

DEPARTMENT OF CHEMICAL AND MATERIALS ENGINEERING

M MSE 330 Thermodynamics of Materials. (3)

fall

Principles of statistical mechanics, statistical thermodynamics of single crystals, solutions, phase equilibrium, free energy of reactions, free electron theory, and thermodynamics of defects. Prerequisite: MSE 250.

M MSE 335 Materials Kinetics and Processing. (3)

spring

Introduces kinetics in processing of materials as illustrated through real-world materials processing examples. Integrated lecture/lab. Prerequisites: MSE 250, 330.

M MSE 353 Introduction to Materials Processing and Synthesis. (3)

fall

Principles of materials structure and properties with emphasis on applications in bulk and thin film materials processing and synthesis. Prerequisites: CHM 116 and MSE 250 and PHY 131 (or their equivalents).

M MSE 354 Experiments in Materials Synthesis and Processing. (2)

spring

Small groups of students complete three experiments selected from a list. Each is supervised by a selected faculty member. Lab. Fee. Prerequisite: MSE 353 (or its equivalent).

M MSE 355 Materials Structure and Microstructure. (3)

fall

Elements of the structure of metals and alloys, measurement of mechanical properties, and optical metallography. Fee. Prerequisite: MSE 250.

M MSE 356 Materials Structure and Microstructure Lab. (1)

fall

Lab experiments correlating atomic structure, defects and microstructure of processed metals, ceramics polymers and composites to their mechanical and thermal properties. Lab. Fee. Prerequisite: MSE 250. Corequisite: MSE 355.

M MSE 358 Introduction to Electronic, Magnetic, and Optical Properties. (3)

spring

Introduces electrical, optical, and magnetic properties of solids and microstructure effects as examined through materials-based examples. Prerequisites: CHM 114 (or 116); MSE 250; PHY 131.

M MSE 394 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Computer and Experimental Methods in Materials. (3)
- Computer Modeling
Fee.

M MSE 420 Physical Metallurgy. (3)

spring

Crystal structure and defects. Phase diagrams, metallography, solidification and casting, deformation, and annealing. Prerequisite: MSE 250.

M MSE 421 Physical Metallurgy Laboratory. (1)

spring

Focuses on analysis of microstructure of metals and alloys and includes correlation with mechanical properties to some extent. Lab. Fee. Pre- or corequisite: MSE 420.

M MSE 431 Corrosion and Corrosion Control. (3)

spring in odd years

Introduces corrosion mechanisms and methods of preventing corrosion. Topics include: electrochemistry, polarization, corrosion rates, oxidation, coatings, and cathodic protection. Prerequisite: MSE 250.

M MSE 440 Mechanical Properties of Solids. (3)

fall

Effects of environmental and microstructural variables of mechanical properties, including plastic deformation, fatigue, creep, brittle fracture, and internal friction. Credit is allowed for only MSE 440 or 516. Prerequisite: MSE 250.

M MSE 441 Analysis of Material Failures. (3)

spring in even years

Identifies types of failures. Analytical techniques. Fractography, SEM, nondestructive inspection, and metallography. Mechanical and

electronic components. Credit is allowed for only MSE 441 or 512.

Prerequisite: MSE 250.

M MSE 450 Introduction to Materials Characterization. (3)

spring

Introduces materials characterization techniques for analysis of thin films and bulk materials by TEM, SEM, XRD, XPS, and AES. Fee. Prerequisite: MSE 250.

M MSE 451 Introduction to Materials Characterization Lab. (1)

spring

Lab for materials characterization techniques for analysis of thin films and bulk materials by TEM, SEM, XRD, XPS, and AES. Lab. Fee. Corequisite: MSE 450.

M MSE 470 Polymers and Composites. (3)

fall

Relationship between chemistry, structure, and properties of engineering polymers. Design, properties, and behavior of fiber composite systems. Cross-listed as MAE 455. Credit is allowed for only MAE 455 or MSE 470. Prerequisites: MSE 211 (or CEE 213 or MAE 213), 250.

M MSE 471 Introduction to Ceramics. (3)

fall

Principles of structure and property relations in ceramic materials. Processing techniques. Applications in mechanical, electronic, and superconducting systems. Prerequisite: MSE 250.

M MSE 482 Materials Engineering Design. (3)

fall

Principles of the design process. Feasibility and optimization. Manufacturing processes, materials selection, failure analysis, and economics. Prerequisites: ENG 101 (or 105 or 107); MSE 354, 355. *General Studies: L*

M MSE 490 Capstone Design Project. (1–3)

spring

For small groups in fundamental or applied aspects of engineering materials; emphasizes experimental problems and design. Fee. Prerequisites: MSE 330, 440, 450.

M MSE 492 Honors Directed Study. (1–6)

selected semesters

M MSE 493 Honors Thesis. (1–6)

selected semesters

M MSE 494 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Composite Materials. (3)
- Electronic, Optical, and Magnetic Properties of Materials. (3)
- Engineering Disasters: Heavy Metal Toxicity
- Growth and Processing of Semiconductors. (3)
- Nanomaterials: Synthesis and Evaluation. (3)
- Scanning Probe Microscopy. (3)
- Vacuum Systems Science and Engineering. (3)

M MSE 499 Individualized Instruction. (1–3)

selected semesters

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

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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

Department of Civil and Environmental Engineering

fulton.asu.edu/civil

480/965-3589

ECG 252

Sandra L. Houston, Chair

Richard Snell Presidential Chair Professor: Crittenden

Professors: Allenby, Fox, Houston, Johnson, Mamlouk, Mays, Mobasher, Rajan, Rittmann, Singhal, Washington, Witczak

Associate Professors: Abbaszadegan, Fafitis, Kavazanjian, Muccino, Westerhoff

Assistant Professors: Allen, Kaloush

Associate Research Professor: Chen

Faculty Research Associates: Alum, Ryu, Zapata

Faculty Research Assistant: El-Basyouny

Lecturer: Lawrence

The civil engineering profession includes analysis, planning, design, construction, and maintenance of many types of facilities for government, commerce, industry, and the public domain. These facilities include high-rise office towers, factories, schools, airports, tunnels and subway systems, dams, canals, and water purification and environmental protection facilities such as solid waste and wastewater treatment systems. Civil engineers are concerned with the impact of their projects on the public and the environment, and they attempt to coordinate the needs of society with technical and economic feasibility.

Career Opportunities in the Field. University graduates with the BSE degree in Civil Engineering readily find employment. Civil engineers work in many different types of companies, from large corporations to small, private consulting firms, or in governmental agencies. A civil engineering background is an excellent foundation for jobs in management and public service. Civil engineering is one of the best engineering professions from the viewpoint of international travel opportunities or for eventually establishing one's own consulting business.

Uniqueness of the Program at ASU. The Department of Civil and Environmental Engineering offers a challenging program of study designed to provide the student with the resources and background to pursue a career in a wide range of specialty areas. Some of these areas are structural, construction, geotechnical, environmental and water resources, and transportation and materials engineering. The Civil Engineering program is fully accredited by ABET. With the

program, students will be prepared for the Fundamentals of Engineering examination and professional registration.

The Department of Civil and Environmental Engineering at ASU strongly believes in the development of programmatic objectives and outcomes, and in a continuous quality improvement program. The four preeminent learning objectives for the program deal with the ability of graduates to

1. be technically competent,
2. be effective members of society,
3. communicate effectively, and
4. analyze and design civil engineering systems with due consideration to cost and environmental and construction factors.

Civil Engineering Areas of Study

Areas of study in the civil engineering curriculum are described below.

Environmental Engineering. This area of study includes the quality of air, water, and land resources; transport, use, and disposal of hazardous wastes; water and wastewater treatment; water reuse; and sustainability.

Geotechnical/Geoenvironmental Engineering. This area of study includes the analysis and design of foundation systems, seepage control, earthdams and water resource structures, earthwork operations, fluid flow-through porous media, response of foundations and embankments to earthquakes, and solutions to environmental problems.

Structures/Materials Engineering. This area of study considers the planning, analysis, and design of steel and concrete bridges, buildings, dams; special offshore and space structures; portland cement concrete; composite materials; and structural retrofit of existing bridges.

Transportation/Materials Engineering. This area of study includes (1) transportation design and operation and (2) pavements and materials. Transportation design and operation cover geometric design of highways, traffic operations, and highway capacity and safety. Pavements and materials focus on pavement analysis and design, pavement maintenance and rehabilitation, pavement evaluation and management, characterization of highway materials, and durability of highway structures.

Water Resources Engineering. This area of study is concerned with surface and groundwater flow, planning and management of water supply, and water distribution system modeling.

UNDERGRADUATE OPPORTUNITIES IN CIVIL AND ENVIRONMENTAL ENGINEERING

Students majoring in Civil Engineering have three choices:

1. the major without a concentration;
2. the major with a concentration in construction engineering; and
3. the major with a concentration in environmental engineering.

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Civil Engineering. The BSE degree in Civil Engineering offers students a wide background in various areas of study within civil engineering. The degree provides basic principles of construction, environmental, geotechnical/geoenvironmental, structural/materials, transportation/materials, and water resources engineering. Students have the option to select from a certain number of design and technical elective courses in their senior year.

Civil Engineering with Construction Engineering Concentration. The BSE degree in Civil Engineering with a construction engineering concentration offers students basic principles of civil engineering with the option to concentrate on construction engineering. The degree provides education based on traditional engineering principles, construction materials and practice, quality control, and civil engineering project management.

Civil Engineering with Environmental Engineering Concentration. The BSE degree in Civil Engineering with an environmental engineering concentration offers students basic principles of civil engineering with the option to concentrate on environmental engineering. The degree provides a multidisciplinary education based on the traditional engineering principles, chemistry, biology, and hydrogeology.

CIVIL ENGINEERING—BSE

The BSE degree in Civil Engineering requires a minimum of 120 semester hours of course work. A minimum of 45 upper-division semester hours is required. The minimum requirements are for a student who has successfully completed at least a year each of high school chemistry, physics, and computer programming along with precalculus, algebra, and trigonometry.

The BSE degree program consists of the following categories:

First-Year Composition.....	6
General Studies/program requirements.....	47
Civil Engineering major.....	67
Minimum requirement	120

First-Year Composition

Choose among the course combinations below 6

ENG 101 First-Year Composition (3)

ENG 102 First-Year Composition (3)

or

ENG 105 Advanced First-Year Composition (3)

Elective chosen with an advisor (3)

or

ENG 107 English for Foreign Students (3)

ENG 108 English for Foreign Students (3)

First-year composition total 6

General Studies/Program Requirements

Humanities and Fine Arts/Social and Behavioral Sciences/Awareness

CEE 400 Earth Systems Engineering and Management 3

ECN 211 Macroeconomic Principles *SB* 3
or ECN 212 Macroeconomic Principles *SB* (3)

HU courses..... 3-6

SB courses..... 3-6

Minimum total 15

Awareness Areas (C, G, H)

Students must select at least two courses to satisfy the three awareness areas.

Literacy and Critical Inquiry

Six semester hours of literary and critical inquiry credit is satisfied by courses in the major.

