.

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-B.S.N. 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

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-B.S.N. 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 I.....	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-B.S.N. 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 <i>SG</i>	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 I*.....	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.

L literacy and critical inquiry / *MA* mathematics / *CS* computer/statistics/quantitative applications / *HU* humanities and fine arts / *SB* social and behavioral sciences / *SG* natural science—general core courses / *SQ* natural science—quantitative / *C* cultural diversity in the United States / *G* global / *H* historical / See “General Studies,” page 91.

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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 362 Professional Development II: Nursing Research <i>L</i>	3
NUR 391 Registered Nurse Mobility I: Professional Development <i>L</i>	3
NUR 392 Registered Nurse Mobility II: Health and Wellness	3
NUR 440 Theory III: Health Integrity and Alterations for RNs	6
NUR 443 Theory V: Leadership and Management	3
NUR 444 Theory IV: Health Integrity and Alterations for RNs	3
NUR 461 Professional Development III: The Art of Nursing <i>HU</i>	3
NUR 462 Professional Development IV	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-B.S.N. is as follows:

1. NUR 391
2. NUR 392
3. NUR 461
4. NUR 362
5. NUR 440
6. NUR 495
7. NUR 444
8. NUR 443
9. NUR 496
10. NUR 462

RNs interested in pursuing the RN-B.S.N.-M.S. 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 80, 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’ 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.

ASU West. ASU West hosts the professional nursing program courses. To be eligible to enroll in the professional courses at ASU West, students must be admitted to the College of Nursing at ASU Main, submit all required material for admission to the professional program, and be admitted to the college's undergraduate professional program.

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.

Community Health Services. The College of Nursing administers a Community Health Services Clinic located in Scottsdale, Arizona. Nurse practitioners provide primary care with an emphasis on promotion of wellness to families and individuals of all ages. Students in the College of Nursing may receive health care through the clinic for a fee. Stu-

dents may obtain immunizations required for admission to the professional program at the clinic's facility. The facility also serves as a learning site for both master's and baccalaureate nursing students.

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 three locations: ASU West, Community Services Building, and NUR 108. 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 ASU Main and the Community Services Building. The LRC materials include nursing course reference materials, selected nursing textbooks, nursing theses and applied projects, audiovisual equipment, videos, models, and other visual aides. In the computer lab, computers with Microsoft Office Suite are available for nursing students, as well as a variety of computer software related to nursing and health care. Selected resources are available for checkout. The LRC is staffed to assist students during regular semester schedules.

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 300 agencies to provide clinical and practice experience for students, operates its own unique nurse-managed clinic in a community setting, 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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 preclude 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.

College of Nursing

nursing.asu.edu

480/965-3244

NUR 344

Professors: Fleury, Komnenich, Mattson

Associate Professors: Alpers, Brillhart, Cesarotti, Dirksen, Ismeurt, Killeen, McCarthy, Ruiz, Sousa

Assistant Professors: Hrabe, McGrath, Pickens, Shearer, Tann

Clinical Professor: Bell

Clinical Associate Professors: Adams, Armbruster, Fargotstein, Hagler, Jasper, W. Johnson, Kastenbaum, Link, Morris, Nunez, Stillwell, White

Clinical Assistant Professors: P. Johnson, 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 and spring

Overview of United States health care delivery systems; financing, health policy, basic principles of budgeting, cost-benefit analysis, and resource management. Cross-listed as HSA 220. Credit is allowed for only HCR 220 or HSA 220.

General Studies: H

HCR 230 Culture and Health. (3)

fall and spring

Cultures of diverse groups and health/illness. Cross-cultural communication, awareness of own cultural influences, indigenous and alternative healing practices.

General Studies: C, G

HCR 240 Human Pathophysiology. (4)

fall and spring

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 and spring*

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 I. (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 and spring*

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-B.S.N. program.

*General Studies: L***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 and spring*

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-B.S.N. 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. Corequisite for RNs: NUR 391.

NUR 394 Special Topics. (1–4)*selected semesters*

Topics may include the following:

- Cultural Competence and Health. (3)

summer in even years

Relationship between cultures and health, illness, communication, healing practices, child rearing, aging, and end of life. Lecture, cooperative learning strategies, immersion community experience.

NUR 440 Theory III: Health Integrity and Alterations for RNs. (6)*fall, spring, 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 and spring*

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 for RNs: NUR 392.

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 461 Professional Development III: The Art of Nursing. (3)*fall and spring*

Explores the aesthetic, ethical, and personal patterns of knowing in nursing. Prerequisite: Junior II or admission to RN-B.S.N. program.

*General Studies: HU***NUR 462 Professional Development IV. (2)***fall and spring*

Focuses on role transition to professional nursing. Prerequisite: Senior I. Prerequisite for RNs: NUR 495.

NUR 481 Nursing Practice III. (7)*fall and spring*

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)*fall and spring*

Theoretical content related to community and home health care. Clinical practice with individual, family aggregates. 1 hour lecture, 3 hours lab. Fee. Prerequisite: NUR 392.

NUR 496 Leadership and Management Practice for RNs. (5)*fall and spring*

Capstone leadership and management experience for the RN student that utilizes patterns of knowing in nursing practice. Clinical lab. Fee. Corequisite for RNs: NUR 495. 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 91.

College of Public Programs

www.asu.edu/copp

Anne L. Schneider, Ph.D., Dean

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PURPOSE

The faculty in the College of Public Programs offer a wide range of undergraduate and graduate course work, both on and off campus, to full- and part-time students. Each academic unit of the college not only assumes responsibility in preparing its own majors, but provides a variety of service courses for the rest of the university. The college is committed to providing excellence in teaching, research, and public service. Consequently, the units work closely with numerous public, quasi-public, and private agencies at the national, regional, state, and local levels.

ORGANIZATION

The College of Public Programs is composed of eight academic units, each administered by a chair or director:

- American Indian Studies Program
- Asian Pacific American Studies Program
- Department of Recreation Management and Tourism
- Hugh Downs School of Human Communication
- School of Justice Studies
- School of Public Affairs
- School of Social Work
- Walter Cronkite School of Journalism and Mass Communication

The general administration of the college is the responsibility of the dean, who is responsible to the university president through the senior vice president and provost. For more information, visit 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 65. 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

1. the completion of 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 87); and
3. the College of Public Programs writing competence, communication, and computer requirements (see "[College Degree Requirements](#)," page 464).

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 (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

The faculty in the College of Public Programs offer undergraduate degrees in six academic units. Successful completion of a four-year program of 120 semester hours is specified by the respective academic unit. See "College of Public Programs Baccalaureate Degrees and Majors" table, page 464.

GRADUATE PROGRAMS

Master's degree programs are offered by six of the academic units of the College of Public Programs, and four of the units offer doctoral degrees. See the "College of Public Programs Graduate Degrees and Majors" table, page 465.

For more information on courses, faculty, and programs, see the *Graduate Catalog*.

ASU EXTENDED CAMPUS

The College of Extended Education was created in 1990 to extend the resources of ASU throughout Maricopa County, the state, and beyond. The College of Extended Education is a university-wide college that oversees the ASU Extended Campus and forms partnerships with other ASU colleges, including the College of Public Programs, to meet the instructional and informational needs of a diverse community.

The ASU Extended Campus goes beyond the boundaries of the university's physical campuses to provide access to quality academic credit and degree programs for working adults through flexible schedules; a vast network of off-campus sites; classes scheduled days, evenings, and weekends; and innovative delivery technologies including television, the Internet, and Independent Learning. The Extended Campus also offers a variety of professional continuing education and community outreach programs.

For more information, see "ASU Extended Campus," page 689, or access the Web site at www.asu.edu/xed.

UNIVERSITY GRADUATION REQUIREMENTS

In addition to fulfilling college and major requirements, students must meet all university graduation requirements.

First-Year Composition Requirement

Students must demonstrate reasonable proficiency in written English by achieving a grade of "C" (2.00) or higher in both ENG 101 and 102 (or ENG 107 and 108 for international students), or in ENG 105 or its equivalent. Should a student receive a grade lower than "C" (2.00) in any of the courses, it must be repeated until the specified proficiency is demonstrated. Composition courses transferred from 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 91, 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 93.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF PUBLIC PROGRAMS

College of Public Programs Baccalaureate Degrees and Majors

Major	Degree	Concentration*	Administered By
American Indian Studies	B.S.	—	American Indian Studies Program
Communication	B.A., B.S.	—	Hugh Downs School of Human Communication
Journalism and Mass Communication	B.A.	Journalism, media analysis and criticism, media management, media production, or strategic media and public relations	Walter Cronkite School of Journalism and Mass Communication
Justice Studies	B.S.	—	School of Justice Studies
Recreation	B.S.	Recreation management or tourism management	Department of Recreation Management and Tourism
Social Work	B.S.W.	—	School of Social Work

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

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 American Indian Studies, Justice Studies, and Social Work choose from:

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 Department of Recreation Management and Tourism choose from COM 225, 241, or 259; students in the Walter Cronkite School choose between COM 225 or 241.

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 Walter Cronkite School of Journalism and Mass Communication and the School of Social Work require proficiency in a language other than English. Communication majors have the choice of demonstrating proficiency in a language other than English under the B.A. Proficiency is defined as completing the second semester intermediate level, or higher, of 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</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 Graduate College 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.

College of Public Programs Graduate Degrees and Majors

Major	Degree	Concentration*	Administered By
Communication	M.A.	—	Hugh Downs School of Human Communication
	Ph.D.	Communicative development, intercultural communication, or organizational communication	Hugh Downs School of Human Communication
Justice Studies	M.S.	—	School of Justice Studies
	Ph.D.	Optional: criminal and juvenile justice; dispute resolution; law, justice, and minority populations; law, policy, and evaluation; or women, law, and justice*	School of Justice Studies
Mass Communication	M.M.C.	—	Walter Cronkite School of Journalism and Mass Communication
Public Administration	M.P.A.	Optional: nonprofit administration*	School of Public Affairs
	Ph.D.	—	School of Public Affairs
Recreation	M.S.	—	Department of Recreation Management and Tourism
Social Work	M.S.W.	Advanced direct practice or planning, administration, and community practice	School of Social Work
	Ph.D.	—	School of Social Work

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

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 discipline 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 “[The Barrett Honors College](#),” page 128.

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.

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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “[General Studies](#),” page 91.

COLLEGE OF PUBLIC PROGRAMS

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: 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 Center for Urban Inquiry’s (CUI) mission 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.

American Indian Studies Program

www.asu.edu/copp/americanindian

480/965-3634

AG 372

Carol Chiago Lujan, Director

Associate Professor: Lujan

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—B.S.

Students pursuing a B.S. 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 per-

taining to American Indian cultures, history, law, literature, language, art, and government.

American Indian Studies Program Professional Status Requirements. Undergraduate American Indian Studies students must earn professional status before taking the upper-division courses in the major. These preprofessional students may be admitted to professional status after meeting the College of Public Programs professional status requirements listed below and by earning grades of “C” (2.00) or higher in AIS 180 and AIS 280.

Professional Status Admission Requirements. Professional status students must have completed at least 56 semester hours with a minimum cumulative GPA of 2.50; the university First-Year Composition requirement; the university mathematical studies requirement; and the College of Public Programs writing competence, communication, and computer requirements.

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.

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 ASU Main. 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.

B.I.S. CONCENTRATION

A concentration in American Indian studies is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies,](#)” page 123.

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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “[General Studies,](#)” page 91.

COLLEGE OF PUBLIC PROGRAMS

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.

Justice Studies

Associate Professor: Menjivar

Languages and Literatures

Associate Professor: Choi

Psychology in Education

Associate Professor: Nakagawa

Recreation Management and Tourism

Professor: Yoshioka

Social Work

Assistant Professor: Okamoto

Women's 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.

B.I.S. CONCENTRATION

A concentration in Asian Pacific American studies is available under the Bachelor of Interdisciplinary Studies (B.I.S.) degree, a program intended for the student who has

Asian Pacific American Studies Program

www.asu.edu/copp/asianamerican

480/965-9711

AG 352

Thomas K. Nakayama, Director

CORE FACULTY

Professor: Nakayama

Assistant Professors: de Jesús, Li, Rosa

Academic Associate: Kuo

AFFILIATED FACULTY

Anthropology

Professor: Eder

English

Assistant Professor: Fuse

Human Communication

Associate Professor: Martínez

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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies,](#)” page 123.

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
- Asian Pacific American Women Issues and Identities

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.

**Hugh Downs School
of Human Communication**

com.pp.asu.edu

480/965-5095

STAUF A412

Jess K. Alberts, Director

Professors: Alberts, Arnold, Broome, Canary, Carlson, Corman, Guerrero, Jain, Martin, McPhee, Mongeau, Nakayama

Associate Professors: Buley, 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,

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “[General Studies,](#)” page 91.

COLLEGE OF PUBLIC PROGRAMS

and verbal communication skills as the top five skills desired for new hires. The curriculum is designed so that majors are proficient in each of these areas upon graduation. Courses are not offered in broadcasting or journalism.

GENERAL INFORMATION

A minimum GPA of 2.50 is required for enrollment in all upper-division courses and COM 207. A minimum GPA of 2.25 is required for enrollment in COM 110, 241, 250, and 263.

Communication Major Requirements. Undergraduate preprofessional students may be admitted to professional status after meeting all of the following requirements: (1) College of Public Programs major status admission requirements (see “[Admission](#),” page 462); and (2) completion of 12 semester hours of Communication major core course requirements (COM 100, 207, 225, and 308) with a minimum grade of “C” (2.00) in each.

Students may reach professional status upon successful completion of COM 308; they do not need to apply for major status.

DEGREE REQUIREMENTS

B.A. and B.S. Degrees

Students may choose to complete either a Bachelor of Arts or Bachelor of Science degree in Communication. The B.A. degree requires a minimum of 54 semester hours, including six hours of related area courses and a capstone course (COM 404, 407, or 484). The B.S. degree requires a minimum of 54 semester hours, including a General Studies CS (statistics) course, COM 408, and a capstone course (COM 404 or 407).

Both degree options require that students take four core courses (COM 100, 207, 225, and 308) plus 18 semester hours (six courses) where introductory courses are paired with advanced courses.

Students must choose three of the following courses for a total of nine semester hours:

COM 110 Elements of Interpersonal Communication <i>SB</i>	3
or COM 310 Relational Communication (3)	
COM 241 Introduction to Oral Interpretation <i>L/HU</i>	3
COM 250 Introduction to Organizational Communication <i>SB</i>	3
COM 263 Elements of Intercultural Communication <i>SB, C, G</i>	3
COM 321 Rhetorical Theory and Research <i>L/HU, H</i>	3
or COM 323 Communication Approaches to Popular Culture <i>C</i> (3)	

Students must then match the three courses selected above with the corresponding 400-level courses—the middle digits of the course numbers match—from the following list for a total of nine hours:

COM 410 Interpersonal Communication Theory and Research <i>SB</i>	3
COM 421 Rhetoric of Social Issues <i>HU</i>	3
COM 441 Performance Studies <i>HU</i>	3
COM 450 Theory and Research in Organizational Communication <i>SB</i>	3
COM 463 Intercultural Communication Theory and Research <i>SB, G</i>	3

Another 15 semester hours (five courses) must be communication electives, only three hours (one course) of which may be 100- or 200-level. A minimum grade of “C” (2.00) is required in all communication courses except for a maximum of six semester hours of “Y” credit available to qualified students in COM 281, 382, and/or 484.

To assure the breadth and depth of their education, all Communication undergraduates must complete the requirements of the university General Studies, the College of Public Programs, and the Hugh Downs School of Human Communication. For descriptive information on university requirements, refer to “[General Studies](#),” page 91, and “[University Graduation Requirements](#),” page 87. Students in the College of Public Programs are required to take an advanced composition course (which meets the General Studies L requirement). Although many Communication courses meet the university General Studies requirements for literacy and critical inquiry (L), students must take an advanced composition course *from the list provided by the College of Public Programs*.

Students should consult the school for current information concerning College of Public Programs and Hugh Downs School of Human Communication requirements.

Communication Internships

Internships (COM 484) consist of supervised field experiences and are available to upper-level undergraduate students with major status and a minimum ASU GPA of 2.50. Students must have also completed or be concurrently enrolled in COM 410, 421, 441, 450, or 463. 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 ASU Main 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.

B.I.S. CONCENTRATION

A concentration in communication is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

GRADUATE PROGRAMS

In addition to offering an M.A. degree program, the Hugh Downs School of Human Communication also offers an interdisciplinary Ph.D. 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; 2.50 GPA.

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 B.I.S. majors only. Prerequisites: both COM 100 and 225 or only COM 259; 2.00 GPA.

COM 301 Introductory Theories and Principles of 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 cumulative ASU GPA of 2.50. Prerequisites with a grade of "C" (2.00) or higher: COM 207; MAT 114 (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 cumulative ASU 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 cumulative ASU 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 cumulative ASU 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 cumulative ASU 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 cumulative ASU GPA of 2.50. Prerequisite for nonmajors: POS 401 or PSY 230 or QBA 221 or SOC 390 or STP 226.

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 91.

COLLEGE OF PUBLIC PROGRAMS

COM 320 Communication and Consumerism. (3)

once a year

Critical evaluation of messages designed for public consumption. Perceiving, evaluating, and responding to political, social, and commercial communication. Prerequisite: minimum cumulative ASU 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 cumulative ASU 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 cumulative ASU 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 cumulative ASU 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.

COM 341 Social Contexts for Performance. (3)

selected semesters

Adaptation and performance of literature for the community outside the university. Research into the practical uses of performed literature. Prerequisite: minimum cumulative ASU 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 cumulative ASU 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 cumulative ASU 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 cumulative ASU 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 GPA; written instructor approval.

COM 394 Special Topics. (1–4)

fall, spring, summer

Prerequisite: minimum cumulative ASU 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 B.I.S. majors only. May be repeated

for credit. Lecture, discussion. Prerequisites: both COM 100 and 225 or only COM 259; 2.00 GPA.

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 cumulative ASU 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 cumulative ASU 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 cumulative ASU 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 cumulative ASU 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 cumulative ASU GPA of 2.50.

General Studies: SB

COM 414 Crisis Communication. (3)

selected semesters

Role of communication in crisis development and intervention. Prerequisite: minimum cumulative ASU 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 cumulative ASU 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 cumulative ASU 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 cumulative ASU 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 cumulative ASU 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 including gender, race, sexuality, age,

and ethnicity through performance. Lecture, workshops.
Prerequisites: COM 225 (or 241); minimum cumulative ASU 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 cumulative ASU 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 cumulative ASU 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 cumulative ASU 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 cumulative ASU 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 cumulative ASU 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 cumulative ASU GPA of 2.50; instructor approval.

COM 484 Communication Internship. (1–6)

fall, spring, summer

Fee. Prerequisites: COM 225, 308; minimum cumulative ASU 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 cumulative ASU 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.

Walter Cronkite School of Journalism and Mass Communication

www.asu.edu/cronkite

480/965-5011

STAUF A231

Stephen Doig, Interim Director

Professors: Craft, Cronkite, Doig, Foote, Godfrey, Goldstein, Merrill, Sylvester, Watson

Associate Professors: Allen, Barrett, Bramlett-Solomon, Galician, Matera, Russell, Russomanno

Assistant Professors: Gavrilos, Keith, Schwalbe, Silcock

Clinical Professors: Itule, Leigh

Lecturers: Casavantes, Nichols

Senior Administrative Professional: Leigh

PURPOSE AND PHILOSOPHY

The primary purpose of the Walter Cronkite School of Journalism and Mass Communication is to prepare students to enter positions in media fields. The school strives to meet its mission through a three-pronged approach:

1. classroom instruction in a blend of conceptual courses, such as media law, media ethics, media history, and media management and skills courses, such as writing, editing, reporting, and production techniques;
2. on-campus media work opportunities, such as the *State Press*, the independent daily newspaper; KASC radio; KAET-TV; KAET-TV/Cactus State Poll; and "Newswatch," a weekly student-produced cable television news magazine program; and
3. off-campus media work opportunities, including internships in print, broadcast, public relations, visual journalism, sales and promotions, and media analysis and criticism.

In addition to preparing students to assume positions in the media and media-related enterprises, the school provides courses that lead to a better understanding of the role and responsibility of the media in society's public and private sectors.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF PUBLIC PROGRAMS

ADMISSION

Preprofessional Admission

Students admitted to ASU also may 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 met College of Public Programs preprofessional status admissions requirements.

Preprofessional status students must complete the following courses:

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).....	–
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 www.asu.edu/cronkite. 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.

FAST-TRACK ADMISSION

The Cronkite School has created a fast-track admissions program designed to reward students who have demonstrated high levels of academic achievements at the high

school level. All students accepted to the Journalism and Mass Communication major are evaluated to determine eligibility for the fast-track admissions program. To qualify, a student must have a minimum 3.80 high school GPA (Arizona Board of Regents GPA based on 16 competency courses) and a composite ACT score of 29 or higher or a composite SAT score of 1300 or higher. Students qualifying for this program are notified in writing that they have earned this status and are placed immediately on professional status, needing only to select their concentration area by their junior year.

ADVISING

A student 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. A student who enrolls as preprofessional or who seeks and ultimately gains 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 a student who desires to progress through the program in a timely fashion.

DEGREES

The school offers a program leading to one 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 admitted formally to ASU and must adhere to the admission procedures 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.

B.A. 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 36 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

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 nine hours) from other areas in the major.

These courses are in addition to other degree requirements. See “University Graduation Requirements,” page 87.

Related Area. Each student is required to complete a 12-semester-hour related area to complement the courses taken in the major concentration areas.

GENERAL STUDIES REQUIREMENTS

Students must satisfy the university General Studies requirement found in “General Studies,” page 91, and the College of Public Programs course requirements found under “College Degree Requirements,” page 464. Students are advised to review carefully the appropriate school curriculum check sheet to be sure 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 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 of upper-division ASU Main 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, must obtain a minimum grade of “C” (2.00) in each course in the minor, and must have a major other than Journalism and Mass Communication.

B.I.S. CONCENTRATION

A concentration in mass communication is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “Bachelor of Interdisciplinary Studies,” page 123.

GRADUATE PROGRAM

Master of Mass Communication. The curriculum for the M.M.C. degree is designed to help students achieve intellectual and professional growth, to prepare students for positions in the mass media, and to provide a background to enable those currently in the media to advance their careers. Information on the Master of Mass Communication program is detailed in the *Graduate Catalog*.

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
- 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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

COLLEGE OF PUBLIC PROGRAMS

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 Newswriting. (3)

fall and spring

Technique and practice in newswriting 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 majoring in B.A. in Journalism and Mass Communication or M.M.C. in Mass Communication; instructor approval.

JMC 451 Photojournalism II. (3)

fall and spring

Emphasizes shooting and Photoshop skills for newspaper and magazine assignments. Film and digital photography, flash and studio lighting. Fee. Prerequisite: JMC 351. Prerequisite for undergraduates: JMC professional status.

JMC 452 Photojournalism III. (3)

fall and 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.

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 and spring*

Surveys research methods used in the social sciences, with a focus on mass communication. Prerequisite: 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; 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: 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: 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 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 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: professional status.

MCO 473 Sex, Love, and Romance in the Mass Media. (3)*fall and spring*

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.

School of Justice Studieswww.asu.edu/copp/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:** Bortner, Lujan, Menjivar, Riding In**Assistant Professors:** Adelman, Hanson, Kupchik, Lopez, Milun, Monahan

MISSION

Students pursuing the B.S. degree in Justice Studies find an interdisciplinary classroom experience emphasizing ideas from the social sciences, philosophy, and legal 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 91.

COLLEGE OF PUBLIC PROGRAMS

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. crime and criminology;
2. law and society; and
3. social and economic justice.

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; and differential institutional and socioeconomic treatment of populations based on gender and sexuality, race and ethnicity, and social class.

The heart of any university program is its faculty. The School of Justice Studies 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 crime and criminology, law and society, and social and economic justice.

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.

ADMISSION

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) meeting the College of Public Programs preprofessional status admission requirements (see [“Admission,” page 462](#)); and (2) completing all of the following classes with a 2.50 minimum average GPA and a minimum grade of “C” (2.00) in each:

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)	

JUS 105 Introduction to Justice Studies.....	3
or JUS 305 Principles of Justice Studies (3)	
JUS 301 Research in Justice Studies	3
JUS 302 Basic Statistical Analysis in Justice Studies <i>CS</i>	3
JUS 303 Justice Theory	3
College writing competence requirement	3

ADVISING

Justice Studies 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 Studies undergraduate receives the *Undergraduate Advisement Guide* and an evaluation of transfer work, if any. For more information, call the school at 480/965-7682.

DEGREES

Justice Studies—B.S.

The curriculum for the B.S. 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 is 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 ASU Main, and a minimum of 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. Consult the minor verification form available in the school office.

B.I.S. CONCENTRATION

A concentration in justice studies is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see [“Bachelor of Interdisciplinary Studies,” page 123](#).

DEGREE REQUIREMENTS

The faculty in the School of Justice Studies award a B.S. degree upon the successful completion of a curriculum consisting of a minimum of 120 semester hours, including the university General Studies requirement, College of Public Programs requirements, justice studies courses, a supplementary focus 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 Public Programs and the School of Justice Studies. For descriptive information on these requirements, see “General Studies,” page 91. 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 54 semester hours, of which 18 must be taken in a supplementary focus approved by the school. The following courses are required for all degree candidates. Equivalent courses may be substituted when appropriate.

JUS 105 Introduction to Justice Studies.....	3
or JUS 305 Principles of Justice Studies (3)	
JUS 301 Research in Justice Studies.....	3
JUS 302 Basic Statistical Analysis in Justice Studies CS.....	3
JUS 303 Justice Theory.....	3
Total.....	12

Through advising, a group of justice studies courses may be recommended to ensure a comprehensive exposure appropriate to the student’s interests. The faculty encourage students interested in criminal justice issues and career areas to take JUS 100 The Justice System.

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 Studies.

GRADUATE PROGRAMS

The faculty in the School of Justice Studies offer the following: an M.S. degree in Justice Studies, a concurrent M.S. in Justice Studies/M.A. in Anthropology, and an Interdisciplinary Ph.D. program in Justice Studies. For more information, see the *Graduate Catalog*, or access the Web site at www.asu.edu/copp/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” in each of the required JUS courses—JUS 105 (or 305), 301, 302, and 303—and a minimum average 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.

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.

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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

COLLEGE OF PUBLIC PROGRAMS

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.

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.

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. Prerequisites: JUS 105 (or 305), 301, 302, 303.

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: 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.

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.

School of Public Affairs

spa.asu.edu

480/965-3926

WILSN 208

Jeffrey Chapman, Director

Professors: Alozie, Cayer, Chapman, Coor, Crow, J. Denhardt, R. Denhardt, Hall, Lan, Perry

Associate Professors: Campbell, DeGraw

Assistant Professors: Catlaw, Corley, McCabe, Peck, Voorhees

Faculty Associates: Aerni, Hiryak, Tatro, Vanacour

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 non-profit associations. To meet certificate requirements, students take four core courses (PAF 300, 340, 420, and 460) and one elective course. The list of approved electives may

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF PUBLIC PROGRAMS

be obtained by visiting the School of Public Affairs Student Services Office in WILSN 211, or by calling 480/965-1037.

PAF 300 Public Management and Administration.....	3
PAF 340 Public Management and Policy	3
PAF 420 Public Leadership.....	3
PAF 460 Public Service Ethics	3
Elective.....	3
Total	15

B.I.S. Concentration

A concentration in public administration is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

Graduate Degrees

The school also offers a 42-semester-hour professional Master of Public Administration degree and the Doctor of Philosophy degree. The M.P.A. 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.

Department of Recreation Management and Tourism

www.asu.edu/copp/recreation

480/965-7291

MOEUR 134

Randy J. Virden, Chair

Professors: Allison, Yoshioka

Associate Professors: Ashcraft, Sonmez, Teye, Timothy, Virden

Assistant Professors: Barry, Brown, Guo, Leclerc, Pritchard, White

Assistant Instructional Professional: Bossen

RECREATION—B.S.

The B.S. degree program in the Department of Recreation Management and Tourism centers upon the systematic study of leisure-related phenomena, including human behavior and development, resource use, environmental and social issues, and public policy. It is a professional program that features full exposure of students to a multifaceted concept of leisure and the quality preparation of these students for professional-level entry into leisure service occupations.

This multidisciplinary degree program is designed to provide the student with the competencies necessary for employment in management and program delivery positions in diverse leisure agencies such as municipal recreation and park departments, county park departments, YMCAs, YWCAs, Boys and Girls Clubs of America, and other nonprofit agencies, visitor and convention bureaus, senior centers, retirement communities, resorts, clinical rehabilitation centers, hospitals, destination management companies, and other components of the tourism/commercial recreation industry. Graduates have also been employed by state offices of tourism, state parks departments, various federal recreation resource agencies, and professional sports arenas.

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.

DEPARTMENTAL 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 B.S. degree program in Recreation, students must

1. meet the College of Public Programs preprofessional status admission requirements (see “Admission,” page 462);
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 B.S. 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 B.S. degree in Recreation includes 37 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 ASU Main students must be received from the Department of Recreation Management and Tourism office at ASU Main.

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 www.asu.edu/copp/recreation.

MINORS

The department 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 ASU Main. 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 ASU Main.

B.I.S. CONCENTRATIONS

Concentrations in recreation management and tourism management are available under the Bachelor of Interdisciplinary Studies (B.I.S.) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Students in the B.I.S. degree program cannot choose recreation management and tourism management as the two concentrations.

Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “Bachelor of Interdisciplinary Studies,” page 123.

CERTIFICATE PROGRAM

Nonprofit Youth and Human Service Leadership and Management: American Humanics Certificate Program.

The certificate program in American Humanics is 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,

L literacy and critical inquiry / *MA* mathematics / *CS* computer/statistics/ quantitative applications / *HU* humanities and fine arts / *SB* social and behavioral sciences / *SG* natural science—general core courses / *SQ* natural science—quantitative / *C* cultural diversity in the United States / *G* global / *H* historical / See “General Studies,” page 91.

COLLEGE OF PUBLIC PROGRAMS

Girl Scouts, Habitat for Humanity, Junior Achievement, the United Way, YMCA, and YWCA.

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.

B.I.S. CONCENTRATION

A concentration in nonprofit/youth agency administration is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take an active role in creating their educational plan and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

GRADUATE PROGRAM

M.S. Degree in Recreation. The curriculum for the M.S. 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 M.S. 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. Prerequisites: REC 305; Recreation major or minor.

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. Prerequisite: Recreation professional status. 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 professional status or instructor approval.

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. Prerequisites: REC 305; Recreation major or minor.

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 the 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. Prerequisites: REC 305; Recreation major or minor.

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.

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. Fee.

Prerequisites: REC 462; 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, 350; 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 Social Work

ssw.asu.edu

480/965-3304

WHALL 135

Leslie Leighninger, Director

Professors: Ashford, LeCroy, Leighninger, MacEachron, Martinez-Brawley, Moroney, Segal

Associate Professors: Brzuzy, Gerdes, Gustavsson, Marsiglia, Montero, Napoli, Nichols, Paz, Riskey-Curtiss, Steiner, Stromwall, Waller, Yellow Bird

Assistant Professors: Holley, Holschuh, Kang, Larson, Okamoto

Academic Professionals: Gonzalez-Santin, Knutson-Woods, Rountree-Antar

Visiting Assistant Professor: Bacchus

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-

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF PUBLIC PROGRAMS

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 (B.S.W.) and for advanced direct practice and planning, administrative, and community practice (M.S.W.). 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 (B.S.W.);
2. Master of Social Work (M.S.W.); and
3. Doctor of Philosophy (Ph.D.) with a major in Social Work.

The M.S.W. 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 B.S.W. and M.S.W. degrees are offered at ASU Main and the Tucson component; the Ph.D. degree is offered at ASU Main.

For more information regarding the master's and Ph.D. 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 66.

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 B.S.W. 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 462.

Admission is selective and based on available resources. Not all students who meet minimum requirements are admitted to the program.

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 B.S.W. 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 77. 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 68. 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 87.

Arizona students are urged to refer to the Course Applicability System for the transferability of specific courses from Arizona community colleges. Students may also access the guide through the Academic Transfer Articulation Office’s Web site at www.asu.edu/provost/articulation.

Courses transferred from community colleges are accepted as lower-division credit only. Students are urged to choose their community college courses carefully, in view of the fact that there is a minimum number of hours of work taken at the university that must be upper-division credit (see “[Credit Requirements](#),” page 87).

Direct transfer of courses from other accredited institutions to the School of Social Work is subject to the existence of parallel and equal courses in the school’s curriculum. Transfer credit is not given for courses in which the lowest passing grade (“D” [1.00]) or a failing grade (“E” [0.00] or “F” [0.00]) was received.

Credit for “life experience” is not given in lieu of course requirements. A minimum of 30 semester hours earned in resident credit courses at ASU is required for graduation.

ADVISING

Students are responsible for meeting the degree requirements and seeking advising regarding their program status and progress. Upon admission to the Social Work major, each student is assigned a faculty advisor who assists with career planning. The academic advisor assists students with program planning, registration, preparation of needed petitions, verification of graduation requirements, and referrals to university and/or community resources. Students must meet with an academic advisor before any registration transaction.

Degrees

SOCIAL WORK—B.S.W.

The school’s undergraduate curriculum leads to a Bachelor of Social Work (B.S.W.) degree. The B.S.W. degree program is accredited by the Council of Social Work Education (CSWE). The principal objective of the undergraduate curriculum is to prepare students for beginning-level generalist practice in social work. The program is also designed to prepare students for culturally sensitive practice and to provide preparation for graduate training in social work. During the freshman and sophomore years, students concentrate on obtaining a strong background in liberal arts and sciences and are classified as preprofessional until they are officially admitted to the professional program. Entrance into the Social Work professional program is not automatic (see “[Applying for Professional Program Status](#),” page 486).

Junior and senior Social Work majors focus on social work courses in research, social policy and services, social work practice, human behavior in the social environment, and field instruction in community agencies. In addition, majors take elective courses in related areas.

The B.S.W.-level practitioner is seen as a generalist. The curriculum focuses on such roles as advocacy, case management, problem-solving, and referral functions with individuals, groups, families, organizations, and the community.

Tucson Component. The Tucson Component serves students living and working in southern Arizona pursuing the B.S.W. degree. The Tucson Component—established in 1995 as a partnership between the Arizona Department of Economic Security, the ASU School of Social Work, and the College of Extended Education—became permanent in 1999. Full- and part-time students can complete all required upper-division social work courses and electives at a centrally located site near downtown Tucson, while completing general studies and other degree requirements through area community colleges, the University of Arizona, and Northern Arizona University. For more information, call the Tucson Component at 520/884-5507, extension 10.

B.I.S. CONCENTRATION

A concentration in social welfare is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

GRADUATE PROGRAMS

The faculty in the School of Social Work offer a Master of Social Work (M.S.W.) degree and a Ph.D. degree in

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “[General Studies](#),” page 91.

COLLEGE OF PUBLIC PROGRAMS

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 87.

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 91.

Note that all three General Studies awareness areas are required. Consult an academic advisor for an approved list of 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 87), the College of Public Programs requirements including the General Studies requirements (see “[General Studies](#),” page 91), 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 B.S.W. 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 Requirement

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</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.

Field Instruction. Field instruction for the B.S.W. 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.

B.S.W. 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. The faculty are committed to establishing the capabilities necessary for high-quality, social work generalist practice.

B.S.W. 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 465, 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 B.S.W. student receives an "E" (0.00) grade (failure) in field practicum.
2. A B.S.W. 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "**General Studies,**" page 91.

COLLEGE OF PUBLIC PROGRAMS

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 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

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 114, 117. 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.

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. 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 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 493 Honors Thesis. (1–6)

selected semesters

General Studies: L

Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

Graduate College

www.asu.edu/graduate

Maria T. Allison, Interim Dean

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PURPOSE

Through the faculty, the ASU Graduate College 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 95 master's and 49 doctoral majors 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 and 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 Graduate College's dedication to graduate students is the Preparing Future Faculty program, funded by the Pew Charitable Trusts and ASU. The program 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.

ASU assisted more than 2,800 outstanding graduate students through academic and tuition scholarship and other financial support programs. The total financial support amounted to \$15.5 million, exemplifying the university's commitment to enabling student success.

Funded programs, together with more than 30 research centers and institutes, provide assistantships and training for many graduate students; further, the centers coordinate con-

ferences, 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 10,000 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. In contrast, then, to the broad-based baccalaureate degree, graduate degrees are specialized. ASU offers several types and levels of postbaccalaureate degrees. For admission information and procedures, access the Web site at www.asu.edu/graduate/admissions, or refer to the *Application for Graduate Admission* booklet.

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 normally 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.

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Research Degrees. Students at ASU may pursue research-oriented or practice-oriented degrees. Research-oriented degree programs—the Master of Arts (M.A.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.)—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 abilities 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 (M.B.A.), Master of Music (M.M.), Master of Social Work (M.S.W.), and Doctor of Education (Ed.D.). 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 (dance), 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, or refer to the *Application for Graduate Admission* booklet.

Graduate Studies and the University Environment

The Graduate College spans the university in supervising graduate studies and offering all postbaccalaureate degrees except the Juris Doctor, which is administered by the College of Law. Since more than 1,600 ASU faculty members teach graduate students in more than 100 instructional units, the Graduate College works closely with the other colleges and academic units. In most cases, graduate instruction is offered by units that also provide related undergraduate programs.

Interdisciplinary Study

Although most graduate programs are offered by academic units, diverse interdisciplinary programs cross academic disciplines and come under the supervision of the

Graduate College. 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 must reflect intrinsically broad disciplinary affinities, and faculty must be drawn from more than one academic unit.

Currently, the Graduate College oversees nine interdisciplinary programs; several others are planned. Existing programs include

1. Creative Writing (M.F.A.);
2. Curriculum and Instruction (Ph.D.), jointly administered with the College of Education;
3. Exercise Science (Ph.D.);
4. Geographic Information Science (certificate);
5. Materials Science (M.S.);
6. Science and Engineering of Materials (Ph.D.);
7. Speech and Hearing Science (Ph.D.);
8. Statistics (M.S. and certificate); and
9. Transportation Systems (certificate).

Other interdisciplinary degree and certificate programs include

1. Atmospheric Science (certificate);
2. Communication (Ph.D.), administered by the College of Public Programs;
3. Environmental Design and Planning (Ph.D.), administered by the College of Architecture and Environmental Design;
4. Gerontology (certificate jointly offered at ASU Main and ASU West);
5. History and Theory of Art (Ph.D.), jointly offered with the University of Arizona and administered by the School of Art;
6. Humanities (M.A.), administered by the College of Liberal Arts and Sciences;
7. Justice Studies (Ph.D.); and
8. Molecular and Cellular Biology (M.S., Ph.D.), administered by the College of Liberal Arts and Sciences.

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 that bring together diverse strengths of the university. See “**Interdisciplinary Graduate Degrees and Majors Overseen by the Graduate College**” table, page 493.

Creative Writing—M.F.A.

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

Interdisciplinary Graduate Degrees and Majors Overseen by the Graduate College

Major	Degree	Concentration ¹	Administered By
Creative Writing	M.F.A.	—	Creative Writing Committee
Curriculum and Instruction	Ph.D. ²	Art education, ³ curriculum studies, early childhood education, elementary education, English education, exercise and wellness education, ⁴ language and literacy, mathematics education, physical education, science education, or special education	Interdisciplinary Committee on Curriculum and Instruction
Exercise Science	Ph.D.	Biomechanics, motor behavior/sport psychology, or physiology of exercise	Committee on Exercise Science
Materials Science	M.S.	—	Committee on the Science and Engineering of Materials
Science and Engineering of Materials	Ph.D.	High-resolution nanostructure analysis or solid-state device materials design	Committee on the Science and Engineering of Materials
Speech and Hearing Science	Ph.D.	Developmental neurolinguistic disorders, neuroauditory processes, or neurogerontologic communication disorders	Committee on Speech and Hearing Science
Statistics	M.S.	—	Committee on Statistics

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

² This program is administered in collaboration with the College of Education.

³ This concentration is administered in collaboration with the Katherine K. Herberger College of Fine Arts.

⁴ Doctoral courses for this interdisciplinary program administered by ASU Main are offered at ASU East.

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*.

Curriculum and Instruction—Ph.D.

The interdisciplinary Ph.D. degree in Curriculum and Instruction is administered by the Interdisciplinary Committee on Curriculum and Instruction and is overseen jointly by the Graduate College and the College of Education. Areas of concentration are available in art education, curriculum studies, early childhood education, elementary education, English education, exercise and wellness education, language and literacy, mathematics education, music education, physical education, science education, and special education. For more information, see the *Graduate Catalog*.

Exercise Science—Ph.D.

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*.

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*.

Science and Engineering of Materials—Ph.D.

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.

Speech and Hearing Science—Ph.D.

The interdisciplinary Ph.D. degree in Speech and Hearing Science is administered by the Committee on Speech and Hearing Science. Areas of concentration are available in developmental neurolinguistic disorders, neuroauditory processes, and neurogerontologic communication disorders. The purpose of the program is to prepare scholars for careers of basic and applied research in academia or in

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health care delivery environments. The unifying theme of the program is the influence aging and changes in the neurologic condition have upon human communication and communication disorders. For more information, see the *Graduate Catalog*.

Statistics—M.S.

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 121).

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.

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, Institutes, and Laboratories,” page 33.

Research Facilities

ASU lends support to research in diverse ways, including 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 Library and Collections,” page 29). It contains more than 3 million volumes of books and approximately 6.6 million pieces of microforms and subscribes to more than 36,000 journals and 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 main 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.

Branch libraries provide important specialized collections. The Music Library contains scores and sound recordings. The Architecture and Environmental Design Library houses a nationally recognized set of materials on solar energy and research collections on the work of Frank Lloyd Wright and Paolo Soleri as well as other Arizona architects.

The libraries offer excellent support to researchers interested in electronic information sources. The online library system incorporates the usual catalog to ASU library holdings as well as several other important electronic reference databases and gateways. Bibliographic information on the library holdings can be accessed from any location in the world via a modem-equipped microcomputer.

The library system belongs to the Center for Research Libraries, permitting access to the center’s vast collections of materials for extended loan periods.

GRADUATE STUDENT SUPPORT SERVICES

Providing academic and professional development support to graduate students is an important part of the Graduate College mission. Services include referral, individual mentoring for disadvantaged students, financial assistance, orientation sessions, workshops, career seminars, and research conferences. Graduate College Student Programs/

Services maintains a variety of programs specifically for graduate students (degree and nondegree). For more information, access the Graduate College Web site at www.asu.edu/graduate.

Graduate College Financial Assistance Office. The Graduate College Financial Assistance Office meets the needs of graduate and professional students. Students may receive financial services at Wilson Hall without having to visit other offices on campus. Students may obtain general information about graduate financial assistance at ASU, turn in documents, or receive status information on their student loans. Students can also apply for emergency short-term loans or pick up forms to report special circumstances. Staff members are available to help students with financial assistance concerns. For more information, see “Financial Aid,” page 59, or access the Web site at www.asu.edu/graduate/financial.

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 Graduate College provides the following resources.

Career/Professional Development Seminars. The Graduate College, in conjunction with Counseling and Consultation, offers seminars to groups of graduate students interested in exploring career-related subject matters. Examples of seminar topics include dual career issues, the impact of values on career decision making, and transferable skills.

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.

Preparing Future Faculty. Preparing Future Faculty (PFF) is a program coordinated by the Graduate College for doctoral students who are seeking careers in the professoriate. 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 Graduate College, 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.

Diversity Programs. Diversity Programs are designed to increase the number of graduate students from groups underrepresented in certain fields of study. Students interested in these programs must first go to their respective departments for nomination.

Step-Up. The Graduate College 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. 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 applications to the Graduate College to nominate a first-year student (mentee) and peer mentor match. The mentor, two or more years advanced in the program, promotes the mentee’s social and academic integration into graduate school by using a structured format. The mentor meets weekly with the mentee and schedules regular monthly meetings with the faculty advisor to discuss the mentee’s concerns, progress, accomplishments, or department-related matters.

Orientations. Before each fall semester, the Graduate College hosts an orientation/reception for new graduate students.

All new teaching assistants (TAs) are required by the university and the Arizona Board of Regents to attend the TA Orientation conducted by the Graduate College. Additional professional development forums are held during the academic year and TAs are encouraged to participate.

Workshops for Undergraduate Students Considering Graduate Education. The Graduate College 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 Student Council is part of the Associated Students of Arizona State University (ASASU), the student government for the university. The Graduate Research Support Office represents graduate student interests within ASASU and the Office of Student Life. It assists the Graduate College in planning orientations and other student-related activities. This office, with the Graduate College, also funds small research grants to support graduate students’ thesis and dissertation projects. In addition to the council, many other special interest organizations are open to graduate students.

Format Office. 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 Graduate College 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 Graduate College lobby in Wilson Hall or on the Web at www.asu.edu/graduate/format.

Publications Program. The Graduate College 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.

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ASU Graduate Council

The Graduate Council establishes general policies and standards for graduate programs and serves as an advisory board to the Graduate College dean. As part of its duties, the council reviews and makes recommendations regarding graduate academic program proposals. Sixteen faculty members and one student serve on the council, representing a wide variety of degree programs at ASU Main and ASU East. An Academic Senate representative is also elected to serve. Council members are appointed by the president of the university. For a listing of Graduate Council members, access the Web site at www.asu.edu/graduate/gradcouncil.

Offices of the Graduate College

The general offices of the college, including those of the dean, admissions, advising, financial assistance, and graduate academic services and programs, are located on the first floor of Wilson Hall. College offices are open Monday through Friday, from 8 A.M. to 5 P.M. The Graduate College may be called at 480/965-3521. The Web address is www.asu.edu/graduate.

ADMISSION TO THE GRADUATE COLLEGE

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 Graduate College. Remedies for undergraduate deficiencies may be assigned if the undergraduate degree is based on credits not accepted by ASU, such as life experience or noncredit workshops and seminars.

Graduate College Requirements

Generally, an applicant must have a GPA of 3.00 (scale is 4.00 = A), or the equivalent, in the last two years of work leading to the bachelor's degree. A student who enters a graduate degree program is expected to have undergraduate educational experiences, including general education studies, that are similar to those required for the baccalaureate degree at ASU.

Requirements of the Academic Unit

Academic units, departments, or colleges, may have admission requirements in addition to those of the Graduate College. 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, or refer to the *Application for Graduate Admission* booklet. Students may apply via the Web, by mail, or by fax.

Application Fee

Each application for entry to ASU graduate programs must be accompanied by a nonrefundable application fee. The fee is \$45 to apply for admission to a degree program

and \$15 to apply for nondegree studies. For admission information and procedures, access the Web site at www.asu.edu/graduate/admissions, or refer to the *Application for Graduate Admission* booklet.

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 Graduate College 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, but applicants can also consult the ASU listings in *Peterson's Graduate Education Directory* and in the *Directory of Graduate Programs* (published by the Educational Testing Service).

TOEFL Requirement. Among the additional materials required of international students are scores from English language examinations. All applicants whose native language is not English must submit a score from the Test of English as a Foreign Language (TOEFL). The TOEFL can be waived for students who have graduated from a college or university in a country whose native language is English or for a student who has had immigrant status (permanent residency) in the United States for at least 18 months. For a complete list of TOEFL requirements, see page 7 of the *Graduate Admissions* booklet, or access the Web site at www.asu.edu/graduate/admissions/international.html.

All international applicants who do not speak English as a primary language 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.

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 in the *Application for Graduate Admission* booklet. It can also be accessed through the Graduate College 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 study the following spring semester. An application fee of \$45 (in U.S. funds) must accompany each formal degree program 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.

Additional Information

The Graduate College 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 Graduate College. Many qualified applicants are denied because of limits on the number of students admitted each year.

Notice of Admission Decisions

Only the dean of the Graduate College can make formal offers of admission. The Graduate College 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 Graduate College dean's 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 Graduate College 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. In such cases, the letter of admission specifies the deficiencies that 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 Graduate College 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 interested in earning a degree or not ready to apply to a particular degree program 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, or refer to the *Application for Graduate Admission* booklet. Students may apply electronically. 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.

GRADUATE COLLEGE PROCEDURES

Change in Graduate Degree Program

A change from one graduate degree program to another requires a new application to the Graduate College. The usual admission procedures are followed. For details on

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matters relating to the application fee, see “Application Fee,” page 496.

Readmission to the Graduate College

Any graduate student who has not been in attendance at the university for one or more semesters must submit an application for readmission to the Graduate College. 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, refer to the *Application for Graduate Admission* booklet, or 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 Office of the Registrar. 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

Students who find it necessary to withdraw from the university should complete an official withdrawal form, available from any registrar site. Until officially withdrawn, the student is registered in all courses and, at the end of the semester, receives grades appropriate for the performance in each course. A student who officially withdraws from the university during the first four weeks of a semester receives

the mark of “W” in all registered courses. A student who officially withdraws from the university later than the fourth week receives a mark of “W” or “E” (0.00), depending upon the quality of work at the time of official withdrawal. No student is permitted to withdraw during or after the last two weeks of the semester (the last week of classes and final examination week).

Failure to withdraw officially from a course results in a grade of “E” (0.00), which is used in the computation of the GPA. The *Schedule of Classes* lists the procedures for withdrawal.

An instructor may withdraw a student from a class with a mark of “W” or a grade of “E” (0.00), for disruptive classroom behavior. A student may appeal an instructor-initiated withdrawal to the standards committee of the college in which the course is offered. The decision of the committee is final.

A graduate student who does not enroll for three calendar years is considered withdrawn and must reapply for admission to a degree program.

Unrestricted Withdrawal. During the first four weeks of a semester or the first six days of a summer session, a student may withdraw from any course with a mark of “W.” See the *Schedule of Classes* or the *Summer Sessions Bulletin* for the dates of the unrestricted withdrawal period.

Restricted Withdrawal. From the fifth week to the end of the 10th week of a semester and from the seventh day to the end of the third week of a summer session, a student may withdraw with a mark of “W” from a course only if the instructor certifies that the student is passing at the time of the withdrawal. See the *Schedule of Classes* or the *Summer Sessions Bulletin* for dates of the restricted 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.

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.

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.

Doctoral students fulfilling residence requirements for the Doctor of Philosophy and Doctor of Musical Arts degrees must be enrolled full time (nine semester hours minimum or six semester hours for research assistants or teaching assistants) during the specified period.

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.](#)

GRADUATE COLLEGE DEGREE REQUIREMENTS

Graduate Advising

The Graduate College’s Referral Office offers general information about policies, procedures, requirements, and support services. Students with regular admission status should contact their academic unit for degree program advising and program of study planning.

Grading

The [“Grades” table, on this page](#), defines grades and gives their values.

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

A grade of “P” (pass) in a 400-level course may not appear on a program of study. (The grade is not used at the

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.

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 the GPAs. A student receiving a grade of “D” (1.00) or “E” (0.00) must repeat the course in a regularly scheduled (not an independent study) class if it is to be included in the program of study. However, both the “D” (1.00) or “E” (0.00) and the new grade are used to compute GPAs.

Graduate course work (500-, 600-, and 700-level courses) reported as an “I” (incomplete) must be completed within one calendar year. At the time the “I” grade is given, the student must complete a “Request for Grade of Incomplete” form. The form first serves as a record of the “I” grade and the work required to complete it. When the student has completed the work, the form then serves as a change-of-grade authorization.

If the work specified on the form is not completed within one calendar year, the “I” grade (500-, 600-, and 700-level courses) becomes part of the student’s permanent transcript, and the student is not allowed to complete the course work

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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 courses 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 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 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 stu-

dent 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 Graduate College, 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 the Graduate College can withdraw a student who is not progressing satisfactorily.

The designation of honors (such as *cum laude*) is reserved for undergraduates. The Graduate College 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 Graduate College 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 the Graduate College.

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. 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.

Transfer credit taken before admission to a graduate degree program at ASU Main or East is nondegree credit. Nondegree credit taken at ASU Main or East 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 Graduate College dean's 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. Courses taken at ASU West are considered transferred credit.

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.

Graduate College policy does not permit credits used for completion of a degree at another institution to be applied toward completion of a degree of equal or lower level at ASU. For these transfer hours to be used toward the completion of an ASU program of study, students must provide evidence that these hours were not counted toward the previous degree.

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 a grade of "B" (3.00) or higher 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 the Graduate College 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 Graduate College. 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 Graduate College.

Upon the recommendation of the committee chair and head of the academic unit, ASU West tenured (or tenure-track) faculty may serve on master's and doctoral committees at ASU Main. ASU West tenured (or tenure-track) faculty may serve as cochairs for thesis and dissertation committees at ASU Main upon the recommendation of the head of the academic unit and approval of the dean of the Graduate College. Cochairs must meet the academic unit's criteria for chairing theses and dissertation committees.

Qualified individuals outside the university, upon the recommendation of the head of the academic unit and approval of the Graduate College, 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 the Graduate College, 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 Main.

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 Graduate College 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

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mastery of research methods, theory, and tools of the discipline. It should demonstrate the candidate's ability to address a major intellectual problem and to propose meaningful questions and hypotheses. The dissertation should be a contribution to knowledge that is worthy of publication by an established press as a book or monograph or as one or more articles in a reputable journal.

For format, the Graduate College 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 Graduate College 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 also 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 Graduate College allows certain flexibility in the format of the manuscript, but Graduate College and library guidelines must be followed.

The student must submit two final copies of a thesis or dissertation to the ASU 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 Office of the Registrar no later than the date specified in the "Graduate College 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 re-filing fee.

Summer Sessions

Work taken during the 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 "Graduate College Calendar," in the *Graduate Catalog*, lists deadlines for the submission of theses and dissertations to the Graduate College, the last day to apply for graduation, the last day to hold an oral defense of a thesis or dissertation, and the last day to submit theses and dissertations to the ASU Bookstore for binding. This information is also available on the Web at www.asu.edu/graduate/resources/generalinfo/GradDdlns.

Student Responsibility

The graduate students are responsible for knowing and observing all procedures and requirements of the Graduate College as defined in the *Graduate Catalog*, the *Schedule of Classes*, and the *Format Manual*. Each student should also be informed about the requirements concerning 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/rsp111.html.

Policies and Procedures of the Graduate Council Appeals Board

The Graduate Council Appeals Board (GCAB) acts as the appeals body for graduate students seeking redress on academic decisions regarding their graduate program. Before filing an appeal, the graduate student should discuss the situation with the associate dean of the Graduate College to explore resolution of the matter at the unit or college level.

For more information, see the *Graduate Catalog*.

ASU Graduate Degrees

Graduate degrees, majors, and concentrations offered by ASU Main, ASU East, and ASU West and through ASU Extended Campus 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 508.

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

Master of Accountancy and Information Systems (M.A.I.S.)
 Master of Architecture (M.Arch.)
 Master of Arts (M.A.)
 Master of Business Administration (M.B.A.)
 Master of Computer Science (M.C.S.)
 Master of Counseling (M.C.)
 Master of Education (M.Ed.)
 Master of Engineering (M.Eng.)
 Master of Environmental Planning (M.E.P.)
 Master of Fine Arts (M.F.A.)

Master of Health Services Administration (M.H.S.A.)
 Master of Mass Communication (M.M.C.)
 Master of Music (M.M.)
 Master of Natural Science (M.N.S.)
 Master of Physical Education (M.P.E.)
 Master of Public Administration (M.P.A.)
 Master of Public Health (M.P.H.)
 Master of Science (M.S.)
 Master of Science in Design (M.S.D.)
 Master of Science in Engineering (M.S.E.)
 Master of Science in Technology (M.S.Tech.)
 Master of Social Work (M.S.W.)
 Master of Taxation (M.Tax.)
 Master of Teaching English as a Second Language (M.TESL)
 Doctor of Audiology (Au.D.)
 Doctor of Education (Ed.D.)
 Doctor of Musical Arts (D.M.A.)
 Doctor of Philosophy (Ph.D.)
 Juris Doctor (J.D.)

ASU Graduate Degrees

Major	Degree	Concentration ¹	Campus
Accountancy and Information Systems	M.A.I.S.	—	Main
Aerospace Engineering	M.S., M.S.E., Ph.D.	—	Main
Agribusiness	M.S.	Optional: agribusiness management and marketing, or food quality assurance ¹	East
Anthropology	M.A.	Archaeology, bioarchaeology, linguistics, museum studies, physical anthropology, or social-cultural anthropology	Main
	Ph.D.	Archaeology, physical anthropology, or social-cultural anthropology	Main
Applied Psychology	M.S.	—	East
Architecture	M.Arch.	—	Main
Art	M.A.	Art education or art history	Main
	M.F.A.	Ceramics, digital technology, drawing, fibers, intermedia, metals, painting, photographic studies, photography, printmaking, sculpture, or wood	Main
Asian Languages and Civilizations—Chinese/Japanese	M.A.	—	Main
Audiology	Au.D.	—	Main

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 collaborative program is offered by the three state universities.

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 Graduate College.

ASU GRADUATE DEGREES

ASU Graduate Degrees (continued)

Major	Degree	Concentration ¹	Campus
Bioengineering	M.S., Ph.D.	—	Main
Biology	M.S., Ph.D.	Optional: ecology ¹	Main
Building Design	M.S.	Design knowledge and computing, energy performance and climate-responsive architecture, or facilities development and management	Main
Business Administration	M.B.A.	—	Main West Extended
	Ph.D.	Accountancy, computer information systems, finance, health services research, ² management, marketing, or supply chain management	Main
Chemical Engineering	M.S., M.S.E., Ph.D.	—	Main
Chemistry	M.S., Ph.D.	Analytical chemistry, biochemistry, geochemistry, inorganic chemistry, organic chemistry, physical chemistry, or solid-state chemistry	Main
Civil Engineering	M.S., M.S.E., Ph.D.	—	Main
Communication	M.A.	—	Main
	Ph.D.	Communicative development, intercultural communication, or organizational communication	Main
Communication Disorders	M.S.	—	Main
Communication Studies	M.A.	—	West
Composition	M.M.	Optional: interdisciplinary digital media and performance ¹	Main
Computational Biosciences	M.S.	—	Main
Computer Science	M.C.S.	—	Main
	M.S., Ph.D.	Optional: arts, media, and engineering ¹	Main
Construction	M.S.	Construction science, facilities, or management	Main
Counseling	M.C.	—	Main
Counseling Psychology	Ph.D.	—	Main
Counselor Education	M.Ed.	—	Main
Creative Writing	M.F.A.	—	Main
Criminal Justice	M.A.	—	West
Curriculum and Instruction	M.A.	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	Main
		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	Main
	M.Ed.	Secondary education	Extended

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ASU Graduate Degrees (continued)

Major	Degree	Concentration ¹	Campus
Curriculum and Instruction (continued)	Ed.D.	Bilingual education, curriculum studies, early childhood education, elementary education, ² English as a second language, Indian education, language and literacy, mathematics education, science education, secondary education, ² or social studies education	Main
	Ph.D.	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	Main
Dance	M.F.A.	Optional: interdisciplinary digital media and performance ¹	Main
Design	M.S.D.	Graphic design, industrial design, or interior design	Main
Economics	M.S., Ph.D.	—	Main
Educational Administration and Supervision	M.Ed.	—	Main West
	Ed.D.	—	Main Extended
Educational Leadership and Policy Studies	Ph.D.	—	Main
Educational Psychology	M.A., M.Ed.	—	Main
	Ph.D.	Learning; lifespan developmental psychology; measurement, statistics, and methodological studies; or school psychology	Main
Educational Technology	M.Ed., Ph.D.	—	Main
Electrical Engineering	M.S., Ph.D.	Optional: arts, media, and engineering ¹	Main
	M.S.E.	—	Main Extended
Elementary Education	M.Ed.	Optional: bilingual education, educational technology, ESL education, or reading ¹	West
Engineering	M.Eng.	—	Main Extended
Engineering Science	M.S., Ph.D.	—	Main
	M.S.E.	Optional: executive embedded systems ¹	Main Extended
English	M.A.	Comparative literature, English linguistics, literature and language, or rhetoric and composition	Main
	Ph.D.	Literature or rhetoric/composition and linguistics	Main
Environmental Design and Planning	Ph.D.	Design; history, theory, and criticism; or planning	Main
Environmental Planning	M.E.P.	Landscape ecological planning, urban and regional development, or urban design ²	Main
Environmental Resources	M.S.	GIS/remote sensing, natural resource management, or range ecology	East
Exercise and Wellness	M.S.	—	East
Exercise Science	Ph.D.	Biomechanics, motor behavior/sport psychology, or physiology of exercise	Main

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

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ASU GRADUATE DEGREES

ASU Graduate Degrees (continued)

Major	Degree	Concentration ¹	Campus
Family and Human Development	M.S.	Optional: family studies ¹	Main
Family Science	Ph.D.	Optional: marriage and family therapy ¹	Main
French	M.A.	Comparative literature, linguistics, or literature	Main
Geography	M.A., Ph.D.	—	Main
Geological Sciences	M.S., Ph.D.	—	Main
German	M.A.	Comparative literature, language and culture, or literature	Main
Health Services Administration	M.H.S.A.	—	Main
Higher and Postsecondary Education	M.Ed., Ed.D.	Optional: higher education ¹	Main
History	M.A.	Asian history, British history, European history, Latin American history, public history, U.S. history, or U.S. Western history	Main
	Ph.D.	Asian history, British history, European history, Latin American history, or U.S. history	Main
History and Theory of Art ⁴	Ph.D.	—	Main
Humanities	M.A.	—	Main
Industrial Engineering	M.S., M.S.E., Ph.D.	—	Main
Information Management	M.S.	—	Main
Interdisciplinary Studies	M.A.	—	West
Justice Studies	M.S.	—	Main
	Ph.D.	Optional: criminal and juvenile justice; dispute resolution; law, justice, and minority populations; law, policy, and evaluation; or women, law, and justice ¹	Main
Kinesiology	M.S.	—	Main
Law ⁵	J.D.	—	Main
Mass Communication	M.M.C.	—	Main
Materials Engineering	M.S., M.S.E.	—	Main
Materials Science	M.S.	—	Main
Mathematics	M.A., Ph.D.	—	Main
Mechanical Engineering	M.S., M.S.E., Ph.D.	—	Main
Microbiology	M.S., Ph.D.	—	Main
Molecular and Cellular Biology	M.S., Ph.D.	—	Main
Music	M.A.	Ethnomusicology, music history and literature, or music theory	Main
	D.M.A.	Conducting, interdisciplinary digital media and performance, music composition, music education, or performance	Main
Music Education	M.M.	Choral music, general music, instrumental music, jazz studies	Main
Natural Science	M.N.S.	Biology, chemistry, geological sciences, mathematics, microbiology, physics, or plant biology	Main

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 collaborative program is offered by the three state universities.

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 Graduate College.

ASU Graduate Degrees (continued)

Major	Degree	Concentration ¹	Campus
Nursing	M.S.	Adult health nursing, community health nursing, family health nursing, nursing administration, ² parent-child nursing, psychiatric/mental health nursing, or women's health	Main Extended
Nutrition	M.S.	—	East
Performance	M.M.	Music theatre/opera musical direction, music theatre/opera performance, performance, performance pedagogy, or piano accompanying	Main
Philosophy	M.A., Ph.D.	—	Main
Physical Education	M.P.E.	—	Main
Physics	M.S., Ph.D.	—	Main
Plant Biology	M.S., Ph.D.	Optional: ecology or photosynthesis ¹	Main
Political Science	M.A., Ph.D.	American politics, comparative politics, international relations, or political theory	Main
Psychology	Ph.D.	Behavioral neuroscience, clinical psychology, cognitive/behavioral systems, developmental psychology, quantitative research methods, or social psychology	Main
Public Administration	M.P.A.	Optional: nonprofit administration ¹	Main Extended
	Ph.D.	—	Main
Public Health ³	M.P.H.	Community health practice or health administration and policy	Main
Recreation	M.S.	—	Main
Religious Studies	M.A., Ph.D.	—	Main
Science and Engineering of Materials	Ph.D.	High-resolution nanostructure analysis or solid-state device materials design	Main
Secondary Education	M.Ed.	Optional: educational technology ¹	West
Social and Philosophical Foundations of Education	M.A.	—	Main
Social Work	M.S.W.	Advanced direct practice or planning, administration, and community practice Advanced generalist practice	Main Extended West
	Ph.D.	—	Main
Sociology	M.A., Ph.D.	—	Main
Spanish	M.A.	Comparative literature, language and culture, linguistics, or literature	Main
	Ph.D.	Cultural studies or literature	
Special Education	M.A.	—	Main
	M.Ed.	Gifted, mildly disabled, multicultural exceptional, or severely/multiply disabled Infants and young children	Main West
Speech and Hearing Science	Ph.D.	Developmental neurolinguistic disorders, neuroauditory processes, or neurogerontologic communication disorders	Main
Statistics	M.S.	—	Main
Taxation	M.Tax.	—	Main
Teaching English as a Second Language	M.TESL	—	Main

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 collaborative program is offered by the three state universities.

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 Graduate College.

ASU GRADUATE DEGREES

ASU Graduate Degrees (continued)

Major	Degree	Concentration ¹	Campus
Technology	M.S.Tech.	Aeronautical engineering technology, aviation human factors, aviation management technology, computer systems engineering technology, 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
		Environmental technology management	Extended
Theatre	M.A.	—	Main
	M.F.A.	Interdisciplinary digital media, performance, scenography, or theatre for youth	Main
	Ph.D.	Optional: theatre for youth ¹	Main

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 collaborative program is offered by the three state universities.

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 Graduate College.

Concurrent and Dual Degrees

Degrees	Administered By
J.D./M.B.A.	College of Law/W. P. Carey School of Business
J.D./M.H.S.A.	College of Law/School of Health Administration and Policy
J.D./M.S. in Economics ¹	College of Law/Department of Economics
J.D./Ph.D. in Justice Studies	College of Law/School of Justice Studies
M.A. in Anthropology/M.S. in Justice Studies	Department of Anthropology/School of Justice Studies
M.A.I.S./M.B.A.	W. P. Carey School of Business
M.Arch./M.B.A.	School of Architecture/W. P. Carey School of Business
M.B.A./M.H.S.A.	W. P. Carey School of Business
M.B.A./M.S. in Economics	W. P. Carey School of Business
M.B.A./M.S. in Information Management	W. P. Carey School of Business
M.B.A./M.Tax.	W. P. Carey School of Business
M.B.A./Master of International Management	W. P. Carey School of Business/American Graduate School of International Management (Thunderbird), 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)
M.S. in Nursing/M.P.H. ²	College of Nursing/College of Public Health
M.S.E. in Industrial Engineering/Master of International Management of Technology	Department of Industrial Engineering/American Graduate School of International Management (Thunderbird)

¹ Applications for this program are not being accepted at this time.

² This program is jointly offered with the University of Arizona and Northern Arizona University.

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. See the "Semester and Academic Year Study Abroad and Exchange Programs" table, page 510.

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. Nor-

mally, participation in an exchange program is dependent on prior attainment of an adequate level of language competence to be able to function in classes in the host country.

In several instances, students may have the opportunity to obtain advanced-level intensive language instruction for approximately one month in the host country before the start of the academic term.

Diverse program locations for students proficient in the host language include Chile, 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, 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 (ISA, 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.

INTERNATIONAL PROGRAMS

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 ASU West 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 academic units on campus. 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 complete an IPO Eligibility Application, available on the Web at ipo.asu.edu. Eligible students are then directed to attend an advising session with IPO or the specialty program sponsoring academic unit. Applicants are guided through additional application procedures that are specific to the student's particular international program. 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 ASU Main, ASU East, and ASU West, 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.

Semester and Academic Year Study Abroad and Exchange Programs¹

Country	City	University/Institution	Study Category ²	Semesters Available ³	Study Areas ⁴
Argentina	Buenos Aires	University Torcuato di Tella (business majors only)	EX	F, S, AY	B
	Buenos Aires	University Torcuato di Tella (Butler ⁵)	SA	F, S, AY	B L O
	Buenos Aires	University Torcuato di Tella (law majors only)	EX	F, S, AY	O
	Buenos Aires	University of Belgrano	SA	F, S, AY	B C E H L O
	Buenos Aires	University of Belgrano (ISA ⁵)	SA	F, S, AY	B C E H L O
	Buenos Aires	University of Buenos Aires (Butler and CIEE ⁵)	SA	F, S, AY	F H L
	Buenos Aires	University of Salvador (Butler ⁵)	SA	F, S, AY	B E H L
	Buenos Aires	Pontificia Catholic University Argentina (Butler and CIEE ⁵)	SA	F, S, AY	C F H L
	Buenos Aires	Latin American Faculty of Social Sciences (CIEE ⁵)	SA	F, S, AY	C H L

¹ Information is subject to change without notice.

² Study category abbreviations: **SA** = study abroad, **EX** = exchange, **Both** = study abroad and exchange

³ Semesters available abbreviations: **F** = fall, **S** = spring, **AY** = all year

⁴ Study areas abbreviations: **B** = business, **C** = communication, **F** = fine arts, **E** = engineering/sciences, **H** = humanities/social sciences, **I** = internship, **L** = languages, **O** = other

⁵ Acronyms used in the table: **AIFS** (American Institute for Foreign Study), **Butler** (Institute for Study Abroad, Butler University), **CIEE** (Council for International Education Exchange), and **ISA** (International Studies Abroad)

Semester and Academic Year Study Abroad and Exchange Programs¹ (continued)

Country	City	University/Institution	Study Category ²	Semesters Available ³	Study Areas ⁴
(Argentina)	Mendoza	National University of Cuyo (Butler ⁵)	SA	F, S, AY	F H L O
Armenia	Yeravan	Yeravan State University	SA	F, S, AY	L
Australia	Adelaide	University of Adelaide (Butler ⁵)	SA	F, S, AY	B E F H L
	Brisbane	Queensland University of Technology	Both	F, S, AY	B C E F H O
	Brisbane	University of Queensland (Butler and ISA ⁵)	SA	F, S, AY	B E H L
	Brisbane and Gold Coast	Griffith University (Butler ⁵)	SA	F, S, AY	B C E F H L
	Canberra	Australian National University (Butler ⁵)	SA	F, S, AY	B E F H L
	Hobart and Launceston	University of Tasmania (Butler ⁵)	SA	F, S, AY	E F H O
	Lismore	Southern Cross University (Butler ⁵)	SA	F, S, AY	B F H
	Melbourne	La Trobe University (CIEE ⁵)	SA	F, S, AY	B E F H L
	Melbourne	Monash University (Butler ⁵)	SA	F, S, AY	B C F H
	Melbourne	Royal Melbourne Institute of Technology	Both	F, S, AY	B C E F H L O
	Melbourne	University of Melbourne	SA	F, S, AY	B E F H L O
	Melbourne	University of Melbourne (Butler and CIEE ⁵)	SA	F, S, AY	B E F H L O
	Perth	Edith Cowan University	Both	F, S, AY	B C E F H O
	Perth	Murdoch University (Butler and CIEE ⁵)	SA	F, S, AY	B C H
	Perth	University of Western Australia (Butler ⁵)	SA	F, S, AY	E F H L
	Sydney	Macquarie University	Both	F, S, AY	B C E F H I L O
	Sydney	Macquarie University (AIFS, Butler, and CIEE ⁵)	SA	F, S, AY	B C E F H I L O
	Sydney	University of New South Wales (Butler ⁵)	SA	F, S, AY	E F H L
	Sydney	University of Sydney (Butler, CIEE, and ISA ⁵)	SA	F, S, AY	B E F H L O
	Sydney	University of Technology (Butler ⁵)	SA	F, S, AY	B H O
Townsville and Cairns	James Cook University (Butler ⁵)	SA	F, S, AY	B E F H	
	Wollongong	University of Wollongong (Butler and CIEE ⁵)	SA	F, S, AY	E F H L
Austria	Salzburg	University of Salzburg (AIFS ⁵)	SA	F, S, AY	B H I L O
Belgium	Brussels	Vesalius College at the Vrije Universiteit Brussels (CIEE ⁵)	SA	F, S, AY	C E H L
Brazil	Salvador da Bahia	Catholic University of Salvador (CIEE ⁵)	SA	F, S, AY	C F H L
	Salvador da Bahia	Federal University of Bahia (CIEE ⁵)	SA	F, S, AY	C F L
	São Paulo	University of São Paulo (CIEE ⁵)	SA	F, S, AY	B C F L
Canada	Québec	Laval University	EX	F, S, AY	B E F L O
	Saskatoon	University of Saskatchewan (agricultural business majors only)	EX	F, S, AY	O
	Toronto	University of Guelph (agricultural business majors only)	EX	F, S, AY	O
	Vancouver	University of British Columbia	EX	F, AY	B E F O

¹ Information is subject to change without notice.

² Study category abbreviations: **SA** = study abroad, **EX** = exchange, **Both** = study abroad and exchange

³ Semesters available abbreviations: **F** = fall, **S** = spring, **AY** = all year

⁴ Study areas abbreviations: **B** = business, **C** = communication, **F** = fine arts, **E** = engineering/sciences, **H** = humanities/social sciences, **I** = internship, **L** = languages, **O** = other

⁵ Acronyms used in the table: **AIFS** (American Institute for Foreign Study), **Butler** (Institute for Study Abroad, Butler University), **CIEE** (Council for International Education Exchange), and **ISA** (International Studies Abroad)

INTERNATIONAL PROGRAMS

Semester and Academic Year Study Abroad and Exchange Programs¹ (continued)

Country	City	University/Institution	Study Category ²	Semesters Available ³	Study Areas ⁴
(Canada)	Victoria	University of Victoria (law majors only)	EX	F, S, AY	O
	Waterloo	University of Waterloo (social work majors—graduate level only)	EX	F, S, AY	O
Chile	Santiago	Latin American Faculty of Social Sciences (CIEE ⁵)	SA	F, S, AY	H
	Santiago	Pontificia University of Chile (CIEE ⁵)	SA	F, S, AY	H L
	Santiago	Catholic University de Chile (Butler ⁵)	SA	F, S, AY	B E F H L
	Santiago	University of Chile (Butler and CIEE ⁵)	SA	F, S, AY	F H L
	Santiago	University of Santiago (CIEE ⁵)	SA	F, S, AY	B H L
	Valparaíso	Catholic University of Valparaíso (Butler, CIEE, and ISA ⁵)	SA	F, S	B C E F L O
	Viña del Mar	Adolfo Ibañez University (business majors only)	EX	F, S, AY	B H
China	Beijing	Peking University (CIEE ⁵)	SA	F, S, AY	C L
	Hong Kong	Hong Kong Polytechnic University (business majors only)	Both	F, S, AY	B
	Nanjing	Nanjing University (CIEE ⁵)	SA	F, S, AY	H L
	Shanghai	East China Normal University (CIEE ⁵)	SA	F, S, AY	H L
Costa Rica	Heredia	National Autonomous University (Butler ⁵)	SA	F, S, AY	B H L
	Monteverde	Monteverde (CIEE ⁵)	SA	F, S	E L
	San José	Lincoln School (student teachers only)	SA	F, S	O
	San José	Latin American University of Science and Technology (ISA ⁵)	SA	F, S, AY	E
	San José	University of Veritas (ISA ⁵)	SA	F, S, AY	B C F I L
Cuba	Havana	University of Havana (Butler and CIEE ⁵)	SA	F, S, AY	F L O
Czech Republic	Prague	Charles University (AIFS and CIEE ⁵)	SA	F, S, AY	B H L
	Prague	University of Economics (business majors only)	EX	F, S, AY	B
Denmark	Copenhagen	University of Copenhagen	EX	F, S, AY	E H L
Dominican Republic	Santiago	Pontificia Catholic University of the Mother and Teacher (CIEE ⁵)	SA	F, S, AY	B I L
	Santo Domingo	Latin American Faculty of Social Sciences—Dominican Republic (CIEE ⁵)	SA	F, S, AY	C H I
Ecuador	Quito	Pontificia Catholic University of Ecuador	Both	F, S, AY	B C E L O
Egypt	Cairo	American University in Cairo	SA	F, S, AY	B C E F L
England	Birmingham	University of Birmingham (kinesiology majors only)	EX	S, AY	O
	Brighton	University of Brighton (student teachers only)	EX	S	O
	Brighton	University of Sussex (Butler ⁵)	SA	F, S, AY	E F H
	Bristol	University of Bristol (Butler ⁵)	SA	F, S, AY	B E H
	Cambridge	Cambridge University (Butler ⁵)	SA	F, S, AY	E H
	Cambridge	The Institute of Economic and Political Studies Program (INSTEP)	SA	F, S, AY	B I
	Canterbury	University of Kent (Butler ⁵)	SA	F, S, AY	B F H

¹ Information is subject to change without notice.

² Study category abbreviations: **SA** = study abroad, **EX** = exchange, **Both** = study abroad and exchange

³ Semesters available abbreviations: **F** = fall, **S** = spring, **AY** = all year

⁴ Study areas abbreviations: **B** = business, **C** = communication, **F** = fine arts, **E** = engineering/sciences, **H** = humanities/social sciences, **I** = internship, **L** = languages, **O** = other

⁵ Acronyms used in the table: **AIFS** (American Institute for Foreign Study), **Butler** (Institute for Study Abroad, Butler University), **CIEE** (Council for International Education Exchange), and **ISA** (International Studies Abroad)

Semester and Academic Year Study Abroad and Exchange Programs¹ (continued)

Country	City	University/Institution	Study Category ²	Semesters Available ³	Study Areas ⁴
(England)	Colchester	University of Essex (Butler ⁵)	SA	F, S, AY	B E F H
	Coventry	University of Warwick (Butler ⁵)	SA	F, S, AY	B E H L
	Hull	University of Hull	EX	S, AY	B E F L O
	Lancaster	Lancaster University (Butler ⁵)	SA	F, S, AY	B E F H
	Leeds	University of Leeds	EX	S, AY	B C E F L O
	Leeds	University of Leeds (Butler ⁵)	SA	S, AY	B C E F L O
	Leicester	University of Leicester	EX	S, AY	B C E F I L
	London	American Intercontinental University	SA	F, S, AY	B C F I O
	London	Birbeck College (Butler ⁵)	SA	F, S, AY	B C F I
	London	King's College London (Butler ⁵)	SA	F, S, AY	E H O
	London	Laban's Centre London (Butler ⁵)	SA	F, S, AY	F
	London	London School of Economics and Political Science	SA	AY	B E L
	London	London Universities Program (CIEE ⁵)	SA	F, S	B F H
	London	Middlesex University (Butler ⁵)	SA	F, S, AY	B C F H
	London	Queen Mary, University of London (Butler ⁵)	SA	F, S, AY	B E H
	London	Richmond American International University (AIFS ⁵)	SA	F, S, AY	B C E F I
	London	School of Oriental and African Studies (Butler ⁵)	SA	F, S, AY	H L
	London	Slade School of Fine Art (Butler ⁵)	SA	F, S, AY	F
	London	University College London (Butler ⁵)	SA	F, S, AY	E H
	London	University of London, Goldsmiths College (CIEE ⁵)	SA	F, S, AY	F H L
	London	University of London, Imperial College (CIEE ⁵)	SA	AY	E
	London	University of Westminster (Butler and CIEE ⁵)	SA	F, S, AY	B C E H L
	Manchester	University of Manchester	EX	S, AY	B C E L
	Norwich	University of East Anglia (Butler ⁵)	SA	F, S, AY	B E F H L
	Nottingham	University of Nottingham (Butler ⁵)	SA	F, S, AY	B E H L
	Oxford	Oxford Brookes University (Butler ⁵)	SA	F, S, AY	B E H
	Oxford	Oxford University (Butler ⁵)	SA	F, S, AY	E H L
Plymouth	University of Plymouth (business majors only)	EX	AY	B	
Reading	University of Reading (ISA ⁵)	SA	F, S, AY	E F H L O	
York	University of York (Butler ⁵)	SA	F, S, AY	H L	
France	Cannes	International College de Cannes (AIFS ⁵)	SA	F, S, AY	B F I L
	Grenoble	University of Grenoble	EX	S, AY	B C E F H I L O
	Grenoble	University of Grenoble (AIFS ⁵)	SA	F, S, AY	C F H L
	Lille	Catholic University of Lille	EX	S	B C E H I L O
	Lille	Catholic University of Lille, Intensive Language	SA	F	L
	Paris	Catholic University of Paris (ISA ⁵)	SA	F, S, AY	C F H L
	Paris	Paris Center for Critical Studies (CIEE ⁵)	SA	F, S, AY	F H L
	Paris	University of Paris IV (Sorbonne) (AIFS ⁵)	SA	F, S, AY	B F H L
	Rennes	University of Haute Bretagne, Rennes II (CIEE ⁵)	SA	F, S, AY	H L

¹ Information is subject to change without notice.

² Study category abbreviations: **SA** = study abroad, **EX** = exchange, **Both** = study abroad and exchange

³ Semesters available abbreviations: **F** = fall, **S** = spring, **AY** = all year

⁴ Study areas abbreviations: **B** = business, **C** = communication, **F** = fine arts, **E** = engineering/sciences, **H** = humanities/social sciences, **I** = internship, **L** = languages, **O** = other

⁵ Acronyms used in the table: **AIFS** (American Institute for Foreign Study), **Butler** (Institute for Study Abroad, Butler University), **CIEE** (Council for International Education Exchange), and **ISA** (International Studies Abroad)

INTERNATIONAL PROGRAMS

Semester and Academic Year Study Abroad and Exchange Programs¹ (continued)

Country	City	University/Institution	Study Category ²	Semesters Available ³	Study Areas ⁴
(France)	Toulouse	Higher School of Commerce, Toulouse (business majors only)	EX	S, AY	B
Germany	Berlin	Technical University of Berlin (TU Berlin)	EX	F, S, AY	E O
	Frankfurt	European Business School (business majors only)	EX	F, S, AY	B
	Frankfurt an der Oder	European University Viadrina (business majors only)	EX	S, AY	B
	Heidelberg	University of Heidelberg	EX	AY	B H L O
	Köln	Köln International School of Design (industrial design majors only)	EX	F	O
	Regensburg	Regensburg University	EX	AY	B H L O
	Stuttgart	Stuttgart University (architecture majors only)	EX	AY	B E H O
	Tübingen	University of Tübingen	EX	F, S, AY	B E I L
	Tübingen	Tübingen University, Intensive Language	SA	S	L
Ghana	Legon	University of Ghana (CIEE ⁵)	SA	F, S, AY	B H L
Greece	Athens	University of Laverne	Both	F, S, AY	B C H L O
Hungary	Budapest	Budapest University of Economic Sciences and Public Administration (CIEE ⁵)	SA	F, S	B H L
India	Hyderabad	University of Hyderabad (CIEE ⁵)	SA	F, S, AY	C E F H L
Ireland	Ballyvaughn	Burren College of Art (Butler ⁵)	SA	F, S, AY	F
	Belfast	Queen's University Belfast (Butler ⁵)	SA	F, S, AY	E H L
	Coleraine, Newtown-abbey, Londonderry, or Belfast	University of Ulster (Butler ⁵)	SA	F, S, AY	B C E F H L
	Cork	University College Cork	SA	F, S, AY	B E F H L
	Cork	University College Cork (Butler ⁵)	SA	F, S, AY	B E F H L
	Dublin	DBS School of Arts (CIEE ⁵)	SA	F, S, AY	B C H
	Dublin	University College Dublin (business majors only)	SA	F, S, AY	B I
	Dublin	University College Dublin (fine arts majors only)	SA	F, S, AY	F
	Dublin	University College Dublin (Butler ⁵)	SA	F, S, AY	B F H L
	Dublin	Trinity College (Butler ⁵)	SA	F, S, AY	B C E F H
	Galway	National University of Ireland, Galway (Butler ⁵)	SA	F, S, AY	B E F H L
Limerick	University of Limerick (AIFS and Butler ⁵)	SA	F, S, AY	B C E H L O	
Maynooth	National University of Ireland, Maynooth (Butler ⁵)	SA	F, S, AY	B E H L	
Israel	Tel Aviv	Tel Aviv University	SA	F, S, AY	B F H L
Italy	Castellanza	Carlo Cattaneo University (business majors only)	EX	F, S, AY	B E L
	Ferrara	University of Ferrara (CIEE ⁵)	SA	F, S	H L
	Florence	Dante Alighieri Italian Linguistic Center	SA	F, S, AY	L
	Florence	Richmond in Florence (AIFS ⁵)	SA	F, S, AY	H I L O
	Rome	Richmond in Rome (AIFS ⁵)	SA	F, S, AY	B C H L

¹ Information is subject to change without notice.