Natural Sciences/Basic Sciences

CHM 114 General Chemistry for Engineers *SQ*¹..... 4
or CHM 116 General Chemistry II *SQ*^{1, 2(4)}

PHY 121 University Physics I: Mechanics *SQ*³..... 3

PHY 122 University Physics Laboratory I *SQ*³..... 1

PHY 131 University Physics II: Electricity and Magnetism *SQ*^{1, 4}..... 3

PHY 132 University Physics Laboratory II *SQ*^{1, 4}..... 1

Basic science elective..... 3

Total..... 15

Mathematical Studies

IEE 280 Probability and Statistics for Engineering Problem Solving *CS*..... 3

MAT 242 Elementary Linear Algebra¹..... 2

MAT 275 Modern Differential Equations *MA*¹..... 3

MAT 294 ST: Calculus for Engineers I..... 3

MAT 294 ST: Calculus for Engineers II¹..... 3

MAT 294 ST: Calculus for Engineers III¹..... 3

Total..... 17

General Studies/program requirements total..... 47

¹ This is a skill-set course.

² CHM 116 has a prerequisite of CHM 113. Degree credit for CHM 113 is awarded only with departmental approval.

³ Both PHY 121 and 122 must be taken to secure *SQ* credit.

⁴ Both PHY 131 and 132 must be taken to secure *SQ* credit.

Civil Engineering Major

CEE 100 Introduction to Civil and Environmental Engineering *CS*¹..... 3

CEE 211 Engineering Mechanics: Statics and Dynamics¹..... 4

CEE 213 Introduction to Deformable Solids..... 3

CEE 300 Engineering Business Practice..... 3

CEE 321 Structural Analysis and Design..... 4

CEE 341 Fluid Mechanics for Civil Engineers..... 4

CEE 351 Geotechnical Engineering..... 4

CEE 353 Civil Engineering Materials..... 3

CEE 361 Introduction to Environmental Engineering..... 4

CEE 372 Transportation Engineering..... 4

CEE 384 Numerical Methods for Engineers..... 3

CEE 486 Integrated Civil Engineering Design *L*..... 3

MAE 240 Thermofluids I..... 4
or EEE 202 Circuits I (4)

Design courses²..... 6

Technical courses³..... 15

Total..... 67

Degree requirements total 120

¹ This is a skill-set course.

² For information on design course options, see "Design Courses for the Degree Without a Concentration," page 404.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

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³ For information on technical course options, see "Technical Courses for the Degree Without a Concentration," page 404.

Design Courses for the Degree Without a Concentration

Six semester hours from the following list are required.

CEE 412 Pavement Analysis and Design	3
or CEE 475 Highway Geometric Design (3)	
CEE 420 Steel Structures	3
or CEE 421 Concrete Structures (3)	
CEE 441 Water Resources Engineering	3
CEE 452 Foundations	3
CEE 462 Unit Operations in Environmental Engineering.....	3
or CEE 466 Urban Water System Design (3)	

Technical Courses for the Degree Without a Concentration

Fifteen semester hours are required. The design elective courses that have not been selected to satisfy the design electives requirement may be used as technical electives.

A maximum of three hours may be selected from outside civil engineering, with an advisor's approval. Construction courses taken as technical electives may be selected from the following list: CON 383, 495, and 496. Students must select technical and design electives from at least three different CEE areas of study.

Environmental Engineering

CEE 462 Unit Operations in Environmental Engineering.....	3
CEE 466 Urban Water System Design	3
CEE 467 Environmental Microbiology	3
CEE 469 Air Quality Engineering.....	3

Geotechnical/Geoenvironmental Engineering

CEE 452 Foundations.....	3
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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 281 Surveying	3
CEE 412 Pavement Analysis and Design	3
CEE 474 Transportation Systems Engineering	3
CEE 475 Highway Geometric Design.....	3
CEE 481 Civil Engineering Project Management.....	3
CEE 483 Highway Materials, Construction, and Quality	3

Water Resources Engineering

CEE 440 Engineering Hydrology.....	3
CEE 441 Water Resources Engineering	3

Design Courses for the Degree with the Construction Engineering Concentration

CEE 420 Steel Structures	3
CEE 452 Foundations.....	3
Total	6

Technical Courses for the Degree with the Construction Engineering Concentration

CEE 281 Surveying	3
CEE 412 Pavement Analysis and Design	3
or CEE 483 Highway Materials, Construction, and Quality (3)	

CEE 421 Concrete Structures	3
CEE 481 Civil Engineering Project Management.....	3
CON 496 Construction Contract Administration L.....	3
Total.....	15

Design Courses for the Degree with the Environmental Engineering Concentration

CEE 441 Water Resources Engineering	3
CEE 466 Urban Water System Design	3
Total.....	6

Technical Courses for the Degree with the Environmental Engineering Concentration

BIO 320 Fundamentals of Ecology.....	3
or BCH 361 Principles of Biochemistry (3)	
or CHM 302 Environmental Chemistry (3)	
or CHM 341 Elementary Physical Chemistry (3)	
or PUP 442 Environmental Planning (3)	
or PUP 475 Environmental Impact Assessment (3)	
CEE 440 Engineering Hydrology.....	3
CEE 462 Unit Operations in Environmental Engineering.....	3
CEE 467 Environmental Microbiology.....	3
CEE 469 Air Quality Engineering.....	3
or Technical elective* (3)	
Total.....	15

* This course is selected from the list of technical courses for the degree without a concentration.

**Civil Engineering Program of Study
Typical Four-Year Sequence**

First Year

First Semester

CEE 100 Introduction to Civil and Environmental Engineering CS	3
CHM 114 General Chemistry for Engineers SQ.....	4
or CHM 116 General Chemistry II SQ ¹ (4)	
ENG 101 First-Year Composition	3
MAT 294 ST: Calculus for Engineers I	3
Total.....	13

Second Semester

ECN 111 Macroeconomic Principles SB	3
or ECN 112 Macroeconomic Principles SB (3)	
ENG 102 First-Year Composition	3
MAT 242 Elementary Linear Algebra	2
MAT 294 ST: Calculus for Engineers II.....	3
PHY 121 University Physics I: Mechanics SQ ²	3
PHY 122 University Physics Laboratory I SQ ²	1
Total.....	15

Second Year

First Semester

CEE 211 Engineering Mechanics: Statics and Dynamics	4
MAT 275 Modern Differential Equations MA.....	3
MAT 294 ST: Calculus for Engineers III	3
PHY 131 University Physics II: Electricity and Magnetism SQ ³	3
PHY 132 University Physics Laboratory II SQ ³	1
Total.....	14

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Second Semester

CEE 213 Introduction to Deformable Solids.....	3
EEE 202 Circuits I.....	4
or MAE 240 Thermofluids I (4)	
IEE 280 Probability and Statistics for Engineering Problem Solving CS.....	3
HU/SB and awareness area course ⁴	3
Basic science elective.....	3
Total	16

Third Year

First Semester

CEE 300 Engineering Business Practice.....	3
CEE 321 Structural Analysis and Design.....	4
CEE 353 Civil Engineering Materials.....	3
CEE 372 Transportation Engineering.....	4
CEE 384 Numerical Methods for Engineers CS.....	3
Total	17

Second Semester

CEE 341 Fluid Mechanics for Civil Engineers.....	4
CEE 351 Geotechnical Engineering.....	4
CEE 361 Introduction to Environmental Engineering.....	4
CEE 400 Earth Systems Engineering and Management.....	3
Total	15

Fourth Year

First Semester

Design elective.....	3
HU/SB and awareness area course ⁴	3
Technical electives.....	9
Total	15

Second Semester

CEE 486 Integrated Civil Engineering Design L.....	3
Design elective.....	3
HU/SB and awareness area course ⁴	3
Technical electives.....	6
Total	15

Minimum total..... 120

- ¹ CHM 116 has a prerequisite of CHM 113. Degree credit for CHM 113 is awarded only with departmental approval.
- ² Both PHY 121 and 122 must be taken to secure SQ credit.
- ³ Both PHY 131 and 132 must be taken to secure SQ credit.
- ⁴ Engineering students may not use aerospace studies (AES) or military science (MIS) courses to fulfill HU or SB requirements. Students should consider the following list of electives to enhance communication and management skills: COM 100, 110, 320; CON 101; GCU 141, 361, 421, 442; PUP 100, 200.

**Construction Engineering Concentration
Program of Study
Typical Four-Year Sequence**

First Year

First Semester

CEE 100 Introduction to Civil and Environmental Engineering CS.....	3
CHM 114 General Chemistry for Engineers SQ.....	4
or CHM 116 General Chemistry II SQ ¹ (4)	
ENG 101 First-Year Composition.....	3
MAT 294 ST: Calculus for Engineers I.....	3
Total	13

Second Semester

ECN 211 Macroeconomic Principles SB.....	3
or ECN 112 Microeconomic Principles SB (3)	
ENG 102 First-Year Composition.....	3
MAT 242 Elementary Linear Algebra.....	2
MAT 294 ST: Calculus for Engineers II.....	3
PHY 121 University Physics I: Mechanics SQ ²	3
PHY 122 University Physics Laboratory I SQ ²	1
Total	15

Second Year

First Semester

CEE 211 Engineering Mechanics: Statics and Dynamics.....	4
MAT 275 Modern Differential Equations MA.....	3
MAT 294 ST: Calculus for Engineers III.....	3
PHY 131 University Physics II: Electricity and Magnetism SQ ³	3
PHY 132 University Physics Laboratory II SQ ³	1
Total	14

Second Semester

CEE 213 Introduction to Deformable Solids.....	3
EEE 202 Circuits I.....	4
IEE 280 Probability and Statistics for Engineering Problem Solving CS.....	3
HU/SB and awareness area course ⁴	3
Basic science elective.....	3
Total	16

Third Year

First Semester

CEE 300 Engineering Business Practice.....	3
CEE 321 Structural Analysis and Design.....	4
CEE 353 Civil Engineering Materials.....	3
CEE 372 Transportation Engineering.....	4
CEE 384 Numerical Methods for Engineers.....	3
Total	17

Second Semester

CEE 341 Fluid Mechanics for Civil Engineers.....	4
CEE 351 Geotechnical Engineering.....	4
CEE 361 Introduction to Environmental Engineering.....	4
CEE 400 Earth Systems Engineering and Management.....	3
Total	15

Fourth Year

First Semester

CEE 281 Surveying.....	3
CEE 420 Steel Structures.....	3
CEE 452 Foundations.....	3
CEE 412 Pavement Analysis and Design.....	3
or CEE 483 Highway Materials, Construction, and Quality (3)	
HU/SB and awareness area course ⁴	3
Total	15

Second Semester

CEE 421 Concrete Structures.....	3
CEE 481 Civil Engineering Project Management.....	3
CEE 486 Integrated Civil Engineering Design L.....	3
CON 496 Construction Contract Administration L.....	3

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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HU/SB and awareness area course ⁴	3
Total	15
Minimum total	120

- ¹ CHM 116 has a prerequisite of CHM 113. Degree credit for CHM 113 is awarded only with departmental approval.
- ² Both PHY 121 and 122 must be taken to secure SQ credit.
- ³ Both PHY 131 and 132 must be taken to secure SQ credit.
- ⁴ Engineering students may not use aerospace studies (AES) or military science (MIS) courses to fulfill HU or SB requirements. Students should consider the following list of electives to enhance communication and management skills: COM 100, 110, 320; CON 101; PUP 100, 200.

**Environmental Engineering Concentration
Program of Study
Typical Four-Year Sequence**

First Year

First Semester

CEE 100 Introduction to Civil and Environmental Engineering <i>CS</i>	3
CHM 114 General Chemistry for Engineers <i>SQ</i> or CHM 116 General Chemistry II <i>SQ</i> ¹ (4)	4
ENG 101 First-Year Composition	3
MAT 294 ST: Calculus for Engineers I	3
Total	13

Second Semester

ECN 211 Macroeconomic Principles <i>SB</i> or ECN 212 Microeconomic Principles <i>SB</i> (3)	3
ENG 102 First-Year Composition	3
MAT 242 Elementary Linear Algebra	2
MAT 294 ST: Calculus for Engineers II	3
PHY 121 University Physics I: Mechanics <i>SQ</i> ²	3
PHY 122 University Physics Laboratory I <i>SQ</i> ²	1
Total	15

Second Year

First Semester

CEE 211 Engineering Mechanics: Statics and Dynamics	4
MAT 275 Modern Differential Equations <i>MA</i>	3
MAT 294 ST: Calculus for Engineers III	3
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ³	1
PHY 132 University Physics Laboratory II <i>SQ</i> ³	1
Total	14

Second Semester

CHM 231 Elementary Organic Chemistry <i>SQ</i> ⁴	3
CEE 213 Introduction to Deformable Solids	3
MAE 240 Thermofluids I	4
IEE 280 Probability and Statistics for Engineering Problem Solving <i>CS</i>	3
HU/SB and awareness area course ⁵	3
Total	16

Third Year

First Semester

CEE 300 Engineering Business Practice	3
CEE 341 Fluid Mechanics for Civil Engineers	4
CEE 353 Civil Engineering Materials	3
CEE 361 Introduction to Environmental Engineering	4
CEE 384 Numerical Methods for Engineers	3
Total	17

Second Semester

CEE 321 Structural Analysis and Design	4
CEE 351 Geotechnical Engineering	4
CEE 372 Transportation Engineering	4
CEE 400 Earth Systems Engineering and Management	3
Total	15

Fourth Year

First Semester

BIO 320 Fundamentals of Ecology	3
or BCH 361 Principles of Biochemistry (3)	
or CHM 302 Environmental Chemistry (3)	
or CHM 341 Elementary Physical Chemistry (3)	
or PUP 442 Environmental Planning (3)	
or PUP 475 Environmental Impact Assessment (3)	
CEE 440 Engineering Hydrology	3
or CEE 469 Air Quality Engineering (3)	
CEE 466 Urban Water System Design	3
CEE 467 Environmental Microbiology	3
HU/SB and awareness area course ⁵	3
Total	15

Second Semester

CEE 441 Water Resources Engineering	3
CEE 462 Unit Operations in Environmental Engineering	3
CEE 486 Integrated Civil Engineering Design <i>L</i>	3
HU/SB and awareness area course ⁵	3
Technical elective ⁶	3
Total	15
Minimum total	120

- ¹ CHM 116 has a prerequisite of CHM 113. Degree credit for CHM 113 is awarded only with departmental approval.
- ² Both PHY 121 and 122 must be taken to secure SQ credit.
- ³ Both PHY 131 and 132 must be taken to secure SQ credit.
- ⁴ Both CHM 231 and 235 must be taken to secure SQ credit. Students who pursue this major fulfill this GS requirement through other courses.
- ⁵ Engineering students may not use aerospace studies (AES) or military science (MIS) courses to fulfill HU or SB requirements. Students should consider the following list of electives to enhance communication and management skills: CON 101; GCU 141, 361, 442; PUP 100, 200.
- ⁶ This course is selected from the list of technical courses for the degree without a concentration.

ADMISSION REQUIREMENTS

Preprofessional Program. With the exception of a few outstanding students, all students will initially be admitted to the preprofessional level. The student follows the first- and second-year sequence of courses listed in the curriculum outline for his or her particular program. Included in the first three semester schedules are the skill-set courses:

CEE 100 Introduction to Civil and Environmental Engineering <i>CS</i>	3
CEE 211 Engineering Mechanics: Statics and Dynamics	4
CHM 114 General Chemistry for Engineers <i>SQ</i> or CHM 116 General Chemistry II <i>SQ</i> ¹ (4)	4
MAT 242 Elementary Linear Algebra	2
MAT 275 Modern Differential Equations <i>MA</i>	3
MAT 294 ST: Calculus for Engineers II	3
MAT 294 ST: Calculus for Engineers III	3

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PHY 131 University Physics II: Electricity and Magnetism SQ^2 3	1
PHY 132 University Physics Laboratory II SQ^2	1
Total	26

- ¹ CHM 116 has a prerequisite of CHM 113. Degree credit for CHM 113 is awarded only with departmental approval.
- ² Both PHY 131 and 132 must be taken to secure SQ credit.

Professional Program. Admission to the professional program is competitive and granted to those applicants demonstrating the highest promise for professional success in Civil and Environmental Engineering measured by their average GPA of the skill-set courses. For transfer students, both transfer and ASU GPA numbers in the skill-set courses are considered. All students seeking professional status must have completed or be in the process of completing all the skill-set courses and then follow the application procedure as described on the Civil and Environmental Engineering Web site. Completion of the specified courses does not guarantee admission to professional status. Only students who have been admitted to ASU are eligible to apply for the professional programs. Candidates are strongly encouraged to visit the Civil and Environmental Engineering undergraduate advising office before beginning the application process. All application materials can be found on the Web at www.fulton.asu.edu/civil.

GRADUATION REQUIREMENTS

Students must complete CEE courses in order (100-level followed by 200-level, etc.). CEE 486 is taken in the last semester of course work. This order of courses is important not only to satisfy the prerequisite requirements, but also to avoid time conflicts that may exist among different level courses. CEE 300- and 400-level courses must be completed with an average grade of 2.00 or higher. The total GPA of all ASU courses must be 2.00 or higher.

A maximum of two graduate courses may be taken for undergraduate credit by students whose cumulative GPA is 3.00 or higher with the approval of the instructor, advisor, department chair, and the dean of the school.

In addition to fulfilling school and major requirements, students must satisfy all university graduation requirements. See "University Graduation Requirements," page 89.

Concurrent Studies in Architecture and Civil Engineering

Qualified lower-division students interested in combining undergraduate studies in architecture and civil engineering may prepare for upper-division and graduate courses in both programs by taking courses to meet requirements for option B under the Architectural Studies major. See "Architectural Studies—BSD¹ Lower-Division Requirements," page 320.

GRADUATE STUDY

The Department of Civil and Environmental Engineering also offers graduate programs leading to the MS, MSE, and PhD degrees. These programs provide a blend of classroom instruction and research. Many topics and relevant research projects are available for thesis programs. Students inter-

ested in these programs should review the *Graduate Catalog* for up-to-date literature.

CIVIL AND ENVIRONMENTAL ENGINEERING (CEE)

M CEE 100 Introduction to Civil and Environmental Engineering. (3)

fall and spring or summer

Introduces basics of civil and environmental engineering design, team work, ethics, communication and management skills, modeling, problem solving, computer applications. Fee. Prerequisites: high school algebra and computing and physics (or their equivalents).

General Studies: CS

M CEE 211 Engineering Mechanics: Statics and Dynamics. (4)

fall, spring, summer

Force systems, equilibrium, structural analysis, area-related properties, kinematics and dynamics of particles and rigid bodies, energy and conservation principles. Lecture, recitation. Prerequisites: CEE 100; MAT 272 (or 294 ST: Calculus for Engineers III); PHY 121, 122.

M CEE 213 Introduction to Deformable Solids. (3)

fall, spring, summer

Strain-displacement and stress-strain-temperature relations. Stresses and deformations due to axial, shear, torsional and bending moments. Buckling, stability. Lecture, recitation. Prerequisites: CEE 211; MAT 275.

M CEE 281 Surveying. (3)

fall, spring, summer

Theory and field work in construction and land surveys. Cross-listed as CON 241. Credit is allowed for only CEE 281 or CON 241. Fee. Lecture, lab. Prerequisite: MAT 270 (or 294 ST: Calculus for Engineers I).

M CEE 300 Engineering Business Practice. (3)

fall, spring, summer

Engineering economic principles, cost/benefit analysis, project financing and delivery, management of engineering design, business practices, ethical and professional responsibilities. Prerequisite: CEE 213.

General Studies: L

M CEE 321 Structural Analysis and Design. (4)

fall and spring

Statically determinate and indeterminate structures (trusses, beams, and frames) by classical and matrix methods. Introduces structural design. Lecture, recitation. Prerequisite: CEE 213. Pre- or corequisites: CEE 384; IEE 280.

M CEE 341 Fluid Mechanics for Civil Engineers. (4)

fall and spring

Fundamental principles and methods of fluid mechanics forming the analytical basis for water resources engineering. Conduit and open channel flow. Fee. Lecture, lab. Prerequisite: CEE 213. Pre- or corequisites: CEE 384; IEE 280.

M CEE 351 Geotechnical Engineering. (4)

fall and spring

Index properties and engineering characteristics of soils. Compaction, permeability and seepage, compressibility and settlement, and shear strength. Fee. Lecture, lab. Prerequisite: CEE 213. Pre- or corequisites: CEE 384; IEE 280.

M CEE 353 Civil Engineering Materials. (3)

fall and spring

Structure and behavior of civil engineering materials, including steel, aggregate, concrete, masonry, asphalt, wood, composites. Atomic structure and engineering applications. Fee. Lecture, lab. Prerequisite: CEE 213.

M CEE 361 Introduction to Environmental Engineering. (4)

fall and spring

Concepts of air and water pollution; environmental regulation, risk assessment, chemistry, water quality modeling, water and wastewater

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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treatment systems designs. Fee. Lecture, lab. Prerequisite: CEE 213. Pre- or corequisites: CEE 384; IEE 280.

M CEE 372 Transportation Engineering. (4)

fall and spring

Highway, rail, water, and air transportation. Operational characteristics and traffic control devices of each transport mode. Impact on urban form. Prerequisite: CEE 213. Pre- or corequisites: CEE 384; IEE 280.

M CEE 384 Numerical Methods for Engineers. (3)

fall and spring

Numerical methods and computational tools for selected problems in engineering. Cross listed as MAE 384. Credit is allowed for only CEE 384 or MAE 384. Prerequisites: preferably MAT 275 or 274, preferably 343 or 242 or 342. Pre- or corequisite: MAT 272 or 294 ST: Calculus for Engineers III.

M CEE 400 Earth Systems Engineering and Management. (3)

fall and spring

Introduces earth systems engineering and management, and the technological, economic and cultural systems underlying the terraformed Earth. Prerequisite: CEE 300. Prerequisite for non-CEE major: instructor approval.

General Studies: H

M CEE 412 Pavement Analysis and Design. (3)

fall

Design of flexible and rigid pavements for highways and airports. Surface, base, and subgrade courses. Cost analysis and pavement selection. Credit is allowed for only CEE 412 or 511. Prerequisites: CEE 351, 353.

M CEE 420 Steel Structures. (3)

fall

Behavior of structural components and systems. Design of steel members and connections. Load and resistance factor design methods. Lecture, recitation. Prerequisite: CEE 321.

M CEE 421 Concrete Structures. (3)

spring

Behavior of concrete structures and the design of reinforced and prestressed concrete members, including footings. Partial design of concrete building system. Lecture, recitation. Prerequisite: CEE 321.