² Study category abbreviations: **SA** = study abroad, **EX** = exchange, **Both** = study abroad and exchange

³ Semesters available abbreviations: **F** = fall, **S** = spring, **AY** = all year

⁴ Study areas abbreviations: **B** = business, **C** = communication, **F** = fine arts, **E** = engineering/sciences, **H** = humanities/social sciences, **I** = internship, **L** = languages, **O** = other

⁵ Acronyms used in the table: **AIFS** (American Institute for Foreign Study), **Butler** (Institute for Study Abroad, Butler University), **CIEE** (Council for International Education Exchange), and **ISA** (International Studies Abroad)

Semester and Academic Year Study Abroad and Exchange Programs¹ (continued)

Country	City	University/Institution	Study Category ²	Semesters Available ³	Study Areas ⁴
Japan	Hiroshima	Hiroshima Shudo University	EX	AY	B HL
	Nagoya	Nanzan University	EX	AY	B F HL
	Osaka	Kansai Gaidai University	EX	AY	B CH L
	Tokyo	Sophia University (CIEE ⁵)	SA	F, S, AY	B HL
	Wakayama	Wakayama University	EX	AY	B E H L O
Jordan	Amman	University of Jordan (CIEE ⁵)	SA	F, S, AY	H L
Macedonia	Skopje	University of Saints Cyril and Methodius	SA	F, S, AY	H L
Mexico	Guadalajara	Autonomous University of Guadalajara	EX	F, S, AY	B C E H I L O
	Guadalajara	University of Guadalajara (agricultural business majors only)	EX	F, S, AY	O
	Guanajuato	University of Guanajuato (CIEE and ISA ⁵)	SA	F, S, AY	B F H I L
	Hermosillo	University of Sonora	EX	F, S, AY	B C E F H L O
	Mexico City	Autonomous Technological Institute of Mexico	EX	F, S, AY	B E H
	Mexico City	University of La Salle	EX	F, S, AY	B C E H L
	Monterrey	Autonomous University of Nuevo León	EX	F, S, AY	B C E F H L O
	Puebla	University of the Americas	EX	F, S, AY	B C E F H L O
	San Luis Potosi	University of San Luis Potosi (agricultural business majors only)	EX	F, S, AY	O
	Various cities in Mexico	Institute of Technology and Higher Studies of Monterrey	EX	F, S, AY	B C E H I L O
Netherlands	Amsterdam	University of Amsterdam (CIEE ⁵)	SA	F, S, AY	C H L
	Maastricht	Maastricht University (business majors only)	EX	F, S, AY	B
New Zealand	Auckland	University of Auckland (Butler ⁵)	SA	F, S, AY	B C H L O
	Christchurch	University of Canterbury (Butler ⁵)	SA	F, S, AY	B E F H L O
	Dunedin	University of Otago (Butler ⁵)	SA	F, S, AY	B E F H L
	Hamilton	University of Waikato	Both	F, S, AY	B C E F H L O
	Palmerston North	Massey University (Butler ⁵)	SA	F, S, AY	B C H L O
	Wellington	Victoria University of Wellington (Butler ⁵)	SA	F, S, AY	E H L
Norway	Oslo	University of Oslo–Language Program	SA	F, S, AY	H L O
Poland	Warsaw	Leon Kozminski Academy of Entrepreneurship and Management (business majors only)	EX	F, S, AY	B
	Warsaw	Warsaw School of Economics (CIEE ⁵)	SA	F, S	B H L
Portugal	Lisbon and Faro	Center of Languages	SA	F, S, AY	L
Russia	Kazan	Kazan State University	SA	F, S, AY	H L
	St. Petersburg	St. Petersburg State Polytechnic University (AIFS ⁵)	SA	F, S, AY	H L
	St. Petersburg	St. Petersburg State University (CIEE ⁵)	SA	F, S	H L
Scotland	Edinburgh	Edinburgh College of Art (sculpture majors only)	EX	S	F
	Edinburgh	University of Edinburgh	EX	AY	B C E F H L

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² Study category abbreviations: **SA** = study abroad, **EX** = exchange, **Both** = study abroad and exchange

³ Semesters available abbreviations: **F** = fall, **S** = spring, **AY** = all year

⁴ Study areas abbreviations: **B** = business, **C** = communication, **F** = fine arts, **E** = engineering/sciences, **H** = humanities/social sciences, **I** = internship, **L** = languages, **O** = other

⁵ Acronyms used in the table: **AIFS** (American Institute for Foreign Study), **Butler** (Institute for Study Abroad, Butler University), **CIEE** (Council for International Education Exchange), and **ISA** (International Studies Abroad)

INTERNATIONAL PROGRAMS

Semester and Academic Year Study Abroad and Exchange Programs¹ (continued)

Country	City	University/Institution	Study Category ²	Semesters Available ³	Study Areas ⁴
(Scotland)	Edinburgh	University of Edinburgh (Butler ⁵)	SA	F, S, AY	B C E F H L
	Glasgow	University of Glasgow (Butler ⁵)	SA	F, S, AY	B E F H L
	Glasgow	Glasgow School of Art (Butler ⁵)	SA	F, S, AY	F
	Glasgow	University of Strathclyde (business majors only)	EX	F, S, AY	B C E H L O
	St. Andrews	University of St. Andrews (Butler ⁵)	SA	F, S, AY	E H
	Stirling	University of Stirling (Butler ⁵)	SA	F, S, AY	B E F H
Senegal	Dakar	Baobab Center/Cheikh Anta Diop University (CIEE ⁵)	SA	F, S, AY	F H L
Singapore	Singapore	Singapore Management University (business majors only)	EX	F, S, AY	B
South Africa	Cape Town	University of Cape Town (CIEE ⁵)	SA	F, S, AY	B F H L
	Stellenbosch	University of Stellenbosch (AIFS ⁵)	SA	F, S, AY	B F H
South Korea	Seoul	Yonsei University Korean Language Institute	EX	F, S, AY	H L
Spain	Alcalá de Henares	University of Alcalá (CIEE ⁵)	SA	F, S, AY	B H L
	Alicante	University of Alicante	SA	S	H L
	Alicante	University of Alicante (CIEE ⁵)	SA	F, S, AY	H L
	Barcelona	University of Barcelona/Menéndez Pelayo International University (ISA ⁵)	SA	F, S, AY	H L
	Barcelona	Pompeu Fabra University (CIEE and ISA ⁵)	SA	F, S, AY	B F H L O
	Granada	University of Granada (AIFS and ISA ⁵)	SA	S, AY	H L
	Madrid	Carlos III University (business majors only)	EX	S, AY	B
	Madrid	University Complutense of Madrid—advanced (ISA ⁵)	SA	F, S, AY	F H L
	Madrid	University Complutense of Madrid—all levels (ISA ⁵)	SA	F, S, AY	F H L
	Salamanca	University of Salamanca (AIFS and ISA ⁵)	SA	F, S, AY	H L
	Sevilla	University of Sevilla (CIEE and ISA ⁵)	SA	F, S, AY	B H L
	Sevilla	Menéndez Pelayo International University (ISA ⁵)	SA	F, S, AY	B H L O
	Valencia	Polytechnic University of Valencia/University of Valencia (ISA ⁵)	SA	S, AY	B E L O
Sweden	Kalmar	University of Kalmar	EX	F, S, AY	B C E H L
	Örebro	Örebro University	EX	F, S, AY	B C H L O
Taiwan	Taipei	National Chengchi University (CIEE ⁵)	SA	F, S, AY	B F H L
Thailand	Bangkok	Thammasat University	EX	F, S, AY	B H L
	Khon Kaen	Khon Kaen University (CIEE ⁵)	SA	F, S, AY	H L
Turkey	Ankara	Bilkent University/Middle East Technical University (CIEE ⁵)	SA	F, S	B C E F H
	Eskisehir	Anadolu University	EX	S, AY	B C E F H L O
	Istanbul	Bogazici University (business majors only)	EX	F, S, AY	B
Vietnam	Hanoi	Vietnam National University (CIEE ⁵)	SA	F, S, AY	F H L
Various	Three cities	Multicountry semester in Mexico, Argentina, and Spain	SA	F, S	B H L
	Various ports	Semester at Sea	SA	F, S, AY	B C F H O

¹ Information is subject to change without notice.

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⁴ Study areas abbreviations: **B** = business, **C** = communication, **F** = fine arts, **E** = engineering/sciences, **H** = humanities/social sciences, **I** = internship, **L** = languages, **O** = other

⁵ Acronyms used in the table: **AIFS** (American Institute for Foreign Study), **Butler** (Institute for Study Abroad, Butler University), **CIEE** (Council for International Education Exchange), and **ISA** (International Studies Abroad)

Summer Sessions

www.asu.edu/summer

Carol Switzer, M.S., 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 18, for specific dates.

All ASU Main 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, visit 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 during the last week of January.

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 77.

Conditional admission before graduation from high school may be granted. See “[Admission Before Receipt of Final Transcript](#),” page 66.

Advising. All students are strongly encouraged to seek academic advising before enrolling in summer courses. See “[Academic Advising](#),” page 76.

Bulletin. The *Summer Sessions Bulletin*, which contains the class schedule and the registration procedure, is available the last week of January at the Office of Summer Sessions, ADM B167, and at all registrar sites. 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 dormitories are available for ASU Main 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 71.

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 in person or by using SunDial. 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*.

ASU Main Directory

For the “ASU East Directory,” see page 665. For the “ASU West Directory,” see page 680. For the “ASU Extended Campus Directory,” see page 701.

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/provost/articulation
Course Equivalency Guide	UASB 125B	480/965-9172	www.asu.edu/provost/articulation
General Studies Guides	UASB 125B	480/727-6599	www.asu.edu/provost/articulation
Transfer Guides	UASB 125B	480/727-6599	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 134	480/965-8169	www.asu.edu/caed
Architecture, School of	AED 162	480/965-3536	www.asu.edu/caed/SOA
Design, School of	AED 154	480/965-4135	www.asu.edu/caed/SOD
Herberger Center for Design Excellence	ARCH 119	480/965-6693	www.asu.edu/caed/HCDE
Planning and Landscape Architecture, 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 310	480/965-3161	www.asu.edu/asasu
ASU Alumni Association	MAIN 200	480/965-2586 1-800-258-6687	www.asu.edu/alumni
ASU East (See “ASU East Directory,” page 665.)	—	480/727-3278	www.east.asu.edu
ASU Extended Campus (See “ASU Extended Campus Directory,” page 701.)	ASUDC C319	480/965-9696	www.asu.edu/xed
ASU Main	—	480/965-9011	www.asu.edu
ASU West (See “ASU West Directory,” page 680.)	—	602/543-5500	www.west.asu.edu
ASU West Library	FLHLB	602/543-8500	www.west.asu.edu/library
Bookstore, ASU	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 (M.B.A.)	BA 160	480/965-3332	wpcarey.asu.edu/mba
Business Administration (Ph.D.)	BA 151	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 Administration 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

Organization	Location	Telephone	Web Address
Campus Dining at ASU	—	—	www.asucampusdining.com
Administrative Office	MU 138	480/965-2305	—
Distinctive Catering Sales Office	MU 182	480/965-6508	—
Meal Plan Sales	MU 189	480/965-3464	—
Career Services	SSV 329	480/965-2350	www.asu.edu/career
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
Co-Curricular Programs	MCL 109	480/965-9600	www.asu.edu/partnerships
Community Service Program	MU 303	480/965-2255	www.asu.edu/mu/community
Counseling and Consultation	SSV 334	480/965-6146	www.asu.edu/counseling_center
	SHS A168	480/965-4726	—
Creative Writing (M.F.A.)	LL 307C	480/965-3528	www.asu.edu/clas/english/creativewriting
Danforth Chapel	CHAPL	480/965-3570	www.asu.edu/studentlife/danforth
Disability Resources for Students	MCENT	—	www.asu.edu/drs
TTY	—	480/965-9000	—
Voice	—	480/965-1234	—
Drop/add and withdrawal information	SSV 144	480/965-3124	—
Education, College of	EDB 108	480/965-3306	coe.asu.edu
Computer Support/Student Computer Lab	EDB 122	480/965-2126	coecs.asu.edu
Curriculum and Instruction, Division of	ED 426	480/965-1644	coe.asu.edu/programs.html
Curriculum and Instruction, Graduate Program Office	ED 434	480/965-4602	coe.asu.edu/programs.html
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/eps1
Educational Leadership and Policy Studies, Division of	ED 120	480/965-6357	coe.asu.edu/programs
Educational Research and Services, Bureau of	ED 140	480/965-3538	bers.asu.edu
Indian Education, Center for	ED 402	480/965-6292	www.ed.asu.edu/cie
Psychology in Education, Division of	EDB 302	480/965-3384	coe.asu.edu/programs
Counselor Training Center	EDB 401	480/965-5067	coe.asu.edu/ctc
Psychology in Education Admissions Information (recording, voice mail)	—	480/965-6420	—
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
Professional Field Experiences	EDB L1-14	480/965-6255	coe.asu.edu/pfe
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	—	480/965-1722	www.fulton.asu.edu
Bioengineering, Harrington Department of	ECG 334	480/965-3028	www.fulton.asu.edu/~bme
Chemical and Materials Engineering, Department of	ECG 202	480/965-3313	www.fulton.asu.edu/~cme
Civil and Environmental Engineering, Department of	ECG 252	480/965-3589	www.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	www.fulton.asu.edu/ee
Industrial Engineering, Department of	GWC 502	480/965-3185	www.fulton.asu.edu/~imse

ASU MAIN DIRECTORY

Organization	Location	Telephone	Web Address
Engineering, Ira A. Fulton School of (continued) Mechanical and Aerospace Engineering, Department of	ECG 346	480/965-3291	www.fulton.asu.edu/~mae
Equal Opportunity/ Affirmative Action TTY	ADM B171 —	480/965-5057 480/965-0471	www.eoaa.asu.edu —
Exercise Science (Ph.D.)	PEBW M201	480/965-7906	www.asu.edu/clas/espe
Extended Education, College of (See "ASU Extended Campus Directory," page 701.)	ASUDC C319	480/965-9696	www.asu.edu/xed
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	music.asu.edu/home.html
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 College	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 Assistance	WILSN lobby	480/965-3521	www.asu.edu/graduate/financial
Format Office	WILSN lobby	480/965-3521	www.asu.edu/graduate/format
Graduation Section	SSV 140	480/965-6980	www.asu.edu/registrar/graduation
Commencement Office	ADM B167	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 305	480/965-2255	www.asu.edu/mu/greeklife
Honors College, Barrett	IRISH A121	480/965-2359	www.asu.edu/honors
Human Resources Customer Service Center	USB	480/965-2701	www.asu.edu/hr
Information Technology			www.asu.edu/it
Classroom Support Centers	CPCOM 105	480/965-3342	www.asu.edu/classroomsupport
Computer Accounts Office	CPCOM 202	480/965-1211	www.asu.edu/computeraccounts
Computing Site hours	—	480/965-6500	www.asu.edu/siteschedules
Computing Sites	CPCOM Atrium	480/965-4459	www.asu.edu/it/fyi/sites
	BAC 16	480/965-3074	—
	ECG 150	480/965-6280	—
	GWC 185	480/965-4307	—
Customer Assistance Center	CPCOM 202	480/965-5939	www.asu.edu/cacenter
Geographic Information Services	—	480/965-4007	www.asu.edu/gis
Help Desk	CPCOM 202	480/965-6500	www.asu.edu/helpdesk
Instruction Support Lab	CPCOM 213	480/965-6739	is.asu.edu/islab
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
Justice Studies (Ph.D.)	WILSN 316	480/965-7682	www.asu.edu/copp/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.lawlib.asu.edu
Learning Resource Center	MU 14	480/965-7728	www.asu.edu/lrc
	PVW	480/965-6254	

Organization	Location	Telephone	Web Address
Liberal Arts and Sciences, College of	SS 111	480/965-6506	www.asu.edu/clas
Aerospace Studies, Department of	PSYN 324	480/965-3181	www.asu.edu/clas/afrotc
African American Studies Program	COWDN 227	480/965-4399	www.asu.edu/clas/afromtu
Anthropology, Department of	ANTH 233	480/965-6213	www.asu.edu/clas/anthropology
Chemistry and Biochemistry, Department of	PS D102	480/965-3461	www.asu.edu/clas/chemistry
Chicana and Chicano Studies, Department of	COOR 6633	480/965-5091	www.asu.edu/clas/chicana
Computational Biosciences Program	PSA 216	480/965-5519	www.asu.edu/compbiosci
English, Department of	LL 542	480/965-3168	www.asu.edu/clas/english
Family and Human Development, Department of	COWDN 106	480/965-6978	www.asu.edu/clas/frhd
Geography, Department of	SCOB 330	480/965-7533	geography.asu.edu
Geological Sciences, Department of	PS F686	480/965-5081	geology.asu.edu
History, Department of	COOR 4595	480/965-5778	www.asu.edu/clas/history
Interdisciplinary Humanities Program	LL 641	480/965-6747	www.asu.edu/clas/humanities
Kinesiology, Department of	PEBW 218	480/965-3875	www.asu.edu/clas/kines
Languages and Literatures, Department of	LL 440	480/965-6281	www.asu.edu/languages/
Life Sciences, School of	LSE 207	—	—
Graduate Programs	LSE 229	480/965-1768	sols.asu.edu/grad/gdegrees.htm
Research and Training Initiatives	LSE 205	480/965-2543	sols.asu.edu/rti
Student Services/advising	LSC 206	480/727-6277	sols.asu.edu/advising/ugrad/uadvising.htm
Undergraduate Programs	LSC 226	480/965-9537	sols.asu.edu/ugrad/udegrees.htm
Mathematics and Statistics, Department of	PS A216	480/965-3951	math.la.asu.edu
Military Science, Department of	SS 330	480/965-3318	www.asu.edu/clas/military
Philosophy, Department of	COOR 3307	480/965-3394	www.asu.edu/clas/philosophy
Physics and Astronomy, Department of	PS F470	480/965-3561	phy.asu.edu
Political Science, Department of	COOR 6801	480/965-6551	www.asu.edu/clas/polisci
Psychology, Department of	PSY 237	480/965-3326	psych.la.asu.edu
Religious Studies, Department of	ECA 377	480/965-7145	www.asu.edu/clas/religious_studies
Sociology, Department of	COOR 5681	480/965-3546	www.asu.edu/clas/sociology
Speech and Hearing Science, Department of	COOR 2211	480/965-2374	www.asu.edu/clas/shs
Women's Studies Program	ECA 209	480/965-2358	www.asu.edu/clas/womens_studies
Libraries			
John J. Ross–William C. Blakley Law Library	LAWLB	480/965-6144	www.lawlib.asu.edu
University Libraries	LIB	480/965-6164	www.asu.edu/libraries
Architecture and Environmental Design Library	AED 153	480/965-6400	www.asu.edu/caed/RESOURCES/ AEDLIBRARY/html/AEDLibrary.htm
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	—	480/965-4932	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 Computer Lab and Work Room	MU 178	480/727-6663	—
Sparky's Den	MU lower level	480/965-3646	—
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

ASU MAIN DIRECTORY

Organization	Location	Telephone	Web Address
Nursing, College of	NUR 344	480/965-3244	nursing.asu.edu
Community Health Services Clinic	—	480/941-9283	nursing.asu.edu/chs/index.htm
Continuing and Extended Education	CSB 334	480/965-7431	nursing.asu.edu/ce
Graduate program	NUR 444	480/965-3948	nursing.asu.edu/programs/graduate
Student Services Office	NUR 108	480/965-2987	nursing.asu.edu/studentervices
Operator, University	—	480/965-9011	—
Orientation and Parent Programs	SSV 110	480/965-2880	www.asu.edu/admissions/newstudentprograms
Parents Association (programs)	SSV 110	480/965-7625	—
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	www.asu.edu/copp/recreation/emphasis/ah
American Indian Studies Program	AG 372	480/965-3634	www.asu.edu/copp/americanindian
Asian Pacific American Studies Program	AG 352	480/965-9711	www.asu.edu/copp/asianamerican
Human Communication, Hugh Downs School of	STAUF A412	480/965-5095	com.pp.asu.edu
Journalism and Mass Communication, Walter Cronkite School of	STAUF A231	480/965-5011	www.asu.edu/cronkite
Justice Studies, School of	WILSN 331	480/965-7682	www.asu.edu/copp/justice
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
Recreation Management and Tourism, Department of	MOEUR 134	480/965-7291	www.asu.edu/copp/recreation
Social Work, School of	WHALL 135	480/965-3304	sww.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	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 (Ph.D.)	PSA 323	480/965-2460	www.asu.edu/graduate/SEM
Speech and Hearing Science (Ph.D.)	CSB 146	480/965-9396	www.asu.edu/clas/shs
Statistics (M.S.)	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 A105	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 190	480/965-2273	www.suncard1.com
Student Judicial Affairs	SSV 263	480/965-6547	www.asu.edu/studentlife/judicial
Student Leadership Programs	MU 340	480/965-2255	www.asu.edu/mu/slp

Organization	Location	Telephone	Web Address
Student Legal Assistance	MU 329	480/965-6307	www.asu.edu/studentlife/legal
Student Life	SSV 263	480/965-6547	www.asu.edu/studentlife
Student Media	MCENT 2	480/965-7572	www.statepress.com
<i>State Press</i> Advertising	—	480/965-6555	www.statepress.com
<i>State Press</i> Information	—	480/965-7572	—
<i>State Press</i> Newsroom	—	480/965-2292	—
Web Devil	—	480/727-6941	www.asuwebdevil.com
Student Organization Resource Center	MU 340	480/965-2255	www.asu.edu/clubs
Student Recreation Complex and Recreational Sports	SRC 220	480/965-8900	www.asu.edu/src
Summer Sessions/University Ceremonies	RITT B160	480/965-6611	www.asu.edu/summer
	—	480/965-6611	www.asu.edu/ssc/StudyAbroad
SunDial	—	480/350-1500	www.asu.edu/registrar/registration/ intouch.html
Testing Support Services	SSV 382	480/965-6777	www.asu.edu/vpsa/tss
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
Undergraduate Academic Services, Division of	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 (Student Success Center) (UNI 100 and 101)	UASB 129	480/965-0259	www.asu.edu/duas/uni100
America Reads/America Counts	UASB 156	480/727-8092	www.asu.edu/duas/aces
Bachelor of Interdisciplinary Studies (B.I.S.)	UASB 203	480/965-1970	www.asu.edu/duas/bis
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	480/965-0859	www.asu.edu/duas/dars
General Studies Program	UASB 142	480/965-0739	www.asu.edu/duas/genstudies
Service Learning Program	UASB 156	480/965-8092	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	AG 281	480/965-9291	www.asu.edu/oue
University Libraries (See " Libraries, " page 521.)	—	—	—
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
Winter Session (See " ASU Extended Campus Directory, " page 701.)	RITT B132	480/727-9900	www.asu.edu/xed/winter

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 Studies

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

MARK C. KLETT

Art

RAYMOND W. KULHAVY

Psychology in Education, Emeritus

DANIEL M. LANDERS

Kinesiology

SHENG H. LIN

Chemistry and Biochemistry, Emeritus

JANE MAIENSCHIEIN

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 Studies, 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

ASU Main 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; B.S., University of Oslo (Norway); Ph.D., University of California, Berkeley

Abbas, James J. (2002), Associate Professor of Bioengineering; Sc.B., Brown University; M.S., Ph.D., Case Western Reserve University

Abbaszadegan, Morteza (1999), Associate Professor of Civil and Environmental Engineering and Adjunct Professor of Life Sciences; B.S., University of Montana; M.S., Northern Arizona University; Ph.D., University of Arizona

Abele, Deborah (1990), Faculty Associate of Planning and Landscape Architecture; B.A., Vassar College

Aberle, James T. (1989), Associate Professor of Electrical Engineering; B.S., M.S., Polytechnic Institute of New York; Ph.D., University of Massachusetts, Boston

Abramson, Jay (1999), Senior Lecturer of Mathematics and Statistics; B.S., University of New Mexico; M.S., University of New Hampshire

Abston, Deborah (1990), Associate Librarian, Hayden Reference Services; B.S., M.S.L.S., Wayne State University

Abreu, José M. (2003), Associate Professor of Psychology in Education; B.A., M.Ed., Ph.D., University of California, Santa Barbara

Acereda, Alberto (1998), Associate Professor of Latin American Literature; Licenciado, University of Barcelona (Spain); M.A., Ph.D., University of Georgia

Acevedo, Roberto M. (1964), Professor Emeritus of Spanish; B.A., University of California, Berkeley; M.A., Ph.D., University of Arizona

Acharya, Raghunath (1976), Professor Emeritus of Physics and Astronomy; B.Sc., M.Sc., University of Delhi (India); Ph.D., University of Rochester

Acker, Barbara (1991), Associate Professor of Theatre; B.F.A., University of Texas, Austin; M.A., Case Western Reserve University; Ph.D., Wayne State University

Acker, William J. (1970), Professor Emeritus of Geography; B.S., Purdue University; M.S., University of Kansas; M.A., Ph.D., Syracuse University

Adams, Donna (1983), Professor Emerita of Nursing; B.S.N., University of Missouri, Columbia; M.S., Arizona State University; D.N.Sc., University of San Diego

Adams, James B. (1996), Professor of Materials Engineering; Codirector, Science and Engineering of Materials; B.S., Duke University; M.S., Ph.D., University of Wisconsin, Madison

Adams, Karen L. (1984), Professor of English; Director, Program for Southeast Asian Studies; B.A., M.A., Ph.D., University of Michigan

Adams, Sue (2001), Clinical Associate Professor of Nursing; B.S.N., University of Arizona; M.S., Arizona State University

Adelman, Madelaine (1998), Assistant Professor of Justice Studies; A.B., Ph.D., Duke University

Adelson, Roger D. (1974), Professor of History; B.A., George Washington University; B.Litt., University of Oxford (United Kingdom); M.A., Ph.D., Washington University

Aerni, Wayne (1991), Faculty Associate of Public Affairs; B.A., University of Oregon; M.P.A., Ph.D., Arizona State University

Agadjanian, Victor (1995), Associate Professor of Sociology; B.A., Moscow State University (Russia); M.S., Ph.D., University of Southern California

Aguiar, John L. (1976), Professor Emeritus of Anthropology; B.A., University of California, Los Angeles; M.A., California State University, Los Angeles; Ph.D., University of California, San Diego

Ahn, Seung C. (1990), Associate Professor of Economics; B.A., Sogang University (South Korea); M.A., Ph.D., Michigan State University

Ahrendt, Laurie (2000), Faculty Associate of Nursing; B.S.N., M.S., Arizona State University

Aiken, Leona S. (1985), Professor of Psychology; B.S., Virginia Commonwealth University; M.S., Ph.D., Purdue University

Akins, William H. (1975), Professor Emeritus of Theatre; B.A., Duke University; M.A., Ph.D., University of Denver

Alarcon, Ricardo O. (1989), Professor of Physics and Astronomy; B.S., M.S., University of Chile; Ph.D., Ohio University

Alberts, Jess K. (1989), Professor of Communication; Director, Hugh Downs School of Human Communication; B.S.Ed., M.A., Abilene Christian University; Ph.D., University of Texas, Austin



Alcock, John
(1972)

Regents' Professor of Life Sciences; B.A., Amherst College; Ph.D., Harvard University

Alcorn, Marianne (1981), Law Librarian, Reference; B.A., University of Washington; M.L.S., University of Southern California

Aldama, Arturo (1996), Associate Professor of Chicana and Chicano Studies; B.A., Evergreen State University; M.A., Ph.D., University of California, Berkeley

Aldrich, Frank T. (1969), Professor Emeritus of Geography; B.A., University of Texas, Austin; M.S., Ph.D., Oregon State University

Alexander, Gene (2003), Associate Professor of Psychology; B.A., Pomona College; M.A., Ph.D., Loyola University Chicago

Alexander, Robert J. (1975), Professor of German; B.A., Macalester College; M.A., Ph.D., University of Wisconsin, Madison

Alford, Terry L. (1993), Professor of Materials Engineering; B.S., M.S., North Carolina State University, Raleigh; Ph.D., Cornell University

Alisky, Marvin (1957), Professor Emeritus of Political Science; B.A., M.A., Ph.D., University of Texas, Austin

Allee, David R. (1991), Associate Professor of Electrical Engineering; B.S., University of Cincinnati; M.S., Ph.D., Stanford University

Allen, Craig M. (1991), Associate Professor of Journalism and Mass Communication; B.A., Linfield College; M.S., University of Oregon; Ph.D., Ohio University

Allen, James P. (1989), Professor of Chemistry and Biochemistry; B.S., Saint Joseph's University; M.S., Ph.D., University of Illinois

Allen, Jonathan (2001), Assistant Professor of Chemical Engineering and Civil and Environmental Engineering; B.S., University of Pennsylvania; M.S., Sc.D., Massachusetts Institute of Technology

Allison, Maria T. (1984), Professor of Recreation Management and Tourism; Interim Dean, Graduate College; B.S., M.S., University of New Mexico; Ph.D., University of Illinois

Alozie, Nicholas O. (1991), Professor of Public Affairs; B.A., M.P.A., Texas Southern University; M.A., Ph.D., University of Texas, Dallas

Alpers, Rojann (1995), Associate Professor of Nursing; Chair, Division of Community Health/Psychosocial Nursing Systems; B.S.N., M.S., Arizona State University; Ph.D., University of Iowa

Alquist, Lewis R. (1984), Professor of Art; B.F.A., Florida Atlantic University; M.F.A., Cranbrook Academy of Art



Altheide, David L.
(1973)

Regents' Professor of Justice Studies; B.A., Central Washington State College; M.A., University of Washington; Ph.D., University of California, San Diego

Alvarado, Ronald H. (1974), Professor Emeritus of Life Sciences; Dean Emeritus, College of Extended Education; B.A., University of California, Riverside; M.S., Ph.D., Washington State University

Amann, Nancy (2001), Lecturer of Speech and Hearing Science; B.A., M.S., Gallaudet University

Amazeen, Eric P. (1999), Assistant Professor of Psychology; B.A., Franklin and Marshall College; M.A., Ph.D., University of Connecticut

Amazeen, Polemnia G. (1999), Assistant Professor of Psychology; B.A., Franklin and Marshall College; M.A., Ph.D., University of Connecticut

Ames, James G. (1985), Senior Research Associate, Institute for Manufacturing Enterprise Systems; B.S., San Diego State University

Anbar, Ariel (2003), Associate Professor of Geological Sciences; A.B., Harvard University; M.S., Ph.D., California Institute of Technology

Anderies, J. Marty (2002), Assistant Professor of Life Sciences; B.S., Colorado School of Mines; M.S., Ph.D., University of British Columbia (Canada)

Anderson, Gary (1975), Professor Emeritus of Curriculum and Instruction; B.S., M.Ed., Edinboro State College; Ph.D., University of Pittsburgh

Anderson, James R. (1984), Senior Research Scientist, Mechanical and Aerospace Engineering; B.A., Williams College; Ph.D., California Institute of Technology

Anderson, Lisa M. (2000), Assistant Professor of Women's Studies; A.B., Mount Holyoke College; M.A., Smith College; Ph.D., University of Washington

Anderson, Marcia L. (1986), Librarian, Collection Development; B.A., University of Michigan; M.L.S., Wayne State University

Anderson, Melvin S. (1967), Professor Emeritus of Finance; B.S., M.S., Oklahoma State University; Ed.D., University of Arkansas

Anderson-Rowland, Mary R. (1974), Associate Professor of Industrial Engineering; Associate Dean, Student Affairs, Ira A. Fulton School of Engineering; B.A., Hope College; M.S., Ph.D., University of Iowa

Andress, Barbara L. (1972), Professor Emerita of Music; B.A., M.A., Arizona State University



Angell, C. Austen
(1989)

Regents' Professor of Chemistry and Biochemistry; B.S., M.S., Melbourne University (Australia); Ph.D., University of London (United Kingdom)

Anijar, Karen Z. (1998), Associate Professor of Curriculum and Instruction; B.A., Florida State University; M.A., Ph.D., University of North Carolina, Greensboro

Appleton, Nicholas R. (1972), Professor of Curriculum and Instruction and Educational Leadership and Policy Studies; Academic Program Coordinator, Social and Philosophical Foundations; B.A., San Francisco State University; M.A., California State University, Northridge; Ed.D., University of Massachusetts, Amherst

Aranda, Luis (1975), Professor Emeritus of Legal and Ethical Studies; B.M., M.Ed., University of Arizona; J.D., Arizona State University

Arce, Leslie (2001), Lecturer of Mathematics and Statistics; B.S., Kansas State University; M.A., Arizona State University

Arciniega, G. Miguel (1979), Associate Professor of Counselor Education; B.S., M.A., New Mexico State University; Ph.D., University of Arizona

Ariaratnam, Samuel (2001), Associate Professor of Construction; B.A.Sc., University of Waterloo (Canada); M.S., Ph.D., University of Illinois, Urbana-Champaign

Arias, M. Beatriz (1989), Associate Professor of Curriculum and Instruction; B.A., M.A., Occidental College; Ph.D., Stanford University

Armbruster, Charlotte (1997), Clinical Associate Professor of Nursing; B.S.N., M.S., Arizona State University

Armbruster, Dieter (1989), Professor of Mathematics and Statistics; Abitur, Zeppelin, Gymnasium (Germany); Diplom, Ph.D., University of Tübingen (Germany)

Armendt, Brad (1989), Associate Professor of Life Sciences and Philosophy; B.A., Rice University; Ph.D., University of Illinois, Chicago

Arner, Douglas G. (1959), Professor Emeritus of Philosophy; B.S., Creighton University; M.A., Ph.D., University of Michigan

Arnold, William E. (1973), Professor of Communication; Director, Gerontology Program; B.S., M.A., Northern Illinois University; Ph.D., Pennsylvania State University

ASU MAIN FACULTY AND ACADEMIC PROFESSIONALS



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; B.S., M.S., University of Minnesota; Ph.D., Purdue University

Aronson, Jerome M. (1966), Professor Emeritus of Life Sciences; B.A., Ph.D., University of California, Berkeley

Arredondo, Patricia (1999), Associate Professor of Psychology in Education and Women Studies; Academic Program Leader, Counsel of Education and Counseling Psychology; B.S., Kent State University; Ed.M., Boston College; Ed.D., Boston University

Arreola, Daniel (1990), Professor of Geography; B.A., University of California, Los Angeles; M.A., California State University, Hayward; Ph.D., University of California, Los Angeles

Arrowsmith, J. Ramon (1995), Associate Professor of Geological Sciences; B.A., Whittier College; Ph.D., Stanford University

Arterian, Hannah R. (1979), Professor Emerita of Law; B.A., Elmira College; J.D., University of Iowa

Arzubiaga, Angela (2004), Assistant Professor of Psychology in Education; B.A., Hamline University; Ph.D., University of California, Los Angeles

Ashbrook, Mark (2000), Lecturer of Mathematics and Statistics; B.S., M.S., University of Illinois; M.A., University of Kansas

Ashcraft, Robert F. (1995), Associate Professor of Recreation Management and Tourism; Director, Center for Nonprofit Leadership and Management; B.A., University of Arizona; M.A., Northern Arizona University; Ph.D., Arizona State University

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- Balling, Robert C.** (1987), Professor of Geography; Director, of Climatology Laboratory; A.B., Wittenberg University; M.A., Bowling Green State University; Ph.D., 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)
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- Barnes, Andrew** (1996), Associate Professor of History; B.A., Wesleyan University; M.A., Ph.D., Princeton University
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- Bates, Dawn W.** (1989), Associate Professor of English; B.A., Ph.D., University of Washington
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- Bolin, Robert** (1997), Professor of Sociology; B.A., Ph.D., University of Colorado
- Bolton, Cynthia J.** (1997), Senior Lecturer of Philosophy; B.G.S., University of Michigan; M.A., Ph.D., Michigan State University
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- Bowers, Charles O.** (1948), Professor Emeritus of Music; B.S., Southeast Missouri State College; M.M., D.M.A., University of Rochester
- Boyd, Brian** (1996), Associate Professor of Management; Director, M.B.A. High Technology Program; B.S., Suffolk University; M.A., University of Connecticut; Ph.D., University of Southern California
- Boyd, James H.** (1976), Professor Emeritus of Accountancy; B.B.A., Texas Christian University; M.S., Northeastern University; Ph.D., University of Texas, Austin; C.P.A., Texas
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- Brink, Jean R.** (1974), Professor Emerita of English; B.A., Northwestern University; M.A., Harvard University; Ph.D., University of Wisconsin, Madison
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Grondin, Robert O. (1983), Associate Professor of Electrical Engineering; Director, Student Academic Services, Ira A. Fulton School of Engineering; B.S., M.S., Ph.D., University of Michigan

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Guerin, Sanford M. (1984), Professor of Law; B.S., Boston University; J.D., University of San Francisco; LL.M., New York University

Guerrero, Laura (1996), Professor of Communication; B.A., M.A., San Diego State University; Ph.D., University of Arizona

Guhathakurta, Subhrajit (1994), Associate Professor of Planning and Landscape Architecture; B.Arch., Jadavpur University (India); M.C.R.P., Iowa State University; Ph.D., University of California, Berkeley

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Guntermann, Gail (1977), Professor Emerita of Spanish; B.S., University of Montana; M.A., University of New Mexico; Ph.D., Ohio State University

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Gupta, Sanjay (1990), Professor of Accountancy; B.Com., Bombay University (India); B.Laws, Calcutta University (India); M.S.A., Bowling Green State University; Ph.D., Michigan State University; C.P.A., Ohio

Gust, J. Devens (1975), Professor of Chemistry and Biochemistry; B.S., Stanford University; M.S., Ph.D., Princeton University

Gust, Tracey (2002), Lecturer of Mathematics and Statistics; B.S., Abilene Christian University; M.S., Arizona State University

Gustavsson, Nora S. (1994), Associate Professor of Social Work; A.B., M.S.W., City University of New York; Ph.D., University of Southern California

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- Harrington, Rodney E.** (1992), Professor Emeritus of Life Sciences; A.B., University of South Dakota; Ph.D., University of Washington
- Harris, Jerry D.** (1972), Professor Emeritus of Educational Psychology; B.S., Illinois State University; Ph.D., University of Minnesota, Twin Cities
- Harris, Joseph** (1963), Professor Emeritus of Chemistry and Biochemistry; B.S., University of Maryland; M.A., Ph.D., Johns Hopkins University
- Harris, Kathryn M.** (1965), Professor Emerita of English; B.A., M.A., Arizona State University
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Hinrichs, Richard N. (1987), Associate Professor of Kinesiology; A.B., Oberlin College; M.A., University of Iowa; Ph.D., Pennsylvania State University

Hirleman, Edwin D. Jr. (1977), Professor Emeritus of Mechanical and Aerospace Engineering; B.S.M.E., M.S.M.E., Ph.D., Purdue University

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Hoffman, Dan (1999), Professor of Architecture; B.Arch., Cooper Union

Hoffman, Dennis L. (1979), Professor of Economics; Associate Dean, Graduate Programs, W. P. Carey School of Business; B.S., Grand Valley State University; M.A., Ph.D., Michigan State University

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Hoffmeister, J. Ronald (1983), Associate Professor of Finance; B.S., Millikin University; M.S., Ph.D., University of Illinois

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- Hogue, Cynthia** (2003), Maxine and Jonathan Marshall Professor of English; B.A., Oberlin College; M.A.H., State University of New York, Buffalo; Ph.D., University of Arizona
- Hokin, Jeanne** (1997), Senior Lecturer Emerita of Art; B.A., Ph.D., University of California, Santa Barbara
- Holbert, Keith E.** (1989), Associate Professor of Electrical Engineering; B.S., M.S., Ph.D., University of Tennessee
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- Homa, Donald L.** (1975), Professor of Psychology; B.S., University of Iowa; M.S., Ph.D., University of Wisconsin, Madison
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- Hoover, Helene M.** (1957), Professor Emerita of Family and Human Development; B.S., M.S., Louisiana State University; Ed.D., Oklahoma State University
- Hope, Diane** (1997), Assistant Research Professor of Life Sciences; CAP LTER Field Project Manager, Center for Environmental Studies; B.S., University of London (United Kingdom); M.S., Ph.D., University of Aberdeen (United Kingdom)
- Hopkins, Paul T. Jr., Capt.** (2001), Assistant Professor of Military Science; B.S., Wheaton College
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- Howard, Pamela** (1996), Lecturer of Speech and Hearing Science; B.A., M.A., California State University, Fresno
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- Hrabe, David P.** (2002), Assistant Professor of Nursing; Director, Continuing and Extended Education, College of Nursing; B.S.N., Fort Hays State University; M.S., Arizona State University; Ph.D., University of Arizona
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- Huey, Ben M.** (1979), Associate Professor of Computer Science and Engineering; Associate Dean, Planning and Administration, Ira. A. Fulton School of Engineering; B.S., Harding College; M.S., Ph.D., University of Arizona
- Huff, Robert A.** (1985), Professor Emeritus of Education; B.A., University of Kansas; M.A., University of Missouri, Kansas City; Ed.D., University of Oregon
- Hui, Joseph Y.** (1999), Professor of Electrical Engineering; B.S., M.S., Ph.D., Massachusetts Institute of Technology
- Huizingh, William** (1959), Professor Emeritus of Accountancy; B.S.B.A., M.B.A., University of Denver; Ph.D., University of Michigan; C.P.A., Arizona, Colorado
- Humphrey, Ted** (1966), Barrett Professor and Professor of Philosophy; A.B., M.A., University of California, Riverside; Ph.D., University of California, San Diego

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- Leong, Karen** (1999), Assistant Professor of Women's Studies; A.B., M.A., Ph.D., University of California, Berkeley
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- Lester, Neal** (1997), Professor of English; Chair, Department of English; B.A., West Georgia College; M.A., Ph.D., Vanderbilt University
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Regents' Professor of Psychology; B.A., Brooklyn College; Ph.D., University of Rochester

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Sanft, Alfred C. (1990), Associate Professor of Design; B.F.A., Brigham Young University; M.F.A., Basel School of Design (Switzerland)

Sankey, Otto F. (1982), Professor of Physics and Astronomy; B.S., University of Missouri, St. Louis; M.S., Ph.D., Washington University

Sansone, Fred J. (1965), Professor Emeritus of Mathematics and Statistics; B.S.E., M.S.E., University of Michigan; M.S., Ph.D., Rutgers, The State University of New Jersey

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- Santorico, Ann** (2003), Academic Associate, Division of Undergraduate Academic Services; Academic Advisor; B.A., University of Phoenix; M.Ed., Arizona State University
- Santos, Manuel** (1999), Professor of Economics; Licenciatura, Autonomous University of Madrid (Spain); M.A., Ph.D., University of Chicago
- Santos de Barona, Maryann** (1989), Professor of Psychology in Education; B.S., City University of New York; M.A., Ph.D., University of Texas, Austin
- Sargent, Charles S. Jr.** (1971), Professor Emeritus of Geography; B.A., University of Wyoming; M.A., Ph.D., University of California, Berkeley
- Saric, William** (1984), Professor of Engineering; B.S., Illinois Institute of Technology; M.S., University of New Mexico; Ph.D., Illinois Institute of Technology
- Sarjoughian, Hessam S.** (2001), Assistant Professor of Computer Science and Engineering; B.S., Mississippi State University; M.S., Ph.D., University of Arizona
- Sater, Vernon E.** (1962), Professor Emeritus of Chemical Engineering; B.S.Ch.E., M.S.Ch.E., Ph.D., Illinois Institute of Technology
- Satterlie, Richard A.** (1980), Professor of Life Sciences; B.A., Sonoma State University; Ph.D., University of California, Santa Barbara
- Satterthwaite, Lester L. Jr.** (1968), Professor Emeritus of Educational Media and Computers; B.S., M.S., Ed.D., Indiana University, Bloomington
- Sattler, Howard E.** (1967), Professor Emeritus of Education; B.S., M.S., Ph.D., Arizona State University
- Saubolle, Michael** (1995), Adjunct Professor of Life Sciences; B.S., Ph.D., University of California, Davis
- Savage, Nevin W.** (1959), Professor Emeritus of Mathematics and Statistics; B.S., M.A., Pennsylvania State University; Ph.D., University of California, Los Angeles
- Savage, Stephen H.** (1998), Adjunct Professor of Anthropology; B.A., Cincinnati Bible Seminary; M.A., University of South Carolina; Ph.D., Arizona State University
- Savard, Jeannine A.** (1990), Associate Professor of English; B.S., State University of New York, Plattsburg; M.A., University of New Hampshire
- Savenye, Wilhelmina C.** (1991), Associate Professor of Psychology in Education; Academic Program Leader, Educational Technology; B.A., University of Washington; M.Ed., Ph.D., Arizona State University
- Sawhney, Anil** (1999), Associate Professor of Construction; B.S.E., Institution of Engineers (India); M.S., School of Planning and Architecture (India); Ph.D., University of Alberta (Canada)
- Sayles, Judy** (1997), Clinical Assistant Professor of Nursing; B.S.N., University of Michigan; M.S., Arizona State University
- Schabacker, Joseph C.** (1963), Professor Emeritus of Management; B.S., Temple University; M.B.A., Ph.D., University of California, Los Angeles
- Schade, Thomas V.** (1974), Professor Emeritus of Justice Studies; B.A., Hope College; M.A., Ph.D., Western Michigan University
- Schall, Merri H.** (1960-66; 1967), Professor Emerita of Curriculum and Instruction; B.A., Albion College; M.S., Ed.D., Arizona State University
- Schatzki, George** (2000), Professor of Law; A.B., LL.B., LL.M., Harvard University
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- Scheck, Adrienne C.** (1997), Adjunct Professor of Life Sciences; B.A., University of Rochester; Ph.D., Rensselaer Polytechnic Institute
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- Scheiner, Samuel M.** (2000), Adjunct Professor of Life Sciences; B.S., M.S., Ph.D., University of Chicago
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- Schmid, Maureen** (1990), Associate Research Scientist; Director, Tandem Translation Project; B.A., Saint Mary's College of Notre Dame; M.A., University of Notre Dame; Ph.D., State University of New York, Buffalo
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- Schmidt, Margaret** (2001), Assistant Professor of Music; B.M.E., Lawrence University; M.M., State University of New York, Stony Brook; Ph.D., University of Michigan
- Schmidt, Randall B.** (1968), Professor of Art; B.A., Hamline University; M.A., University of New Mexico
- Schmidt, Sherrie** (1990), University Librarian and Dean; B.A., Ohio State University; M.L.S., Emory University
- Schneberger, Lois I.** (1969), Librarian Emerita; B.A., Viterbo College; M.L.S., Emporia State University
- Schneider, Anne L.** (1989), Professor of Justice Studies; Dean, College of Public Programs; B.A., M.A., Oklahoma State University; Ph.D., Indiana University, Bloomington
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- Schoenhoff, Molly** (2002), Assistant Professor of Design; B.S., University of Cincinnati; M.F.A., Rhode Island School of Design
- Schoenwetter, James** (1967), Professor Emeritus of Anthropology; A.B., University of Chicago; M.S., University of Arizona; Ph.D., Southern Illinois University
- Schroder, Dieter K.** (1981), Professor of Electrical Engineering; Codirector, Center for Low Power Electronics Research; B.S.E.E., M.S.E.E., McGill University (Canada); Ph.D., University of Illinois
- Schroeder, Milton R.** (1969), Professor of Law; B.A., Wesleyan University; J.D., University of Chicago
- Schuback, Gertrud B.** (1966), Professor Emerita of German; B.A., M.A., Arizona State University
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- Sharer, Jon W.** (1975), Professor of Art; Director, School of Art; B.A., Roosevelt University; M.S., Illinois Institute of Technology; Ph.D., Ohio State University
- Sharma, Renu** (1985), Associate Research Scientist, Center for Solid State Science; B.S., B.Ed., Punjab University (India); M.S., Ph.D., University of Stockholm (Sweden)
- Sharp, Thomas** (1996), Associate Professor of Geological Sciences; B.S., University of Minnesota; M.S., Ph.D., Arizona State University
- Sharp, William P.** (1979), Senior Research Specialist of Life Sciences; B.A., University of Northern Iowa; M.S., Arizona State University

- Shaw, Milton C.** (1978), Professor Emeritus of Engineering; B.S.M.E., Drexel University; M.E.Sc., Sc.D., University of Cincinnati; Dr.H.C., University of Louvain (Belgium)
- Shearer, Nelma B.C.** (1993), Assistant Professor of Nursing; B.S., South Dakota State University; M.Ed., University of Missouri, St. Louis; M.S., Southern Illinois University, Edwardsville; Ph.D., University of Arizona
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- Sheppard, Douglas C.** (1971), Professor Emeritus of Spanish; B.A., Montana State University; M.A., Ph.D., University of Wisconsin, Madison
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- Shipp, Vernon E.** (1966), Professor Emeritus of Art; B.S., Grand Canyon College; M.A., Arizona State University
- Shlyakhtenko, Luda** (1993), Adjunct Professor of Life Sciences; M.S., Ph.D., Moscow Physical Technical Institute (Russia)
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- Shrednick, Harvey R.** (1995), Senior Lecturer of Computer Information Systems; B.S., City College of New York; M.B.A., Baruch College
- Shriver, Keith A.** (1982), Professor Emeritus of Accountancy; B.S., Linfield College; M.S., Arizona State University; Ph.D., University of Texas, Austin; C.P.A., Arizona
- Shuman, I. Gayle** (1974), Professor Emeritus of Justice Studies; B.S., M.A., Ed.D., Arizona State University
- Shumway, John** (2001), Assistant Professor of Physics and Astronomy; B.S., M.S., University of Missouri, Columbia; Ph.D., University of Illinois, Urbana-Champaign
- Shunk, Dan L.** (1984), Professor of Industrial Engineering; B.S.I.E., M.S.I.E., Ph.D., Purdue University
- Si, Jennie** (1991), Professor of Electrical Engineering; B.S., M.S., Tsinghua University (China); Ph.D., University of Notre Dame
- Siegel-Valdes, Rebeca** (2002), Assistant Professor of Spanish; B.A., Manuel del Castillo Negrete National School of Conservation, Restoration and Museum Studies (Mexico); M.A., Ph.D., University of Texas, Austin
- Sieradzki, Karl** (1994), Professor of Chemical and Materials Science Engineering and Mechanical and Aerospace Engineering; B.S., Utica College of Syracuse University; M.S., Ph.D., Syracuse University
- Sierks, Michael R.** (2000), Associate Professor of Chemical Engineering; B.S., Stanford University; M.S., Colorado State University; Ph.D., Iowa State University
- Siferd, Sue Perrott** (1989), Associate Professor of Supply Chain Management; Director, Undergraduate Supply Chain Management Program; B.S., Denison University; M.B.A., Wright State University; M.A., Ph.D., Ohio State University
- Sigler, Mary** (2003), Associate Professor of Law; B.A., M.A., Arizona State University; J.D., University of Pennsylvania
- Silcock, B. William** (2001), Assistant Professor of Journalism and Mass Communication; B.A., M.A., Brigham Young University; Ph.D., University of Missouri
- Silver, Benjamin** (1971), Professor Emeritus of Journalism and Mass Communication; B.A., M.A., University of Iowa
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- Simmons, Douglas J.** (1963), Professor Emeritus of French; A.B., Wabash College; M.A.T., Harvard University; Certificat de français usuel, degreésupérieur, Certificat de prononciation française, Sorbonne University (France)
- Simmons, Howard** (1996), Professor Emeritus of Educational Leadership and Policy Studies; B.S., Spring Hill College; M.A.T., Indiana University; Ph.D., Florida State University
- Simon, Arleyn W.** (1989), Associate Research Professor of Anthropology; B.A., Montana State University; M.A., Oregon State University; Ph.D., Arizona State University
- Simon, Sheldon** (1975), Professor of Political Science; B.A., University of Minnesota, Twin Cities; M.A., Princeton University; Ph.D., University of Minnesota, Twin Cities
- Simonson, Mark** (1998), Clinical Assistant Professor of Finance; B.S., University of Northern Colorado; M.S., Ph.D., University of Oregon
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- Sinclair, Mark R.** (1985), Adjunct Professor of Geography; B.Sc., Otago University (New Zealand); Ph.D., U.S. Naval Postgraduate School, Monterey
- Sinex, Donal** (1995), Professor of Speech and Hearing Science; Director, Executive Committee, Speech and Hearing Science; B.S., Purdue University; Ph.D., Washington University, St. Louis
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- Singhal, Avi C.** (1977), Professor of Civil and Environmental Engineering; B.Sc.Math., Agra University (India); B.Sc.Engr., B.Sc.Hons., St. Andrews University (United Kingdom); S.M., C.E., Sc.D., Massachusetts Institute of Technology
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- Venables, John A.** (1986), Professor of Physics and Astronomy; B.A., Ph.D., University of Cambridge (United Kingdom)
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- Vermaas, Willem F.J.** (1986), Professor of Life Sciences; Associate Director, School of Life Sciences Research Initiatives; Ph.D., Agricultural University (Netherlands)
- Vernon, Brent** (2000), Assistant Professor of Bioengineering; B.S.E., Arizona State University; Ph.D., University of Utah
- Verstegen, Clare M.** (1989), Professor of Art; B.S., University of Wisconsin, Stevens Point; M.F.A., Cranbrook Academy of Art
- Vestre, Norris D.** (1972), Professor Emeritus of Psychology; B.A., Ph.D., University of Minnesota, Twin Cities
- Vicencio, Christina** (1994), Lecturer of Speech and Hearing Science; B.A., M.T.E.S.L., Arizona State University
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- Villalobos, J. Rene** (1999), Associate Professor of Industrial Engineering; B.S., Institute of Technology of Chihuahua (Mexico); M.S., University of Texas, El Paso; Ph.D., Texas A&M University
- Vining, David C.** (1975), Professor Emeritus of Theatre; B.A., University of Redlands; M.F.A., University of Minnesota, Twin Cities
- Vinze, Ajay** (1998), Professor of Computer Information Systems; Director, Center for Advancing Business through Information Technology; B.Com., University of Delhi (India); M.B.A., University of Connecticut; Ph.D., University of Arizona
- Viriden, Randy J.** (1984), Associate Professor of Recreation Management and Tourism; Chair, Department of Recreation Management and Tourism; B.S., M.S., Arizona State University; Ph.D., Utah State University
- Virgillo, Carmelo** (1965), Professor Emeritus of Romance Languages; A.B., State University of New York, Albany; A.M., Ph.D., Indiana University
- Viri, Denis** (1998), Associate Research Professional; Interim Director, Center for Indian Education; B.A., San Francisco State University; M.Ed., Ph.D., University of Arizona
- Vissicaro, Pegge** (1983), Assistant Professor of Dance; B.F.A., University of Michigan; M.F.A., University of North Carolina, Greensboro
- Vitulo, Juliann** (1990), Associate Professor of Italian; B.A., University of Illinois; M.A., Ph.D., Indiana University, Bloomington
- Voaden, Rosalynn** (1998), Associate Professor of English; B.A., B.Ed., Queen's University, Kingston (Canada); M.A., University of Victoria, British Columbia (Canada); Ph.D., University of York (United Kingdom)
- Voeller, Kytja** (2000), Adjunct Professor of Speech and Hearing Science; B.A., Reed College; M.A., Bryn Mawr College; M.D., Columbia University
- Vogus, Brad T.** (1999), Assistant Librarian; Head, Government Documents/Map Collection; B.A., Indiana University, Bloomington; M.I.L.S., University of Michigan, Ann Arbor
- Volek, Emil** (1975), Professor of Spanish; Prom.Phil., Ph.D., Charles University, Prague (Czechoslovakia)
- Voller, Sandra L.** (1999), Academic Associate, Division of Undergraduate Academic Services; Assistant Director, Division of Undergraduate Academic Services; B.A., Saint John Fisher College; M.A., State University of New York, Albany
- Voorhees, William R.** (2002), Assistant Professor of Public Affairs; B.A., University of South Florida; M.P.A., Georgia State University; Ph.D., Indiana University, Bloomington
- Voss, Howard G.** (1964), Professor Emeritus of Physics and Astronomy; A.B., Hope College; M.N.S., Arizona State University; M.S., Purdue University
- Voht, Annette** (1978), Librarian Emerita; B.Mus., University of Kansas; M.L.S., M.A., University of California, Berkeley
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Walker, John E. (1970), Professor Emeritus of Educational Administration and Supervision; B.A., Albion College; M.A., Michigan State University; Ed.D., Utah State University

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Walker, Stephen G. (1969), Professor Emeritus of Political Science; B.A., Creighton University; M.A., Ph.D., University of Florida

Wall, Gerard (1992), Adjunct Professor of Life Sciences; B.S., State University of New York, Stony Brook; M.S., Ph.D., Kansas State University

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Wang, Edward Y. (1979), Professor Emeritus of Electrical Engineering; B.S., Morningside College; M.S., Purdue University; Ph.D., Tufts University

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Warnicke, Retha M. (1972), Professor of History; A.B., Indiana University; M.A., Ph.D., Harvard University

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Watson, Clyde W. (1971), Professor Emeritus of Art; B.F.A., Bethany College; M.A., Kansas State University

Watson, George L. (1969), Professor of Journalism and Mass Communication; B.A., Phillips University; M.A., Ph.D., Duke University

Webb, L. Dean (1978), Professor of Educational Leadership and Policy Studies; Academic Program Coordinator, M.Ed. and Ph.D. in Educational Administration and Supervision; B.A., M.A.T., Ph.D., University of Florida

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Webber, Andrew N. (1989), Professor of Life Sciences; Associate Director, School of Life Sciences Graduate Program; Director, Center for the Study of Early Events in Photosynthesis; B.Sc., Ph.D., University of Essex (United Kingdom)

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Weidemaier, William (1977), Professor Emeritus of the Barrett Honors College; B.A., Northern Arizona University; M.A., Ph.D., Arizona State University

Weierstall, Uwe (1994), Assistant Research Scientist of Physics and Astronomy; B.S., University of Tübingen (Germany); M.S., Ph.D., Institute of Applied Physics in Tübingen (Germany)

Weigend, Guido G. (1976), Professor Emeritus of Geography; Dean Emeritus, College of Liberal Arts and Sciences; B.S., M.S., Ph.D., University of Chicago

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Weitz, Rose (1978), Professor of Sociology; B.A., City University of New York; M.A., Ph.D., Yale University

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Welch, H. William (1967), Professor Emeritus of Electrical Engineering; B.A., DePauw University; M.S., Ph.D., University of Michigan; P.E.

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White, Michael J. (1974), Professor of Philosophy; B.A., Arizona State University; M.A., Ph.D., University of California, San Diego

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- Wilcox, M. Jeanne** (1990), Professor of Speech and Hearing Science; B.A., Kansas State; M.A., Ph.D., Memphis State University
- Wiley, Terrence G.** (2000), Professor of Educational Leadership and Policy Studies; Director, Division of Educational Leadership and Policy Studies; B.A., M.A., California State University, Long Beach; Ph.D., University of Southern California
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- Wilkinson, Christine K.** (1970), Associate Professor of Educational Leadership and Policy Studies; Senior Vice President and Secretary of the University; B.A., Arizona State University; M.A., University of California, Berkeley; Ph.D., Arizona State University
- Wilkinson, Joseph W.** (1964), Professor Emeritus of Accountancy; B.S., Carnegie Institute of Technology; M.B.A., Stanford University; D.B.A., University of Oregon
- Williams, Carol E.** (1984), Academic Associate, Division of Undergraduate Academic Services; Assistant Director, Academic Success Programs; B.A., Trinity University, San Antonio; M.A., Arizona State University
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- Williams, Douglas** (2000), Lecturer of Mathematics and Statistics; B.S., University College of Belize; M.S., Arizona State University
- Williams, Frank G.** (1975), Professor Emeritus of Health Administration and Policy; B.S., M.A., Oregon State University; M.A., Ph.D., University of Iowa
- Williams, Jenny L.** (1967), Librarian Emerita; B.A., M.L.S., Indiana University
- Williams, Peter** (1981), Professor of Chemistry and Biochemistry; B.S., Ph.D., University of London (United Kingdom)
- Williams, Philip F.C.** (1986), Professor of Chinese; B.A., University of Arkansas; M.A., Ph.D., University of California, Los Angeles
- Williams, Robert C.** (1978), Professor of Anthropology; B.A., M.A., University of Cambridge (United Kingdom); B.A., M.A., Ph.D., University of Michigan
- Williams, Stanley N.** (1991), Professor of Geological Sciences; B.S., Beloit College; M.A., Ph.D., Dartmouth College
- Williamson, Madeline J.** (1976), Professor of Music; B.A., Ohio Wesleyan University; M.M., Western Michigan University; Ph.D., Arizona State University
- Willis, Wayne T.** (1989), Associate Professor of Kinesiology; A.B., University of California, Berkeley; M.A., San Francisco State University; Ph.D., University of California, Berkeley
- Wills, J. Robert** (1994), Professor of Theatre; Dean, Herberger College of Fine Arts; B.A., College of Wooster; M.A., University of Illinois; Ph.D., Case Western Reserve University
- Wilson, Angela Cavender** (2000), Assistant Professor of History; B.A., University of Minnesota, Minneapolis; M.A., Ph.D., Cornell University
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- Wilson, Gloria N.** (1961), Professor Emerita of Educational Media and Computers; B.A., Montclair State College; M.A., Ed.D., Columbia University
- Wilson, Jeffrey R.** (1985), Associate Professor of Statistics; Director, School of Health Administration and Policy; B.A., University of the West Indies (Trinidad and Tobago); M.S., Ph.D., Iowa State University
- Wilson, Lorna A.** (1968), Professor Emerita of French; B.Ed., University of Saskatchewan (Canada); M.A., Arizona State University
- Wilson-Rawls, N. Jeanne** (1997), Assistant Professor of Life Sciences; B.S., McMaster University (Canada); Ph.D., Saint Louis University
- Wilt, Glenn A. Jr.** (1963), Professor Emeritus of Finance; A.B., Occidental College; M.B.A., Miami University; Ph.D., University of Michigan; C.F.A.
- Windhorst, Rogier A.** (1987), Professor of Physics and Astronomy; B.Sc., M.Sc., Ph.D., University of Leiden (Netherlands)
- Winer, Laurence H.** (1983), Professor of Law; B.A., M.A., Ph.D., Boston University; J.D., Yale University
- Winkelman, Michael** (1988), Senior Lecturer of Anthropology; B.A., Rice University; Ph.D., University of California, Irvine
- Winkelman, Richard D.** (1965), Professor Emeritus of Economics; B.A., Southern Illinois University; M.A., Ph.D., University of Illinois
- Wintergalen, Barbara A.** (1992), Professor Emerita of Nursing; B.S.N., Loretto Heights College; M.S., Arizona State University
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- Wiseman, Douglas E.** (1976), Professor Emeritus of Curriculum and Instruction; B.S., M.A., Eastern Michigan University; Ph.D., University of Illinois
- Witczak, Matthew W.** (1999), Professor of Civil and Environmental Engineering; B.S.C.E., M.S.C.E., Ph.D., Purdue University
- Witt, Tom** (1975), Associate Professor of Design; B.A., M.A., M.F.A., University of California, Los Angeles
- Wixted, J. Timothy** (1978), Professor Emeritus of Asian Languages; B.A., University of Toronto (Canada); A.M., Stanford University; D.Phil., University of Oxford (United Kingdom)
- Wodrich, David L.** (2002), Associate Professor of Psychology in Education; B.S., M.A., Northern Arizona University; Ph.D., Arizona State University
- Wojciechowski, Martin F.** (2001), Assistant Professor of Life Sciences; B.S., Northern Michigan University; Ph.D., University of Northern Colorado
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- Wolf, Donald J.** (1969), Professor Emeritus of Political Science; B.A., M.A., Gonzaga University; S.T.M., University of Santa Clara; Ph.D., Georgetown University
- Wolf, George H.** (1986), Associate Professor of Chemistry and Biochemistry; B.A., University of California, San Diego; M.S., Ph.D., University of California, Berkeley
- Wolf, Robert** (1985), Professor Emeritus of Design; B.S., Southern Illinois University, Carbondale; M.A., University of Missouri; Certificate, Konstindustriskolan (Sweden)
- Wolf, W. Shapard Jr.** (1983), Associate Research Administrator, Sociology; Director, Survey Research Laboratory, Sociology; B.F.A., Florida State University; M.Ed., University of Georgia
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Wood, Byard D. (1970), Professor Emeritus of Mechanical and Aerospace Engineering; B.S.M.E., M.S.M.E., Utah State University; Ph.D., University of Minnesota, Twin Cities

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Woodfill, Marvin C. (1966), Professor Emeritus of Computer Science and Engineering; B.S., M.S., Ph.D., Iowa State University

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Woodman, Natalie J. (1969), Professor Emerita of Social Work; B.A., New York University; M.S.S., Smith College

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Wurzbarger, Marilyn J. (1960), Librarian; Department of Archives and Manuscripts; B.A., MacMurray College

Wurzell, Carol A. (1965), Professor Emerita of Nursing; B.S., California State College, Chico; M.S., University of Maryland, College Park

Wyckoff, Susan (1979), Professor Emerita of Physics and Astronomy; B.A., Mount Holyoke College; Ph.D., Case Western Reserve University

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X

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Yoshioka, Carlton F. (1988), Professor of Recreation Management and Tourism; Graduate Coordinator, Department of Recreation Management and Tourism; B.A., University of California, Santa Barbara; M.A., California State University, Chico; Ph.D., University of Oregon

Young, Bernard (1988), Professor of Art; B.F.A., Temple University; M.F.A., Ph.D., Cornell University

Young, David A. (2001), Professor of Life Sciences; Dean, College of Liberal Arts and Sciences; B.A., M.A., California State University, Fullerton; Ph.D., Claremont Graduate University

Young, Dennis L. (1975), Professor of Mathematics and Statistics; B.S., Saint Louis University; M.S., Ph.D., Purdue University

Young, Hewitt H. (1967), Professor Emeritus of Industrial Engineering; B.S.M.E., M.S.I.E., Case Institute of Technology; Ph.D., Arizona State University

Young, Joseph E. (1979), Professor Emeritus of Art; B.A., California State University, Los Angeles; M.A., University of California, Los Angeles

Young, Josephine Peyton (1998), Assistant Professor of Curriculum and Instruction; M.A., University of West Florida; Ph.D., University of Georgia

Young, Otis E. Jr. (1963), Professor Emeritus of History; A.B., A.M., Ph.D., Indiana University

Young, Sheila (2002), Assistant Librarian; Nobel Science Reference Services; B.Ed., University of Toledo; M.S., University of Arkansas; M.L.S., University of Oklahoma

Youngblood, Robert L. (1973), Professor of Political Science; B.A., Willamette University; M.A., University of Hawaii, Manoa; Ph.D., University of Michigan

Z

Zandieh, Michelle (1997), Assistant Professor of Mathematics and Statistics; B.A., Northwestern University; M.S., Ph.D., Oregon State University

Zaslow, Bertram (1956), Professor Emeritus of Chemistry and Biochemistry; B.A., Cornell University; M.S., University of Minnesota, Twin Cities; Ph.D., Iowa State University

Zatz, Marjorie S. (1982), Professor of Justice Studies; Associate Dean, Student Support Services, Graduate College; B.A., University of Massachusetts, Amherst; M.A., Ph.D., Indiana University, Bloomington

Zautra, Alex (1976), Professor of Psychology; Director, Clinical Program in Psychology; B.A., Antioch College; M.S., Ph.D., University of Utah

Zehnder, Joseph A. (2000), Professor of Geography; Director, Southwest Center for Environmental Research and Policy; B.S., M.S., University of Illinois, Chicago; Ph.D., University of Chicago

Zeitlin, Marilyn A. (1992), Director, ASU Art Museum; A.B., M.A., Harvard University

Zell, Ann (2000), Academic Associate of Electrical Engineering

Zhang, Junshan (2000), Assistant Professor of Electrical Engineering; B.E., Huazong University of Science and Technology (China); M.S., University of Georgia; Ph.D., Purdue University

Zhang, Xia (2002), Lecturer of Chinese; B.A., Sichuan University (China); M.A., University of Victoria (Canada); Ph.D., University of Alberta (Canada)

Zhang, Young-Hang (1997), Professor of Electrical Engineering; Nanjing Normal University (China); M.Sc., Institute of Semiconductors, Chinese Science and Technology University (China); Ph.D., University of Stuttgart (Germany)

Zhou, Lin (2001), Lincoln Professor of Ethics; B.S., Fudan University (China); Ph.D., Princeton University

Zhu, Anmin (1997), Senior Lecturer of Mathematics and Statistics; B.S., Anhui University (China); M.S., Milin University (China); Ph.D., Arizona State University

Zimiles, Herbert (1988), Professor Emeritus of Educational Psychology; B.A., New York University; Ph.D., University of Rochester

Zimmer, Carl R. (1959), Professor Emeritus of Engineering; B.S.E.E., Cornell University; M.S.E.E., Ph.D., Syracuse University

Zottola, Adelina (1997), Academic Associate, Division of Undergraduate Academic Services; Program Coordinator, Science and Math Service Learning; B.S., State University of New York, Binghamton

Zucker, Stanley H. (1975), Professor of Curriculum and Instruction; B.A., State University of New York, Stony Brook; M.S., Hofstra University; Ph.D., University of Missouri, Columbia

Zwiebel, Imre (1979), Professor Emeritus of Chemical Engineering; B.S., University of Michigan; M.S., Ph.D., Yale University

Zygas, K. Paul (1984), Associate Professor of Architecture; A.B., M.Arch., Harvard University; Ph.D., Cornell University

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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 Calderon
Regent, appointed to January 2012	Lorraine Frank
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Assistant to the Executive Vice President and Provost of the University	Lynn Carpenter
Special Assistant to the Executive Vice President and Provost for Web Development	Jake Kupiec
Director, Academic Articulation	Zoila Gamero de Tovar
Director, Data Warehousing and Data Administration	John Rome
Executive Director, Institutional Analysis/Data Administration/Strategic Planning	<i>To Be Appointed</i>
Director, International Programs	William G. Davey
Director, Center for Learning and Teaching Excellence	Duane Roen
Director, Summer Sessions	Carol Switzer
Executive Director, Division of Undergraduate Academic Services	<i>To Be Appointed</i>
Director, University Evaluation	<i>To Be Appointed</i>

Barrett Honors College

Dean, the Barrett Honors College Mark Jacobs
 Associate Dean Margaret Nelson
 Associate Dean, Recruiting Janet M. Burke

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 *To Be Appointed*
 Director, Ph.D. Program in Environmental Design and Planning K. David Pijawka
 Director, School of Architecture Ronald McCoy
 Director, School of Design Jacques Giard
 Director, School of Planning and Landscape Architecture Hemalata Dandekar
 Director, Herberger Center for Design Excellence *To Be Appointed*
 Coordinator, Joint Urban Design Program John McIntosh
 Coordinator, Joint Urban Design Studio Michael Dollin

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Vice President for University-School Partnerships and Dean, College of Education Eugene E. Garcia
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 Associate Dean for Research James Arthur Middleton
 Assistant Dean, Office of Student Services Inta “Maggie” Tolan
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 Associate Director of Research and Graduate Education, Division of Curriculum
 and Instruction Robert B. Rutherford Jr.
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 and Instruction Billie J. Enz
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 Director, Division of Educational Leadership and Policy Studies Terrence G. Wiley
 Assistant Director, Division of Educational Leadership and Policy Studies Kay Hartwell Hunnicutt
 Director, Education Policy Studies Laboratory Alex Molnar
 Academic Program Coordinator, DELTA Doctorate Kay Hartwell Hunnicutt
 Academic Program Coordinator, Ed.D. in Higher and
 Postsecondary Education Caroline Turner
 Academic Program Coordinator, Educational Leadership and Policy Studies Gene V Glass
 Academic Program Coordinator, M.Ed. in Educational Administration and Supervision James E. Jurs
 Academic Program Coordinator, M.Ed. in Higher and Postsecondary Education Gary Hanson
 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
 Associate Director, Division of Psychology in Education Stafford Hood
 Training Director, Counseling Psychology Richard T. Kinnier
 Academic Program Leader, Counselor Education and Counseling Psychology Patricia Arredondo
 Academic Program Leader, Educational Technology Wilhelmina C. Savenye
 Academic Program Leader, Educational Psychology Samuel B. Green
 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
 Interim Director, Center for Indian Education Denis Viri
 Director, Office of Professional Field Experiences Karen Kimerer

College of Extended Education

See “ASU Extended Campus Administrative Personnel,” page 701.

College of Law

Dean, College of Law Patricia D. White
 Associate Dean for Academic Affairs and Research Patrick Brennan
 Associate Dean and Director, Ross–Blakley Law Library Victoria K. Trotta
 Assistant Dean, Administrative and Business Services Christopher Baier
 Assistant Dean and Director of Admissions Brenda Brock
 Assistant Dean, Student Services Leslie Mamaghani

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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
Director, Center for the Study of Law, Science, and Technology	Andrew Askland
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Director, Student Development and Financial Aid	Michael Bossone
Director, Indian Legal Program	Kathlene Rosier
W. P. Carey Director of Placement	Iona DeRemer

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Associate Dean, Academic Programs	Daniel Bivona
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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	Breandán Ó hUallacháin
Chair, Department of Geological Sciences	James A. Tyburczy
Chair, Department of History	Noel J. Stowe
Interim Chair, Department of Kinesiology	Daniel M. Landers
Chair, Department of Languages and Literatures	Deborah N. Losse
Chair, Department of Mathematics and Statistics	Andrew Bremner
Chair, Department of Military Science	Major Herbert M. Chong
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Chair, Department of Political Science	Patrick Kenney
Chair, Department of Psychology	Darwyn E. Linder
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Interim Director, School of Life Sciences	Morton E. Munk
Chair, Department of Sociology	Verna M. Keith
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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	Robert W. McGaughey
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's Studies Program	Mary L. Rothschild

College of Nursing

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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. Hrabe
Director, Student Services	Jean Craig Stengel
Chair, Division of Adult Health/Parent-Child Nursing	Susan Mattson
Chair, Division of Community Health/Psychosocial Nursing Systems	Rojann Alpers
Manager, Community Health Services Clinic	M. Christina Lyons

College of Public Programs

Dean, College of Public Programs	Anne L. Schneider
Associate Dean, College of Public Programs	Frederick C. Corey
Assistant Dean, College of Public Programs	Kathryn Gundersen
Director, Student Services	Cheryl Herrera
Director, Hugh Downs School of Human Communication	Jess K. Alberts
Interim Director, Walter Cronkite School of Journalism and Mass Communication	Stephen (Steve) Doig
Director, School of Justice Studies	Doris Marie Provine
Director, School of Public Affairs	Jeffrey Chapman
Director, School of Social Work	Leslie Leighninger
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Director, Advanced Public Executive Program	Peggy O’Sullivan
Director, American Indian Studies Program	Carol Chiago Lujan
Director, Asian Pacific American Studies Program	Thomas K. Nakayama
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 Undergraduate Academic Services

Executive Director, Division of Undergraduate Academic Services	<i>To Be Appointed</i>
Associate Executive Director, Division of Undergraduate Academic Services	Gay W. Brack
Associate Executive Director, Division of Undergraduate Academic Services	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
Senior Program Coordinator, General Studies	Phyllis Lucie
Senior Business Manager	Kathleen Renshaw

Graduate College

Interim Dean, Graduate College	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
Director, 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
Associate Dean, Research	Paul C. Johnson
Associate Dean, Student Affairs	Mary R. Anderson-Rowland
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
Interim Director, Center for Research on Education in Science, Mathematics, Engineering, and Technology	Marilyn P. Carlson
Codirector, Center for Low Power Electronics Research	Dieter K. Schroder
Director, Center for Professional Development	Jeffrey S. Goss
Director, Center for Solid State Electronics Research	Trevor John Thornton
Director, Institute for Manufacturing Enterprise Systems	Thomas E. Callarman

The 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 Services	Gina Stephens

ADMINISTRATIVE PERSONNEL

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	<i>To Be Appointed</i>
Director, Communications	Stacey Shaw
Director, Community Programs	Melanie Ohm
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 Wyas

University Libraries

University Librarian and Dean	Sherrie Schmidt
Associate Dean, Library Services	<i>To Be Appointed</i>
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 Instruction, Systems, and Technology (LIST)	Scott S. Herrington
Head, Music Library	Brian Doherty
Head, Preservation	<i>To Be Appointed</i>
Team Leader, Noble Science Reference Services	Linda A. Shackle
Team Leader, Collection Development	Jeanne Richardson
Team Leader, Hayden Reference Services	Rosalinda DeFato
Team Management, Technical Services Department	Betsy J. Redman, Ronda L. Ridenour, and Rebecca S. Uhl

W. P. Carey School of Business

Interim Dean, W. P. Carey School of Business	Philip R. Regier
Associate Dean, Asia Pacific Programs	Ker-Wei Pei
Associate Dean, Executive and Professional Programs	Lee R. McPheters
Associate Dean, Graduate Programs	Dennis L. Hoffman
Associate Dean, Undergraduate Programs	Philip R. Regier
Assistant Dean, Fiscal and Business Services	Anne Nguyen
Assistant Dean, Graduate Programs	Carl Harris
Assistant Dean, Undergraduate Programs	Kay Faris
Director, School of Accountancy	James R. Boatsman
Chair, Department of Economics	Arthur E. Blakemore
Chair, Department of Finance	Herbert M. Kaufman
Director, School of Health Administration and Policy	Jeffery 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
Director, Arizona Real Estate Center	Jay Q. Butler
Director, Center for Business Research	Timothy D. Hogan
Director, Center for Services Leadership	Stephen W. Brown
Director, Bank One Economic Outlook Center	Lee R. McPheters
Director, L. William Seidman Research Institute	Timothy D. Hogan

Administration and Finance

Executive Vice President, Administration and Finance	Mernoy E. Harrison
Senior Executive Assistant to the Executive Vice President, Administration and Finance	Sheila Stokes
Associate Vice President, Administration and Finance	LeEtta Overmyer
Director, Internal Audit and Management Services	Walter B. Silva
Director, Administration and Finance Information Technology	Susan Madden
Associate Vice President, Financial Services, and Treasurer	Gerald E. Snyder
Director	Joanne Wamsley
Associate Director	Terri Deasey

ADMINISTRATIVE PERSONNEL

Associate Director, Financial Services	Marilyn Mulhollan
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 Planning	Steve Nielsen
Director, Capital Programs Management Group	Ted Cary
Director, Facilities Planning and Space Management	David Techau
Director, Facilities Management	Dave Brixen
Director, Risk Management	<i>To Be Appointed</i>
University Architect	Ron McCoy
Associate Vice President, Human Resources	David Butler
Director, Human Resources Programs	<i>To Be Appointed</i>
Director, Human Resources Operations and Administration	Christine Cervantes
Associate Vice President, Administration and Business Services	Ray Jensen
Director, Purchasing and Business Services	John Riley
Director, Auxiliary Business Services	Greg Rush
Director, ASU Bookstore	Val Ross
Assistant Director, Real Estate	Karen Honeycutt
Assistant Director, Document Production Services	Robert Lane
Assistant Director, Purchasing and Business Services	Gina Webber
Director/Chief of Police, Public Safety	John Pickens
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Intercollegiate Athletics

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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

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Associate Vice President, Economic Affairs	Rob Melnick
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Director, Career Services	Raymond I. Castillo
Director, Recreational Sports	Howard Taylor
Director, Residential Life, and Assistant Dean, Student Development	Kevin Cook
Director, Student Health and Wellness Center	Mary Rimsza
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Director, Undergraduate Admissions	Tim Desch
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ASU East

See “ASU East Administrative Personnel,” page 671.

ASU Extended Campus

See “ASU Extended Campus Administrative Personnel,” page 701.

ASU West

See “ASU West Administrative Personnel,” page 688.

ASU East

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Charles E. Backus, Ph.D., Provost, ASU East; Vice President, ASU

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Arizona State University East, one of the four ASU campuses, is distinguished by the academic programs it offers and by its residential setting. As ASU's polytechnic campus, ASU East 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 that are in sectors of global business that are in high demand. The College of Technology and Applied Sciences offers bachelor's pro-

grams 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. East College also provides the general education courses for all the ASU East degree programs.

All three academic units at ASU East offer the Bachelor of Applied Science (B.A.S.) degree, a program designed specifically as a career progression degree for students holding the Associate of Applied Science (A.A.S) degree. The B.A.S. emphasizes management, leadership, and communication skills along with additional technical course work.

Eighteen baccalaureate degree programs, six master's degree programs, and two certificate programs are currently offered at ASU East. Through partnerships with programs at ASU Main, select doctoral programs are also offered. (See the "Morrison School of Agribusiness and Resource Management Baccalaureate Degrees and Majors" table, page 606; the "East College Baccalaureate Degrees and Majors" table, page 615; and the "College of Technology and Applied Sciences Baccalaureate Degrees and Majors" table, page 639).

Located 23 miles southeast of ASU Main and with a student population of fewer than 5,000, the 600-acre campus offers a small residential college environment. ASU East 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. ASU East 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 "ASU East map" map, page 664. For information, call 480/727-EAST (3278) or access the Web site at www.east.asu.edu.

ACADEMIC ORGANIZATION AND ACCREDITATION

The chief academic officer of ASU East is the provost. There are two colleges and one school at ASU East 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 "ASU East Faculty and Academic Professionals," page 666, and "Academic Organization," page 10.

Accreditation

The North Central Association of Colleges and Schools accreditation of ASU Main includes ASU East. In addition, ASU East programs in Aeronautical Engineering Technology, Electronics Engineering Technology, and Manufacturing 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 B.S. 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 B.S. 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 ASU East 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 ASU East. To be admitted to an ASU East degree program, the student must meet undergraduate admissions requirements and the specific admission requirements of the ASU East program. A student who is admitted to an ASU East degree program is defined as an ASU East student.

For more admissions information and applications to ASU East 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 ASU Main or ASU West who want to relocate to an ASU East degree program should contact Student Services at ASU East, the Office of the Registrar at ASU Main, or the Admissions and Records Office at ASU West for appropriate procedures. All credit earned at any ASU campus automatically transfers to ASU East. Students should consult with their ASU East 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 ASU East 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 ASU Main Undergraduate Admissions in consultation with the faculty or academic advisor of the student's choice of major.

PARTNERSHIP WITH CHANDLER-GILBERT COMMUNITY COLLEGE

ASU East, 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 East and CGCC formed an innovative academic partnership that combines the strengths of the two institutions. ASU East students receive instruction from both institutions. Chandler-Gilbert faculty teach freshman and sophomore General Studies, general interest courses, and prerequisite courses for ASU East majors.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

Academic Advising at ASU East

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 A121	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	480/727-1454	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 ASU Main.

They deliver learner-centered instruction in small interactive courses that are developed in cooperation with ASU East faculty and are 100 percent equivalent to parallel ASU courses.

ASU East faculty teach all courses in the majors as well as upper-division general education and general interest courses. ASU East students are enrolled concurrently in both institutions. All transactions are handled through ASU East. Students pay combined tuition or ASU tuition, whichever is less. Through the partnership with CGCC, ASU East 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 ASU East](#)” table, page 602).

ASU EXTENDED CAMPUS

The College of Extended Education was created in 1990 to extend the resources of ASU throughout Maricopa County, the state, and beyond. The College of Extended Education is a university-wide college that oversees the ASU Extended Campus and forms partnerships with other ASU colleges, including those at ASU East, to meet the instructional and informational needs of a diverse community.

The ASU Extended Campus goes beyond the boundaries of the university’s physical campuses to provide access to quality academic credit and degree programs for working adults through flexible schedules; a vast network of off-campus sites; classes scheduled days, evenings, and weekends; and innovative delivery technologies including television, the Internet, and Independent Learning. The Extended

Campus also offers a variety of professional continuing education and community outreach programs.