M CEE 423 Structural Design. (3)

fall

Analysis and design of reinforced concrete steel, masonry, and timber structures. Fee. Prerequisite: CEE 421. Pre- or corequisite: CEE 420.

M CEE 432 Developing Software for Engineering Applications. (3)

spring

Matrix and computer applications to structural engineering and structural mechanics. Stiffness and flexibility methods, finite elements, and differences. Credit is allowed for only CEE 432 or 532.

Prerequisite: CEE 321.

M CEE 440 Engineering Hydrology. (3)

fall

Descriptive hydrology; hydrologic cycle, models, and systems. Rain-runoff models. Hydrologic design. Concepts, properties, and basic equations of groundwater flow. Prerequisite: CEE 341.

M CEE 441 Water Resources Engineering. (3)

spring

Applies the principles of hydraulics and hydrology to the engineering of water resources projects; design and operation of water resources systems; water quality. Prerequisite: CEE 341.

M CEE 452 Foundations. (3)

fall

Applies soil mechanics to foundation systems, bearing capacity, lateral earth pressure, and slope stability. Prerequisite: CEE 351.

M CEE 462 Unit Operations in Environmental Engineering. (3)

spring

Design and operation of unit processes for water and wastewater treatment. Prerequisite: CEE 361.

M CEE 466 Urban Water System Design. (3)

fall

Capacity; planning and design of water supply; domestic and storm drainage; and solid waste systems. Prerequisites: CEE 341, 361.

M CEE 467 Environmental Microbiology. (3)

fall

Overview of the microbiology of natural and human-impacted environment, microbial detection methodologies, waterborne disease

outbreaks, risk assessment, and regulations. Credit is allowed for only CEE 467 or 567. Fee. Lecture, lab. Prerequisite: CEE 361 or MIC 220.

M CEE 469 Air Quality Engineering. (3)

selected semesters

Chemical and physical processes by which air pollutants are generated and controlled with an emphasis on urban air quality. Cross-listed as CHE 469. Credit is allowed for only CEE 469 or CHE 469. Prerequisite: CEE 361 or CHE 334.

M CEE 474 Transportation Systems Engineering. (3)

selected semesters

Introduces transportation systems and modeling, traffic characteristic analysis, traffic predictions, highway capacity, signal timing, transportation systems management, and transit. Prerequisites: CEE 372, 384.

M CEE 475 Highway Geometric Design. (3)

spring

Design of visible elements of roadway, design controls, at-grade intersections, freeways, and interchanges. Lecture, computer lab. Fee. Credit is allowed for only CEE 475 or 576. Prerequisite: CEE 372.

M CEE 481 Civil Engineering Project Management. (3)

once a year

Civil engineering project management and administration, planning and scheduling, cost estimating and bidding strategies, financial management, quality control and safety, and computer applications. Lecture, field trips. Prerequisites: CEE 321, 351, 372.

M CEE 483 Highway Materials, Construction, and Quality. (3)

once a year

Properties of highway materials, including aggregates, asphalt concrete, and portland cement concrete; construction practice; material delivery, placement, and compaction; quality control. Credit is allowed for only CEE 483 or 583. Lecture, field trips. Prerequisites: CEE 351, 353, 372.

M CEE 486 Integrated Civil Engineering Design. (3)

fall and spring

Requires completion of a civil engineering design in a simulated practicing engineering environment. Limited to undergraduates in their final semester. Lecture, team learning. Prerequisites: CEE 321, 341, 351, 361, 372.

General Studies: L

M CEE 492 Honors Directed Study. (1-6)

selected semesters

M CEE 493 Honors Thesis. (1-6)

selected semesters

M CEE 499 Individualized Instruction. (1-3)

selected semesters

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

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

**Department of Computer Science
and Engineering**

fulton.asu.edu/cse
480/965-3190
BYENG 501

Sethuraman Panchanathan, Chair

Professors: Baral, Colbourn, Collofello, Farin, Kambhampati, Y. Lee, Lewis, Nielson, Panchanathan, Tsai, J. Urban, S. Urban, Vrudhula, Xue, Yau

Associate Professors: Bazzi, Candan, Dasgupta, Gupta, Huey, Liu, Miller, Richa, Sen

Assistant Professors: Cam, Chatha, Chen, Davulcu, Huang, Janssen, Kim, Konjevod, J. Lee, Li, Ryu, Sarjoughian, Sundaram, Syrotiuk, Wonka, Ye

Senior Lecturer: DeLibero

Lecturers: Boyd, Calliss, Nakamura, Navabi, Turban

Computers have a significant impact on our daily lives, and this impact is likely to be even greater in the future as computer professionals continue to develop more powerful, smaller, faster, and less expensive computing systems.

Computing is integral to many other fields, including bioinformatics. The Department of Computer Science and Engineering is strategically positioned in the university to provide educational and research opportunities for students in computing in many related disciplines.

Computer science and computer engineering deal with the study, design, development, construction, and application of computing technology. Other important topics include computing techniques and appropriate languages for general information processing; for scientific computation; for the recognition, storage, retrieval, and processing of data of all kinds; for the automatic control and simulation of processes; and for information assurance.

The curricula offered by the Department of Computer Science and Engineering prepare the student to be a participant in this rapidly changing area of technology by presenting in-depth treatments of the fundamentals of computer science and computer engineering. The department offers two undergraduate degrees: a BS degree in Computer Science and a BSE degree in Computer Systems Engineering. The following are shared objectives of the degree programs:

1. Graduates will understand current trends in information technology and be able to apply their understanding in the distributed management of information.
2. Graduates can apply the underlying principles of computer science, including mathematical and physical sciences and engineering principles.

3. Graduates will know and be able to apply system development processes, using modern tools, from the component level to the system level.
4. Graduates also will have the skills required to communicate effectively in both technical and nontechnical settings, to work effectively in teams and in a multicultural environment, to work ethically and professionally, and to continue learning independently and growing intellectually.

An integrated bachelors and masters degree program is offered beginning fall 2006. This program is designed to provide selected highly accomplished undergraduate students with the opportunity to combine advanced undergraduate course work with graduate course work, and accelerate graduate degree completion. Students will be able to earn a BS and an MS degree in five years.

The Computer Systems Engineering program has the specific objective that its graduates will have the technical expertise necessary to analyze requirements and to design and implement effective solutions to problems that require the integration of hardware and software in embedded systems. The Computer Science program has the specific objective that its graduates will have the technical expertise necessary to analyze requirements and to design and implement effective solutions using computer science for a broad range of problems in many disciplines. The department strives to maintain a modern learning environment that fosters excellence, cooperation, and scholarship for faculty, students, and staff.

ADMISSION REQUIREMENTS

Preprofessional Program. Each student admitted to the Department of Computer Science and Engineering is designated a preprofessional student in either Computer Science or Computer Systems Engineering. Students follow the first- and second-year sequence of courses listed in the curriculum outline for their particular major. Included in the first three semester schedules are all skill-set courses:

CSE 100 Principles of Programming with C++ CS	3
or CSE 110 Principles of Programming with Java CS (3)	
CSE 101 Introduction to Engineering Design CS*	3
CSE 120 Digital Design Fundamentals	3
CSE 205 Concepts of Computer Science and Data Structures CS	3
CSE 230 Computer Organization and Assembly Language Programming	3
MAT 243 Discrete Mathematical Structures	3
MAT 294 ST: Calculus for Engineers I	3
MAT 294 ST: Calculus for Engineers II	3
MAT 294 ST: Calculus for Engineers III	3
Total	27

* CSE 101 is for Computer Systems Engineering only

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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Professional Program. Admission to the professional program is competitive and granted to those applicants demonstrating the highest promise for professional success in Computer Science and Engineering. The admissions committee considers overall transfer and ASU GPA numbers as well as the transfer and ASU GPA numbers in Computer Science and Engineering skill-set courses. All students seeking professional status must be in the process of completing all the skill-set courses and then follow the application procedure as described on the Computer Science and Engineering Web site. Completion of the specified courses does not guarantee admission to professional status. Only students who have been admitted to ASU are eligible to apply for the professional programs. Candidates are strongly encouraged to visit the Computer Science and Engineering Advising Center in BYENG before beginning the application process. All application materials can be found on the Web during enrollment periods at cse.asu.edu.

DEGREE REQUIREMENTS

A minimum of 120 semester hours is required for the BS degree in Computer Science and the BSE degree in Computer Systems Engineering. A minimum of 45 upper-division semester hours is required. In addition to the requirement for a cumulative GPA and a major GPA of 2.00 or higher, all computer science and computer systems engineering students must obtain a minimum grade of "C" (2.00) in all CSE courses used for degree credit. Students cannot take CSE courses for which they failed to earn a grade of "C" (2.00) or better in the prerequisite course.

The department calculates the major GPA in both Computer Science and Computer Systems Engineering based on an average of all CSE courses and technical electives that count toward the degree.

GRADUATION REQUIREMENTS

In addition to fulfilling school and major requirements, majors must satisfy all university graduation requirements. See "University Graduation Requirements," page 89.

DEGREES

Computer Science—BS

The faculty in the Department of Computer Science and Engineering offer a BS degree that prepares the student for a career in computer science. A student pursuing a BS degree must complete the First-Year Composition requirement, the General Studies requirement, department degree requirements, the computer science core courses, a senior-level breadth requirement in the major, technical electives, and unrestricted electives. For more information, visit the CSE Advising Center, call 480/965-3199, or access the department's Web site at cse.asu.edu.

Software Engineering Concentration. Students pursuing the BS degree in Computer Science may choose to concentrate their studies on software engineering. The BS degree in Computer Science with a concentration in software engineering provides recognition that the student has acquired in-depth knowledge and hands-on experience in software development and related subjects. This concentration

requires the student to complete CSE 445, 460, 461, and 462 with a grade of "C" (2.00) or higher in each course.

The following table specifies departmental requirements for the BS degree in Computer Science.

First-Year Composition

Choose among the course combinations below	6
ENG 101 First-Year Composition (3)	
ENG 102 First-Year Composition (3)	
— or —	
ENG 105 Advanced First-Year Composition (3)	
HU/SB elective chosen with an advisor (3)	
— or —	
ENG 107 English for Foreign Students (3)	
ENG 108 English for Foreign Students (3)	
First-year composition subtotal	6

General Studies/Department Requirements

Humanities and Fine Arts/Social and Behavioral Sciences
 HU/SB electives

Literacy and Critical Inquiry
 Six semester hours of literacy and critical inquiry credit is satisfied by courses in the major

Natural Sciences/Basic Sciences
 BIO 187 General Biology I *SG* 4
 or 188 General Biology II *SQ* (4)

Lab Science I¹ 4
 Lab Science II¹ 4

Natural sciences/basic sciences subtotal 12

Mathematical Studies

IEE 280 Probability and Statistics for Engineering
 Problem Solving *CS* 3

MAT 243 Discrete Mathematical Structures² 3
 MAT 294 ST: Calculus for Engineers I² 3

MAT 294 ST: Calculus for Engineers II² 3
 MAT 294 ST: Calculus for Engineers III² 3

MAT 343 Applied Linear Algebra 3

Mathematical studies subtotal 18

General Studies/department requirements total 48

General Studies/department requirements total 48

Computer Science Major Curriculum

Computer Science Core

CSE 100 Principles of Programming with C++ *CS*² 3
 or CSE 110 Principles of Programming
 with Java *CS* (3)²

CSE 120 Digital Design Fundamentals² 3

CSE 205 Concepts of Computer Science and Data
 Structures *CS*² 3

CSE 230 Computer Organization and Assembly Language
 Programming² 3

CSE 240 Introduction to Programming Languages 3

CSE 301 Computing Ethics 1

CSE 310 Data Structures and Algorithms 3

CSE 340 Principles of Programming Languages 3

CSE 355 Introduction to Theoretical Computer Science 3

CSE 360 Introduction to Software Engineering 3

CSE 430 Operating Systems 3

CSE 485 Computer Science Capstone Project I *L* 3

CSE 486 Computer Science Capstone Project II 3

Computer science core subtotal 37

Electives
 400-level CSE computer science breadth requirement³ 15

General electives 8

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Technical electives ⁴	6
Electives subtotal	29
Total degree requirements	120

- ¹ A biology, chemistry, or physics two-course sequence meets the requirement.
- ² Computer Science and Engineering skill-set courses must be completed in order to be admitted to the professional program.
- ³ Students cannot count toward graduation more than six semester hours of independent study courses, including, but not limited to, CSE 484, 492, 493, and 499. Computer science honors students are allowed to use an extra three semester hours for the L elective. The only course that meets the L elective requirement in this group is CSE 493.
- ⁴ Each student must complete six hours of courses chosen from the computer science technical elective list and approved by the student's advisor. See an advisor for the approved listing.