For more information, see “[ASU Extended Campus](#),” page 689, or access the Web site at www.asu.edu/xed.

CAMPUS AND STUDENT SERVICES

ASU East 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, campus union, bookstore, and copy center. A shuttle service provides transportation between ASU East, Mesa Community College, and ASU Main. An additional shuttle is available for transportation from ASU Main to ASU West.

Enrollment Services

Enrollment Services provides one-stop services for admission, financial aid, business services, and registration. Conveniently located in QUAD 2, students find personnel ready to assist them with registration processes, tuition payment, financial assistance information, student employment, ASU Sun Cards (photo IDs), and parking decals.

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 ASU East 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 ASU East. 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 that remain in print form can be obtained by the library quickly. 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

With more than 300 workstations in five classrooms, three computing sites, and a Computing Commons, Information Technology (IT) at ASU East provides general computing services that include e-mail and general purpose computing. The IT East department provides specialized software and systems to meet the particular needs of the ASU East programs. In addition, IT East provides more than 28 mediated classrooms and audiovisual materials to support e-learning initiatives. 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

ASU East has a variety of food service options on campus to serve student, faculty, staff, and visitor needs. Services include a coffee bar, 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 ASU East, call 480/727-1439.

Student Health Services

Health services for ASU East students are provided by the Veteran's Administration Medical Center located at the Williams Campus. Services include primary assessment and treatment of health problems and injuries, physical examinations and immunizations, women's health care, diagnostic tests, laboratory tests/X-rays, and a pharmacy. Student registration fees cover the cost of office visits for full-time ASU East students. Part-time students pay a nominal fee. Some office procedures and laboratory tests require additional charges. Health insurance is not required to use the health services; however, it is strongly advised for all students and is required for international students. For more information, call 602/222-6568.

Student Counseling

Confidential professional counseling services are available to help ASU East 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 QUAD 4.

Career Preparation Center

Professional career counselors are available to meet with ASU East 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 480/727-1411, or access the Web site at www.east.asu.edu/sta/career.html.

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, private computer rooms, 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 East and Chandler-Gilbert Community College are partners in providing recreation, intramural, and group fitness opportunities on the Williams Campus. A \$30 per semester fitness membership provides access to the Physical Activity Center (PAC) 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 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 newly resurfaced tennis courts with lights for evening play; 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 91.

ASU EAST

8. a seasonal swimming pool (May–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.

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, such as pick-up games, are scheduled at the facilities.

ASU East 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 campus at ASU East 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 campus union.

ASU East'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 ameni-

ties as outdoor swimming, sand volleyball, tennis, and picnic areas.

For more information, call the Williams Campus Housing Office at 480/727-1700, or access the Web site at www.east.asu.edu/sta/u-life/housing.

Residence Halls. Undergraduate and graduate students are eligible for residence halls with a large private room, featuring a private bath and a shared kitchenette. Students may, if they prefer, elect to share a room with another student. Each room includes basic furnishings; the kitchenette includes a refrigerator, microwave, and, in some cases, stoves.

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.

Freshman Year Experience. Freshmen begin their residential experience on campus in a dedicated freshman residence hall that includes 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 eastfye@asu.edu.

The FYE hall offers two bedroom suites with a shared bath, to house two to four students. Each room is equipped with local phone service, basic cable, and two computer ports. The FYE hall features a computer lab, quiet study, group study/tutoring room, and community lounge. 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/fye.

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, Ph.D, Dean

PURPOSE

The Morrison School of Agribusiness and Resource Management provides a variety of academic programs in Agribusiness. Agribusiness is the business of food and fiber production and the technology necessary to change a raw material (a commodity) or an idea into a new product or business for the world's consumers. Producing, financing, marketing, and providing food and fiber for the world amounts to more than one-half of the earth's global economy.

Agribusiness courses in the Morrison School are designed to prepare students for a wide range of employment opportunities in agribusiness and business. More than 20 percent of all jobs in the United States are agribusiness-related, and the industry is even more important internationally, with more than half of all jobs in developing countries related to food and fiber products. Population increases worldwide have led forecasters to predict that more than nine billion food and fiber consumers will be part of the global agribusiness system by the year 2050. Forecasts also estimate that, at that time, more than 20,000 agribusiness jobs will go unfilled due to a lack of skilled professionals.

The academic programs in Agribusiness are especially designed to meet the needs of the urban student who has little or no previous agriculture experience. An interest in plants, animals, or food can be the starting point for career development in agricultural industries or resource management. The undergraduate programs also provide the necessary training for students preparing to enter graduate degree programs.

The Morrison School is strategically positioned to offer some unique programs. The concentration in professional golf management provides a student with the opportunity to qualify for the Professional Golfers' Association certification program in addition to majoring in Agribusiness. Similarly, for individuals more interested in the development and management of golf and other turf facilities, the golf and facilities management concentration is well suited.

Food, its marketing and safety, is of paramount importance today and in the future. The Morrison School offers specific concentrations in both of these areas. Food and agribusiness marketing is one of the signature academic concentrations in the school. Food science and safety are emphases stressed in the food and agribusiness marketing concentration.

The B.S. 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 B.S. degree in Agribusiness with the following concentrations: agribusiness finance, food and agribusiness marketing, food science, general agribusiness, golf and facilities management, international agribusiness, management of agribusiness, professional golf management, resource management, e-commerce, and pre-veterinary medicine.

For students holding an A.A.S. degree, the school offers the Bachelor of Applied Science degree with concentrations in consumer products technology, food retailing, and resource team specialist. See the "[Morrison School of Agribusiness and Resource Management Baccalaureate Degrees and Majors](#)" table, page 606.

The school also offers the M.S. 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 M.S. candidates in Agribusiness must complete a minimum of 36 semester hours.

ADMISSION

The Morrison School admits students to the B.S. degree programs who meet the undergraduate admission require-

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "[General Studies](#)," page 91.

Morrison School of Agribusiness and Resource Management Baccalaureate Degrees and Majors

Major	Degree	Concentration*	Administered By
Agribusiness	B.S.	Agribusiness finance, e-commerce, food and agribusiness marketing, food science, general agribusiness, golf and facilities management, international agribusiness, management of agribusiness, preveterinary medicine, professional golf management, or resource management	Morrison School of Agribusiness and Resource Management
Applied Science	B.A.S.	Consumer products technology, food retailing, or resource team specialist	Morrison School of Agribusiness and Resource Management

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

ments of Arizona State University; see “**Undergraduate Admission**,” page 65. Admission to the B.A.S. degree program is restricted to students holding an A.A.S. 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—B.S.

The completion of a minimum of 120 semester hours—including First-Year Composition, General Studies (see “**General Studies**,” page 91), and the school and concentration requirements—leads to the B.S. 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 609.

Prerequisite Courses. Students who select the concentrations in agribusiness finance, food and agribusiness 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 ²	3
BIO 100 The Living World <i>SQ</i>	4
CHM 101 Introductory Chemistry <i>SQ</i> ¹	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 professional golf management concentration.
- ² These courses are not required for the golf and facilities management concentration.
- ³ This course is not required for the golf and facilities management or professional golf management concentration.

Core Requirements. Agribusiness employers require their employees to possess a wide range of skills and competencies. Rapid changes in information technology and the increasingly competitive food production and distribution

sector mean that agribusiness needs graduates equipped to deal with these changes. The agribusiness core, required of all the concentrations, is designed to give students these skills. The core consists of courses in business principles—management, marketing, and finance—as well as in the fundamentals of agribusiness operations management.

AGB 100 Introduction to Agribusiness	3
AGB 161 Computer Applications for Agribusiness Industries <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.

E-commerce Concentration. The extraordinary growth of e-commerce in the business and agribusiness venues provides significant opportunities for students prepared to work in this medium. A student following this concentration builds on the prerequisite core and the agribusiness core to prepare for this field. The opportunities for personal development, advancement, and success are present domestically and internationally.

E-commerce

AGB 436 Entrepreneurship and Financial Management of E-commerce.....	3
AGB 463 Electronic Commerce Applications	3
AGB electives	8

Agribusiness core.....	36
Agribusiness prerequisite courses.....	26
Web site design course.....	3
Total	79

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 334 Agricultural Commodities	3
AGB 431 Intermediate Agribusiness Financial Management.....	3
AGB 434 Agricultural Risk Management and Insurance	3
AGB electives	8
Agribusiness core.....	36
Agribusiness prerequisite courses.....	26
Total	79

Management of Agribusiness Concentration. Agribusiness managers encounter many problems and opportunities on a daily basis that are unique to the agribusiness sector. Students choosing this concentration develop skills in managing people, internal resources, and external relationships in an increasingly dynamic environment.

Management of Agribusiness

AGB 411 Agricultural Cooperatives	3
or AGB 480 Agribusiness Policy and Government Regulations (3)	
AGB 451 Management Science CS.....	3
AGB 481 Applied Microeconomics.....	3
AGB electives	8
Agribusiness core.....	36
Agribusiness prerequisite courses.....	26
Total	79

Food and Agribusiness Marketing Concentration. Students in the food and agribusiness 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 and agribusiness marketing students are required to complete a series of courses that analyze the behavior and performance of both commodity and consumer food markets.

Food and Agribusiness Marketing

AGB 334 Agricultural Commodities	3
or AGB 420 Food Marketing (3)	
AGB 422 Consumer Behavior	3
AGB 429 Marketing Research	3
AGB electives	8
Agribusiness core.....	36
Agribusiness prerequisite courses.....	26
Total	79



The Morrison School of Agribusiness and Resource Management offers a program in preveterinary medicine.

Tim Trumble photo

MORRISON SCHOOL OF AGRIBUSINESS AND RESOURCE MANAGEMENT

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 334 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 also complete the majority of requirements in the PGA Golf Professional Training Program, including the PGA Playing Ability Test. All golf-related courses and internships are selected with the assistance of the PGM program director.

PGM Admission. To be admitted to the PGM program, students must meet a playing ability test. Call the PGM director at 480/727-1017 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. The GFM concentration also requires the student to complete six semester hours of internship experience at golf facilities, providing valuable hands-on experience. Call the GFM program coordinator at 480/727-1256 for additional information.

Golf and Facilities Management

Agribusiness core	27
Agribusiness prerequisite courses	17
Golf and facilities management courses	19
Internship	6
Total	69

Prerequisite Courses for Preveterinary Medicine. Students who select the preveterinary medicine concentration must take the following courses, some of which can also be used to meet the General Studies requirement.

ACC 230 Uses of Accounting Information I	3
BCH 361 Principles of Biochemistry	3
BIO 187 General Biology I <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)	

MORRISON SCHOOL OF AGRIBUSINESS AND RESOURCE MANAGEMENT

Choose between the course combinations below.....4-8

CHM 231 Elementary Organic Chemistry SQ (3) ¹	
CHM 235 Elementary Organic Chemistry Laboratory SQ (1) ¹	
-or-	
CHM 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 SB.....3	
or ECN 112 Microeconomic Principles SB (3)	
ENG 301 Writing for the Professions L.....3	
MAT 210 Brief Calculus MA.....3	
MIC 205 Microbiology SG ².....3	
MIC 206 Microbiology Laboratory SG ².....1	
PHY 111 General Physics SQ ³.....3	
PHY 113 General Physics Laboratory SQ ³.....1	
Upper-division AGB.....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.

Preveterinary Medicine. A student studying agribusiness could also be preparing for admission to a professional veterinary school. While completing the courses needed for acceptance into veterinary school, the student is broadening his or her career potential with agribusiness courses. The Agribusiness major provides knowledge of how to run a business or practice. In addition, should a preveterinary student decide not to apply to a veterinary school, this major provides alternative career paths into human or veterinary pharmaceutical industries or the food industry. This concentration permits students to complete the preveterinary requirements for entrance to professional veterinary school.

Preveterinary Medicine

Agribusiness core.....21	
AGB 310 Agribusiness Management I (3)	
AGB 320 Agribusiness Marketing I (3)	
AGB 332 Agribusiness Finance I (3)	
AGB 360 Agribusiness Statistics CS (3)	
AGB 364 Agribusiness Technologies I (3)	
AGB 365 Agribusiness Technologies II (3)	
AGB 414 Agribusiness Analysis L (3)	
Preveterinary medicine prerequisites.....	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 B.S. 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 B.S. 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 approximately 27 schools of veterinary medicine in the United States. Each school establishes the 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, and organic chemistry. In addition to a science foundation, all students must meet the University General Studies requirement, complete 45 semester hours of upper-division courses, and satisfy the school admission requirements.

Resource Management Concentration. The resource management concentration combines the agribusiness concentration core with solid technical preparation in biology, chemistry, and/or economics. There is a growing demand by industry and government for persons who understand both the technical and managerial basis for sustainable development, remediation and/or utilization of natural resources for agribusiness, conservation, and habitat restoration. Courses and field projects prepare the student to analyze, develop, and manage programs that make use of land and water in an economic as well as environmentally sustainable fashion.

Resource Management Concentration Prerequisite Courses. Students who select the resource management concentration must complete these courses, some of which can also be used to meet General Studies requirements:

ACC 230 Uses of Accounting Information I.....3	
BIO 187 General Biology I SG.....4	
BIO 188 General Biology II SQ.....4	
CHM 101 Introductory Chemistry SQ.....4	
CHM 231 Elementary Organic Chemistry SQ*.....3	
CHM 235 Elementary Organic Chemistry Laboratory SQ*.....1	
ECN 112 Microeconomic Principles SB.....3	
ENG 301 Writing for the Professions L.....3	
MAT 210 Brief Calculus MA.....3	
Total.....	28

* Both CHM 231 and 235 must be taken to secure SQ credit.

Resource Management

AGB 455 Resource Management SB.....3	
AGB 480 Agribusiness Policy and Government Regulations.....3	
AGB electives or approved courses.....12	
Agribusiness core.....	27
Resource Management prerequisites.....	28
Total.....	73

APPLIED SCIENCE—B.A.S.

The Bachelor of Applied Science degree is a capstone degree for the Associate of Applied Science degree. The B.A.S. 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 B.A.S. degree program is restricted to students holding an A.A.S. degree from a regionally accredited U.S. postsecondary educational institution. A GPA 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 91.

MORRISON SCHOOL OF AGRIBUSINESS AND RESOURCE MANAGEMENT

2.00 or higher is required for all resident applicants and 2.50 for nonresident applicants.

B.A.S. Degree Graduation Requirements

The B.A.S. 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.

A.A.S. degree	60
Assignable credit	6
B.A.S. core	16
Concentration	19
General Studies	19
Total	120

General Studies Curriculum. The B.A.S. curriculum builds on the general education content of the A.A.S. 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.

B.A.S. Core

AGB 310 Agribusiness Management I	3
AGB 320 Agribusiness Marketing I	3
AGB 360 Agribusiness Statistics <i>CS</i>	3
AGB 414 Agribusiness Analysis <i>L</i>	3
AGB 460 Agribusiness Management Systems	4
Total	16

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 Retailing Concentration. A student studying food retailing 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 Retailing

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

Resource Team Specialist Concentration. The resource team specialist concentration combines the technical preparation acquired in an A.A.S. program with a special orientation in environmental and resource management. This concentration prepares individuals to participate as an integral part of an environmental emergency response team as well as postemergency biological and environmental rehabilitation efforts.

Resource Team Specialist

AGB 332 Agribusiness Finance I	3
AGB 457 Resource Policy and Sustainability	3
AGB 484 Internship	1
ETM 301 Environmental Management	3
ETM 303 Environmental Regulations	3
AGB electives	6
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

Assistant Professors: Eaves, Hughner, Manfredo, Schmitz

Senior Lecturer: Odom

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.

MORRISON SCHOOL OF AGRIBUSINESS AND RESOURCE MANAGEMENT

AGB 191 First-Year Seminar. (1–3)

selected semesters

AGB 194 Special Topics. (1–4)

selected semesters

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 334 Agricultural Commodities. (3)

fall

Trading on futures markets. Emphasis on the hedging practices with grains and meats. Fee. Prerequisite: AGB 320.

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).

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

MORRISON SCHOOL OF AGRIBUSINESS AND RESOURCE MANAGEMENT

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 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.

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.



ASU East campus continues to expand its programs and add new facilities.

Tim Trumble photo

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 Introduction to GPTP. (2)

fall and spring

Introduces the golf professional training program. Career enhancement, rules of golf, tournament operations, and playing professional development programs. 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.

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 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 200 GPTP II. (2)

fall

Focuses on golf professional training program and the completion of the PGA Level One experience kit. 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 266 Golf Course Irrigation. (3)

fall and spring

Design, management, and maintenance of golf course irrigation systems.

PGM 300 GPTP III. (1)

fall

Business planning and operations, business communications related to business of golf. Completion of the PGA Level Two experience kit. 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 366 Golf Turf Management. (3)

fall and spring

Selection, establishment, and maintenance of turf grasses bred specifically for golf greens, fairways, and roughs. Lecture, lab.

PGM 367 Golf Course Landscape Plants and Design. (3)

fall and spring

Identification, culture, and use of plants in a golf course setting. Fee.

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 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

East College

www.east.asu.edu/ecollege

Glenn W. Irvin, Ph.D., Dean

PURPOSE

East College offers a variety of liberal and professional programs. Baccalaureate programs are offered in applied biological sciences, applied psychology, business administration, elementary 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 ASU East 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 ASU East each semester. All credit earned at ASU East automatically transfers to ASU Main or ASU West.

Students who begin their college careers at ASU East benefit from the small, residential campus environment. If they are uncertain about a major they can declare East College/No Preference 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 No Preference majors. East College provides advising to No Preference 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 (B.A.S.) degree. The applied science core (ASC) courses are upper division and specifically designed to build upon the mathematics and science base acquired in the Associate of Applied Science (A.A.S.) 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: B.A.S. 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: B.A.S. 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: B.A.S. 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: B.A.S. major.

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: B.A.S. major.

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 ASU East, is coordinated through East College. Through this partnership, ASU East students take first-year composition courses and courses that meet lower-division ASU General Studies requirements. They are listed in ["General Studies," page 91.](#) 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 615.](#) For graduate degrees, see the ["East College Graduate Degrees and Majors" table, page 615.](#)

East College also offers certificate programs in Multimedia Writing and Technical Communication; minors in Applied Biological Sciences, Applied Psychology, Food and Nutrition Management, Human Nutrition, Small Business, and Wellness Foundations; and concentrations for the B.A.S. See the *Graduate Catalog* for more information about graduate programs.

East College Baccalaureate Degrees and Majors

Major	Degree	Concentration*	Administered By
Applied Biological Sciences	B.S.	Applied biological sciences, applied biological sciences/secondary education, ecological restoration, urban horticulture, or wildlife habitat management	Department of Applied Biological Sciences
Applied Psychology	B.S.	—	East College
Applied Science	B.A.S.	Food service management, multimedia writing and technical communication, or wellness	East College
Business Administration	B.S.	—	East College
Elementary Education	B.A.E.	—	East College
Exercise and Wellness	B.S.	Exercise and wellness or health promotion	Department of Exercise and Wellness
Human Health Studies	B.A., B.S.	—	East College
Interdisciplinary Studies	B.I.S.	See the “ B.I.S. Concentrations ” table, page 125.	Bachelor of Interdisciplinary Studies Advisory Committee
Multimedia Writing and Technical Communication	B.S.	—	East College
Nursing	B.S.N.	—	College of Nursing (ASU Main)
Nutrition	B.S.	Dietetics, food and nutrition management, or human nutrition	Department of Nutrition

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

East College Graduate Degrees and Majors

Major	Degree	Concentration*	Administered By
Applied Psychology	M.S.	—	East College
Curriculum and Instruction*	Ph.D.	Exercise and wellness education	Interdisciplinary Committee on Curriculum and Instruction
Environmental Design and Planning*	Ph.D.	Design; history, theory and criticism; or planning	Committee on Environmental Design and Planning
Environmental Resources	M.S.	GIS/remote sensing, natural resource management, or range ecology	Department of Applied Biological Sciences
Exercise and Wellness	M.S.	—	Department of Exercise and Wellness
Nutrition	M.S.	—	Department of Nutrition

* Doctoral courses for this interdisciplinary program administered by ASU Main are offered at ASU East.

INTERDISCIPLINARY STUDIES—B.I.S.

The Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take an active role in creating their educational plans and defining their career goals. The B.I.S. 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 B.I.S. as their major in East College at ASU East take their core courses and at least one concentration through ASU East. The second concentration may be taken at ASU Main or ASU East. The B.I.S. core courses are offered by East College. Concentrations at ASU East are offered by East Col-

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See “[General Studies](#),” page 91.

lege, the College of Technology and Applied Sciences, and the Morrison School of Agribusiness and Resource Management. Students interested in the B.I.S. program should arrange an appointment with an East College advisor at 480/727-1333 before declaring the B.I.S. major.

Basic Requirements

The B.I.S. 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 Principles	3
BIS 401 Applied Interdisciplinary Studies	3
BIS 402 Senior Seminar L.....	3
Total	12

For course descriptions, see “**Bachelor of Interdisciplinary Studies,**” page 124.

Other Requirements

In addition to the basic requirements, students must complete all university requirements, including First-Year Composition and General Studies. Early advising is recommended to ensure that students meet requirements efficiently and optimize their choices.

Declaring the B.I.S. Major

Students must receive approval from an East College advisor before declaring the B.I.S. 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-B.I.S. 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, Stutz

Associate Professors: Green, Martin, Miller, Steele, Whysong

Assistant Professor: Marcum

Lecturer: Lefler

APPLIED BIOLOGICAL SCIENCES—B.S.

The B.S. degree in Applied Biological Sciences is designed to prepare professionals and scholars for careers in the biological sciences. Because of the large diversity 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.

The goal of the program is to ensure that all students know basic biological principles and the supporting sciences appropriate to each concentration. Concentrations are designed to be flexible to allow students to pursue specialized interests.

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, call 480/727-1444, or send e-mail to appliedbiologicalsciences@asu.edu.

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 91. It is strongly recommended that students work with an academic advisor when selecting courses to meet the General Studies requirement since oth-

erwise 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 150 Environmental Biology.....	3
ABS 301 Technology and Biology	2
ABS 302 Policy and Biology	2
ABS 312 Structure and Function.....	4
ABS 350 Applied Statistics.....	3
or equivalent CS	
BIO 187 General Biology I <i>SG</i>	4
BIO 188 General Biology II <i>SQ</i>	4
BIO 340 General Genetics.....	4
or BIO 360 Animal Physiology (3)	
or PLB 308 Plant Physiology (4)	
MAT 210 Brief Calculus <i>MA</i>	3
Total	29–30

Students majoring in Applied Biological Sciences must select one of the concentrations listed below.

Applied Biological Sciences Concentration

A general background in the biological sciences and associated sciences is provided in the applied biological sciences concentration. This concentration is appropriate for students seeking an education rich in the liberal arts. It is designed to provide maximum flexibility to meet specific student interests. Students intending to pursue research careers in biology and postgraduate studies may also 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.

General Concentration General Studies Requirements.

For students choosing the general concentration, the following courses must also be used as General Studies courses to graduate without exceeding 120 semester hours:

ABS 350 Applied Statistics or equivalent CS (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 Concentration

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
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)

Choose between the physics course combinations 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> ³ (1)
PHY 114 General Physics Laboratory <i>SQ</i> ³ (1)

Approved electives in biology and science.....27
(At least 15 semester hours must be upper-division ABS courses)

Total

- ¹ Both CHM 231 and 235 must be taken to secure SQ credit.
- ² Both PHY 111 and 112 must be taken to secure SQ credit.
- ³ Both PHY 111 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—B.S. Secondary Education Concentration,” page 625, for application requirements.

Secondary Education Concentration General Studies Requirement.

For students choosing the secondary education concentration, the following courses must be used as General Studies courses in order to graduate in 120 hours:

ABS 350 Applied Statistics or equivalent CS.....	3
BIO 187 General Biology I <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>SQ</i> *.....	3
MIC 206 Microbiology Laboratory <i>SQ</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 SQ credit.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

EAST COLLEGE

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	3
EDP 310	Educational Psychology <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</i>	3

Ecological Restoration Concentration

The ecological restoration concentration focuses on rehabilitation and management practices that improve the ecological structure and function of degraded ecosystems. Restoration activities may involve all ecosystem components, including soils, water, vegetation, and wildlife. The goals of restoration are to restore ecological integrity and to meet societal needs for sustainable and functional ecosystems. The restoration process includes identifying the causes of degradation, devising methods and goals for the restoration effort, developing management strategies for restoring sites, monitoring changes at sites and assessing restoration success.

For students choosing the Ecological Restoration Concentration, the following courses from the ABS and Ecological Restoration Cores must also 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 Requirements

ABS 207	Applied Plant Taxonomy	3
ABS 225	Soils	3
ABS 226	Soils Laboratory	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>	3

Ecological Restoration Requirements

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 (3)
ABS 476	Big Game Habitat Management (3)
ABS 481	Riparian and Wetland Restoration (3)
ABS 486	Introduction to Remote Sensing (4)

Urban Horticulture Concentration

Urban horticulture focuses on the relationship of plants and people in cities with an emphasis on the biology of plants applied to human landscapes. Urban horticulture students learn and practice principles that create pleasing environments in which people work and live. Urban horticulture graduates are qualified to plan or manage environmentally sustainable amenity landscapes or grow amenity trees, shrubs and ground covers, turf, and bedding plants. Students also gain expertise in plant identification, plant propagation, irrigation, fertilization, and pest management, as well as urban forestry and horticultural education.

Urban Horticulture Concentration

ABS 225	Soils	3
ABS 226	Soils Laboratory	1
ABS 260	Fundamentals of Urban Horticulture <i>SG</i>	4
ABS 362	Landscape Plants	4
ABS 363	Landscape Practices	4
ABS 364	Urban Forestry	4
ABS 462	Greenhouse/Nursery Management	4
	or ABS 463 Sports and Recreational Turf (3)	

Choose one of the three courses below:

ABS 465	Senior Enterprise Project (3)	
ABS 484	Internship (3)	
ABS 492	Honors Directed Study (3)	
CHM 101	Introductory Chemistry <i>SQ</i>	4
CHM 231	Elementary Organic Chemistry <i>SQ</i>	3
PLB 414	Plant Pathology <i>L</i>	3
	or PGM 466 Integrated Pest Control (2)	
	Approved upper-division electives	6
Total		40–44

Wildlife Habitat Management Concentration

The wildlife habitat management concentration focuses on the relationships between wildlife, ecology, and habitat management. This study requires an understanding of the interrelations between the environment, vegetation, and wildlife. The goal of wildlife habitat management is to create conditions that ensure sustainable wildlife populations. Achieving this goal requires identification of existing wildlife populations, educational wildlife habitat quality, improvement of habitat for wildlife populations, and the monitoring of wildlife populations for future generations.

Wildlife Habitat Concentration General Studies

Requirements. For students choosing the wildlife habitat concentration, the following courses from the ABS and Wildlife Habitat Cores must also 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

Wildlife Habitat Management Concentration

Select from the following list, or courses approved by advisor:

ABS 207 Applied Plant Taxonomy	3
ABS 355 Vertebrate Zoology	4
ABS 370 Ecology	3
ABS 374 Introduction to Wildlife Management	3
ABS 376 Wildlife Ecology	3
ABS 402 Vegetation and Wildlife Measurement	3
ABS 440 Ecological Restoration Techniques	3
ABS 480 Ecosystem Management and Planning <i>L</i>	3
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>	3
Total	36

Wildlife Supporting Courses

Select 12 semester hours from the following list, or courses approved by advisor:

ABS 375 Conservation Biology	3
ABS 378 Wildlife Nutrition	3
ABS 470 Mammalogy	4
ABS 471 Ornithology	3
ABS 475 Habitat Management for Small Wildlife	3
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 <i>L</i>	3
BIO 426 Limnology <i>L</i>	4
BIO 473 Ichthyology	3
BIO 474 Herpetology	3
Total	39

Habitat Supporting Courses

Select 12 semester hours from the following list, or courses approved by advisor:

ABS 225 Soils	3
ABS 226 Soils Laboratory	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	3
Total	32

B.I.S. CONCENTRATION

A concentration in applied biological sciences is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

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 the life sciences.

GRADUATE PROGRAMS

Faculty associated with the Applied Biological Sciences program also offer programs leading to M.S. degrees in Environmental Resources and Plant Biology. The selected faculty also participate with the Graduate College and the Colleges of Architecture and Environmental Design and Liberal Arts and Sciences in programs leading to Ph.D. degrees in Environmental Design and Planning, with a concentration in Planning, and a Ph.D. 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 course descriptions, see “[School of Life Sciences](#),” page 400.

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 150 Environmental Biology. (3)

spring

Applies biological sciences to environmental issues. Includes ecological, historical, and global perspectives on environmental conservation.

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).

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.

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

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See “[General Studies](#),” page 91.

EAST COLLEGE

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 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. (4)

spring

Identification, design, culture, and use of woody and herbaceous plants in urban landscapes. 3 hours lecture, 3 hours lab. Fee. Prerequisite: ABS 260 (or its equivalent).

ABS 363 Landscape Practices. (4)

fall

Installation, irrigation, and maintenance of amenity plants in urban landscapes with an emphasis on integrated environmental landscape technologies. 3 hours lecture, 3 hours lab. Fee. Prerequisite: ABS 260 (or its equivalent).

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.

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, 1 weekend field trip. 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. (3)

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 Sports and Recreational Turf. (3)

fall and spring

Maintenance and operation of large areas such as golf courses, athletic fields, and park areas. Prerequisite: ABS 260 (or its equivalent).

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. (3)

fall

Habitat management considerations and practices for small game and nongame wildlife species in North America. Lecture, 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.

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—B.S.

This major offers a traditional psychology core leading to graduate school preparation and/or to applications in human factors with emphasis on human-computer interaction, aviation, or manufacturing. Although most careers in psychology require graduate training, there are some employment opportunities for B.S. 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 ASU East programs such as manufacturing engineering technology, aeronautical management technology, industrial technology, and business administration.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 91.

Graduation Requirements

The completion of 120 semester hours—including First-Year Composition, General Studies (see “General Studies,” page 91), and major requirements—leads to the B.S. degree. The major allows for at least 21 semester hours of electives. The major requirements for the B.S. degree in Applied Psychology consist of a 28-semester-hour core of psychology courses, 12 semester hours in applied psychology, and 18 semester hours of related course work.

Core Courses. Core courses provide a general background in the basic scientific areas of psychology and provide a culminating experience to integrate the varied studies.

PGS 101 Introduction to Psychology SB.....	3
PGS 350 Social Psychology SB	3
PSY 230 Introduction to Statistics CS.....	3
PSY 290 Research Methods L/SG.....	4
PSY 323 Sensation and Perception	3
PSY 324 Memory and Cognition.....	3
PSY 325 Physiological Psychology	3
PSY 330 Statistical Methods CS.....	3
PSY 477 Applied Psychology Capstone Experience*	3
or HON 493 Honors Thesis (3)	
Total	28

* This PSY course is offered only by ASU East. All other PSY courses listed above are offered by ASU East and ASU Main.

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:

AMT 410 Aviation Safety and Human Factors	3
PGS 471 Psychological Testing	3
PSY 320 Learning and Motivation.....	3
PSY 360 Cognitive Science*	3
PSY 390 Experimental Psychology L.....	3
PSY 437 Human Factors L.....	3
PSY 438 Human-Computer Interaction*	3
PSY 439 Training and Skill Acquisition*	3
PSY 440 Industrial/Organizational Psychology*.....	3
PSY 448 Human Factors in Transportation*.....	3
PSY 449 Human Factors in Sport*	3
PSY 494 Special Topics	1-4

* This PSY course is offered only by ASU East. All other PSY courses listed above are offered by ASU East and ASU Main.

Related Course Work

BIO course with a lab	4
MAT 210 Brief Calculus MA.....	3
or a higher MAT course (3)	
Computer skills course.....	3
Writing skills course	3
Courses selected in consultation with an advisor	5
Total	18

Minor in Applied Psychology

The minor in applied psychology consists of 22 semester hours with at least 12 being upper-division courses. The following are required courses that must be completed with a grade of “C” (2.00) or higher:

PGS 101 Introduction to Psychology SB.....	3
PSY 230 Introduction to Statistics CS.....	3
or equivalent statistics course	
PSY 290 Research Methods L/SG.....	4
PSY 437 Human Factors	3
or PSY 438 Human-Computer Interaction* (3)	
or PSY 440 Industrial/Organizational Psychology* (3)	
Additional hours of upper-division PSY and/or PGS courses	9

* This PSY course is offered only by ASU East. All other PSY courses listed above are offered by ASU East and ASU Main.

A maximum of three semester hours from the following courses can be used to satisfy minor requirements:

PGS 399 Supervised Research	3
PGS 499 Individualized Instruction	3
or PSY 499 Individualized Instruction (3)	
PSY 492 Honors Directed Study.....	3

Note: A minimum of three classes (two of which are in the upper division) must be taken in residence at ASU.

For more information about program requirements and courses, call an East College advisor at 480/727-1515, or access the Web site at www.east.asu.edu/ecollege/appliedpsych.

For PGS courses and additional PSY courses, see “Department of Psychology,” page 437.

PSYCHOLOGY (SCIENCE AND MATHEMATICS) (PSY)

The courses listed are offered by only ASU East. For more PSY courses that may be offered by ASU East, see “Department of Psychology” under “College of Liberal Arts and Sciences.”

E PSY 360 Cognitive Science. (3)

once a year

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, spring, summer
 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: Hutt, Patterson, Richards

Assistant Professors: Manfredo, Skilton

Senior Lecturer: Watson

BUSINESS ADMINISTRATION—B.S.

The B.S. 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 ASU Main 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 91).

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 ASU East.

Business Administration Core

BUA 394 ST: Professional Development.....	1
FIN 300 Fundamentals of Finance	3
IBS 300 Principles of International Business G.....	3
LES 305 Legal, Ethical, and Regulatory Issues in Business.....	3

MGT 300 Organizational Management and Leadership	3
MKT 300 Principles of Marketing.....	3
SCM 300 Global Supply Operations.....	3
TWC 447 Business Reports L.....	3
Total	22

Capstone Course (Three Semester Hours)

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

Approved Electives (18 Semester Hours)

Total	18
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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 ASU East 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 an East College advisor at 480/727-1515, or access the Web site at www.east.asu.edu/ecollege/businessadmin.

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

B.I.S. Concentration in Small Business (B.I.S. Majors Only)

The requirements for the small business concentration are identical to those for the minor in Small Business listed above. For B.I.S. degree requirements, see “Bachelor of Interdisciplinary Studies,” page 123.

BUSINESS ADMINISTRATION (BUA)

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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

EAST COLLEGE

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)

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

Professor: Bergeron

Assistant Professor: White-Taylor

Senior Lecturers: Stever, Wenhart

Lecturers: Foley, Gomez, Gryder, Hopper, Prest

ELEMENTARY EDUCATION—B.A.E.

Program Overview

The Elementary Education program at ASU East 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 ASU 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 91) 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 ASU East Elementary Education program before enrolling in the Professional Preparation Program courses (Blocks I–IV).

Foundations (15 semester hours)*

ECD 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</i> ...	3

* For foundation courses, see “[College of Education](#),” page 189.

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 350	Educational Technology I: Applications	1
EDC 351	Educational Technology II: Instruction and Evaluation	1
EDC 352	Educational Technology III: Design	1
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, postbaccala-

laureate students also have the option of an accelerated program. For more information, call 480/727-1103.

Application. Applications for the ASU 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 ASU East;
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 ASU East 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 ASU East 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.

Advising Information. It is important for all students to work closely with an ASU East academic advisor to ensure that their overall curriculum is coherent and best reflects their unique academic talents. 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 ASU East Teacher Education Office at 480/727-1103, or the prospective student advisor at 480/727-1745.

Applied Biological Sciences–B.S. 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 617. 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 91). Courses specific to the applied biological sciences/secondary education concentration are outlined below:

Applied Biological Sciences Core

ABS 150 Environmental Biology	3
ABS 301 Technology and Biology	2
ABS 302 Policy and Biology	2
ABS 312 Structure and Function	4
ABS 350 Applied Statistics CS*	3
BIO 187 General Biology I <i>SG</i>	4
BIO 188 General Biology II <i>SQ</i>	4
BIO 340 General Genetics	4
BIO 360 Animal Physiology	3
or PLB 308 Plant Physiology (4)	
MAT 210 Brief Calculus <i>MA</i>	3

* An equivalent course may be taken in place of ABS 350.

For students choosing the secondary education concentration, the following courses must be used as General Studies courses in order to graduate in 120 hours:

ABS 350 Applied Statistics CS ¹	3
BIO 187 General Biology I <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 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 <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

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See “**General Studies**,” page 91.

EAST COLLEGE

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 Culturally Diverse Child C.....	3
SPE 311 Orientation to Education of Exceptional Children SB ...	3

Application

Students interested in pursuing the applied biological sciences/secondary education concentration need to be admitted into the Teacher 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 ASU East. 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 ASU East 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 advisement 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 ASU East Teacher 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.

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 ASU 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 ASU 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 ASU 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. 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 ASU 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 ASU 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. Prerequisites: 2.50 GPA; completion of professional course sequence; approval of ASU 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 ASU 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 ASU 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.

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

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 91.

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

Lecturer: Woodruff

EXERCISE AND WELLNESS—B.S.

The B.S. 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 91.

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
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	6
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	27

* 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.

WELLNESS FOUNDATIONS MINOR

The minor in Wellness Foundations is appropriate for students in the B.I.S. 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.

B.I.S. CONCENTRATION

A concentration in wellness foundations is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies,](#)” page 123.

APPLIED SCIENCE—B.A.S.

The Bachelor of Applied Science (B.A.S.) degree is a capstone degree for the Associate of Applied Science (A.A.S.) degree. The B.A.S. 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 B.A.S. degree program is restricted to students holding an A.A.S. 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.

B.A.S. Degree Graduation Requirements

The B.A.S. 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.

A.A.S. degree.....	60
Assignable credit.....	5
B.A.S. core.....	15
Concentration	21
General Studies	19
Total	120

General Studies Curriculum. The B.A.S. curriculum builds on the general education content of the A.A.S. 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.

B.A.S. 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

GRADUATE PROGRAMS

The faculty in the Department of Exercise and Wellness offer programs leading to the M.S. degree in Exercise and Wellness. The department also participates with the Graduate College and College of Education in the program leading to the Ph.D. 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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “[General Studies,](#)” page 91.

EAST COLLEGE

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 to students who have credit for EXW 325.

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 which 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. 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 cultural and social issues in physical activity. Focus on theories of social behavior, racial, ethnic, and cultural differences. Prerequisite: PGS 101.

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.

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.

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

480/727-1065

CLRB 102

William L. Mermis, Faculty Head

HUMAN HEALTH STUDIES—B.A. AND B.S.

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 B.S. program.

Graduation Requirements

To graduate with either a B.A. or a B.S. 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 B.A. and B.S. 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 B.A. and B.S. programs lies in the mathematics and science requirements. Both B.A. and B.S. students must take one semester of general biology with a lab and two semesters of human anatomy and physiology with labs. The B.S. program requires additional mathematics courses (through brief calculus) and the following science courses:

CHM 113 General Chemistry SQ	4
CHM 116 General Chemistry SQ	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 SQ*	3
PHY 112 General Physics SQ*	3

PHY 113 General Physics Laboratory SQ*	1
PHY 114 General Physics Laboratory SQ*	1

* Both PHY 111 and 113 or 112 and 114 must be taken to secure SQ credit.

HUMAN HEALTH STUDIES (HHS)

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 91.

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: Barchilon

MULTIMEDIA WRITING AND TECHNICAL COMMUNICATION—B.S.

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 B.S. 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—B.A.S.

A Bachelor of Applied Science is also offered with a concentration in multimedia writing and technical communication. The B.A.S. degree is a “capstone” degree for the Associate of Applied Science degree. The B.A.S. 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 B.A.S. degree program is restricted to students holding an A.A.S. 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 A.A.S. degree, the B.A.S. 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
B.A.S. core	15
General Studies	19
MWTC concentration	20
Total	60

General Studies Curriculum. The B.A.S. curriculum builds on the general education content of the A.A.S. 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.

B.A.S. 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 the East College advisor at 480/727-1515, or access the Web site at www.east.asu.edu/ecollege/multimedia.

B.I.S. CONCENTRATION

A concentration in multimedia writing and technical communication is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

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

TWC 484 Internship. (3)
fall and spring
Applies classroom work in a supervised workplace environment. Pre- or corequisite: TWC 411 or 421 or 431.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “[General Studies](#),” page 91.

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 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: Hampl

Assistant Professors: Hutchins, Winham, Woolf

Lecturers: Dixon, Hall, Shepard

NUTRITION—B.S.

The B.S. degree in Nutrition offers three concentrations: dietetics, human nutrition, and food and nutrition management. 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 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/pre dental program of study. 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.

Accreditation. The B.S. 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.

Human Nutrition Concentration. The following NTR courses are required of all students in the human nutrition concentration:

NTR 142 Applied Food Principles	3
NTR 241 Human Nutrition	3
NTR 340 Applications in Human Nutrition.....	3
NTR 341 Introduction to Planning Therapeutic Diets	3
NTR 440 Advanced Human Nutrition I.....	3
NTR 441 Advanced Human Nutrition II	3
NTR 444 Medical Nutrition Therapy.....	3
NTR 446 Human Nutrition Assessment Lecture/Laboratory	3
Total	24

An additional six semester hours from the Department of Nutrition are required to complete this concentration. A maximum of three semester hours of Independent Study may be used to satisfy this requirement. Students select these courses in consultation with the Nutrition academic advisor.

In addition to the required NTR courses, the following related courses are required in order to complete the academic requirements of this concentration:

BCH 361 Principles of Biochemistry.....	3
BCH 367 Elementary Biochemistry Laboratory.....	1
BIO 201 Human Anatomy and Physiology I <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.

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.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 91.

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 CS.....	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

B.I.S. CONCENTRATIONS

Concentrations in (1) food and nutrition management and (2) human nutrition are available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

APPLIED SCIENCE—B.A.S.

Food Service Management Concentration. The B.A.S. degree with a concentration in food service management is designed to complement and enhance the educational preparation of students holding an A.A.S. degree from a regionally accredited U.S. postsecondary educational institution. The concentration is particularly designed for students holding an A.A.S. 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 B.A.S. degree program is restricted to students holding an A.A.S. 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 B.A.S. 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.

A.A.S. degree	60
Assignable credit.....	6
B.A.S. core.....	15
General Studies	19
Concentration.....	20
Total	120

General Studies Curriculum. The B.A.S. curriculum builds on the general education content of the A.A.S. 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 <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 348 Cultural Aspects of Food <i>SB, C</i>	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***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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

College of Technology and Applied Sciences

www.east.asu.edu/ctas

Albert L. McHenry, Ph.D., 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 B.S. 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 four academic units:

- Department of Aeronautical Management Technology
- Department of Electronics and Computer Engineering Technology
- Department of Information and Management Technology
- Department of Mechanical and Manufacturing Engineering Technology

DEGREE PROGRAMS

See the “College of Technology and Applied Sciences Baccalaureate Degrees and Majors” table, page 639. For graduate degrees, see the “College of Technology and

Applied Sciences Graduate Degrees and Majors” table, page 640.

The College of Technology and Applied Sciences offers programs leading to the B.S. degree and B.A.S. degree. The college also offers the Master of Science in Technology (M.S.T.) degree. For more information on courses, faculty, and programs in the M.S.T. degree, see the *Graduate Catalog*.

ACCREDITATION

Undergraduate B.S. degree programs in Aeronautical Engineering Technology, Electronics Engineering Technology, and Manufacturing 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

NATIONAL ASSOCIATION OF INDUSTRIAL
TECHNOLOGY
3300 WASHTENAW AVENUE SUITE 220
ANN ARBOR MI 48104-4200

ADMISSION—B.S. DEGREE

The College of Technology and Applied Sciences admits first-year students who meet the undergraduate admission requirements of ASU. See “Undergraduate Admission,” page 65. High school precalculus, physics, and chemistry are recommended. Transfer applicants must meet the university requirements for transfer students as

College of Technology and Applied Sciences Baccalaureate Degrees and Majors

Major	Degree	Concentration ¹	Administered By
Aeronautical Management Technology ²	B.S.	Air transportation management or professional flight	Department of Aeronautical Management Technology
Applied Science	B.A.S.	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 Engineering Technology ²	B.S.	Computer hardware technology, embedded systems technology, or software technology	Department of Electronics and Computer Engineering Technology
Electronics Engineering Technology ²	B.S.	Electronic systems, microelectronics, or telecommunications	Department of Electronics and Computer Engineering Technology
Industrial Technology	B.S.	Environmental technology management, graphic information technology, or industrial technology management	Department of Information and Management Technology
Manufacturing Engineering Technology ²	B.S.	Manufacturing engineering technology or mechanical engineering technology	Department of Mechanical and Manufacturing Engineering Technology
Mechanical Engineering Technology ²	B.S.	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.

specified under “**Transfer Credit**,” page 68, with the exception that Arizona resident transfer students must have a 2.25 GPA.

Students admitted to a B.S. degree program in CTAS begin study under one of two student classifications, professional or preprofessional.

Professional Status

First-year students (new freshmen) are 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 are 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 are 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 68. 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.

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. 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 68. Students who are transferring from an Arizona community college and have been in continuous residence may continue under 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 91.

College of Technology and Applied Sciences Graduate Degrees and Majors

Major	Degree	Concentration	Administered By
Technology	M.S.Tech.	Aeronautical engineering technology, manufacturing engineering technology, or mechanical engineering technology	Department of Mechanical and Manufacturing Engineering Technology
		Aviation human factors or aviation management technology	Department of Aeronautical Management Technology
		Computer systems engineering technology, 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, information technology, or management of technology	Department of Information and Management Technology
		Global technology and development or security engineering technology	College of Technology and Applied Sciences

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 ASU East. 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—B.A.S. DEGREE

Admission to the B.A.S. degree program is restricted to students holding an A.A.S. 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 the 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 87, 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.

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 (B.S. 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 discipline is required; for example, completing pertinent courses in the discipline at a community college with higher-than-average grades.

STUDENT RESPONSIBILITIES

Course Prerequisites. Students should consult the *Schedule of Classes* and the catalog for course prerequisites. Students who register for courses without the designated prerequisites may be withdrawn without their consent at any time before the final examination. The instructor, the chair of the department, or the dean of the college may initiate such withdrawals. In such cases, students do not receive monetary reimbursement. Such withdrawals are considered to be unrestricted as described under "**Unrestricted Course Withdrawal**," page 81, and do not count against the number of restricted withdrawals allowed.

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 tech-

nology 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 91.

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.

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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "**General Studies**," page 91.

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 Professors: Karp, Turney

Assistant Professors: Niemczyk, Pearson

Lecturers: O'Brien, Tripp

PURPOSE

Graduates are prepared for entry into the aviation and aerospace 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

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. Admission to the Bachelor of Science professional flight concentration requires an additional admission process. Transfer credits are reviewed by department faculty advisors. To be acceptable for 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.

DEGREES

The faculty in the Department of Aeronautical Management Technology offer a B.S. degree in Aeronautical Management Technology with concentrations in professional flight and air transportation management. A B.A.S. 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 concentrations in aviation management technology and aviation 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—B.S.

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, both of which are accredited by the Council on Aviation Accreditation. 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 91), and the Aeronautical Management Technology Core. Note that all three General Studies awareness areas are required. Consult an advisor for an approved list of courses. Refer to individual concentration degree requirements for additional required courses. Students must complete each Aeronautical Management Technology course with a grade of "C" (2.00) or higher.

Aeronautical Management Technology Core

AMT 101 Introduction to Aeronautical Management Technology	1
AMT 182 Private Pilot Ground School	3
AMT 201 Air Traffic Control	3
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, Performance, and Avionics	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
TWC 400 Technical Communications L	3
Total	38

Professional Flight Concentration

Flight training is certified by the Federal Aviation Administration. Students in the professional flight concentration must pass an FAA medical examination before flying solo. 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 will need to 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 will also include a personal interview. The secondary application deadlines are typically nine months before the beginning of the appropriate semester.

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 intersession and the summer session to complete the program.

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. 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 91), 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	2
AMT 214 Commercial/Instrument Ground School I.....	3
AMT 300 Flight Safety III.....	2
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 489 Airline Administration	3
AMT 496 Airline Aircraft Systems Capstone.....	3
APM 301 Introductory Statistics <i>CS</i>	3
ECN 111 Macroeconomic Principles <i>SB</i>	3
or ECN 112 Microeconomic Principles <i>SB</i> (3)	
PGS 101 Introduction to Psychology <i>SB</i>	3
Technical electives or internship.....	6
Total	49

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
MAT 260 Technical Calculus I <i>MA</i>	3
Total	14

Second Semester

AMT 214 Commercial/Instrument Ground School I.....	3
AMT 322 Commercial/Instrument Ground School II	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	17

* 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.

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 91), and the Aeronautical Management Technology

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF TECHNOLOGY AND APPLIED SCIENCES

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
APM 301 Introductory Statistics <i>CS</i>	3
ECN 111 Macroeconomic Principles <i>SB</i>	3
or ECN 112 Microeconomic Principles <i>SB</i> (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
PGS 101 Introduction to Psychology <i>SB</i>	3
Technical electives or internship.....	7
Total.....	49

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 260 Technical Calculus I <i>MA</i>	3
Total.....	13

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.....	3
Total.....	17

* Both PHY 111 and 113 must be taken to secure *SQ* credit.

APPLIED SCIENCE—B.A.S.

The Bachelor of Applied Science degree is a “capstone” degree for the Associate of Applied Science degree. The B.A.S. 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 B.A.S. degree program is restricted to students holding an A.A.S. 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 B.A.S. 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.A.S. degree.....	60
Assignable credit.....	6
B.A.S. core.....	15

General Studies.....	19
Technical concentration.....	20
Total.....	120

General Studies Curriculum

The B.A.S. curriculum builds on the general education content of the A.A.S. degree. Additional General Studies (*L*, *CS*, and awareness areas) are met with courses in the core concentration. General Studies courses focus on contextual learning.

<i>L</i>	3
<i>MA</i>	3
<i>HU</i>	3
<i>HU</i> or <i>SB</i>	3
<i>SB</i>	3
<i>SG</i>	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.

B.A.S. Core

The area core is focused on management and organization, professional communication, quantitative analysis, and computer competency.

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
STP 420 Introductory Applied Statistics <i>CS</i>	3
TWC 400 Technical Communications <i>L</i>	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 A.A.S. 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 A.A.S. 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 uni-

versity administrative personnel. The Precision Flight Team competes in regional and national flying safety competitions. 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 ASU East 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. (2)

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. (2)

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. Lecture, lab. Fee. Prerequisite: AMT 100 or instructor approval. Pre- or corequisite: AMT 214.

AMT 350 Aircraft Design, Performance, and Avionics. (3)

spring

Fundamentals of aircraft design, turboprop and turbojet performance, principles of electricity, AC/DC circuits, and operation of transport category aircraft avionics systems. 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.

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 ground-side 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 multi-place cockpits. Integrated 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 395 Multiengine Land, Airplane Flight 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. Prerequisite: AMT 391.

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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF TECHNOLOGY AND APPLIED SCIENCES

AMT 400 Flight Safety IV. (1)

fall, spring, summer

Multiengine and crew training and safety briefings. Requires continuous enrollment until completion of rating and multicrew training. Integrated lecture/lab. Fee. See AMT Note 1. Prerequisite: AMT 300. Pre- or corequisite: AMT 387.

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. Prerequisite: junior 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 419 Aviation Logistical Management. (3)

spring

Surveys FAA requirements for personnel and facilities. Topics include parts supply, quality control, product liability, pricing, profitability, and administration. Lecture, lab. Prerequisite: junior standing.

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 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. (3)

fall and spring

Regional jet aircraft systems and flight procedures. Includes theoretical education for regional airline commercial passenger operations. Integrated lecture/lab. Prerequisites: professional pilot major; instructor approval.

AMT 491 Aviation Management Capstone. (3)

spring

Integration and overview of management tools, current business problems and topics related to aviation industry. Group project with industry and government and business partners. 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.

Department of Electronics and Computer Engineering Technology

www.east.asu.edu/ctas/ecet

480/727-1976

SUTTON 140

Timothy E. Lindquist, Chair

Professors: Lindquist, McHenry, Munukutla, Robertson

Associate Professors: Koehnemann, Macia, Millard, Sundararajan, Zeng

Assistant Professor: Gannod

Senior Lecturer: Whitehouse

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 B.S. degree in Electronics Engineering Technology (B.S./EET) and the B.S. degree in Computer Engineering Technology (B.S./CET).

For students holding an A.A.S. degree, the department offers the B.A.S. degree with a major in Applied Science. Five concentrations are available: computer systems administration, instrumentation, microcomputer systems, semi-

conductor technology, and software technology applications.

A Master of Science in Technology degree program with concentrations in electronic systems engineering technology, computer systems engineering technology, instrumentation and measurement technology, and microelectronics engineering technology is available for qualified B.S. graduates. See the *Graduate Catalog* for more information.

Electronics Engineering Technology—B.S.

Students interested in the B.S. 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 91) 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 B.S./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—B.S. 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
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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “**General Studies,**” page 91.

COLLEGE OF TECHNOLOGY AND APPLIED SCIENCES

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.

COMPUTER ENGINEERING TECHNOLOGY— B.S. DEGREE REQUIREMENTS

Students interested in the B.S. degree in Computer Engineering Technology (B.S./CET) 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 systems that involve both software and hardware components. This concentration balances the hardware concerns of computer engineering with the pro-

cesses 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 requirement. In addition, the following courses are required.

Lower-Division Core

CET 100 Object-Oriented Software Development I	3
CET 150 Digital Systems I CS	4
CET 200 Object-Oriented Software Development II	3
EET 208 Electric Circuit Analysis I.....	4
ETC 100 Languages of Technology CS	4
Core total.....	18

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 494 ST: Applied Software Process..... or UET 415 Electronic Manufacturing Engineering Principles (3)	3
EET 396 Professional Orientation.....	1
Total	18

Computer Hardware Technology Concentration

CET 350 Digital Systems II	4
CET 452 Digital Logic Applications.....	4
CET 456 Assembly Language Applications.....	3
CET 458 Digital Computer Networks.....	3
CET 473 Digital/Data Communications	4
CET 486 Hardware Description Languages: VHDL.....	3
EET 301 Electric Circuit Analysis II.....	4
EET 310 Electronic Circuits I.....	4
EET 372 Communication Systems	4
EET 401 Digital Signal Processing for Multimedia.....	3
Technical electives	9
Total	45

Embedded Systems Technology Concentration

CET 230 Applied Data Structures.....	3
CET 350 Digital Systems II	4
CET 386 Operating Systems Principles	3
CET 420 Foundations of Distributed Web-Based Applications in Java	3
CET 452 Digital Logic Applications.....	4
CET 456 Assembly Language Applications.....	3
CET 458 Digital Computer Networks..... or CET 459 Internet Networking Protocols (3)	3
CET 486 Hardware Description Languages: VHDL.....	3
EET 301 Electric Circuit Analysis II.....	4
EET 401 Digital Signal Processing for Multimedia.....	3
Technical electives	12
Total	45

Software Technology Concentration

CET 230 Applied Data Structures.....	3
CET 386 Operating Systems Principles	3
CET 400 Software Engineering Technology.....	3

DEPARTMENT OF ELECTRONICS AND COMPUTER ENGINEERING TECHNOLOGY

CET 420 Foundations of Distributed Web-Based Applications in Java	3
Choose two of the following courses	6
CET 425 Server Software Programming	3
CET 427 Distributed Object Systems	3
CET 428 Web-Client User Interface Programming	3
CET 433 Database Technology	3
CET 441 Software for Personal Digital Assistants	3
CET 459 Internet Networking Protocols	3
CET 488 Systems Administration of UNIX	3
CET 489 Network Administration with TCP/IP	3
Technical electives	15
Total	45

Computer 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 260 Technical Calculus I MA	3
PHY 111 General Physics SQ ¹	3
PHY 113 General Physics Laboratory SQ ¹	1
HU, SB, or awareness area course	3
Total	17

Second Semester

CET 100 Object-Oriented Software Development I	3
CET 150 Digital Systems I CS	4
ENG 102 First-Year Composition	3
MAT 261 Technical Calculus II MA	3
PHY 112 General Physics SQ ²	3
PHY 114 General Physics Laboratory SQ ²	1
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 SB	3
MAT 243 Discrete Mathematical Structures	3
Total	16

Second Semester

CET 230 Applied Data Structures	3
CET 326 Programming Languages for Technology with C/C++ and Visual BASIC	4
CET 386 Operating Systems Principles	3
ECE 380 Probability and Statistics for Engineering Problem Solving CS	3
EET 208 Electric Circuit Analysis I	4
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—B.A.S.

The Bachelor of Applied Science degree is a “capstone” degree for the Associate of Applied Science degree. The B.A.S. 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 B.A.S. concentrations offered by the Department of Electronics and Computer Engineering Technology should have an A.A.S. in electronics technology or computer programming.

Admission

Admission to the B.A.S. degree program is restricted to students holding an A.A.S. 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 B.A.S. 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.

A.A.S. degree	60
Assignable credit	6
B.A.S. core	15
General Studies	19
Technical concentration	20
Total	120

General Studies Curriculum

The B.A.S. curriculum builds on the general education content of the A.A.S. 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 the prerequisite courses needed to succeed in the program. The courses are determined by the student and the advisor.

B.A.S. Core

The area core focuses on management and organization, professional communication, quantitative analysis, and computer competency. The B.A.S. core consists of five courses and varies depending upon concentration.

B.A.S. Core

CET 354 Microcomputer Architecture and Programming	4
CET 386 Operating Systems Principles	3
EET 494 ST: Data Analysis	3
IMC 346 Management Dynamics	3
TWC 400 Technical Communications L	3
Total	16

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

Technical Concentrations

Computer Systems Administration. This concentration is designed to broaden and provide more in-depth knowledge in computer administration. Graduates from this concentration will be prepared to specify, install, maintain, and administer various computer and networking systems.

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.

Microcomputer Systems. This concentration prepares graduates for product specification and marketing positions in microcomputer applications. The B.A.S. degree provides additional technical skills in microcomputer systems to prepare graduates for responsible and productive positions in the support of computer systems.

Semiconductor Technology. This concentration prepares graduates for careers in the semiconductor industry. The B.A.S. degree provides graduates with an understanding of integrated circuit processing, mask making, packaging, and the software tools used in this industry.

Software Technology Applications. This concentration prepares graduates for careers in the software industry. The B.A.S. degree furnishes additional technical expertise in software technology to prepare graduates to design, specify, and provide software solutions for industry and the consumer market.

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.

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 386 Operating Systems Principles. (3)

spring
Fundamentals of operating systems, process management, scheduling and synchronization techniques, memory and file management, protection and security issues. Prerequisite: CET 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.

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, 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, markup 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.

DEPARTMENT OF ELECTRONICS AND COMPUTER ENGINEERING TECHNOLOGY

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 456 Assembly Language Applications. (3)

fall

Programming using BIOS and DOS routines. High-level language interfacing. Disk operations, TSR routines, and device drivers. Prerequisite: CET 354.

CET 457 Microcomputer Systems Interfacing. (4)

spring

Applications of microcomputer hardware and software. Special purpose controllers, interface design. Lecture, lab. Prerequisites: CET 354; EET 310.

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, 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.

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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF TECHNOLOGY AND APPLIED SCIENCES

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

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. 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.

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 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, Peterson

Assistant Professor: Kime

Senior Lecturer: Wilson

Lecturers: Dolin, Harris, Lestar

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 B.S. 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

For students holding an A.A.S. degree the department offers the B.A.S. 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 four concentrations for the graduate degree: environmental technology management, fire service administration, graphic information technology, and management of technology. For more information about the graduate program, see the *Graduate Catalog*.

INDUSTRIAL TECHNOLOGY—B.S.

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.

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 233 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

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 B.S. 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.

B.I.S. CONCENTRATION

A concentration in hazardous materials and waste management is available under the Bachelor of Interdisciplinary Studies (B.I.S.) 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 B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see “[Bachelor of Interdisciplinary Studies](#),” page 123.

APPLIED SCIENCE—B.A.S.

The Bachelor of Applied Science (B.A.S.) degree is a “capstone” degree for the Associate of Applied Science degree. The B.A.S. 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 B.A.S. degree program is restricted to students holding an A.A.S. 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 B.A.S. 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.A.S. degree	60
Assignable credit.....	6
B.A.S. core.....	15

General Studies	19
Technical concentration	20
Total	120

General Studies Curriculum

The B.A.S. curriculum builds on the general education content of the A.A.S. 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.

B.A.S. Core

The area core focuses on management and organization, professional communication, quantitative analysis, and computer competency.

GIT 335 Computer Systems Technology	3
IMC 346 Management Dynamics	3
ITM 452 Industrial Human Resource Management.....	3
or IMC 470 Project Management (3)	
MET 401 Quality Assurance	3
or STP 420 Introductory Applied Statistics CS (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 B.A.S. 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 A.A.S. 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. A.A.S. 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. A.A.S. 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 (B.S. and B.A.S.) 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 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.

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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF TECHNOLOGY AND APPLIED SCIENCES

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 233 Digital Publishing. (3)

fall and spring

Introduces software and hardware used for digital publishing and infographics. Integrated lecture/lab. Pre- or corequisites: GIT 135, 210.

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 233.

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.

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 233.

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 233.

GIT 352 Technical Presentations. (3)

spring

Technologies for planning, creating, and delivering individual and group presentations. Prerequisites: ENG 102; GIT 233.

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.

ENVIRONMENTAL TECHNOLOGY MANAGEMENT (ETM)

ETM 301 Environmental Management. (3)

fall

Focuses on knowledge and skills necessary to manage environmental programs. Perspectives include regulatory, individual, corporate, and consulting. Pre- or corequisites: CHM 113; MAT 170.

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)

fall and spring

Explores environmental laws, regulations, and directives. Addresses air, land, and water. Prerequisite: ETM 301.

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)

fall and spring

Definition of hazardous waste, RCRA classification, and OSHA criteria. Overview of requirements and methods of waste management. Prerequisite: ETM 301.

ETM 402 Unit Treatment Technologies. (3)

spring

Addresses various treatment technologies for contaminated air, water, and soil. Emphasizes design based upon medium, type of contamination, and concentration. Prerequisite: ETM 302.

ETM 406 Environmental Chemistry. (3)

fall and spring

Examines reactions, transport, and fates of hazardous chemicals in water, soil, air, and living organisms. Prerequisites: both CHM 113 and 115 or only CHM 114; 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)

summer

Emphasizes technological and economic pressures experienced by developing countries. Prerequisite: ETM 301.

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 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF TECHNOLOGY AND APPLIED SCIENCES

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 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 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 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.

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, anti-trust, 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 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 opportuni-

ties 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 B.S. degree in Manufacturing Engineering Technology and the B.S. degree in Aeronautical Engineering Technology are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc. (See “Accreditation,” page 638, for more information.)

DEGREES

The Department of Mechanical and Manufacturing Engineering Technology offers the B.S. degree in Manufacturing Engineering Technology and the B.S. degree in Mechanical Engineering Technology.

For students holding an A.A.S. degree, the department offers the B.A.S. 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.

B.S. 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 91), and the Engineering Technology Core. Note that 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—B.S.

The B.S. 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 91.

COLLEGE OF TECHNOLOGY AND APPLIED SCIENCES

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 CS	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: 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—B.S.

The B.S. 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 B.S. 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—B.A.S.

The Bachelor of Applied Science (B.A.S.) degree is a “capstone” degree for the Associate of Applied Science degree. The B.A.S. 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 B.A.S. degree program is restricted to students holding an A.A.S. degree from a regionally accredited U.S. postsecondary educational institution. A GPA of

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING TECHNOLOGY

2.00 or higher is required for resident applicants and a 2.50 for nonresident applicants.

Degree Requirements

The B.A.S. 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.

A.A.S. degree	60
Assignable credit	6
B.A.S. core	15
General Studies	19
Technical concentration	20
Total	120

General Studies Curriculum

The B.A.S. curriculum builds on the general education content of the A.A.S. degree. Additional General Studies (L, CS, and awareness areas) are met with courses in the core or concentration. General Studies courses focus on contextual learning.

L	3
MA	3
HU	3
HU or SB	3
SB	3
SG	4
Total	19

Assignable Credit

Assignable credit allows space in the curriculum for prerequisite courses needed to succeed in the program or additional technical electives. The courses are determined by the student and the advisor.

B.A.S. 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 A.A.S. 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

COLLEGE OF TECHNOLOGY AND APPLIED SCIENCES

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

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 GD and T. 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, oxy-acetylene, 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, GDT, 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).

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING TECHNOLOGY

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 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 345.

MET 416 Applied Computer-Integrated Manufacturing. (3)

fall

Techniques and practices of computer-integrated manufacturing, with emphasis on computer-aided design and computer-aided manufacturing. Prerequisite: MET 345.

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)

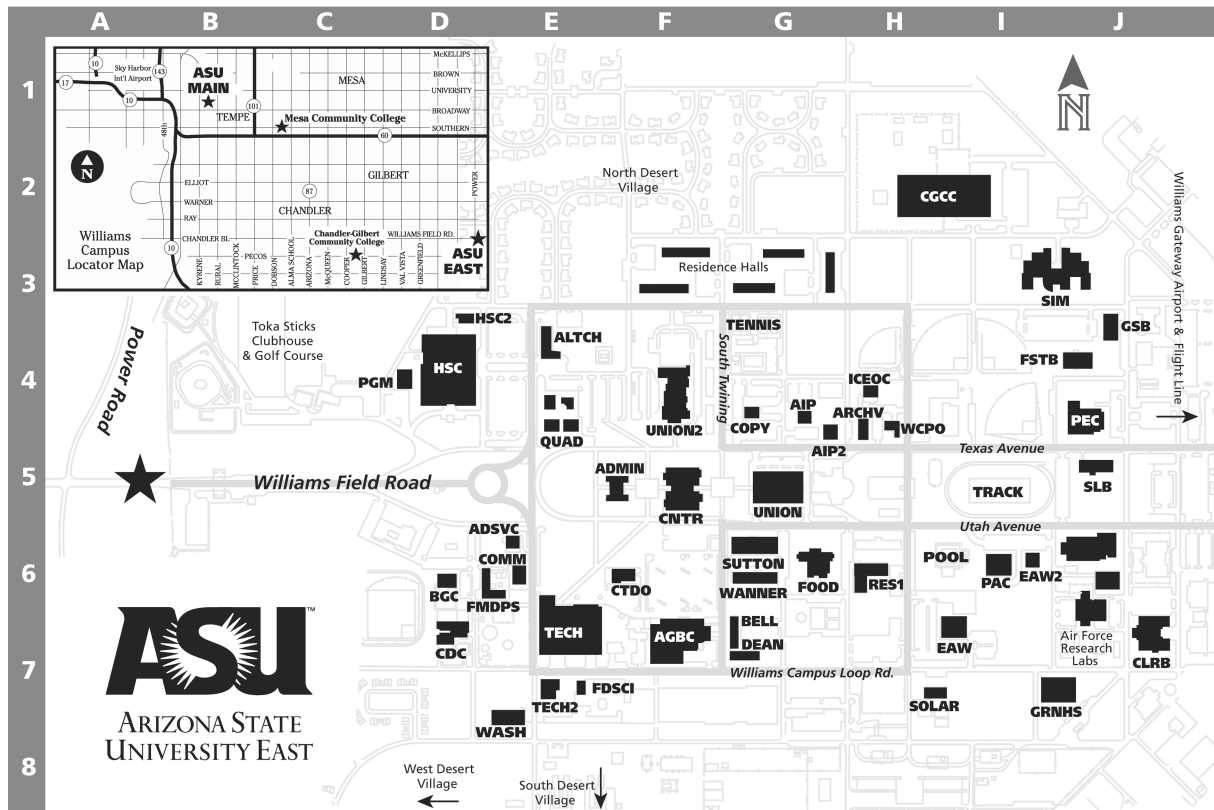
selected semesters

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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 91.

ASU EAST MAP



- | | | | |
|-------|--|--------|---|
| ADMIN | Administration Building (F5) | GSB | General Studies Building (J4) |
| ADSVC | Administrative Services (E5) | HSC | Health Sciences Center (D4) |
| AGBC | Agribusiness Center (F7) | HSC2 | Health Sciences Center Research (D4) |
| AIP | American Indian Programs (G4) | ICEOC | Incident Command/
Emergency Operations Center (H4) |
| AIP2 | American Indian Programs Annex (G4) | PAC | Physical Activity Center (I6) |
| ALTCH | Altitude Chamber (E3) | PEC | Physical Education Center (J5) |
| ARCHV | Library Archives (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) | SIM | Flight Simulator Building (I3) |
| CLRB | Classroom Building (J7) | SLB | Science Lab Building (J5) |
| CNTR | Academic Center Building (F5) | SOLAR | Photovoltaic Testing Laboratory (H7) |
| COMM | Telecommunications (D6) | SUTTON | Sutton Hall (G6) |
| COPY | Williams Express Copy Services (G4) | TECH | Technology Center (E7) |
| CTDO | College of Technology Dean's Office (E6) | TECH2 | Technology Center Annex (E7) |
| DEAN | Dean Hall (F7) | TENNIS | Tennis Courts (G4) |
| EAW | Exercise and Wellness Center (I7) | UNION | Williams Campus Union (G5) |
| EAW2 | Exercise Instructional Lab Building (I6) | UNION2 | Student Union Annex (F4) |
| FDSCI | Agribusiness Food Science Lab (E7) | WANNER | Wanner Hall (G6) |
| FMDPS | Facilities Management/DPS (D6) | WASH | Launderette (D7) |
| FOOD | Williams Campus Dining Hall (G6) | WCPO | Williams Campus Post Office (H4) |
| FSTB | Fire Science Technology Building (I4) | | |
| GRNHS | Greenhouses (I7) | | |

ASU East Directory

For the “ASU Main Directory,” see page 518. For the “ASU West Directory,” see page 680. For the “ASU Extended Campus Directory,” see page 701.

Organization	Location	Telephone	Web Address
Agribusiness and Resource Management, Morrison School of Professional Golf Management	WANNER PGM	480/727-1585 480/727-1017	www.east.asu.edu/msabr www.east.asu.edu/msabr/pgm
American Indian Programs	AIP	480/727-1161 480/727-1075	www.east.asu.edu/aip
Bookstore	CNTR 102	480/727-1168	www.asu.edu/east/admin/business.htm
Campus Copy Center, Williams	COPY	480/727-1600	www.asu.edu/east/admin/business.htm
Cashiering Services	QUAD 2	480/727-1081	www.asu.edu/east/admin/business.htm
Computing Commons, ASU East	CNTR 150	480/727-1118	www.east.asu.edu/infotech/labs
East College	SUTTON	480/727-1515	www.east.asu.edu/ecollege
Advising		480/727-1333	—
Applied Biological Sciences, Department of	WANNER	480/727-1444	www.east.asu.edu/ecollege/appliedbiologicalsciences
Applied Psychology, Faculty of	SUTTON	480/727-1515	www.east.asu.edu/ecollege/appliedpsych
Business Administration, Faculty of	SUTTON	480/727-1515	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	480/727-1945	www.east.asu.edu/ecollege/wellness
Human Health Studies, Faculty of	CLRB 102	480/727-1065	www.east.asu.edu/ecollege/humanhealth
Multimedia Writing and Technical Communication, Faculty of	SUTTON	480/727-1515	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.asu.edu/east/cls/recreation.htm
General Information	QUAD 2	480/727-3278	www.east.asu.edu
Housing, Williams Campus	BELL	480/727-1700	www.asu.edu/east/cls/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	QUAD 2	480/727-1081	www.east.asu.edu/admin/pts
Provost, Office of the	ADMIN	480/727-1028	—
Student Health Services	HSC	602/222-6568	www.asu.edu/east/student/stuheal.html
Student Services*	QUAD 2	480/727-3278	www.east.asu.edu/sta/contact1.html
Student Union	UNION	480/727-1098	www.asu.edu/east/cls/union.htm
Technology and Applied Sciences, College of	CTDO	480/727-1874	www.east.asu.edu/ctas
Aeronautical Management Technology, Department of	SIM 201	480/727-1381	eastair.east.asu.edu
Electronics and Computer Engineering Technology, Department of	SUTTON 140	480/727-1976	www.east.asu.edu/ctas/ecet
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	480/727-1189	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.

ASU East Faculty and Academic Professionals

A

Adams, Troy B. (2002), Assistant Professor of Exercise and Wellness; B.S., M.S., Brigham Young University; Ph.D., University of Texas, Austin

Autore, Donald D. (1959), Professor Emeritus of Technology; B.S.E., University of Michigan; M.S.E., Arizona State University

B

Backus, Charles E. (1968), Professor of Electrical Engineering; Provost, ASU East; Vice President, ASU; B.S.M.E., Ohio University; M.S., Ph.D., University of Arizona

Barchilon, Marian G. (1989), Associate Professor of Technical Communication; B.A., State University of New York, Binghamton; M.S., Northeastern University

Barrett, Thomas W. (1950), Professor Emeritus of Agribusiness and Resource Management; B.S., Brigham Young University; M.S., Ph.D., Cornell University

Baxter, Harry R. (1982), Professor Emeritus of Electronics Engineering Technology; B.A., New York University; M.B.A., Fairleigh Dickinson University; M.Tech., Arizona State University

Bergeron, Bette S. (2000), Professor of Education; Head, Faculty of Education; B.S.Ed., University of Maine, Orono; M.S.Ed., Ph.D., Purdue University

Biekert, Russell G. (2001), Associate Professor of Mechanical and Manufacturing Engineering Technology; B.S., M.S., Southern Illinois University; Ed.D., Arizona State University

Brady, Ward W. (1973), Professor of Applied Biological Sciences; Chair, Department of Applied Biological Sciences; B.S., M.S., Ph.D., Colorado State University

Brock, John H. (1977), Professor of Applied Biological Sciences; Coordinator, Sustainable Technologies, Agribusiness, and Resources Center; B.S., M.S., Fort Hayes State University; Ph.D., Texas A&M University

Brown, Walter C. (1966), Professor Emeritus of Technology; B.S., Northwest Missouri State University; M.Ed., Ed.D., University of Missouri, Columbia

Brownson, Charles W. (1980), Librarian, ASU East Library Services; Director, ASU East Library Services; B.A., South Dakota State University; M.F.A., University of Oregon; M.L.S., University of California, Berkeley

Burdette, Walter E. (1956), Professor Emeritus of Technology; B.S., M.S., Kansas State College of Pittsburg; Ed.D., University of Missouri, Columbia

Burk, Karl W. (1949), Professor Emeritus of Technology; B.A., M.A., Arizona State University; Ed.D., Bradley University

Burkett, Lee N. (1974), Professor of Exercise and Wellness; B.A., M.A., San Diego State University; Ph.D., Washington State University

Busch, Jay S. (2001), Lecturer of General Studies; B.A., Michigan State University; M.A., Arizona State University

C

Carlsen, Paul A. (1978), Professor Emeritus of Technology; B.A.E., M.N.S., Ed.D., Arizona State University

Cavaliere, William A. (1946), Professor Emeritus of Technology; B.A., M.A., Arizona State University

Chalquest, Richard R. (1971), Professor Emeritus of Agribusiness and Resource Management; B.S., D.V.M., Washington State University; M.S., Ph.D., Cornell University

Collins, Donald W. (1989), Professor Emeritus of Mechanical and Manufacturing Engineering Technology; B.Arch., Virginia Polytechnic Institute and State University; M.S., Ph.D., University of Illinois, Chicago

Cooke, Nancy J. (2003), Professor of Applied Psychology; B.A., George Mason University; M.A., Ph.D., New Mexico State University

Corbin, Charles B. (1982), Professor Emeritus of Exercise and Wellness; B.S., University of New Mexico; M.S., University of Illinois; Ph.D., University of New Mexico

Cox, Frank E. (1972), Professor Emeritus of Technology; B.S.M.E., Purdue University; M.S.E., Arizona State University

D

D'Angelo, Barbara J. (2001), Assistant Librarian, ASU East Library Services; B.A., Emmanuel College; M.S., University of Illinois, Urbana-Champaign

Daneke, Gregory A. (1982), Professor of Agribusiness and Resource Management; B.A., M.A., Brigham Young University; Ph.D., 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; B.S., M.S., University of Wyoming; Ph.D., North Dakota State University

Dixon, Kathleen S. (2000), Lecturer of Nutrition; B.S., University of Arizona; M.Ed., Northern Arizona University

Dolin, Penny Ann (1998), Lecturer of Information and Management Technology; B.A., Bard College; M.S., Arizona State University

Duff, Jon M. (1997), Professor of Information and Management Technology; B.S., M.S., Purdue University; Ph.D., Ohio State University

E

Eaves, James E. (2003), Assistant Professor of Agribusiness and Resource Management; B.A., University of Connecticut, Storrs; Ph.D., University of California, Davis

Edwards, Mark R. (1978), Professor of Agribusiness and Resource Management; B.S.M.E., United States Naval Academy; M.B.A., D.B.A., Arizona State University

Edwards, Marvin J. (1959), Professor Emeritus of Technology; B.S., M.A., Arizona State University

F

Foley, Dawn (2003), Lecturer of Education; B.A., M.A., Arizona State University

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G

Gannod, Barbara D. (1998), Assistant Professor of Electronics and Computer Engineering Technology; B.Sc., Calvin College; M.Sc., Ph.D., Michigan State University

Gesell, Laurence E. (1984), Professor of Aeronautical Management Technology; B.A., Upper Iowa University; M.P.A., University of San Francisco; Ph.D., Arizona State University

Gomez, Conrado L. (2003), Lecturer of Education; B.A., M.Ed., University of Arizona; Ed.D., Northern Arizona University

Gordon, Richard S. (1980), Professor Emeritus of Agribusiness and Resource Management; A.B., University of Rochester; M.A., Harvard University; Ph.D., Massachusetts Institute of Technology

Gray, Robert D. (2001), Assistant Professor of Applied Psychology; B.A., Queen's University (Canada); M.A., Ph.D., York University (Canada)

Green, Douglas M. (1990), Associate Professor of Applied Biological Sciences; B.A., Humbolt State University; B.S., Oregon State University; M.S., North Dakota State University; Ph.D., Oregon State University

Grossman, Gary M. (1994), Associate Professor of Information and Management Technology; Project Director, International Projects Unit; B.A., University of the Pacific; M.S., Ph.D., Purdue University

H

Hall, Richard E. III (2002), Lecturer of Nutrition; B.S., Northern Arizona University; M.S., Arizona State University

HAMPL, Jeffrey (1998), Associate Professor of Nutrition; B.S., Liberty University; M.S., University of Massachusetts, Lowell; Ph.D., University of Nebraska

Harris, La Verne Abe (1999), Lecturer of Information and Management Technology; B.A., M.Tech., Arizona State University

Hefner, Stephen P. (1973), Instructional Professional of Agribusiness and Resource Management, Morrison School of Agribusiness and Resource Management; B.S., Illinois State University; M.S., Arizona State University

Hild, Nicholas R. (1983), Professor of Information and Management Technology; B.S.M.E., M.S.Enve., University of Iowa; Ph.D., Union Graduate School

Hirata, Ernest T. (1974), Associate Professor of Information and Management Technology; B.A., San Diego State College; Ed.D., Arizona State University

Hopper, Lee Ann (2001), Lecturer of Education; B.S., Texas Tech University; M.A., Arizona State University

Horowitz, Renee B. (1986), Professor Emerita of Information and Management Technology; B.A., Brooklyn College; M.A., Ph.D., University of Colorado

Hughner, Renee D. (2002), Assistant Professor of Agribusiness and Resource Management; B.S., M.B.A., University of Massachusetts, Amherst; Ph.D., Arizona State University

Humble, Jane E. (1989), Associate Professor of Information and Management Technology; B.S.E., M.S.E., Ph.D., Arizona State University

Hutchins, Andrea M. (2001), Assistant Professor of Nutrition; B.S., Kansas State University; M.S., Ph.D., University of Minnesota

Hutt, Roger W. (1975), Associate Professor of Business Administration; Head, Faculty of Business Administration; B.S., M.B.A., Ohio State University; Ph.D., Michigan State University

I

Irvin, Glenn W. (1997), Professor of English; Dean, East College; B.A., M.A., Ph.D., Arizona State University

J

Johnston, Carol S. (1986), Professor of Nutrition; B.S., University of Michigan; M.S., Ph.D., University of Texas, Austin

K

Kagan, Albert (1992), Professor of Agribusiness and Resource Management; B.S., M.S., Ph.D., Iowa State University of Science and Technology

Karp, Merrill R. (1994), Associate Professor of Aeronautical Management Technology; B.S., Arizona State University; M.A., Central Michigan University; Ph.D., Walden University

Keith, Marlow F. (1946), Professor Emeritus of Technology; B.A., M.A., Arizona State University

Kelley, Donald G. (1980), Professor Emeritus of Manufacturing and Aeronautical Engineering Technology; B.S., M.S., Arizona State University

Kigin, Denis J. (1958–65; 1967), Professor Emeritus of Technology; Dean Emeritus, Continuing Education and Summer Sessions; B.S., Mankato State University; M.S., University of Wisconsin, Stout; Ed.D., University of Missouri

Kime, Charles Henry (2000), Assistant Professor of Information and Management Technology; B.S., Arizona State University; M.B.A., University of Phoenix; Ph.D., Arizona State University

Kisielewski, Robert V. (1978), Professor Emeritus of Technology; B.S.M.E., M.S.M.E., University of Wisconsin, Madison

Klemann, Gary L. (1979), Administrative Professional, Academic Programs; Director, E-Learning; B.A., M.S., San Jose State University; Ph.D., Arizona State University

Koehnemann, Harry E. (2001), Associate Professor, Electronics and Computer Engineering Technology; B.S., Northern Arizona University; M.S., Ph.D., Arizona State University

L

Lawler, Eugene D. (1967), Professor Emeritus of Technology; B.S., Northern State College; M.A., Arizona State University

Lefler, Scott (2003), Lecturer of Applied Biological Sciences; B.S., California Polytechnic State University, San Luis Obispo; Ph.D., Arizona State University

Lestar, Dot J. (1995), Lecturer of Information and Management Technology; B.S., M.Tech., Arizona State University

Lindley, James (2001), Faculty Associate of Preveterinary Medicine; B.S., D.V.M., University of Missouri, Kansas City

Lindquist, Timothy E. (1985), Professor of Electronics and Computer Engineering Technology; Associate Dean and Director, Computing Studies; Chair, Department of Electronics and Computer Engineering Technology; B.S., Purdue University; M.S., Ph.D., Iowa State University

ASU EAST FACULTY AND ACADEMIC PROFESSIONALS

Lytle, Robert G. (1972), Professor Emeritus of Agribusiness and Resource Management; B.S., Western Kentucky University; M.S., Arizona State University

M

Macia, Narciso F. (1990), Associate Professor of Electronics and Computer Engineering Technology; B.S., M.S., University of Texas, Arlington; Ph.D., Arizona State University

Maddy, Kenneth H. (1980), Professor Emeritus of Agribusiness and Resource Management; B.S., Pennsylvania State University; M.S., University of Wisconsin, Madison; Ph.D., Pennsylvania State University

Maid, Barry M. (2000), Professor of Multimedia Writing and Technical Communication; Head, Faculty of Multimedia Writing and Technical Communication; B.A., University of Wisconsin, Madison; M.A., University of Texas, Austin; Ph.D., University of Massachusetts, Amherst

Maisel, James E. (1985), Professor Emeritus of Electronics and Computer Engineering Technology; B.Eng.Sci., B.E.E., Fenn College; M.S.E.E., Ohio State University

Manfredo, Mark R. (1999), Assistant Professor of Agribusiness and Resource Management; B.S., California State University, Fresno; M.S., New Mexico State University; Ph.D., University of Illinois, Urbana

Manore, Melinda M. (1984), Professor Emerita of Nutrition; B.S., Seattle Pacific University; M.S., University of Oregon; Ph.D., Oregon State University