Computer Science Program of Study Typical Four-Year Sequence

First Year

First Semester

CSE 100 Principles of Programming with C++ CS	3
or 110 Principles of Programming with Java CS (3)	
ENG 101 First-Year Composition	3
MAT 294 ST: Calculus for Engineers I	3
HU/SB and awareness area course*	3
General elective	3
Total	15

Second Semester

BIO 187 General Biology I SG	4
or BIO 188 General Biology II SQ (4)	
CSE 120 Digital Design Fundamentals	3
CSE 205 Concepts of Computer Science and Data Structures CS	3
ENG 102 First-Year Composition	3
MAT 294 ST: Calculus for Engineers II	3
Total	16

Second Year

First Semester

CSE 230 Computer Organization and Assembly Language	3
IEE 280 Probability and Statistics for Engineering Problem Solving CS	3
MAT 243 Discrete Mathematical Structures	3
MAT 294 ST: Calculus for Engineers III	3
HU/SB and awareness area course*	3
Total	15

Second Semester

CSE 240 Introduction to Programming Languages	3
MAT 343 Applied Linear Algebra	3
HU/SB and awareness area course*	3
Laboratory Science SQ	4
Total	13

Third Year

First Semester

CSE 310 Data Structures and Algorithms	3
CSE 360 Introduction to Software Engineering	3
HU/SB and awareness area course*	3

Laboratory Science II SQ	4
General elective	3
Total	16

Second Semester

CSE 301 Computing Ethics	1
CSE 340 Principles of Programming Languages	3
CSE 355 Introduction to Theoretical Computer Science	3
400-level CSE Computer Science breadth elective	3
HU/SB and awareness area course*	3
Technical elective	3
Total	16

Fourth Year

First Semester

CSE 430 Operating Systems	3
CSE 485 Computer Science Capstone I L	3
400-level CSE Computer Science breadth electives	6
General elective	2
Total	14

Second Semester

CSE 486 Computer Science Capstone II L	3
400-level CSE Computer Science breadth electives	6
HU/SB and awareness area course*	3
Technical elective	3
Total	15

Total degree requirements	120
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* Engineering students may not use aerospace studies (AES) or military science (MIS) courses to fulfill HU and SB requirements.

COMPUTER SYSTEMS ENGINEERING—BSE

The Department of Computer Science and Engineering offers a BSE degree that prepares students for careers in computer systems engineering. This degree program provides training in both engineering and computer science. Qualified students in this program may apply to participate in an industrial internship program offered through the Consortium for Embedded Systems. Students who participate in this internship program receive academic credit (CSE 484) that applies to the technical elective requirement of the BSE degree in Computer Systems Engineering. The following table specifies departmental requirements for the BSE degree in Computer Systems Engineering.

First-Year Composition

Choose among the course combinations below	6
ENG 101 First-Year Composition (3)	
ENG 102 First-Year Composition (3)	
—or—	
ENG 105 Advanced First-Year Composition (3)	
HU/SB elective chosen with an advisor (3)	
—or—	
ENG 107 English for Foreign Students (3)	
ENG 108 English for Foreign Students (3)	
First-year composition subtotal	6

L literacy and critical inquiry / MA mathematics / CS computer/statistics/quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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General Studies/Department Requirements

Humanities and Fine Arts/Social and Behavioral Sciences

HU/SB electives	15
Total	15

Literacy and Critical Inquiry

Six semester hours of literacy and critical inquiry credit is satisfied by courses in the major.

Natural Sciences/Basic Sciences

BIO 187 General Biology I SG	4
or 188 General Biology II SQ (4)	
PHY 121 University Physics I: Mechanics SQ ¹	3
PHY 122 University Physics Laboratory I SQ ¹	1
PHY 131 University Physics II: Electricity and Magnetism SQ ²	3
PHY 132 University Physics Laboratory II SQ ²	1
Natural sciences/basic sciences subtotal	12

Mathematical Studies

MAT 243 Discrete Mathematical Structures ³	3
MAT 275 Modern Differential Equations MA ³	3
MAT 294 ST: Calculus for Engineers I ³	3
MAT 294 ST: Calculus for Engineers II ³	3
MAT 294 ST: Calculus for Engineers III ³	3
Mathematical studies subtotal	15
General Studies/department requirement total	42

Courses in Major

Lower-Division Engineering

CSE 100 Principles of Programming with C++ CS ³	3
or CSE 110 Principles of Programming with Java CS (3) ³	
CSE 101 Introduction to Engineering Design CS ³	3
CSE 120 Digital Design Fundamentals ³	3
CSE 205 Concepts of Computer Science and Data Structures CS ³	3
CSE 220 Programming for Computer Engineering ³	3
CSE 230 Computer Organization and Assembly Language Programming ³	3
EEE 202 Circuits I	4
IEE 280 Probability and Statistics for Engineering Problem Solving CS	3
Lower-division subtotal	25

Upper-Division Courses in Major

CSE 301 Computing Ethics	1
CSE 310 Data Structures and Algorithms	3
CSE 320 Design and Synthesis of Digital Hardware	3
CSE 325 Embedded Microprocessor Systems	3
CSE 360 Introduction to Software Engineering	3
CSE 420 Computer Architecture I	3
CSE 423 Systems Capstone Project I L	3
CSE 424 Systems Capstone Project II	3
CSE 430 Operating Systems	3
CSE 434 Computer Networks	3
EEE 334 Circuits II	4
MAT 343 Applied Linear Algebra	3
Technical electives ⁴	12
Upper-division subtotal	47
Total degree requirements	120

¹ Both PHY 121 and 122 must be taken to secure SQ credit.

² Both PHY 131 and 132 must be taken to secure SQ credit.

³ Computer Science and Engineering skill-set courses must be completed in order to be admitted to professional programs.

⁴ Each student must complete 12 hours of courses chosen from the computer science technical elective list and approved by the student's advisor. See an advisor for the approved listing.

Computer Systems Engineering Program of Study Typical Four-Year Sequence

First Year

First Semester

CSE 100 Principles of Programming with C++ CS	3
or CSE 110 Principles of Programming with Java CS (3)	
CSE 101 Introduction to Engineering Design CS	3
ENG 101 First-Year Composition	3
MAT 294 ST: Calculus for Engineers I	3
HU/SB and awareness area course ¹	3
Total	15

Second Semester

BIO 187 General Biology I SG	4
or BIO 188 General Biology II SQ (4)	
CSE 120 Digital Design Fundamentals	3
CSE 205 Concepts of Computer Science and Data Structures CS	3
ENG 102 First-Year Composition	3
MAT 294 ST: Calculus for Engineers II	3
Total	16

Second Year

First Semester

CSE 230 Computer Organization and Assembly Language Programming	3
IEE 280 Probability and Statistics for Engineering Problem Solving CS	3
MAT 243 Discrete Mathematical Structures	3
MAT 294 ST: Calculus for Engineers III	3
PHY 121 University Physics I: Mechanics SQ ²	3
PHY 122 University Physics Laboratory I SQ ²	1
Total	16

Second Semester

CSE 220 Programming for Computer Engineering	3
MAT 275 Modern Differential Equations MA	3
PHY 131 University Physics II: Electricity and Magnetism SQ ³	3
PHY 132 University Physics Laboratory II SQ ³	1
HU/SB and awareness area course ¹	3
Total	13

Third Year

First Semester

CSE 301 Computing Ethics	1
CSE 310 Data Structures and Algorithms	3
CSE 360 Introduction to Software Engineering	3
EEE 202 Circuits I	4
HU/SB and awareness course ¹	3
Total	14

Second Semester

CSE 320 Design and Synthesis of Digital Hardware	3
CSE 325 Embedded Microprocessor Systems	3
EEE 334 Circuits II	4
MAT 343 Applied Linear Algebra	3
HU/SB and awareness area course ¹	3
Total	16

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Fourth Year

First Semester

CSE 423 Systems Capstone Project I L	3
CSE 430 Operating Systems	3
CSE Technical electives	6
HU/SB and awareness area course ¹	3
Total	15

Second Semester

CSE 424 Systems Capstone Project II	3
CSE 420 Computer Architecture	3
CSE 434 Computer Networks	3
Technical electives	6
Total	15

Total degree requirements 120

- ¹ Engineering students may not use aerospace studies (AES) or military science (MIS) courses to fulfill HU and SB requirements.
- ² Both PHY 121 and 122 must be taken to secure SQ credit.
- ³ Both PHY 131 and 132 must be taken to secure SQ credit.

COMPUTER SCIENCE AND ENGINEERING (CSE)

For more CSE courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M CSE 100 Principles of Programming with C++. (3)
fall and spring

Principles of problem solving using C++, algorithm design, structured programming, fundamental algorithms and techniques, and computer systems concepts. Social and ethical responsibility. Lecture, lab. Prerequisite: MAT 170.
General Studies: CS

M CSE 101 Introduction to Engineering Design. (3)
fall and spring

Introduces engineering design, teaming, engineering profession; computer models and programming; communication skills; design of electrical and computer-based systems. Lecture, lab. Cross-listed as EEE 101. Credit is allowed for only CSE 101 or EEE 101. Fee. Prerequisites: high school algebra, computing, and physics courses (or their equivalents).
General Studies: CS

M CSE 110 Principles of Programming with Java. (3)
fall and spring

Concepts of problem solving using Java, algorithm design, structured programming, fundamental algorithms and techniques, and computer systems concepts. Social and ethical responsibility. Lecture, lab. Prerequisite: MAT 170.
General Studies: CS

M CSE 120 Digital Design Fundamentals. (3)
fall and spring

Number systems, conversion methods, binary and complement arithmetic, Boolean algebra, circuit minimization, ROMs, PLAs, flipflops, synchronous sequential circuits. Lecture, lab. Cross-listed as EEE 120. Credit is allowed for only CSE 120 or EEE 120. Fee. Prerequisite: computer literacy.