Marcum, Kenneth (2003), Assistant Professor of Applied Biological Sciences; B.S., Ohio State University; M.S., New Mexico State University; Ph.D., University of Hawaii, Manoa

Marquardt, Raymond A. (1997), Professor of Agribusiness and Resource Management; Dean, Morrison School of Agribusiness and Resource Management; B.S., M.S., Colorado State University; Ph.D., Michigan State University

Martin, Chris A. (1990), Associate Professor of Applied Biological Sciences; B.S., California Polytechnic State University and University of Southern California; M.S., Auburn University; Ph.D., University of Florida

Matson, John H. (1978), Associate Professor of Information and Management Technology; B.S., M.S., Illinois State University

Matthews, James B. (1989), Professor Emeritus of Aeronautical Management Technology; B.S., Rose-Hulman Institute of Technology; M.S., Massachusetts Institute of Technology; Ph.D., University of Arizona

McBrien, Edward F. (1986), Professor Emeritus of Electronic/Computer Technology; B.S.E., Fenn College; M.S.E.E., Cleveland State University

McCurry, William K. (1995), Professor of Aeronautical Management Technology; Chair, Department of Aeronautical Management Technology; B.S., Purdue University; M.S., Troy State University; Ph.D., University of Kansas

McHenry, Albert L. (1978), Professor of Electronics and Computer Engineering Technology; Dean, College of Technology and Applied Sciences; B.S., Southern University and A&M College; M.S., Ph.D., Arizona State University

Mermis, William L. (1995), Professor of Human Health Studies; Head, Faculty of Human Health Studies; B.S., M.S., Saint Louis University; Ph.D., Arizona State University

Millard, Bruce R. (1988), Associate Professor of Electronics and Computer Engineering Technology; B.A., M.S., Washington State University; Ph.D., Arizona State University

Miller, Victor J. (1958), Professor Emeritus of Agribusiness and Resource Management; B.S., M.S., Ph.D., University of Illinois

Miller, William H. (1984), Associate Professor of Applied Biological Sciences; B.S., M.S., Ph.D., Washington State University

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Morgan, Owen W. (1968), Professor Emeritus of Nutrition; B.A., Grinnell College; M.A., University of Nebraska, Omaha; Ph.D., University of Nebraska, Lincoln

Munukutla, Lakshmi V. (1987), Professor of Electronics and Computer Engineering Technology; Associate Dean, College of Technology and Applied Sciences; B.S., M.S., Andhra University (India); Ph.D., Ohio University

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N

Nam, Changho (1998), Associate Professor of Mechanical and Manufacturing Engineering Technology; B.S., M.S., Seoul National University (South Korea); Ph.D., Purdue University

Newman, Richard L. (2001), Assistant Administrative Professional; Director, Training Services, College of Technology and Applied Sciences; B.S., M.S., Arizona State University

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O'Brien, Marc H. (1997), Lecturer of Aeronautical Management Technology; B.A., Boston University; M.S., Indiana State University

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Olson, Larry W. (1995), Associate Professor of Information and Management Technology; B.S., Baylor University; Ph.D., University of Pennsylvania

P

Palmgren, Dale E. (1984), Associate Professor of Mechanical and Manufacturing Engineering Technology; Assistant Dean, College of Technology and Applied Sciences; B.S., M.S., Ph.D., University of Wisconsin, Madison

Pardini, Louis J. (1967), Professor Emeritus of Technology; B.A., A.M., Idaho State University; Ed.D., University of Northern Colorado

Patterson, Paul M. (1995), Associate Professor of Agribusiness and Resource Management; B.S., Auburn University; M.S., Ph.D., Purdue University

Pearce, Martha V. (1977), Professor Emerita of Technology; B.S., Columbia University; M.S., Boston University; Ed.D., Arizona State University

Pearson, Michael W. (1998), Assistant Professor of Aeronautical Management Technology; B.A., University of Houston; M.B.A., J.D., Arizona State University

Peterson, Danny M. (1999), Associate Professor of Information and Management Technology; B.S., University of Idaho; M.B.A., California State University, Sacramento; M.S., Ph.D., Arizona State University

Peterson, Edward R. (1977), Professor Emeritus of Electronics and Computer Engineering Technology; B.S.E.E., Fairleigh Dickinson University; M.S.E.E., Arizona State University

Phillips, Wayne T. (1997), Associate Professor of Exercise and Wellness; Cert. Ed., Cardiff College of Education, Cardiff (United Kingdom); M.S., Loughborough University of Technology (United Kingdom); Ph.D., Arizona State University

Post, Alvin (2000), Assistant Professor of Mechanical and Manufacturing Engineering Technology; B.S., University of Arizona; M.S., Stanford University; Ph.D., University of Hawaii

Prest, Alison (2002), Lecturer of Education; B.A., Arizona State University; M.S.Ed., Northern Arizona University

Prust, Zenas A. (1959), Professor Emeritus of Technology; B.S., University of Wisconsin, Stout; M.A., University of Minnesota, Twin Cities; Ed.D., University of Northern Colorado

R

Raccach, Moshe (1980), Associate Professor of Agribusiness and Resource Management; B.Sc., M.Sc., The Hebrew University (Israel); Ph.D., Cornell University

Rajadas, John N. (1996), Associate Professor of Mechanical and Manufacturing Engineering Technology; B.Tech., Indian Institute of Technology (India); M.S., Ph.D., Georgia Institute of Technology

Reed, William H. (1968), Professor Emeritus of Aeronautical Management Technology; B.S., University of Oklahoma; M.S., Arizona State University

Richards, Timothy J. (1994), Associate Professor of Agribusiness and Resource Management; Power Chair Distinguished Professor of Agribusiness; B.Comm., University of British Columbia (Canada); M.A., Ph.D., Stanford University

Richardson, Grant L. (1953), Professor Emeritus of Agribusiness and Resource Management; B.S., M.S., University of Arizona; Ph.D., Oregon State University

Robinson, Daniel O. (1950), Professor Emeritus of Agribusiness and Resource Management; A.B., Brigham Young University; M.S., University of Arizona; Ph.D., Ohio State University

Roberts, Chell (2003), Associate Professor of Mathematics; Director, Engineering Program Development; B.A., M.S., University of Utah; Ph.D., Virginia Polytechnic Institute and State University

Robertson, John M. (2001), Professor of Electronics and Computer Engineering Technology; B.S., University of St. Andrews (United Kingdom); M.S., University of Dundee (United Kingdom); Ph.D., University of Edinburgh (United Kingdom)

Roe, Keith B. (1979), Professor Emeritus of Technology; B.S., Wisconsin State College; M.A., University of Michigan

Rogers, Bradley B. (1984), Associate Professor of Mechanical and Manufacturing Engineering Technology; B.S., M.S., Montana State University; Ph.D., Arizona State University

Roper, Devon J. (1966), Professor Emeritus of Aeronautical Management Technology; B.S., Utah State University; M.S., Arizona State University

S

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Schvaneveldt, Roger W. (2000), Professor of Applied Psychology; Head, Faculty of Applied Psychology; B.A., University of Utah; M.S., Ph.D., University of Wisconsin, Madison

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Seperich, George J. (1976), Professor of Agribusiness and Resource Management; Associate Dean, Morrison School of Agribusiness and Resource Management; B.S., Loyola University, Chicago; M.S., Ph.D., Michigan State University

Shepard, Christina W. (1999), Lecturer of Nutrition; B.S., University of Arizona; M.S., Arizona State University

Shultz, Clifford J. (1992), Professor of Agribusiness and Resource Management; Marley Foundation Chair in Consumer Food Marketing; B.A., DePauw University; M.S., Ph.D., Columbia University

Skilton, Paul F. (2003), Assistant Professor of Business Administration; B.A., University of California; M.B.A., Boston College; Ph.D., Arizona State University

Steele, Kelly P. (2002), Associate Professor of Applied Biological Sciences; B.A., Ph.D., University of California

Stever, Gayle S. (2003), Senior Lecturer of Education; B.M., M.A., Ph.D., Arizona State University

Stiles, Philip G. (1969), Professor Emeritus of Agribusiness and Resource Management; B.S., University of Arkansas; M.S., University of Kentucky; Ph.D., Michigan State University

Stone, William J. (1967), Professor of Exercise and Wellness; Chair, Department of Exercise and Wellness; B.S., Boston University; M.S., Florida State University; Ed.D., University of California, Berkeley

Strawn, Roland S. (1967), Professor Emeritus of Technology; B.S.E.E., M.S.E.E., University of Illinois; Ph.D., Arizona State University

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ASU EAST FACULTY AND ACADEMIC PROFESSIONALS

Sundararajan, Rajeswari (1996), Associate Professor of Electronics and Computer Engineering Technology; B.S., University of Madras (India); M.S., Indian Institute of Science (India); Ph.D., Arizona State University

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T

Taysom, Elvin D. (1953), Professor Emeritus of Agribusiness and Resource Management; B.S., University of Idaho; M.S., Utah State University; Ph.D., Washington State University

Thomason, Leslie L. (1969), Professor Emeritus of Technology; A.B., M.A., Ed.D., University of Oklahoma

Thor, Eric P. (1990), Professor of Agribusiness and Resource Management; B.S., M.S., Ph.D., University of California, Berkeley

Tripp, Wayne E. (2002), Lecturer of Aeronautical Management Technology; B.S., Liberty University; M.E., Lynchburg College

Tudor-Locke, Catrine (2001), Assistant Professor of Exercise and Wellness; B.A., University of Lethbridge (Canada); M.S., Dalhousie University (Canada); Ph.D., University of Waterloo (Canada)

Turney, Mary Ann (1999), Associate Professor of Aeronautical Management Technology; B.A., LeMoyne College; M.A., Hofstra University; Ed.D., Nova Southeastern University

V

Vaughan, Linda A. (1982), Professor of Nutrition; Chair, Department of Nutrition; B.S., University of California, Davis; M.N.S., Cornell University; Ph.D., University of Arizona

W

Watkins, Thomas B. (1972), Professor Emeritus of Technology; B.S., University of Wyoming; M.S., Arizona State University

Watson, Emma J. (1999), Lecturer of Business Administration; B.A., Sonoma State University; M.Ed., Western Washington University

Welty, Ellen L. (1996), Reference/Instruction Librarian, ASU East Library Services; B.A., University of Wyoming; M.L.S., University of Arizona

Wenhart, James C. (1996), Senior Lecturer of Education; B.S., M.Ed., Arizona State University

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Wilson, Daniel (1978), Senior Lecturer of Information and Management Technology; B.S., Drexel University; M.S.E., Ph.D., Arizona State University

Winham, Donna M. (2002), Assistant Professor of Nutrition; B.S., Keene State College; M.A., University of Arizona; Dr.P.H., University of California, Los Angeles

Wood, Billy G. (1977), Professor Emeritus of Electronics and Computer Engineering Technology; A.B., University of California; B.S., Eastern Illinois University; M.S., University of Arizona

Woodruff, Larry (1998), Lecturer of Exercise and Wellness; B.S., University of Oregon; M.S., Western Oregon University

Wolf, Kathleen (2002), Assistant Professor of Nutrition; B.S., Arizona State University; M.S., University of California, Los Angeles; Ph.D., Arizona State University

Z

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ASU East Administrative Personnel

Academic Administration

Provost, ASU East; Vice President, ASU	Charles E. Backus
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

College of Technology and Applied Sciences

Dean, College of Technology and Applied Sciences	Albert L. McHenry
Associate Dean, College of Technology and Applied Sciences	Lakshmi V. Munukutla
Associate Dean and Director, Computing Studies	Timothy E. Lindquist
Assistant Dean, College of Technology and Applied Sciences	Dale E. Palmgren
Chair, Department of Aeronautical Management Technology	William K. McCurry
Chair, Department of Electronics and Computer Engineering Technology	Timothy E. Lindquist
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
Director, Engineering Program Development	Chell Roberts

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

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 West

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Elaine P. Maimon, Ph.D., Provost, ASU West; Vice President, ASU

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ASU West, a community-focused metropolitan campus of Arizona State University located in Phoenix, serves the community and more than 7,100 residential and commuter students of diverse ages, ethnicity, and experience through 29 baccalaureate programs, nine master's programs, and eight certificate programs. ASU West focuses on developing a learning community that addresses the needs of a diverse metropolitan environment. ASU West 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.

ASU West's vision is to enhance the intellectual, social, cultural, and economic qualities of a diverse, 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. To fulfill this vision, the university offers liberal arts and professional programs, engages in discovering and advancing knowledge, and teaches diverse students in a student-centered, interdisciplinary learning environment as the community-focused metropolitan campus of ASU.

ASU West's 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.

ASU West offers many on-campus services and facilities, including a multimedia resource library, state-of-the-art computer classrooms and labs, housing facilities, tutoring services, bookstore, cafeteria, credit union, fitness center, recreational facilities, child care, and post office, plus many student activities, clubs, and organizations. ASU West facilities are completely accessible for those with disabilities, with academic services provided by a disability resource center. Classes are offered in the day and evening, as well as on weekends, and via television and the Internet.

The architecture and courtyards at ASU West are modeled on those of the University of Oxford in Great Britain, enhanced by a beautifully landscaped natural environment featuring widely acclaimed public art. The 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.

ACCREDITATION

ASU West 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 Management 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 ASU West**” table, page 704.

ACADEMIC ORGANIZATION AND ADMINISTRATION

The provost provides executive leadership for the continuing development and management of the campus and

ASU West Baccalaureate Degrees and Majors

Major	Degree	Concentration*	Administered By
Accountancy	B.S.	—	Department of Accounting and Information Systems Management
American Studies	B.A.	—	Department of American Studies
Applied Science	B.A.S.	Any minor available at ASU West or individualized concentration	College of Arts and Sciences
Communication Studies	B.A., B.S.	—	Department of Communication Studies
Criminal Justice and Criminology	B.S.	—	Department of Criminal Justice and Criminology
Elementary Education	B.A.E.	Optional: bilingual education/English as a second language or early childhood education*	Department of Elementary Education
English	B.A.	—	Department of American Studies
Global Business	B.S.	Financial management, information systems management, international studies, leadership and management, or marketing	School of Management
History	B.A.	—	Department of American Studies
Integrative Studies	B.A.	Any minor available at ASU West or individualized concentration	Department of Integrative Studies
Interdisciplinary Arts and Performance	B.A.	Media, music, performance studies, theater/performance, or visual art	Department of Interdisciplinary Arts and Performance
Life Sciences	B.S.	—	Department of Life Sciences
Nursing	B.S.N.	—	College of Nursing (ASU Main)
Political Science	B.A., B.S.	—	Department of Social and Behavioral Sciences
Psychology	B.A., B.S.	—	Department of Social and Behavioral Sciences
Recreation and Tourism Management	B.S.	—	Department of Recreation and Tourism Management
Secondary Education	B.A.E.	Academic specializations: English, history, mathematics, or social studies	Department of Secondary Education
Social and Behavioral Sciences	B.A., B.S.	—	Department of Social and Behavioral Sciences
Social Work	B.S.W.	—	Department of Social Work
Sociology	B.A., B.S.	—	Department of Social and Behavioral Sciences
Spanish	B.A.	—	Department of American Studies
Special Education	B.A.E.	—	Department of Special Education
Women's Studies	B.A., B.S.	—	Women's Studies Program

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

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 ASU West administered by deans. These academic units develop and implement the teaching, research, and service programs of the institution, aided by the ASU West 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 ASU West, and numerous cross-campus and joint ASU West–ASU Main–ASU East committees serving the needs of a rapidly growing institution.

See “ASU West Faculty and Academic Professionals,” page 682, and “ASU West Administrative Personnel,” page 688.

ASU West Graduate Degrees and Majors

Major	Degree	Concentration*	Administered By
Business Administration	M.B.A.	—	School of Management
Communication Studies	M.A.	—	Department of Communication Studies
Criminal Justice	M.A.	—	Department of Criminal Justice and Criminology
Educational Administration and Supervision	M.Ed.	—	Department of Graduate Studies and Professional Development
Elementary Education	M.Ed.	Optional: bilingual education, educational technology, ESL education, or reading*	Department of Graduate Studies and Professional Development
Interdisciplinary Studies	M.A.	—	College of Arts and Sciences
Secondary Education	M.Ed.	Optional: educational technology*	Department of Graduate Studies and Professional Development
Social Work	M.S.W.	Advanced generalist practice	Department of Social Work
Special Education	M.Ed.	Infants and young children	Department of Graduate Studies and Professional Development

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

ADMISSION

Nondegree Students

Nondegree students may take courses at ASU West according to the special provisions under “[Admission of Undergraduate Nondegree Applicants](#),” page 71.

Degree-Seeking Students

Any student admitted to ASU may take courses at ASU West. To be admitted to an ASU West degree program, the student must meet university admission requirements and the specific admission requirements of the ASU West program. A student who is admitted to an ASU West degree program is defined as an ASU West student. For more information on applying to ASU West degree programs, see the current *ASU West Catalog* or *ASU West Schedule of Classes*. For applications and admission information, call 602/543-8203, or write

ADMISSION SERVICES
UNIVERSITY CENTER BUILDING 120
ARIZONA STATE UNIVERSITY WEST
PO BOX 37100
PHOENIX AZ 85069-7100

Change of Major from ASU Main to ASU West

Currently enrolled ASU Main degree-seeking students who want to relocate to an ASU West degree program should contact Admissions Services at ASU West for the appropriate procedures. Acceptance to an ASU West 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 ASU West and ASU Main 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 ASU West. 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 West 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 an ASU West Transfer Center located on the campuses of local community colleges.

DEGREE PROGRAMS

See the “[ASU West Baccalaureate Degrees and Majors](#)” table, page 673, and the “[ASU West Graduate Degrees and Majors](#)” table, on this page.

The College of Education 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 ASU West degree requirements, see the *ASU West Catalog* in print or on the Web at westgi.west.asu.edu/acadaffairs/curriculum/catalog.cfm.

Minors and Certificates

ASU West 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 “[ASU West Minors](#)” table, page 675, and the “[ASU West Certificates](#)” table, page 675.

For information on the university-wide Gerontology Program, see “[Gerontology](#),” page 677. For more information,

ASU West Minors

Minor	Administered By
American Studies	Department of American Studies
Communication Studies	Department of Communication Studies
English	Department of American Studies
Ethnic Studies	College of Arts and Sciences
Film and Video Studies	Department of Interdisciplinary Arts and Performance
Gerontology	Gerontology Program
History	Department of American Studies
Interdisciplinary Arts and Performance	Department of Interdisciplinary Arts and Performance
Interdisciplinary Organizational Studies	Department of Social and Behavioral Sciences
Life Sciences	Department of Life 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	College of 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 American Studies
Special Events Management	Department of Recreation and Tourism Management
Tourism Management	Department of Recreation and Tourism Management
Women's Studies	Women's Studies Program

ASU West 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	College of 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 American Studies

refer to the individual department or college descriptions in the *ASU West Catalog*.

ASU Main Programs Hosted at ASU West

Courses for the Bachelor of Science in Nursing (B.S.N.) degree are offered at ASU West. For specific information on requirements, see "College of Nursing," page 453.

Course Information

For information on ASU West course offerings, see the current *ASU West Schedule of Classes*. For ASU West course descriptions and General Studies courses offered at ASU West, see the *ASU West Catalog* or westcgi.west.asu.edu/acadaffairs/curriculum/catalog.cfm.

ASU WEST

LIBRARY SERVICES

The ASU West Library provides resources that support the curricula of ASU West with a collection of 325,000 volumes, 1.4 million microforms, 8,780 videos, 15,000 slides, 240 electronic databases, and full or partial access to over 27,000 print and electronic 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 ASU West Library Web site at www.west.asu.edu/library. 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 to a diverse student population. 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

STUDENT AFFAIRS
ARIZONA STATE UNIVERSITY WEST
PO BOX 37100
PHOENIX AZ 85069-7100

STUDENT HOUSING

A new 400-bed student housing facility opened at ASU West in August 2003. The project 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



Las Casas, an apartment-style, living- and learning-based housing facility opened in August 2003.

Tim Trumble photo

by on campus. The expense to residents is competitive with the rental costs of nearby apartment complexes. For more information, call 602/543-CASA.

ASU EXTENDED CAMPUS

The College of Extended Education was created in 1990 to extend the resources of ASU throughout Maricopa County, the state, and beyond. The College of Extended Education is a university-wide college that oversees the ASU Extended Campus and forms partnerships with other ASU colleges, including those at ASU West, to meet the instructional and informational needs of a diverse community.

For more information, see “ASU Extended Campus,” page 689, or access the Web site at www.asu.edu/xed.

The ASU Extended Campus goes beyond the boundaries of the university’s physical campuses to provide access to quality academic credit and degree programs for working adults through flexible schedules; a vast network of off-campus sites; classes scheduled days, evenings, and weekends; and innovative delivery technologies, including television, the Internet, and independent learning. The Extended Campus also offers a variety of professional continuing education and community outreach programs.

Gerontology

Interdisciplinary Certificate Program

www.west.asu.edu/chs/grn

602/543-6642

FAB S121

Richard Gitelson, Director

American Studies (ASU West)

Associate Professor: Hattenhauer

Anthropology (ASU Main)

Professor: Carr

Communication Studies (ASU West)

Professor: V. Waldron

Associate Professors: Di Mare, Kelley

Design (ASU Main)

Associate Professor: Cutler

Economics (ASU Main)

Professor: Hogan

Education (ASU West)

Associate Professor: Achilles

English (ASU Main)

Professor: Kehl

Exercise and Wellness (ASU East)

Associate Professors: Phillips, Swan

Geography (ASU Main)

Associate Professor: McHugh

Gerontology (ASU West)

Lecturer: K. Waldron

Health Administration and Policy (ASU Main)

Professor: Schneller

History (ASU Main)

Professor: Gratton

Human Communication (ASU Main)

Professor: Arnold

Kinesiology (ASU Main)

Regents’ Professor: Landers

Professor: Stelmach

Assistant Professor: Etnier

Marketing (ASU Main)

Associate Professor: Stephens

Music (ASU Main)

Professor: Crowe

Assistant Professor: Rio

Nursing (ASU Main)

Professor: Komnenich

Associate Professors: Killeen, McCarthy

Nutrition (ASU East)

Professor: Vaughan

Assistant Professor: Woolf

Psychology (ASU Main)

Professors: Karoly, Okun, Reich, Sadalla, Zautra

Associate Professors: Alexander, Leshowitz

Psychology in Education (ASU Main)

Professor: Strom

Recreation and Tourism Management (ASU West)

Professors: Gitelson, Knopf, Searle

Social and Behavioral Sciences (ASU West)

Professors: Burlison, McGovern, Nájuez

Assistant Professors: Anastasi, Carter

Social Work (ASU Main)

Assistant Professor: Kang

Social Work (ASU West)

Associate Professor: Fitzpatrick

Assistant Professors: Bushfield, McCabe

Lecturer: Ealy

Sociology (ASU Main)

Professors: Kronenfeld, Kulis

Associate Professors: Keith, Miller-Loessi, Sullivan

The Gerontology Program is a university-wide, interdisciplinary 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 25 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 a baccalaureate degree. Students enrolled in the certificate program may simultaneously pursue a major in an academic unit offering a graduate degree or may enter the program as nondegree graduate students.

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 B.I.S. concentration requirement. See “[Bachelor of Interdisciplinary Studies](#),” page 123.

For more information, call 602/543-6642, or access the program Web site at www.west.asu.edu/chs/grn.

GERONTOLOGY (GRN)

ASU Main and West

W GRN 400 Perspectives on Aging. (3)

selected semesters

Multidisciplinary introduction to the study of aging in individuals, families, and society. 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 the 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.

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 the 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.

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

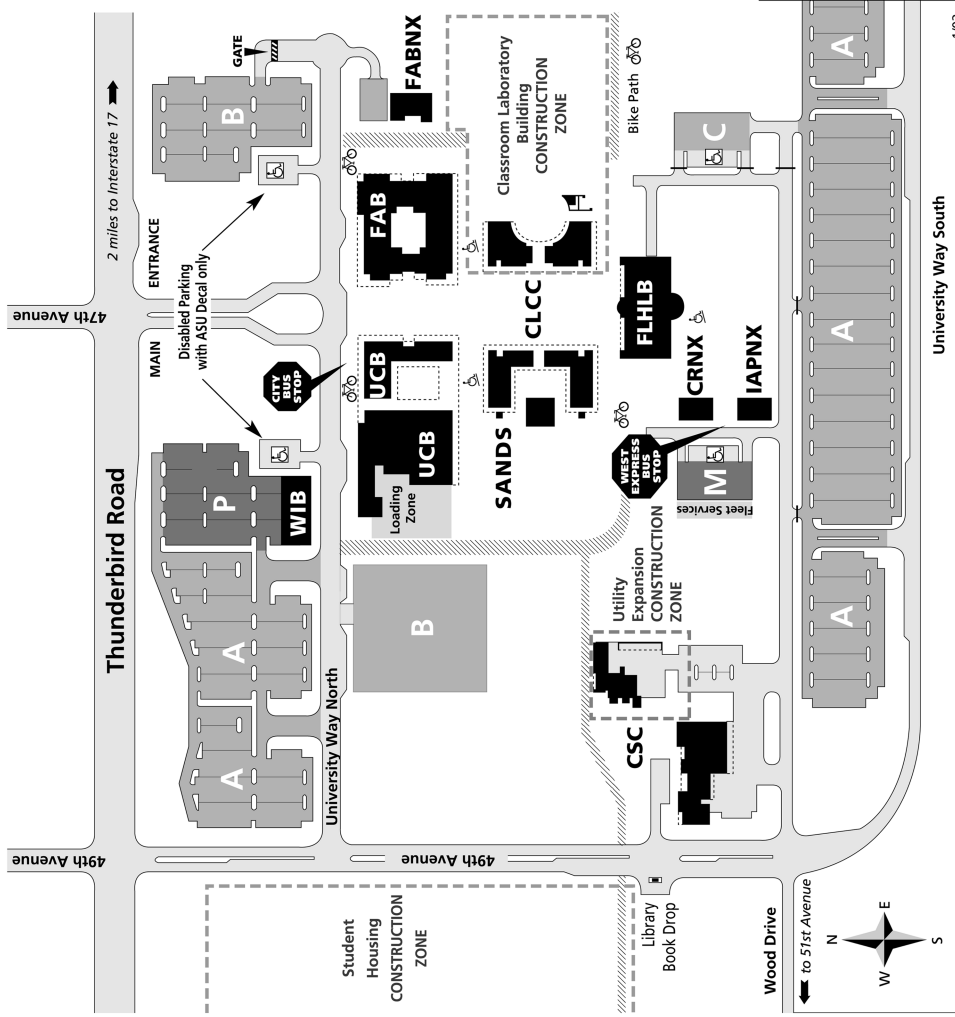
BUILDING LEGEND

- Welcome & Information Building (WIB)**
 Campus Information Center
 Parking Services Office
 Arizona State Savings & Credit Union
University Center Building (UCB)
 Admission Services
 Bank of America ATM
 Bookstore
 Cafeteria
 Career Services/Personal Counseling Center
 Cashier's Office
 Child Care Center
 Disability Resource Center
 Division of Collaborative Programs
 Financial Aid/Student Employment Information Desk
 La Sala A,B,C
 Multicultural Student Services
 Registration Services
 Second Stage West Theatre
 Student Affairs Administration
 Student Health Services
 Student Life
 Student Support Services Program
 University-College Center
 Veteran Student Services
 Wellness/Fitness Center
 West Campus Advising Center
 Women's Studies Resource Center
Sands Classroom Building (SANDS)
 Copy Express
 Kiva Lecture Hall
 Sand Trap snack bar
- Faculty/Administration Building (FAB)**
 Academic Affairs
 Academic/Faculty Offices
 Basement classrooms
 College of Arts & Sciences
 College of Education
 College of Human Services
 Copy Center
 Information Technology Lab
 Information Technology
 Instructional Technology Lab
 Information Desk
 Institutional Advancement
 Office of the Provost
 School of Management
FAB Annex (FABNX)
 Office of the Executive Vice Provost
 Human Resources
Fletcher Library (FLHLB)
 Technopolis
 Learning Enhancement Center
Interdisciplinary Arts Annex (IAPNX)
Classroom Annex (CRNX)
Central Services Complex (CSC)
 DPS/University Police
 Mail Services
 Facilities Development & Management
 Central Plant
Classroom Lab/Computer Classroom Building (CLCC)

SYMBOLS LEGEND

- Disabled Decal Parking
 Metered Parking (25¢ per 15 minutes)
 Visitor Parking (\$1.00 exit fee; 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/day)
 Bicycle Racks

Parking regulations are enforced at all times. Decals are required on campus from 7am through 11pm. Meters are enforced from 7am until 10pm.



ASU ARIZONA STATE UNIVERSITY WEST
 (602) 543-5500 • www.west.asu.edu
 Street Address: 4701 West Thunderbird Road • Glendale, AZ 85308-4908
 Mailing address: PO Box 37100, Phoenix, AZ 85069-7100

ASU West Directory

For the “ASU Main Directory,” see page 518. For the “ASU East Directory,” see page 665. For the “ASU Extended Campus Administrative Personnel,” see page 701.

Organization	Location	Telephone	Web Address
Academic Affairs	FAB N301	602/543-4500	westcgi.west.asu.edu/acadaffairs
Admission and Enrollment Services	UCB 120	602/543-8203	www.west.asu.edu/admissions
Arts and Sciences, College of	FAB N201	602/543-6000	www.west.asu.edu/coas
American Studies, Department of	FAB N220	602/543-6090	www.west.asu.edu/amerstud
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
Integrative Studies, Department of	FAB N279	602/543-6003	www.west.asu.edu/iasweb
Interdisciplinary Arts and Performance, Department of	FAB N205	602/543-6057	www.west.asu.edu/iap
Life Sciences, Department of	CLCC 217	602/543-6050	www.west.asu.edu/lifesci
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/social
Women’s Studies Program	FAB N291	602/543-3300	www.west.asu.edu/wsteam
Associated Students of ASU West	UCB 226	602/543-8186	www.west.asu.edu/asasuw
ASU West	—	602/543-5500	www.west.asu.edu
Barrett Honors College	UCB 201	602/543-3410	www.west.asu.edu/honors
Bookstore	UCB 140	602/543-6800	www.west.asu.edu/adaff/auxs/bookstore
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
TDD	—	602/543-4327	—
Education, 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
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
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 S270C-1	602/543-6607	www.west.asu.edu/chs/aoj
Gerontology Program	FAB S121	602/543-6642	www.west.asu.edu/chs/GRN
Nursing (ASU Main Program)	FAB N290B	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	www.west.asu.edu/library

Organization	Location	Telephone	Web Address
Management, School of	FAB N101	602/543-6200	www.west.asu.edu/som
Accounting and Information Systems	FAB S190-1	602/543-6275	www.west.asu.edu/som/acct
Management, Department of			
Economics, Finance, Marketing and Quantitative	FAB N120A	602/543-6101	www.west.asu.edu/som
Business Analysis, Department of			
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
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
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	480/965-7712	www.west.asu.edu/admissions
Residential Life	LCR	622/543-2272	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
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 Advising Center	UCB 201	602/543-WCAC	www.west.asu.edu/wcac
Women's Studies Resource Center	UCB 323	602/543-3426	www.west.asu.edu/wsteam/resource.htm

ASU West Faculty and Academic Professionals

A

Achilles, Elayne R. (1986), Professor Emerita of Education; B.M.Ed., Temple University; M.M., Ed.D., Arizona State University

Ackroyd, William S. (2000), Lecturer of Social and Behavioral Sciences; B.A., M.A., M.S., Portland State University; Ph.D., University of Arizona

Aleshire, Peter (1993), Senior Lecturer of Professional Writing; B.A., M.A., Stanford University

Allgood, Tammy (2002), Assistant Librarian; B.A., University of Arizona; M.S., University of North Carolina

Amobi, Olufunmilayo A. (2001), Assistant Professor of Secondary Education; B.A., University of Ibadan (Nigeria); M.Ed., Ed.D., Arizona State University

Anastasi, Jeffery S. (2001), Assistant Professor of Cognitive Psychology; B.A., M.A., Ph.D., State University of New York, Binghamton

Andereck, Kathleen L. (1993), Associate Professor of Recreation and Tourism Management; B.S., University of Wisconsin, Stevens Point; M.S., Texas A&M University; Ph.D., Clemson University

Anders, Gary C. (1989), Professor of Economics; Director, Institute for International Business, School of Management; B.S., West Texas State University; M.A., Ph.D., University of Notre Dame

Anders, Kathleen K. (2003), Lecturer of Management; B.A., University of Notre Dame; M.B.A., University of Alaska; Ph.D., Arizona State University

Anderson, Laurel A. (1989), Associate Professor of Marketing; B.S.N., University of Minnesota, Twin Cities; M.N., University of Washington; Ph.D., Arizona State University

Anokye, A. Duku (1999), Associate Professor of American Studies; Cochair, Department of American Studies; B.A., Michigan State University; M.A., Federal City College, District of Columbia; M.A., Ph.D., City University of New York Graduate School and University Center

Armstrong, Gaylene S. (2000), Assistant Professor of Criminal Justice and Criminology; B.A., University of Manitoba (Canada); M.A., Ph.D., University of Maryland

Armstrong, Todd A. (1999), Assistant Professor of Criminal Justice and Criminology; B.A., M.A., Ph.D., University of Maryland, College Park

Atwater, Leanne E. (1993), Professor of Management; Chair, Department of Management; B.A., M.A., San Diego State University; Ph.D., Claremont Graduate School

Ávalos, Manuel (1990), Associate Professor of Political Science; Associate Vice Provost, Research and Faculty Development; B.A., M.A., University of Arizona; Ph.D., University of New Mexico

Awender, Michael A. (2000), Professor of Education; Dean, College of Education; B.A., M.A., University of Windsor (Canada); M.Ed., University of Toronto (Canada); Ph.D., Claremont Graduate School

B

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ASU West Administrative Personnel

Administration

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Executive Vice Provost	Gebeyehu Ejigu
Dean of Students	Jo Ann Madonna
Vice Provost for Academic Affairs	Mark S. Searle
Associate Vice Provost, Academic Programs and Graduate Studies	Fernando Delgado
Associate Vice Provost, Research and Faculty Development	Manuel Ávalos
Director, Curriculum and Academic Articulation	Julia R. Ramsden
Director, Research Consulting Center	Joseph M. Ryan
Associate Dean, Barrett Honors College	R. Eric Ramsey
Faculty Director, Division of Collaborative Programs	Afsaneh Nahavandi
Vice Provost for Planning and Budget	Barry R. Bruns
Vice Provost for Public Affairs	Carol A. Poore
Dean, ASU West Library	Marilyn Myers

College of Arts and Sciences

Dean, College of Arts and Sciences	Emily F. Cutrer
Associate Dean, College of Arts and Sciences	Candice D. Bredbenner
Cochair, Department of American Studies	A. Duku Anokye
Cochair, Department of American Studies	John S. Gilkeson
Chair, Department of Integrative Studies	Shari C. Collins-Chobanian
Chair, Department of Interdisciplinary Arts and Performance	Robert D. Taylor
Chair, Department of Life Sciences	Douglas Dennis
Chair, Department of Social and Behavioral Sciences	Paul A. Miller
Chair, Women's Studies Program	Astair G. M. Mengesha

College of Education

Dean, College of Education	Michael A. Awender
Assistant Dean, College of Education	Ray R. Buss
Chair, Department of Elementary Education	Michael F. Kelley
Chair, Department of Graduate Studies and Professional Development	Alice A. Christie
Chair, Department of Secondary Education	Nancy S. Haas
Chair, Department of Special Education	Ida M. Malian

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	<i>To Be Appointed</i>
Director, Gerontology Program	Richard Gitelson
Director, Partnership for Community Development	John T. Hultsman
Liaison, Nursing (ASU Main Program)	Brenda Morris

School of Management

Dean, School of Management	Bruce A. Forster
Chair, Department of Accounting and Information Systems Management	William A. Duncan
Chair, Department of Economics, Finance, Marketing, and Quantitative Business Analysis	Joseph A. Bellizzi
Chair, Department of Management	Leanne E. Atwater

ASU Extended Campus

www.asu.edu/xed

Bette F. DeGraw, Ph.D., 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 beyond ASU physical campuses through the ASU Extended Campus. The Extended Campus is a combination of 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. Classes are taught by a faculty of full-time professors and experienced professionals.

For more information about the Extended Campus, access the Web site at www.asu.edu/xed, or call 480/965-3986.

ORGANIZATION

The College of Extended Education is a university-wide college that oversees the delivery of the Extended Campus courses. The college forms partnerships with other ASU colleges and community resources to implement quality programs. It 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.

Schedule Options

Through the Extended Campus, 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, 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 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.

Evening Classes

Evening study is perfect for students with busy schedules. The Extended Campus offers several program options.

Evening classes in English as a second language are offered at night at ASU Main. For details, see "[English as a Second Language](#)," page 697.

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 "[Undergraduate Evening Degree Completion Programs](#)," page 690.

The Bachelor of Interdisciplinary Studies is offered at the ASU Downtown Center. Students may earn their entire degree in downtown Phoenix. For more information, see "[Bachelor of Interdisciplinary Studies—B.I.S.](#)," page 692.

The W. P. Carey M.B.A. Evening Program offers working professionals a solid managerial degree from two locations: the ASU Downtown Center in Phoenix and ASU Main in Tempe. For more information, see "[Master of Business Administration—M.B.A.](#)," page 693.

The Master of Public Administration offers several interdisciplinary courses during the evening at various locations, and the full program is available at the ASU Downtown Center. For more information, see "[Master of Public Administration—M.P.A.](#)," page 694.

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 listing of the current weekend courses offered, refer to the searchable online course schedule at www.asu.edu/xed. A student choosing to enroll in a weekend course should contact the department offering the course for details, including specific dates and requirements.

ASU EXTENDED CAMPUS

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 on ASU Main campus. Registration begins October 1 and courses start December 30. The College of Extended Education schedules the Winter Session courses in collaboration with ASU Main academic departments.

For more information, call 480/965-9797.

Distance Learning

ASU offers more than 200 courses each semester through the Internet, television, and independent learning. 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.

Independent Learning

Independent learning provides an option for students to earn university credit any time, any place. These courses are appropriate for students seeking flexibility in progressing through their ASU program of study or to fulfill degree requirements. Others might enroll in these courses to enhance their occupational, professional, and intellectual skills.

Anyone with a high school diploma or GED may enroll; however, enrollment in independent learning is not the same as admission to ASU. ASU degree-seeking students must obtain their advisors' and deans' approvals before enrolling. Students may register for courses at any time during the year and have one year in which to complete course work. Some courses are offered on the Internet while most of them are offered in a mail-based format.

For more information, call 480/965-6563, or access the program Web site at www.dlt.asu.edu.

Internet

Online courses offer students a great level of scheduling flexibility to participate in ASU courses. 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 an "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 ASU Main and ASU East. 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 www.dlt.asu.edu/info/cable.html.

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 ASU Downtown Center, ASU East, ASU West, Cactus Shadows High School, and the Gila River Indian Community.

Off-Campus Locations

Extended Campus classes are held at approximately 250 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 Extended Campus courses.

The anchor off-campus site is the ASU Downtown Center, located in downtown Phoenix. The center is the educational hub for downtown workers, organizations, and residents, and serves as a meeting site for conferences and seminars.

For more information, see "Locations," page 699.

DEGREE PROGRAMS

Convenient times and locations, as well as 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 facilitates delivery of the courses offered by the university's academic departments. Course listings are published each fall and spring semester in the *ASU Schedule of Classes*. All degree programs offered through the college are shown in the "Baccalaureate Degrees and Majors Offered in Collaboration with the College of Extended Education" table, page 691, and the "Graduate Degrees and Majors Offered in Collaboration with the College of Extended Education" table, page 694.

Undergraduate Evening Degree Completion Programs

These programs are designed for the working student seeking a bachelor's degree, offering a variety of courses and access to faculty and advisors at night. Most classes are

Baccalaureate Degrees and Majors Offered in Collaboration with the College of Extended Education

Major	Degree	Concentration*	Administered By
Applied Science	B.A.S.	Aviation maintenance management technology, aviation management technology, computer systems administration, consumer products technology, digital media management, digital publishing, emergency management, fire service management, food retailing, food service management, instrumentation, manufacturing technology and management, materials joining and manufacturing technology, microcomputer systems, multimedia writing and technical communication, municipal operations management, operations management, resource team specialist, semiconductor technology, software technology applications, technical graphics, or wellness Any minor available at ASU West or individualized concentration	Bachelor of Applied Science Advisory Committee (ASU East) College of Arts and Sciences (ASU West)
Communication	B.A., B.S.	—	Hugh Downs School of Human Communication
Elementary Education	B.A.E.	Optional: multilingual/multicultural education*	Division of Curriculum and Instruction
English	B.A.	Linguistics or literature	Department of English
History	B.A.	—	Department of History
Housing and Urban Development	B.S.D.	—	School of Planning and Landscape Architecture
Interdisciplinary Studies	B.I.S.	See the “ B.I.S. Concentrations ” table, page 125.	Bachelor of Interdisciplinary Studies Advisory Committee
Nursing	B.S.N.	—	College of Nursing
Political Science	B.A. B.S.	— Optional: public policy advocacy and lobbying or public policy analysis*	Department of Political Science
Psychology	B.A., B.S.	—	Department of Psychology
Religious Studies	B.A.	—	Department of Religious Studies
Social Work	B.S.W.	—	School of Social Work
Sociology	B.A.	—	Department of Sociology

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

held on the ASU Main 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 the College of Public Programs, and students can earn a bachelor’s degree in any of these disciplines: communication, English, history, political science, psychology, religious studies, 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 e-mail app.info@asu.edu.

Undergraduate Degrees

BACHELOR OF ARTS—B.A.

Communication

Employers have ranked interpersonal, analytical, teamwork, computer, and verbal communication skills as the top

five attributes desired of employees. The program’s curriculum is designed to ensure graduates will be proficient in each of these areas. The program is offered at night on the ASU Main campus and is one of the Undergraduate Evening Degree Programs.

For more information, call the evening degree advisor at 480/965-6506.

English

Students have the opportunity to earn their English degree in the evening. This program is offered with a concentration in linguistics or literature. It is one of the Undergraduate Evening Degree Programs.