M CSE 180 Computer Literacy. (3)
fall and spring

Introduces personal computer operations and their place in society. Problem-solving approaches using databases, spreadsheets, and word processing. May be taken for credit on either Windows or Macintosh, but not both. Lecture, demonstration. Prerequisite: nonmajor.
General Studies: CS

M CSE 181 Applied Problem Solving with Visual BASIC. (3)
selected semesters

Introduces systematic definition of problems, solution formulation, and method validation. Requires computer solutions using Visual BASIC for projects. Lecture, lab. Prerequisites: MAT 117; nonmajor.
General Studies: CS

M CSE 182 Applied Problem Solving with C#.Net. (3)
fall and spring

Introduces object oriented programming, problem solving, fundamental algorithms and techniques, computer systems concepts, and implementation of programs using Visual C#.Net platform.

M CSE 185 Internet and the World Wide Web. (3)
fall and spring

Fundamental Internet concepts, World Wide Web browsing, publishing, searching, advanced Internet productivity tools.

M CSE 205 Concepts of Computer Science and Data Structures. (3)
fall and spring

Problem solving by programming with an object-oriented programming language. Introduction to data structures. Overview of computer science topics. Fee. Prerequisite: CSE 100 or 110 or instructor approval.
General Studies: CS

M CSE 210 Object-Oriented Design and Data Structures. (3)
fall and spring

Object-oriented design, static and dynamic data structures (strings, stacks, queues, binary trees), recursion, searching, and sorting. Professional responsibility. Fee. Prerequisite: CSE 205.
General Studies: CS

M CSE 220 Programming for Computer Engineering. (3)
fall and spring

Introduces procedure programming languages (C/C++) and hardware descriptive language (VHDL). Fee. Prerequisites: CSE 120 (or EEE 120), 205.

M CSE 230 Computer Organization and Assembly Language Programming. (3)
fall and spring

Register-level computer organization. Instruction set architecture. Assembly language. Processor organization and design. Memory organization. IO programming, Exception/interrupt handling. Cross-listed as EEE 230. Credit is allowed for only CSE 230 or EEE 230. Fee. Prerequisites: CSE 100 (or 110), 120 (or EEE 120).

M CSE 240 Introduction to Programming Languages. (3)
fall and spring

Introduces the procedural (C/C++), applicative (LISP/Scheme), and declarative (Prolog) languages. Lecture, lab. Prerequisite: CSE 205.

M CSE 301 Computing Ethics. (1)
fall and spring

Offers broad coverage of computing ethics topics, including: computing history, philosophical frameworks, intellectual property, privacy, and professional responsibilities. Prerequisite: CSE 220 or 240.

M CSE 310 Data Structures and Algorithms. (3)
fall and spring

Advanced data structures and algorithms, including stacks, queues, trees (B, B+, AVL), and graphs. Searching for graphs, hashing, external sorting. Fee. Lecture, lab. Prerequisites: CSE 220 (or 240); MAT 243.

M CSE 320 Design and Synthesis of Digital Hardware. (3)
fall and spring

Design and synthesis of digital hardware with hardware description language, computer-aided design tools, and programmable devices. Fee. Prerequisites: CSE 220, 230 (or EEE 230).

M CSE 325 Embedded Microprocessor Systems. (3)
fall and spring

System-level programming and analysis of embedded microprocessors systems. Fundamental concepts of digital system design for embedded system applications. Fee. Prerequisites: CSE 220, 230 (or EEE 230).

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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M CSE 330 Computer Organization and Architecture. (3)

fall and spring

Instruction set architecture, processor performance and design; datapath, control (hardwired, microprogrammed), pipelining, input/output. Memory organization with cache, virtual memory.

M CSE 340 Principles of Programming Languages. (3)

fall and spring

Formal syntactic and semantic descriptions, compilation and implementation issues, and theoretical foundations for several programming paradigms. Formal syntactic and semantic descriptions, compilation and implementation issues, and theoretical foundations for several programming paradigms. Prerequisites: CSE 230, 310.

M CSE 355 Introduction to Theoretical Computer Science. (3)

fall and spring

Introduces formal language theory and automata, Turing machines, decidability/undecidability, recursive function theory, and complexity theory. Prerequisite: CSE 310.

M CSE 360 Introduction to Software Engineering. (3)

fall and spring

Software life cycle models; project management, team development environments and methodologies; software architectures; quality assurance and standards; legal, ethical issues. Fee. Prerequisite: CSE 220 or 240.

M CSE 408 Multimedia Information Systems. (3)

fall

Design, use, and applications of multimedia systems. Introduces acquisition, compression, storage, retrieval, and presentation of data from different media such as images, text, voice, and alphanumeric. Prerequisite: CSE 310.

M CSE 412 Database Management. (3)

fall and spring

Introduces DBMS concepts. Data models and languages. Relational database theory. Database security/integrity and concurrency. Fee. Prerequisite: CSE 310.

M CSE 414 Advanced Database Concepts. (3)

fall and spring

Object-oriented data modeling, advanced relational features, JDBC and Web access to databases, XML and databases, object-oriented databases, and object-relational databases. Prerequisite: CSE 412.

M CSE 420 Computer Architecture I. (3)

fall, spring, summer

Computer architecture. Performance versus cost tradeoffs. Instruction set design. Basic processor implementation and pipelining. Prerequisite: CSE 230.

M CSE 421 Microprocessor System Design I. (4)

fall and spring

Assembly language programming and logical hardware design of systems using 8-bit microprocessors and microcontrollers. Fundamental concepts of digital system design. Reliability and social, legal implications. Lecture, lab. Fee.

M CSE 422 Microprocessor System Design II. (4)

fall and spring

Design of microcomputer systems using contemporary logic and microcomputer system components. Requires assembly language programming. Fee. Prerequisite: CSE 421.

M CSE 423 Systems Capstone Project I. (3)

fall and spring

Development process: specification, design, implementation, evaluation, and testing with economic, social, and safety considerations. Technical communication and team skills enrichment. Fee. Prerequisites: CSE 320, 325, 360.

General Studies: L

M CSE 424 Systems Capstone Project II. (3)

fall and spring

Continuation of capstone project started in CSE 423. Fee. Prerequisite: CSE 423.

General Studies: L

M CSE 428 Computer-Aided Processes. (3)

selected semesters

Hardware and software considerations for computerized manufacturing systems. Specific concentration on automatic inspection, numerical control, robotics, and integrated manufacturing systems. Prerequisite: CSE 330.

M CSE 430 Operating Systems. (3)

fall and spring

Operating system structure and services, processor scheduling, concurrent processes, synchronization techniques, memory management, virtual memory, input/output, storage management, and file systems. Fee. Prerequisites: CSE 230 (or EEE 230), 310.

M CSE 432 Operating System Internals. (3)

fall

IPC, exception and interrupt processing, memory and thread management, user-level device drivers, and OS servers in a modern microkernel-based OS. Fee. Prerequisite: CSE 430.

M CSE 434 Computer Networks. (3)

fall and spring

Distributed computing paradigms and technologies, distributed system architectures and design patterns, frameworks for development of distributed software components. Prerequisite: CSE 230 or EEE 230.

M CSE 438 Systems Programming. (3)

selected semesters

Design and implementation of systems programs, including text editors, file utilities, monitors, assemblers, relocating linking loaders, I/O handlers, and schedulers. Prerequisite: CSE 421 or instructor approval.

General Studies: L

M CSE 440 Compiler Construction I. (3)

once a year

Introduces programming language implementation. Implementation strategies such as compilation, interpretation, and translation. Major compilation phases such as lexical analysis, semantic analysis, optimization, and code generation. Prerequisites: CSE 340, 355.

M CSE 445 Distributed Software Development. (3)

fall and spring

Distributed computing paradigms and technologies, distributed system architectures and design patterns, frameworks for development of distributed software components. Fee. Lecture, projects. Prerequisite: CSE 360.

M CSE 446 Client-Server User Interfaces. (3)

selected semesters

Client-server model and its use in creating and managing window interfaces. Toolkits and libraries, including X11, Microsoft Foundation Classes, and Java Abstract Window Toolkit. Lecture, projects. Fee. Prerequisite: CSE 310 or instructor approval.

M CSE 450 Design and Analysis of Algorithms. (3)

fall and spring

Design and analysis of computer algorithms using analytical and empirical methods; complexity measures, design methodologies, and survey of important algorithms. Prerequisite: CSE 310.

M CSE 457 Theory of Formal Languages. (3)

selected semesters

Theory of grammar, methods of syntactic analysis and specification, types of artificial languages, relationship between formal languages, and automata. Prerequisite: CSE 355.

M CSE 459 Logic for Computing Scientists. (3)

selected semesters

Propositional logic, syntax and semantics, proof theory versus model theory, soundness, consistency and completeness, first order logic, logical theories, automated theorem proving, ground resolution, pattern matching unification and resolution, Dijkstra's logic, proof obligations, and program proving. Prerequisite: CSE 355.

M CSE 460 Software Analysis and Design. (3)

fall and spring

Object-oriented and structured analysis and design; software architecture and design patterns; component-based development; software safety and reliability. Fee. Prerequisite: CSE 360.

M CSE 461 Software Engineering Project I. (3)

fall and spring

First of two-course software team-development sequence. Planning, management, design, and implementation using object-oriented technology, CASE tools, CMM-level-5 guidelines. Fee. Lecture, lab. Prerequisite: CSE 460.

General Studies: L

M CSE 462 Software Engineering Project II. (3)

fall and spring

Second of two-course software team-development sequence. Software evolution, maintenance, reengineering, reverse engineering, component-based development, and outsourcing. Fee. Prerequisite: CSE 461. Pre- or corequisite: CSE 445.

General Studies: L

M CSE 463 Introduction to Human Computer Interaction. (3)

spring

Design, evaluate, and implement interactive software intended for human use. Prerequisite: CSE 310.

M CSE 465 Introduction to Information Assurance. (3)

fall or spring

Concepts of information assurance (IA); basic IA techniques, policies, risk management, administration, legal and ethics issues. Prerequisite: CIS 300 or CSE 360 or IEE 305.

M CSE 470 Computer Graphics. (3)

once a year

Introduces basic concepts of interactive computer graphics, realistic rendering, and 3-D viewing. Fee. Prerequisites: both CSE 310 and MAT 343 or only instructor approval.

M CSE 471 Introduction to Artificial Intelligence. (3)

fall and spring

State space search, heuristic search, games, knowledge representation techniques, expert systems, and automated reasoning. Fee. Prerequisites: CSE 240, 310.

M CSE 476 Introduction to Natural Language Processing. (3)

selected semesters

Principles of computational linguistics, formal syntax, and semantics, as applied to the design of software with natural (human) language I/O. Prerequisite: CSE 310 or instructor approval.

M CSE 477 Introduction to Computer-Aided Geometric Design. (3)

once a year

Introduces basic concepts of 3-D computer geometry, including curves, surfaces, meshes. Prerequisites: both CSE 470 and MAT 343 or only instructor approval.

M CSE 484 Internship. (1–12)

selected semesters

M CSE 485 Computer Science Capstone Project I. (3)

fall and spring

First course in capstone sequence for computer science majors emphasizing development process, technical skills, teamwork, and communication. Fee. Prerequisites: CSE 310, 340, 360.

General Studies: L

M CSE 486 Computer Science Capstone Project II. (3)

fall and spring

Second course in capstone sequence for computer science majors continuing the development process, technical skills, teamwork, and communication. Fee. Prerequisite: CSE 485.