For more information, call the evening degree advisor at 480/965-6506.

History

Upper-division courses for a Bachelor of Arts in History are available via interactive television, the Internet, and in

ASU EXTENDED CAMPUS

the evening through the Undergraduate Evening Degree Completion Program at ASU Main. While students can complete most of the degree program through distance learning, two required courses must be taken on campus and are available in the evening.

For more information, call the evening degree advisor at 480/965-6506.

Political Science

Political science degrees prepare students for responsibilities as citizens, leaders, and professionals in a democratic society and an interdependent world. Students can earn their Bachelor of Arts in Political Science at night on the ASU Main campus. This program is one of the Undergraduate Evening Degree Programs.

For more information, call the evening degree advisor at 480/965-6506.

Psychology

Students with a bachelor's degree in Psychology may find rewarding careers using the strong social, analytical, writing, and research skills they developed through their studies. This degree program accommodates a student's busy schedule and is one of the Undergraduate Evening Degree Programs.

For more information, call the evening degree advisor at 480/965-6506.

Religious Studies

The religious studies major is for students wishing to explore such areas as African or African American studies; Islamic studies; myths, rituals, and the arts; Native American studies; and religion and politics. Students may obtain their bachelor of arts through this degree completion program offered at night on the ASU Main campus. Students in the program typically have completed 60 lower-division credit hours.

For more information, call the evening degree advisor at 480/965-6506.

Sociology

Sociology provides distinctive perspectives of the world, generating new ideas and analyzing the old. Students can earn a bachelor of arts in this discipline at night on the ASU Main campus, through the undergraduate degree completion program.

To learn more about this degree, call the evening degree advisor at 480/965-6506.

BACHELOR OF APPLIED SCIENCE—B.A.S.

ASU East

This is a practical and flexible degree designed specifically for students holding an associate of applied science degree from a regionally accredited community college. This is a "capstone" degree, which leverages the credits earned in community college with 60 semester hours of upper-division course work completed through ASU East. The goal of the program is to provide students with management, leadership, critical thinking, and community skills—along with significant work in a professional specialization—that will broaden career horizons, promote lifelong learning, and enrich personal and civic life. ASU East fac-

ulty and advisors work with students to match a program of study to their individual interests and career goals, or students may select one of the concentrations shown in the "Baccalaureate Degrees and Majors Offered in Collaboration with the College of Extended Education" table, page 691.

For more information, call 480/727-1874.

ASU West

Students who have completed an associate of applied science degree may enroll in the B.A.S. degree program at ASU West.

This program emphasizes focused study in critical thinking, communication, and leadership skills and includes individual and team problem-solving experiences; core curriculum is focused on the arts, computer literacy, writing, ethics and career development. Courses are designed to refresh students' academic skills and to develop the resources to succeed in their educational pursuits. Concentration areas are developed by the advisor and student based on educational goals and interests.

For more information, call 602/543-4227, or visit www.west.asu.edu/bas.

BACHELOR OF ARTS IN EDUCATION—B.A.E.

Elementary Education

The College of Education offers this off-campus degree program in elementary education to targeted school district audiences.

For more information, call 480/965-1644.

BACHELOR OF INTERDISCIPLINARY STUDIES—B.I.S.

The B.I.S. degree program in organizational studies provides students with a unique opportunity to learn about the dynamics of today's organizations by combining courses from a number of academic disciplines. Lower- and upper-division course work from multiple subject-area concentrations are integrated into a program of study. This concentration allows students to study contemporary issues like social processes and human interaction, information management and organizational theory, organizational contexts, diversity, ethics, and more. The B.I.S. degree is offered at the ASU Downtown Center. It also can be customized for employers and delivered on site.

For more information, call 480/965-9797, or write

COLLEGE OF EXTENDED EDUCATION
ACADEMIC AND PROFESSIONAL PROGRAMS
ARIZONA STATE UNIVERSITY
PO BOX 874001
TEMPE AZ 85287-4001

BACHELOR OF SCIENCE—B.S.

Communication

The curriculum of this degree is designed to ensure graduates will be proficient in each of the areas employers rank as the top five skills they desire in employees: interpersonal, analytical, teamwork, computer, and verbal communication skills. This program, offered at night on the ASU Main campus, is one of the Undergraduate Evening Degree Programs.

For more information, call the evening degree advisor at 480/965-6506.

Political Science

Students can earn their Bachelor of Science in Political Science at night on the ASU Main campus, through the Undergraduate Evening Degree Program. Political science degrees prepare students for responsibilities as citizens, leaders, and professionals in a democratic society and an interdependent world.

For more information, call the evening degree advisor at 480/965-6506.

Psychology

This degree program accommodates a student's busy schedule and is one of the Undergraduate Evening Degree Programs. Students in this program learn strong social, analytical, and writing and research skills and may find rewarding careers in marketing, consulting, or technical writing.

For more information, call the evening degree advisor at 480/965-6506.

BACHELOR OF SCIENCE IN DESIGN—B.S.D.

Housing and Urban Development

This B.S.D. degree with a major in Housing and Urban Development affords graduates the ability to pursue careers in the private home development industry, in publicly sponsored housing and community redevelopment, with non-profit housing agencies, or in postgraduate housing and urban development research and education. This degree is offered primarily at the ASU Downtown Center, although some courses may be available at other locations and via cable television.

For more information, call 480/965-7167, or write

SCHOOL OF PLANNING AND LANDSCAPE
ARCHITECTURE
ARIZONA STATE UNIVERSITY
PO BOX 872005
TEMPE AZ 85287-2005

BACHELOR OF SCIENCE IN NURSING—B.S.N.

The College of Nursing has two opportunities for the professional registered nurse to expand his or her knowledge by obtaining either a B.S.N. degree or a B.S.N. leading to an M.S. degree in Nursing.

The two program tracks available for RNs include the RN-B.S.N. *only* and the RN-B.S.N.-M.S. They are structured to provide an accessible, accelerated, and predictable pathway through the professional program. (See "RN-B.S.N. Only," page 456, and "RN-B.S.N.-M.S.," page 456.)

These alternative program tracks are offered to RNs who have completed all prerequisite courses and have been admitted to the university (see "RN-B.S.N. Degree Requirements," page 457). The program is designed to enable the completion of all the professional nursing courses in a 12-month period. Convenient times and locations, including on-site classes for various agencies in the local area as well as today's innovative technologies, make it easier for RNs to earn a degree.

For more information, call the Office of Student Services in the College of Nursing at 480/965-2987.

BACHELOR OF SOCIAL WORK—B.S.W.

This program serves students living and working in southern Arizona who are pursuing an undergraduate degree in Social Work. It is designed to increase the number of trained child welfare social workers in rural areas of Arizona. Students can complete all required upper-division social work courses and electives at a centrally located site near downtown Tucson, while completing general studies and other degree requirements through area community colleges and the state's three universities.

For more information, call the Tucson Component at 520/884-5507.

Graduate Degrees

All graduate degree programs offered through the college are shown in the "Graduate Degrees and Majors Offered in Collaboration with the College of Extended Education" table, page 694.

D.E.L.T.A. DOCTORATE—ED.D.

This doctorate in educational administration and supervision responds to the increased demand for enhanced educational leadership in Arizona and addresses these critical areas of school instruction and administration: school law, computer applications, school finance, research techniques, and instructional improvement. The program is designed for qualified public school administrators and recognizes the unique needs of full-time employees; it is available as an off-campus degree program.

For applications and more information, call 480/965-7224.

MASTER OF BUSINESS ADMINISTRATION—M.B.A.

connectMBA

The ASU West connectMBA option allows working professionals to complete a quality, AACSB International-accredited M.B.A. without weekly attendance on campus. Course delivery combines classroom instruction (every seventh weekend) with self-paced, computer-assisted learning. The two-year program consists of 15 three-semester-hour courses.

For more information, access the Web site at www.west.asu.edu/som/mba.

W. P. Carey M.B.A. Evening Program

This program offers working professionals a solid managerial degree from two locations: the ASU Downtown Center in Phoenix and the ASU Main campus in Tempe. The program combines theoretical concepts with practical applications. Students at both locations receive the same high-quality instruction and a complete range of student services.

For more information, call 480/965-3332.

ASU EXTENDED CAMPUS

Graduate Degrees and Majors Offered in Collaboration with the College of Extended Education

Major	Degree	Concentration*	Administered By
Business Administration	M.B.A.	—	School of Management (ASU West) W. P. Carey School of Business (ASU Main)
Curriculum and Instruction	M.Ed.	Secondary education	Division of Curriculum and Instruction
Educational Administration and Supervision	Ed.D.	—	Division of Educational Leadership and Policy Studies
Electrical Engineering	M.S.E.	—	Department of Electrical Engineering
Engineering	M.Eng.	—	Ira A. Fulton School of Engineering
Engineering Science	M.S.E.	Optional: executive embedded systems*	Ira A. Fulton School of Engineering
Nursing	M.S.	—	College of Nursing
Public Administration	M.P.A.	Optional: nonprofit administration*	School of Public Affairs
Social Work	M.S.W.	Advanced direct practice or planning, administration, and community practice	School of Social Work
Technology	M.S.Tech.	Environmental technology management	Department of Information and Management Technology (ASU East)

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

W. P. Carey M.B.A. in Technology

ASU Main offers this evening program that is designed specifically for technology professionals. Case studies, applications, and examples emphasize technology, global competition, and rapid organizational change. The program is offered at the ASU Research Park.

For more information, call 480/965-3332.

W. P. Carey M.B.A. Online Program

This is an ASU Main program that uses computer and communications technologies to offer the highly ranked W. P. Carey M.B.A. degree to managers and professionals who do not wish to attend a traditional, on-campus program. The program consists of on-site sessions, asynchronous technology-based materials, and electronic communication among faculty and students. This two-year program consists of 12 four-semester-hour courses.

For more information, call 480/965-3332.

ScottsdaleMBA

The ASU West ScottsdaleMBA option meets in the Scottsdale Airpark in north Scottsdale. Classes emphasize the development of critical learning skills with practical application in analyzing local industries. Students, faculty, and industry experts work together on projects for local companies. The integrated curriculum provides a comprehensive understanding of interrelated business issues.

For more information, call 602/543-6201.

MASTER OF EDUCATION—M.ED.

Curriculum and Instruction

The major in Curriculum and Instruction is offered with a concentration in secondary education. This off-campus degree program is designed for school district audiences.

For more information, call 480/965-1644.

MASTER OF ENGINEERING—M.ENG.

The tri-university M.Eng. program is intended to meet the educational needs of Arizona's practicing engineers. With industry input, Arizona's three state universities offer courses through a variety of distance-delivery methods in flexible formats at any of the three universities. Course work will enhance the skills, knowledge, and understanding that are critical to today's practicing engineers.

The M.Eng. degree offers the practicing engineer opportunities to design, in conjunction with an advisory committee, a program of study that reflects the increasingly interdisciplinary nature of engineering practice. The degree requires the completion of 30 semester hours of course work; students must complete a minimum of three semester hours in applied engineering mathematics as well as three semester hours of engineering management/business. Up to six semester hours from a practice-oriented project may be applied. A final examination is also required.

For more information about the program, access the Ira A. Fulton School of Engineering Center for Professional Development Web site at cpd.asu.edu.

MASTER OF PUBLIC ADMINISTRATION—M.P.A.

This interdisciplinary program provides professional training for careers in public administration and management. The M.P.A. program is available evenings at the ASU Downtown Center in its entirety. Opportunities to complete course work leading to the M.P.A. degree are also offered during evening hours at ASU Main and various off-campus sites.

For more information, call 480/965-3926, or write

SCHOOL OF PUBLIC AFFAIRS
ARIZONA STATE UNIVERSITY
PO BOX 870603
TEMPE AZ 85287-0603

MASTER OF SCIENCE IN ENGINEERING—M.S.E.**Electrical Engineering**

This is a professional degree with no thesis requirement. The M.S.E. program is offered to off-campus students through distance learning and designed for engineering and technical professionals who require flexible scheduling. The online program offers specialty areas in solid-state electronics, mixed-signal integrated circuit design, signal processing, and communications. A number of courses are offered online each semester.

For more information about the program, access the Ira A. Fulton School of Engineering Center for Professional Development's Web site at cpd.asu.edu/online.

Executives Embedded Systems Program

This degree program provides an interdisciplinary engineering curriculum and strategically aligns a core business curriculum to prepare engineers for management and leadership positions within technical organizations. The program is designed for engineers on the fast track of leadership advancement and, for their convenience, is delivered via distance learning.

The program is administered as a cohort-based two-year program of study consisting of 42 semester hours and a value-added capstone project. Twelve semester hours of business curriculum are offered in this program. The engineering curriculum is on an accelerated trimester of 10-week sessions, and the business curriculum is delivered with five-week course sessions. Successful students graduate with an M.S.E. degree in Engineering Science with a concentration in executive embedded systems.

For more information, access the Web site at cpd.asu.edu/online.

MASTER OF SCIENCE IN NURSING—M.S.

The M.S. degree in Nursing and the certificate program offered by the graduate program in the College of Nursing provides access to quality academic credit and degree concentrations for working RNs through flexible schedules; a vast network of sites; classes scheduled days, evenings, and weekends; and innovative delivery technologies, including television and the Internet.

Concentrations available include adult health nursing with options in primary care of chronically ill adults or acute care; community health nursing; psychiatric/mental health nursing; family health nursing; parent-child nursing with options in nursing of children (acute or primary focus), children with special needs, and neonatal nursing; and women's health nursing.

For more information, call the Office of Student Services in the College of Nursing at 480/965-2987.

MASTER OF SCIENCE IN TECHNOLOGY—M.S.TECH.

ASU East offers this program with a concentration in environmental technology management through a Web-based distance learning format. Three areas of study are available: environmental management, international environmental management, and emergency management. Students in this program are part of a cohort group that begins

each January and graduates 24 months later at a December ceremony.

Students in the distance learning cohort are expected to be working professionals in fields such as environmental safety and health; environmental engineering; emergency management; national or local regulatory and permitting activities; environmental law; and environmental laboratories. Students should have completed at least one course in inorganic chemistry and one course in organic chemistry as part of their undergraduate degree preparation.

For more information, access the Web site at www.east.asu.edu/ctas/imt/etm/html/dmasters.html.

MASTER OF SOCIAL WORK—M.S.W.

This program prepares social workers to respond effectively to the needs of the state and other populations of the Southwest. The program is offered in Tucson and Flagstaff.

For more information about the Tucson component, call 520/884-5507, or for more information about the Flagstaff component, call 480/965-3304.

Graduate Certificates

All certificates offered by or in collaboration with the College of Extended Education are shown in the "ASU Extended Campus Certificates" table, page 696.

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. This includes 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, send e-mail to asian.studies@asu.edu, 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 two of the three gerontology core courses, a capstone experience of at least three semester hours (internship, individualized instruction, reading and conference, or applied research), and four additional aging-related courses approved as electives.

ASU Extended Campus Certificates

Certificate Program	Administered By
Asian Studies, Graduate Certificate in	Center for Asian Studies
Business English Certificate	College of Extended Education
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	Committee on Transportation Systems and the Graduate College

* This certificate is not for academic credit.

For more information, see “Certificate in Gerontology,” page 678, 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 480/727-1515, 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 480/965-6693.

Professional Development Certificates

All certificates offered by or in collaboration with the College of Extended Education are shown in the “ASU Extended Campus Certificates” 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 (ESL)

This certificate program is designed to help professionals who speak English as a second language to succeed in business. It offers five 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 three certificate courses, they earn a business English certificate. If students wish to continue, and successfully complete five courses, they earn an advanced 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 offered at the ASU Downtown Center. 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 is held at the ASU Downtown Center

and 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 696).

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/xed.

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 at the ASU Downtown Center. 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.

Information Technology

This program features KnowledgeNet’s cutting-edge, Web-based training for students seeking to improve their computer skills. The program is uniquely designed to accommodate different learning styles by providing options such as live, instructor-led sessions delivered via the Internet and self-paced online sessions. Courses include such topics as beginning MS Office and advanced Cisco programming.

To find more information or to register online, access the Web site at www.asu.edu/xed/knowledgenet.

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

ASU EXTENDED CAMPUS

programs for adult learners have no exams, grades, or attendance requirements. Participants may attend any number of the scheduled learning experiences. TraveLearn® 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. The classes are held throughout the valley and at other locations in the state.

For more information, call 480/965-9200, or access the Web site at www.asu.edu/xed/wealth.

Lectures

The ASU Extended Campus offers a variety of special programs of academic and cultural interest as well as personal enrichment, to the general community. These lectures cover an array of topics and are offered at the ASU Downtown Center in central Phoenix.

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 also 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 ASU Downtown Center. 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

Approximately 250 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 Extended Campus 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.

ASU Downtown Center

The ASU Downtown Center, located in central Phoenix, is the Extended Campus's anchor location. The center is an educational, applied research, and community service facility. 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-university organizations, in accordance with university policies and procedures.

The center's art gallery, the Galleria, features works by ASU faculty, staff, students, and local artists. Exhibits rotate monthly. The Galleria participates in monthly and annual art tours, including First Friday and Art Detour, sponsored by ArtLink, a local artists' group.

Convenient parking is available in the Heritage and Science Park garage on the corner of Fifth and Monroe Streets.

For more information about the programs and services provided at the center, call 480/965-3046, or write

ASU DOWNTOWN CENTER
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* is a library and distribution center designed to be a centralized reference and assistance source for individuals, schools, and communities throughout Arizona.

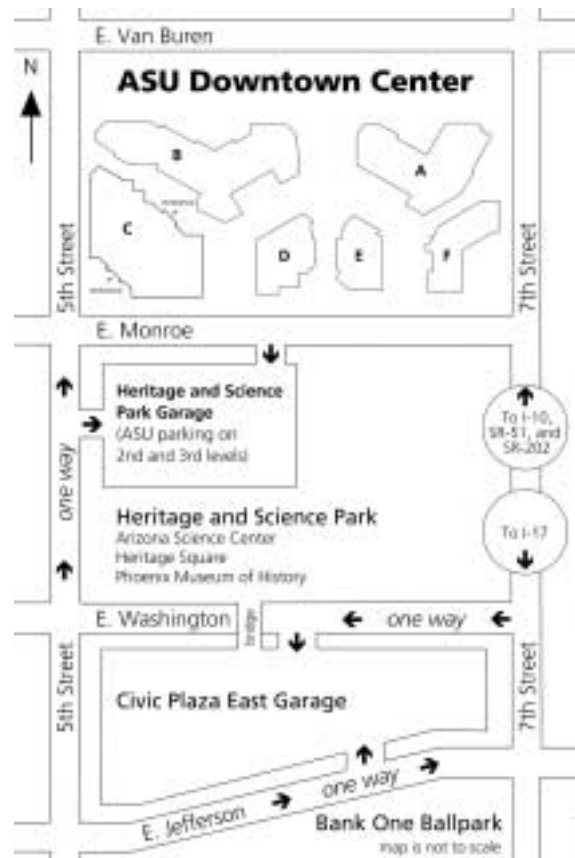
The *Center for the Future of Arizona* works with civic and political leaders to develop a statewide agenda to expand educational opportunities, encourage strategic investments, and achieve a sustainable quality of life for residents.

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 ASU Downtown Center.

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.



ASU Extended Campus Faculty and Academic Professionals

A

Alvarado, Ronald H. (1974), Professor Emeritus of Life Sciences; Dean Emeritus, College of Extended Education; B.A., University of California, Riverside; M.S., Ph.D., 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; B.A., University of Colorado; M.S., Colorado State University

C

Cole, Tom (1981), Lecturer, College of Extended Education; Associate Director, American English and Culture Program, College of Extended Education; B.S., Northern Arizona University; M.A., Arizona State University

Craft, Elizabeth H. (1982), Administrative Professional Emerita, College of Extended Education; Director, Distance Learning and Technology; B.F.A., Ohio University; M.A., Arizona State University

D

DeGraw, Bette F. (1986), Administrative Professional, College of Extended Education; Associate Professor of Public Affairs; Dean, College of Extended Education; Director, Downtown Center; B.A., Thiel College; M.S.W., Rutgers, The State University of New Jersey; Ph.D., Arizona State University

Dehghanpishch, Elaine (1983), Lecturer, College of Extended Education; B.A., M.A., Pahlavi University (Iran)

F

Feldman, Patricia A. (1990), Associate Administrative Professional, College of Extended Education; Director, Academic and Professional Programs, College of Extended Education; B.S., M.Ed., Colorado State University

Fontaine, Steven (1990), Lecturer, College of Extended Education; B.A., Shepherd College; M.A., Temple University; Ph.D., Arizona State University

H

Hestrin, Michelle (2003), Instructional Specialist, College of Extended Education; International Student Advisor, American English and Culture Program, College of Extended Education; B.A., University of Minnesota; M.A., Arizona State University

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; B.A., Dartmouth College; M.A., Utah State University; Ph.D., Arizona State University

K

Kegelman, Jan (1978), Lecturer, College of Extended Education; Coordinator, International Teaching Assistants Program, American English and Culture Program; B.S., University of Massachusetts; M.A., Arizona State University

Kyselka, Christine K. (1990), Associate Administrative Professional, College of Extended Education; Assistant Director, Extended Campus Programs, College of Extended Education; B.S., M.P.A., Arizona State University

L

Lindeman, Mary (1988), Lecturer, College of Extended Education; B.A., St. Mary's University; M.A., University of Houston

Livingston, Mary (1978), Lecturer, College of Extended Education; B.A., M.A., Arizona State University

M

Mitchell, Marie (1980), Lecturer, College of Extended Education; B.A., Fort Hays State University; M.A., School for International Training

N

Navarrete, Carol (1994), Lecturer, College of Extended Education; B.A., M.A., University of Colorado

R

Rentz, Mark D. (1984), Lecturer, College of Extended Education; Director, American English and Culture Program, College of Extended Education; B.A., Bethel College; M.A., William Carey International University

Robinson, Antoniette (1994), Instructor, College of Extended Education; B.A., M.A., State University of New York

S

Schlather, Erica (1993), Instructional Specialist, College of Extended Education; Marketing Coordinator, American English and Culture Program, College of Extended Education; B.A., M.A., Northern Arizona University

T

Thursby, Gayle (1994), Lecturer, College of Extended Education; B.A., University of Colorado; M.A., University of California, Los Angeles

V

Verdini, William A. (1976), Associate Professor of Supply Chain Management; Acting Director, Distance Learning and Technology; Associate Dean, College of Extended Education; B.S., Case Western Reserve University; M.B.A., D.B.A., Kent State University

Vicens, Wendy (1977), Senior Lecturer, College of Extended Education; B.A., M.A., 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; B.A., M.A., West Virginia University

ASU Extended Campus Administrative Personnel

Dean, College of Extended Education	Bette F. DeGraw
Associate Dean	William A. Verdini
Assistant Dean	Elaine Sweet
Director, Academic and Professional Programs	Patricia A. Feldman
Director, American English and Culture Program	Mark D. Rentz
Director, ASU Downtown Center and Property Administration	Cathie Fox
Director, Communications and Marketing	Randy Bailey
Acting Director, Distance Learning and Technology	William A. Verdini
Director, Extended Campus Programs	Jim Patzer

ASU Extended Campus Directory

For the “ASU Main Directory,” see page 518. For the “ASU East Directory,” see page 665. For the “ASU West Directory,” see page 680.

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
ASU Downtown Center and Property Administration	ASUDC	480/965-3046	www.asu.edu/xed/dtc
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 or 1-800-533-4806	www.dlt.asu.edu/courses/independent/programinfo.cfm
Planning and Business Services	ASUDC C319	480/965-3046	—
Property Administration	ASUDC C319	480/965-3046	—
Winter Session	RITT B132	480/965-9797	www.asu.edu/xed/winter

Accreditation and Affiliation

ASU Main and ASU East. Arizona State University Main 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

Arizona State University East is recognized by the Higher Learning Commission as a full-service campus and is accredited under the ASU Main 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 ASU Main” table below; the “[Academic Accreditation at ASU East](#)” table, page 703; the “[Academic Affiliation and Membership at ASU Main](#)” table, page 704; and the “[Academic Affiliation and Membership at ASU East](#)” table, page 708. Some programs in the College of Education are approved by the State Board of Education (Arizona) and the National Association of School Psychologists.

ASU West. ASU West 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 ASU West](#)” table, page 704.

Academic Accreditation at ASU Main

Unit or Program	Accredited By
College of Architecture and Environmental Design B.S.D., Graphic Design, Industrial Design B.S.D., Interior Design B.S.L.A. B.S.P., M.E.P. M.Arch. M.S.D., Design, with concentrations in graphic design and industrial design	National Association of Schools of Art and Design Foundation for Interior Design Education Research Landscape Architectural Accreditation Board Planning Accreditation Board National Architectural Accrediting Board National Association of Schools of Art and Design
College of Education All programs M.C., Counseling Ph.D., Counseling Psychology; Educational Psychology, with a concentration in school psychology	North Central Association of Colleges and Schools Council for Accreditation of Counseling and Related Educational Programs American Psychological Association
College of Law J.D.	American Bar Association
College of Liberal Arts and Sciences B.S., Clinical Laboratory Sciences M.S., Communication Disorders M.S., Family and Human Development, with a focus in marriage and family therapy under the family studies concentration Ph.D., Psychology, with a concentration in clinical psychology	National Accrediting Agency for Clinical Laboratory Sciences American Speech-Language-Hearing Association Commission on Accreditation for Marriage and Family Therapy Education—Candidacy Status American Psychological Association
College of Nursing B.S.N., M.S., Nursing	Arizona State Board of Nursing Commission on Collegiate Nursing Education, initial approval
College of Public Programs B.S., Recreation	Council on Accreditation of the National Recreation and Park Association

Academic Accreditation at ASU Main (continued)

Unit or Program	Accredited By
College of Public Programs (continued) B.S.W., M.S.W., School of Social Work M.P.A.	Council on Social Work Education National Association of Schools of Public Affairs and Administration
Walter Cronkite School of Journalism and Mass Communication	Accrediting Council on Education in Journalism and Mass Communications
Ira A. Fulton School of Engineering B.S., Computer Science	Computer Science Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc.
B.S., Construction B.S.E., Aerospace Engineering; Bioengineering; Chemical Engineering; Civil Engineering; Computer Systems Engineering; Electrical Engineering; Industrial Engineering; Materials Science and Engineering; Mechanical Engineering	American Council for Construction Education 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
M.H.S.A., School of Health Administration and Policy	Accrediting Commission on Education for Health Services Administration
School of Accountancy	AACSB International, the Association to Advance Collegiate Schools of Business

Academic Accreditation at ASU East

Unit or Program	Accredited By
College of Technology and Applied Sciences B.S., Aeronautical Management Technology, with concentrations in professional flight and air transportation management	Council on Aviation Accreditation
B.S., Aeronautical Engineering Technology; Electronics Engineering Technology; Manufacturing Engineering Technology	Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc.
B.S., Industrial Technology, with concentrations in environmental technology management, graphic information technology, and industrial technology management	National Association of Industrial Technology
East College B.S., Business Administration*	AACSB International, the Association to Advance Collegiate Schools of Business
B.S., Nutrition (didactic program in dietetics); M.S., Nutrition (dietetic internship)	American Dietetic Association
Morrison School of Agribusiness and Resource Management B.S., Agribusiness with a concentration in professional golf management	Professional Golfer's Association of America

* This program is accredited through the ASU Main W. P. Carey School of Business.

ACCREDITATION AND AFFILIATION

Academic Accreditation at ASU West

Unit or Program	Accredited By
College of Human Services B.S.W., M.S.W., Department of Social Work Department of Recreation and Tourism Management	Council on Social Work Education National Recreation and Park Association/American Association for Leisure and Recreation Council on Accreditation
School of Management All programs	AACSB International, the Association to Advance Collegiate Schools of Business

Academic Affiliation and Membership at ASU Main

Unit or Program	Affiliation or Membership With
Barrett Honors College	National Collegiate Honors Council
College of Architecture and Environmental Design School of Architecture School of Design School of Planning 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 American Society of Interior Designers Human Factors and Ergonomics Society Industrial Designers Society of America Interior Design Educators Council 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 Council for Accreditation of Counseling and Related Educational Programs
M.C., Counseling	American Psychological Association National Association of School Psychologists
Ph.D., Counseling Psychology; Educational Psychology, with a concentration in school psychology	American Psychological Association 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
Department of Geography	Association of American Geographers
Department of Geological Sciences	American Association of Petroleum Geologists American Geophysical Union American Institute of Professional Geologists Geological Society of America Mineralogical Society of America Society of Economic Paleontologists and Mineralogists

Academic Affiliation and Membership at ASU Main (continued)

Unit or Program	Affiliation or Membership With
Department of History	American Association for State and Local History American Association of Museums American Historical Association Coordinating Committee for History in Arizona Institute of Historical Research National Council on Public History Western History Association
Department of Kinesiology	American Academy of Kinesiology and Physical Education American Alliance for Health, Physical Education, Recreation, and Dance American College of Sports Medicine American Society of Biomechanics Committee on Allied Health Education Council on Physical Education for Children International Society of Biomechanics National Association for Physical Education in Higher Education North American Society for Sports Psychology and Physical Activity Physiological Society Society for Experimental Biology Society for Neuroscience
Department of Languages and Literatures	American Council on Teaching Foreign Language International Studies Association Modern Language Association
Department of Mathematics and Statistics	American Mathematical Society Mathematical Association of America Rocky Mountain Mathematics Consortium Society for Industrial and Applied Mathematics
Department of Military Science	Association of U.S. Army
Department of Philosophy	American Philosophical Association
Department of Physics and Astronomy	Acoustical Society of America American Association of Physicists in Medicine American Association of Physics Teachers American Astronomical Society American Crystallographic Association American Physical Society American Vacuum Society International Astronomical Union Materials Research Society Optical Society of America
Department of Political Science	American Political Science Association Inter-university Consortium for Political and Social Research
Department of Psychology	American Society of Clinical Psychologists
Department of Sociology	American Sociological Association
School of Life Sciences	American Association of Immunologists American Association of Immunology American Chemical Society American Institute of Biological Sciences American Society for Biochemistry and Molecular Biology American Society for Microbiology

ACCREDITATION AND AFFILIATION

Academic Affiliation and Membership at ASU Main (continued)

Unit or Program	Affiliation or Membership With
School of Life Sciences (continued)	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's 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	
Department of Recreation Management and Tourism	American Humanics, Inc. Arizona American Indian Tourism Association Arizona Heritage Alliance Arizona Park and Recreation Association Arizona State Therapeutic Recreation Association Association for Research on Nonprofit Organizations and Voluntary Action Association for Volunteer Administration

Academic Affiliation and Membership at ASU Main (continued)

Unit or Program	Affiliation or Membership With
Department of Recreation Management and Tourism (continued)	Learning Institute National Center for Nonprofit Boards National Park and Recreation Association 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
Hugh Downs School of Human Communication	National Communication Association Western States Communication Association
School of Justice Studies	American Society of Criminology Arizona Justice Educators Association of Criminal Justice Doctoral Programs Consortium for Graduate Law and Society Programs Justice Studies Association Law and Society Association National Academic Advising Onati International Institute for the Sociology of Law Society for the Study of Social Problems
School of Public Affairs	National Association of Schools of Public Affairs and Administration
School of Social Work	Baccalaureate Program Directors Association Council on Social Work Education Group for the Advancement of Doctoral Education National Association of Deans and Directors of Social Work National Association of Social Workers
Walter Cronkite School of Journalism and Mass Communication	Association of Schools of Journalism and Mass Communication Broadcast Education Association
Graduate College	Council of Graduate Schools
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

ACCREDITATION AND AFFILIATION

Academic Affiliation and Membership at ASU Main (continued)

Unit or Program	Affiliation or Membership With
Department of Chemical and Materials Engineering (continued)	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

Academic Affiliation and Membership at ASU East

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 North American Society for the Study of Obesity American Dietetic Association
Department of Nutrition	

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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. ASU Main map coordinates are provided. For the ASU Main map, see the inside back cover. For other locations, see the “ASU East map” map, page 664; “ASU West” map, page 679; and “ASU Downtown Center” map, page 699. For the locations of campuses, see the “ASU Campus Locations” map, page 27.

Building Abbreviations

Abbreviation	Name	Wings	Location (Coordinate)
ADM	Administration	A, B	Main (F-3)
ADMIN	Administration	—	East
ADPCM	Adelphi Commons	—	Main (G-8)
AED	College of Architecture and Environmental Design/North	—	Main (D-2)
AG	Agriculture Building	—	Main (F-3)
AGBC	Agribusiness Center	—	East
AIP	American Indian Programs	—	East
ALTCH	Altitude Chamber	—	East
ANTH	Anthropology Building	—	Main (D-3)
ANX	Visual Arts Annex	—	Main (B-3)
AQUAT	Mona Plummer Aquatics Center	A, B	Main (B-4)
ARCH	College of Architecture and Environmental Design/South	—	Main (D-2)
ARCV	University Archives	—	Main (D-4)
ART	Art Building	—	Main (D-2)
ARWH	Art Warehouse	—	Main (D-2)
ASUDC	Downtown Center	—	502 E. Monroe St., Phoenix
BA	Business Administration Building	—	Main (F-4)
BAC	Business Administration C-Wing	—	Main (F-4)
BELL	Bell Hall	—	East
BKSTR	ASU Bookstore	—	Main: 525 E. Orange St., Tempe (F-5)
BYAC	Brickyard Artisan Court	—	Main: 30 E. Seventh St., Tempe (B-1)
BYENG	Brickyard Engineering	—	Main: 699 S. Mill Ave., Tempe (B-1)
CDC	Child Development Center	—	East: 6110 S. Sagewood, Mesa
CERA	Ceramics Annex	A, B	Main (D-8)
CFS	Center for Family Studies	—	Main (D-3)
CHAPL	Danforth Chapel	—	Main (E-3)
CHOLA	Cholla Apartments	A–G	Main (E-9)
CLCC	Classroom Laboratory/Computer Classroom Building	—	West
CLRB	Classroom Building	—	East: 6113 S. Avery, Mesa
CNTR	Academic Center Building	—	East
COOR	Lattie F. Coor Mediated Classroom Building	—	Main (E-2)
COWDN	Cowden Family Resources Building	—	Main (D-3)
CP	Central Plant	—	Main (E-4)
CPCOM	Computing Commons Building	—	Main (F-5)
CRI	Cancer Research Institute	—	Main (D-5)
CRNX	Classroom Annex	—	West

BUILDING ABBREVIATIONS

Building Abbreviations (continued)

Abbreviation	Name	Wings	Location (Coordinate)
CSAC	Nadine and Ed Carson Student Athlete Center	—	Main (A-4)
CSB	Community Services Building	—	200 E. Curry Road, Tempe
CSC	Central Services Complex	—	West
DEAN	Dean Hall	—	East
DPSMN	Department of Public Safety	—	Main (G-7)
EAW	Exercise and Wellness Center	—	East: 7350 E. Unity Ave., Mesa
EAW2	Exercise Instructional Lab Building	—	East: 7429 E. Utah Ave., Mesa
ECA	Engineering Center A-Wing	—	Main (E-5)
ECANX	Engineering Center Annex	—	Main (E-5)
ECB	Engineering Center B-Wing	—	Main (E-5)
ECC	Engineering Center C-Wing	—	Main (E-5)
ECD	Engineering Center D-Wing	—	Main (E-5)
ECE	Engineering Center E-Wing	—	Main (E-5)
ECF	Engineering Center F-Wing	—	Main (E-5)
ECG	Engineering Center G-Wing	—	Main (E-5)
ED	Hiram B. Farmer Education Building	—	Main (F-2)
EDB	Ira D. Payne Education Hall	—	Main (E-2)
EDC	Education Lecture Hall	—	Main (F-2)
ELAB	Electronics Laboratory Building	—	West
ENGRC	Engineering Research Center	—	Main (E-5)
FAB	Faculty and Administration Building	—	West
FABNX	Faculty and Administration Building Annex	—	West
FAC	Nelson Fine Arts Center	—	Main (E-1)
FDSC1	Agribusiness Food Science Lab	—	East
FLHLB	Fletcher Library	—	West
FOUND	ASU Foundation	—	Main (C-4)
GGMA	Grady Gammage Memorial Auditorium	—	Main (F-2)
GHALL	Dixie Gammage Hall	—	Main (E-3)
GRNHS	Greenhouses	—	East: 7412 E. Unity Ave., Mesa
GWC	Barry M. Goldwater Center for Science and Engineering Research	—	Main (D-6)
HAYDN	Hayden Hall	—	Main (G-3)
HSC	Health Sciences Center	—	East: 6950 E. Williams Field Road, Mesa
HSC2	Health Sciences Center Research	—	East: 6950 E. Williams Field Road, Mesa
IAPNX	Interdisciplinary Arts and Performance Annex	—	West
ICEOC	Incident Command/Emergency Operations Center	—	East
IRISH	Frederick M. Irish Hall	A–C	Main (G-3)
LAW	John S. Armstrong Hall	—	Main (F-6)
LAWLB	John J. Ross–William C. Blakley Law Library	—	Main (F-6)
LCR	Las Casas Residences	—	West
LIB	Charles T. Hayden Library	—	Main (E-4)
LL	G. Homer Durham Language and Literature Building	—	Main (D-4)
LSA	Life Sciences A-Wing	—	Main (E-4)
LSC	Life Sciences C-Wing	—	Main (E-4)
LSE	Life Sciences E-Wing	—	Main (E-4)
LYC	Lyceum Theatre	—	Main (D-3)

Building Abbreviations (continued)

Abbreviation	Name	Wings	Location (Coordinate)
MAIN	Old Main	—	Main (D-4)
MANZH	Manzanita Hall	—	Main (C-6)
MARIP	Mariposa Hall	A–C	Main (G-6)
MB	M.O. Best Hall	A–C	Main (G-3)
MCENT	A.J. Matthews Center	—	Main (E-3)
MCL	James H. McClintock Hall	—	Main (E-3)
MHALL	Carrie Matthews Hall	—	Main (E-3)
MOEUR	B.B. Moeur Administration	—	Main (F-3)
MTCHL	Mitchell School	—	900 S. Mitchell St., Tempe
MU	Memorial Union	—	Main (F-4)
MUR	John Murdock Lecture Hall	—	Main (E-4)
MUSIC	Music Building	E, W	Main (F-1)
NEEB	L.S. Neeb Hall	—	Main (D-2)
NOBLE	Daniel E. Noble Science and Engineering Library	—	Main (E-6)
NUR	Nursing Building	—	Main (D-3)
OCOT	Ocotillo Hall	A–E	Main (G-6)
PABLO	San Pablo Residence Hall	—	Main (C-5)
PAC	Physical Activity Center	—	East: 7411 E. Utah Ave., Mesa
PBS	Packard Baseball Stadium	—	Main (A-7)
PEBE	Physical Education Building East	—	Main (F-6)
PEBW	Physical Education Building West	—	Main (F-4)
PGM	Professional Golf Management	—	East: 5935 S. Edgewater, Mesa
PS	George M. Bateman Physical Sciences Center	A–G	Main (D-5)
PSA	Wexler Hall	—	Main (D-5)
PSH	Physical Sciences H-Wing	—	Main (D-5)
PSY	Psychology Building	—	Main (E-6)
PSYN	Psychology Building North	—	Main (D-6)
PVE	Palo Verde East Hall	—	Main (C-5)
PVM	Palo Verde Main Hall	A–E	Main (C-5)
PVW	Palo Verde West Hall	—	Main (C-5)
QUAD 1, 2, 4	Student Affairs Quads 1, 2, 4	—	East
QUAD 3	CERIT Lab	—	East
RITT	Ritter Building	A, B	Main (E-8)
SAHU	Sahuarro Hall	A–D	Main (H-7)
SANDS	Sands Classroom Building	—	West
SCOB	John W. Schwada Classroom Office Building	—	Main (E-6)
SCRED	Sonora Center Residence Education Center	—	Main (H-8)
SDF	Solar Demonstration Facility	—	Main (C-7)
SHS	Student Health Service	A, B	Main (D-4)
SIM	Flight Simulator Building	—	East: 7442 E. Tillman Ave., Mesa
SOLAR	Photovoltaics Testing Laboratory	—	East: 7349 E. Unity Ave., Mesa
SRC	Student Recreation Complex	—	Main (G-5)
SS	Social Sciences Building	—	Main (E-4)
SSV	Student Services Building	—	Main (F-3)
STAD	Sun Devil Stadium	—	Main (A-4)
STAUF	Charles Stauffer Communication Arts Building	A, B	Main (E-2)

BUILDING ABBREVIATIONS

Building Abbreviations (continued)

Abbreviation	Name	Wings	Location (Coordinate)
SUTTON	Sutton Hall	—	East
TECH	Technology Center	—	East
TECH2	Technology Center Annex	—	East
TENNIS	Tennis Courts	—	East
TMPCT	Tempe Center	—	Main: 929 (Suite 150) and 951 (Suite 190) S. Mill Ave., Tempe (E-1)
TOWER	Tower Center*	A, B	Main (D-2)
TRACK	Joe Selleh Track	—	Main (A-7)
UASB	Undergraduate Academic Services Building	—	Main (E-4)
UCB	University Center Building	—	West
UCLUB	University Club	—	Main (D-4)
UNION	Student Union	—	East
UNION2	Student Union Annex	—	East
USB	University Services Building	—	Main: 1551 S. Rural Road, Tempe (H-9)
USE	Urban Systems Engineering	—	Main (D-6)
UVCMN	University Commons	—	Main: 215 E. Seventh St., Tempe (C-2)
UWT	Unsteady Wind Tunnel	—	Main (E-7)
VISIT	ASU Visitor's Information Center	—	Main (G-8)
WANNER	Wanner Hall	—	East
WFA	Wells Fargo Arena	—	Main (B-5)
WFLD	ASU West Alternate Locations	—	West
WHALL	West Hall	—	Main (E-3)
WIC	Welcome and Information Center	—	West
WILSN	George W. Wilson Hall	—	Main (E-3)
WTC	Whiteman Tennis Center	—	Main (B-7)

* The Tower Center is different from University Towers, 525 S. Forest Ave., Tempe (B-3), which has no official building abbreviation.