General Studies: L

M CSE 492 Honors Directed Study. (1–6)

selected semesters

M CSE 493 Honors Thesis. (1–6)

selected semesters

M CSE 494 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Computational Models for the Arts. (3)

fall

Covers computability and intractability; kolmogorov complexity in the context of randomness and determinism.

- Signal Processing and Programming for the Arts. (3)

spring

Introduces basic concepts behind the functioning of existing, widely used digital arts and media tools.

M CSE 499 Individualized Instruction. (1–3)

selected semesters

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

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

Department of Electrical Engineering

fulton.asu.edu/ee

480/965-3424

ENGR 552

Stephen M. Phillips, Chair

Regents' Professors: Balanis, Ferry, Heydt

Professors: Chakrabarti, Crouch, Goodnick, Gorur, Hui, Karady, Kiaei, Kozicki, Lai, Palais, Pan, Phillips, Rodriguez, Roedel, Schroder, Shen, Si, Spanias, Tao, Thornton, Tsakalis, Vittal, Y. Zhang

Associate Professors: Aberle, Allee, Bakkaloglu, Clark, Cochran, Dengli, Diaz, Duman, Holbert, Karam, Papandreou-Suppappola, Reisslein, Skromme, Tylavsky, J. Zhang

Assistant Professors: Abbaspour-Tamijani, Ayyanar, Barnaby, Cao, Chae, Jalali-Farahani, Joo, O'Brien, Qian, Tepedelenlioglu, Thornburg, Vasileska, Yu

The professional activities of electrical engineers directly affect the everyday lives of most of the world's population. They are responsible for the design and development of radio and television transmitters and receivers, telephone networks and switching systems, computer systems, and electric power generation and distribution. Within the broad scope of these systems, the electrical engineer is concerned with a challenging and diverse array of design and development problems.

Electrical engineers design minuscule semiconductor integrated circuits that contain many thousands of elementary devices. These engineers design systems for automatically controlling mechanical devices and a variety of processes. These engineers are responsible for the design of satellite communication links as well as patient monitoring systems for hospitals. The development of the microprocessor has expanded the opportunities for electrical engineers to improve the design of familiar products since these devices are now incorporated in automobiles, consumer and office products, entertainment systems, and a vast variety of test and measurement instruments and machine tools.

Students who earn a BSE degree in Electrical Engineering will be involved in a variety of electrical and electronic problems in the course of their careers. To ensure

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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the necessary breadth of knowledge, the Electrical Engineering curriculum includes basic engineering courses and courses in circuits, electromagnetic fields and waves, micro-processors, communication and control systems, solid-state electronics, electrical power systems, and other specialty courses.

ELECTRICAL ENGINEERING—BSE

The goal of the Electrical Engineering undergraduate program is to prepare graduates for entry-level positions as electrical engineers for the broad range of opportunities available in industrial, commercial, and governmental organizations, and to prepare graduates for continued learning experiences either in a formal graduate program or in continuing education applications.

This goal is achieved through a curriculum designed to accomplish five objectives:

1. We will maintain a modern curriculum, which adapts to changes in technology and society.
2. Our program will foster a diverse student population entering and successfully graduating, and our graduates will function well in a diverse work force.
3. Our graduates will be self-motivated, creative people who can succeed in environments where technical innovation is important.
4. Our graduates will be sought after by our constituent industries and respected graduate programs.
5. Our graduates will be technically competent.

The curriculum in Electrical Engineering builds upon the base provided by classes in chemistry, mathematics, and physics. The curriculum includes a number of required electrical engineering and technical elective courses. Approved technical elective courses provide students with an opportunity either to broaden their background in electrical engineering or to study, in greater depth, technical subjects in which they have special interests. Successful completion of the curriculum leaves the student prepared to embark on a career in electrical engineering or to pursue an advanced education in graduate school.

The engineering design experience is structured around three backbone courses employing engineering teams: EEE 101 Introduction to Engineering Design, EEE 488 Senior Design Laboratory I, and EEE 489 Senior Design Laboratory II. The integrated experience is strengthened with required courses and area pathway courses. Students focus on design pertaining to specific electrical engineering areas in their senior technical electives before the culminating, capstone design experience in EEE 488 and EEE 489.

ADMISSION REQUIREMENTS

Preprofessional Program (Lower Division). Most new freshman and all new transfer students eligible for admission to the Fulton School of Engineering who have been admitted to the university and who have selected Electrical Engineering as their major are admitted to the lower-division preprofessional program without separate application to the Department of Electrical Engineering. A separate application procedure is required for entry to the upper-division professional program. The preprofessional student fol-

lows the first- and second-year course sequence outlined in the typical four-year sequence, which includes all the skill-set courses required for promotion to the professional program. Transfer credits are not applied to this degree program or skill-set courses until they are reviewed and accepted by the director for undergraduate programs. Completion of lower-division requirements does not ensure acceptance to the upper-division program. Preprofessional students are not allowed to register for 300- and 400-level engineering courses. The required skill-set courses follow:

Required Skill-Set

CHM 114 General Chemistry for Engineers SQ	4
or CHM 116 General Chemistry II SQ ¹ (4)	
or CHM 231 Elementary Organic Chemistry SQ ² (3)	
and CHM 235 Elementary Organic Chemistry Laboratory SQ ² (1)	
CSE 100 Principles of Programming with C++ CS ³	3
EEE 101 Introduction to Engineering Design CS	3
EEE 120 Digital Design Fundamentals	3
EEE 202 Circuits I	4
MAT 274 Elementary Differential Equations MA ⁴	3
or MAT 275 Modern Differential Equations MA ⁴ (3)	
MAT 294 ST: Calculus for Engineers I ⁴	3
MAT 294 ST: Calculus for Engineers II ⁴	3
MAT 294 ST: Calculus for Engineers III ⁴	3
PHY 121 University Physics I: Mechanics SQ ^{4,5}	3
PHY 122 University Physics Laboratory I SQ ^{4,5}	1
PHY 131 University Physics II: Electricity and Magnetism SQ ^{4,6}	3
PHY 132 University Physics Laboratory II SQ ^{4,6}	1
Required skill-set total	37

¹ CHM 116 has a prerequisite of CHM 113, which cannot be used for degree credit.

² Both CHM 231 and 235 must be taken to secure SQ credit.

³ CSE 110 Principles of Programming with Java (3) can be substituted for CSE 100 with Department of Electrical Engineering approval.

⁴ A minimum grade of "C" (2.00) is required.

⁵ Both PHY 121 and 122 must be taken to secure SQ credit.

⁶ Both PHY 131 and 132 must be taken to secure SQ credit.

Professional Program (Upper Division). Admission to the upper-division professional program is competitive. Admission is awarded to those applicants demonstrating the highest promise for professional success. Transfer students who have completed the equivalent required lower-division skill-set courses may apply to the upper-division program. Prior attendance at ASU is not required for application to the upper-division program.

Consideration for promotion is not automatic. To be considered for admission to the upper-division program, the following requirements must be met:

1. admission to the ASU preprofessional Electrical Engineering program (note that application and admission to the upper-division professional program are separate from application and admission to ASU);
2. submission of a completed Application for Electrical Engineering Professional Program before the posted deadline (for admission criteria, deadlines, and an application, access the department's Web site at ful-

DEPARTMENT OF ELECTRICAL ENGINEERING

ton.asu.edu/ee/students/undergraduate/AdmissionRequirements.php); and

3. completion of all required lower-division skill-set courses, or equivalents, with a competitive GPA in the skill-set courses (note that completion of lower-division requirements does not ensure acceptance to the upper-division program).

Students are strongly encouraged to visit the Electrical Engineering advising office, ERC 555, at the beginning of the semester in which they wish to apply for the professional program to obtain information regarding admission criteria and application deadlines and procedures.

Students not admitted to the upper-division program are not dismissed from the Fulton School and may transfer to other programs. Students considering a change of major are encouraged to meet with an advisor in the program they wish to pursue to determine the likelihood of being promoted to the professional level.

DEGREE REQUIREMENTS

A minimum of 120 semester hours is necessary for the BSE degree in Electrical Engineering. A minimum of 45 upper-division semester hours is required.

GRADUATION REQUIREMENTS

A student must earn a grade of "C" (2.00) or higher in the mathematics and physics courses listed in the program of study. Each mathematics and physics course in the program of study must be completed with a "C" (2.00) or higher before enrolling in any course that requires that mathematics or physics course as a prerequisite. The student must also have an overall GPA of at least 2.00 for the group of courses designated as major in the curriculum.

In addition to fulfilling school and major requirements, students must satisfy all university graduation requirements. See "University Graduation Requirements," page 89.

COURSE REQUIREMENTS

The specific course requirements for the BSE degree in Electrical Engineering follow.

First-Year Composition¹

Choose among the course combinations below 6

ENG 101 First-Year Composition (3)

ENG 102 First-Year Composition (3)

— or —

ENG 105 Advanced First-Year Composition (3)

Elective (requires departmental approval) (3)

— or —

ENG 107 English for Foreign Students (3)

ENG 108 English for Foreign Students (3)

First-year composition total 6

General Studies/Program Requirements

Humanities and Fine Arts/Social and Behavioral Sciences

ECN 211 Macroeconomic Principles *SB* 3

or ECN 212 Microeconomic Principles *SB* (3)

HU courses 6–9

SB course(s) 3–6

HU, SB Minimum subtotal 15

Literacy and Critical Inquiry

Six hours of literacy and critical inquiry credit is satisfied by courses in the major.

Natural Sciences/Basic Sciences

BME 111 Engineering Perspectives on Biological Systems 3
or BCH 361 Principles of Biochemistry² (3)

CHM 114 General Chemistry for Engineers *SQ* 4
or CHM 116 General Chemistry II *SQ*³ (4)
or CHM 231 Elementary Organic Chemistry *SQ*¹ (3)
and CHM 235 Elementary Organic Chemistry
Laboratory *SQ*¹ (1)

PHY 121 University Physics I: Mechanics *SQ*^{1, 4, 6} 3

PHY 122 University Physics Laboratory I *SQ*^{1, 4, 6} 1

PHY 131 University Physics II: Electricity and
Magnetism *SQ*^{1, 4, 7} 3

PHY 132 University Physics Laboratory II *SQ*^{1, 4, 7} 1

PHY 241 University Physics III¹ 3

Total 18

Mathematical Studies¹

MAT 274 Elementary Differential Equations *MA*⁴ 3
or MAT 275 Modern Differential Equations *MA*⁴ (3)

MAT 294 ST: Calculus for Engineers I⁴ 3

MAT 294 ST: Calculus for Engineers II⁴ 3

MAT 294 ST: Calculus for Engineers III⁴ 3

MAT 342 Linear Algebra 3
or MAT 343 Applied Linear Algebra (3)

Mathematical studies subtotal 15

General Studies/program requirements total 48

Electrical Engineering Major

CSE 100 Principles of Programming with C++ *CS*^{4, 8} 3

EEE 101 Introduction to Engineering Design *CS*⁴ 3

EEE 120 Digital Design Fundamentals⁴ 3

EEE 202 Circuits I⁴ 4

EEE 203 Signals and Systems I 3

EEE 230 Computer Organization and Assembly Language
Programming 3

EEE 241 Fundamentals of Electromagnetics 3

EEE 334 Circuits II 4

EEE 350 Random Signal Analysis 3

EEE 488 Senior Design Laboratory I *L* 3

EEE 489 Senior Design Laboratory II *L* 3

Area pathway courses; select four from the following 16

EEE 304 Signals and Systems II (4)

EEE 333 Hardware Design Language and Programmable
Logic (4)

EEE 335 Analog and Digital Circuits (4)

EEE 341 Engineering Electromagnetics (4)

EEE 352 Properties of Electronic Materials (4)

EEE 360 Energy Systems and Power Electronics (4)

Technical electives 15

Total 66

Total degree requirements 120

¹ A minimum grade of "C" (2.00) is required.

² BCH 361 requires CHM 231 be taken as a prerequisite.

³ CHM 116 has a prerequisite of CHM 113, which cannot be used for degree credit.

⁴ This is a required skill-set course.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/
quantitative applications / **HU** humanities and fine arts / **SB** social and
behavioral sciences / **SG** natural science—general core courses / **SQ** natural
science—quantitative / **C** cultural diversity in the United States / **G** global /
H historical / See "General Studies," page 93.

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- ⁵ Both CHM 231 and 235 must be taken to secure SQ credit.
- ⁶ Both PHY 121 and 122 must be taken to secure SQ credit.
- ⁷ Both PHY 131 and 132 must be taken to secure SQ credit.
- ⁸ CSE 110 Principles of Programming with Java (3) can be substituted for CSE 100 with Department of Electrical Engineering approval.

The program in Electrical Engineering requires a total of 15 semester hours of technical electives. Qualified students may choose from approved graduate courses. Students must have a GPA of 3.00 or higher and approval of the dean to enroll in EEE graduate-level courses. With department approval, a maximum of one technical elective may be taken outside electrical engineering. Technical electives may be selected from one or more of the following areas.

Communications and Signal Processing	
EEE 407 Digital Signal Processing	4
EEE 455 Communication Systems	4
EEE 459 Communication Networks	3
Computer Engineering	
CSE 420 Computer Architecture I	3
EEE 404 Real-Time DSP Systems	3
Controls	
EEE 480 Feedback Systems	4
EEE 481 Computer-Controlled Systems	3
Electromagnetics	
EEE 443 Antennas for Wireless Communications	3
EEE 445 Microwaves	4
EEE 448 Fiber Optics	4
Electronic Circuits	
EEE 425 Digital Systems and Circuits	4
EEE 433 Analog Integrated Circuits	4
Power Systems	
EEE 460 Nuclear Concepts for the 21st Century	3
EEE 463 Electrical Power Plant	3
EEE 470 Electric Power Devices	3
EEE 471 Power System Analysis	3
EEE 473 Electrical Machinery	3
Solid-State Electronics	
EEE 434 Quantum Mechanics for Engineers	3
EEE 435 Microelectronics	3
EEE 436 Fundamentals of Solid-State Devices	3
EEE 437 Optoelectronics	3
EEE 439 Semiconductor Facilities and Cleanroom Practices	3

**Electrical Engineering
Program of Study
Typical Four-Year Sequence**

First Year

First Semester	
CHM 114 General Chemistry for Engineers <i>SQ</i>	4
or CHM 116 General Chemistry II <i>SQ</i> ¹ (4)	
or CHM 231 Elementary Organic Chemistry <i>SQ</i> ² (3)	
and CHM 235 Elementary Organic Chemistry Laboratory <i>SQ</i> ² (1)	
CSE 100 Principles of Programming with C++ <i>CS</i> ^{2, 4}	3
EEE 101 Introduction to Engineering Design <i>CS</i> ²	3
ENG 101 First-Year Composition	3
MAT 294 ST: Calculus for Engineers I ²	3
Total	16

Second Semester	
BME 111 Engineering Perspectives on Biological Systems	3
or BCH 361 Principles of Biochemistry ⁵ (3)	
EEE 120 Digital Design Fundamentals ²	3
ENG 102 First-Year Composition	3
MAT 294 ST: Calculus for Engineers II ²	3
PHY 121 University Physics I: Mechanics <i>SQ</i> ^{2, 6}	3
PHY 122 University Physics Laboratory I <i>SQ</i> ^{2, 6}	1
Total	16

Second Year

First Semester	
EEE 202 Circuits I ²	4
MAT 274 Elementary Differential Equations <i>MA</i> ²	3
or MAT 275 Modern Differential Equations <i>MA</i> ² (3)	
MAT 294 ST: Calculus for Engineers III ²	3
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ^{2, 7}	3
PHY 132 University Physics Laboratory II <i>SQ</i> ^{2, 7}	1
Total	14

Second Semester	
EEE 203 Signals and Systems I	3
EEE 241 Fundamentals of Electromagnetics	3
MAT 342 Linear Algebra	3
or MAT 343 Applied Linear Algebra (3)	
PHY 241 University Physics III	3
HU/SB and awareness area course ⁸	3
Total	15

Third Year

First Semester	
EEE 230 Computer Organization and Assembly Language Programming	3
EEE 334 Circuits II	4
EEE 350 Random Signal Analysis	3
Area pathway course	4
Total	14

Second Semester	
ECN 211 Macroeconomic Principles <i>SB</i>	3
or ECN 212 Microeconomic Principles <i>SB</i> (3)	
Area pathway courses	12
Total	15

Fourth Year

First Semester	
EEE 488 Senior Design Laboratory I <i>L</i>	3
HU/SB and awareness area course ⁸	6
Technical electives	6
Total	15

Second Semester	
EEE 489 Senior Design Laboratory II <i>L</i>	3
HU/SB and awareness area course ⁸	3
Technical electives	9
Total	15

Total degree requirements

¹ CHM 116 has a prerequisite of CHM 113, which cannot be used for degree credit.

² This is a required skill-set course.

³ Both CHM 231 and 235 must be taken to secure SQ credit.

⁴ CSE 110 Principles of Programming with Java (3) can be substituted for CSE 100 with Department of Electrical Engineering approval.

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- ⁵ BCH 361 requires CHM 231 be taken as a prerequisite.
⁶ Both PHY 121 and 122 must be taken to secure SQ credit.
⁷ Both PHY 131 and 132 must be taken to secure SQ credit.
⁸ Engineering students may not use aerospace studies (AES) or military science (MIS) courses to meet HU or SB requirements.

ELECTRICAL ENGINEERING (EEE)

M EEE 101 Introduction to Engineering Design. (3)

fall and spring

Introduces engineering design, teaming, engineering profession; computer models and programming; communication skills; design of electrical and computer-based systems. Lecture, lab. Cross-listed as CSE 101. Credit is allowed for only EEE 101 or CSE 101. Fee. Prerequisites: high school algebra, computing, and physics courses (or their equivalents).

General Studies: CS

M EEE 120 Digital Design Fundamentals. (3)

fall and spring

Number systems, conversion methods, binary and complement arithmetic, Boolean algebra, circuit minimization, ROMs, PLAs, flipflops, synchronous sequential circuits. Lecture, lab. Cross-listed as CSE 120. Credit is allowed for only EEE 120 or CSE 120. Fee. Prerequisite: computer literacy.

M EEE 202 Circuits I. (4)

fall and spring

Principles for analyzing linear and nonlinear circuits. Uses SPICE and MATLAB. Design and measurement of linear analog electrical systems. Lecture, lab. Fee. Prerequisite: EEE 101 (or its equivalent). Pre- or corequisites: MAT 274 (or 275); PHY 131, 132.

M EEE 203 Signals and Systems I. (3)

fall and spring

Introduces continuous and discrete time signal and system analysis, linear systems, Fourier, and z-transforms. Prerequisite: EEE 202. Pre- or corequisite: MAT 342 or 343.

M EEE 230 Computer Organization and Assembly Language Programming. (3)

fall and spring

Register-level computer organization. Instruction set architecture. Assembly language. Processor organization and design. Memory organization. IO programming, Exception/interrupt handling. Cross-listed as CSE 230. Credit is allowed for only EEE 230 or CSE 230. Fee. Prerequisites: CSE 100 (or 110), 120 (or EEE 120).

M EEE 241 Fundamentals of Electromagnetics. (3)

fall and spring

Vector analysis, differential operators, fourier analysis, scalar, vector fields, electro/magneto statics, time-varying fields, boundary value problems, dielectric, magnetic materials, Maxwell's equations. Prerequisites: EEE 202; MAT 272 (or 294 ST: Calculus for Engineers III), 274 (or 275); PHY 131, 132.

M EEE 302 Electrical Networks. (3)

fall and spring

Analyzes linear and nonlinear networks. Analytical and numerical methods. Pre- or corequisite: MAT 362.

M EEE 304 Signals and Systems II. (4)

fall and spring

Communication, signal processing, control systems, continuous, discrete transforms, sampling theorem, analog, digital modulation, filter design, signal processing applications, state space. Lecture, lab. Fee. Prerequisite: EEE 203.

M EEE 333 Hardware Design Languages and Programmable Logic. (4)

fall and spring

Develops digital logic with modern practices of hardware description languages. Emphasizes usage, synthesis of digital systems for programmable logic, VLSI. Lecture, lab. Fee. Prerequisites: EEE 101 (or its equivalent), 120 (or CSE 120).

M EEE 334 Circuits II. (4)

fall and spring

Design of analog and digital circuits. Diodes/BJTs/ Mosfets. Digital and analog circuit building blocks. Fundamentals of mixed signal circuits. Lecture, lab. Fee. Prerequisite: EEE 202.

M EEE 335 Analog and Digital Circuits. (4)

fall and spring

Analog, digital microelectronic circuits and systems. Gate sizing, timing analysis, sequential digital circuits. Amplifiers, multistage op-amps, A/D, D/A converters. Lecture, lab. Fee. Prerequisite: EEE 334.

M EEE 341 Engineering Electromagnetics. (4)

fall and spring

Time-varying electromagnetic fields, waves in homogeneous and stratified media, transmission lines, waveguides and cavity resonators, radiation and antennas. Lecture, lab. Fee. Prerequisites: EEE 203, 241.

M EEE 350 Random Signal Analysis. (3)

fall and spring

Probabilistic and statistical analysis as applied to electrical signals and systems. Pre- or corequisite: EEE 203.

M EEE 352 Properties of Electronic Materials. (4)

fall and spring

Schrodinger's wave equation, potential barrier problems, bonds of crystals, the band theory of solids, semiconductors, superconductor dielectric, and magnetic properties. Prerequisites: CHM 114 (or 116); EEE 241; PHY 241.

M EEE 360 Energy Systems and Power Electronics. (4)

fall and spring

Conventional and alternate energy sources for power systems, three-phase analysis, AC generators, transformers, induction, DC motors, power electronic speed control. Fee. Lecture, lab. Prerequisites: EEE 202, 241.

M EEE 404 Real-Time DSP Systems. (3)

spring

Digital signal processors, translating signals and systems concepts into real-time multimedia and communications applications, real-time algorithms. Lecture, lab. Prerequisites: EEE 203, 230 (or CSE 230).

M EEE 407 Digital Signal Processing. (4)

fall and spring

Time and frequency domain analysis, difference equations, z-transform, FIR and IIR digital filter design, discrete Fourier transform, FFT, and random sequences. Fee. Lecture, lab. Prerequisite: EEE 203.

M EEE 425 Digital Systems and Circuits. (4)

fall and spring

Digital logic gate analysis and design. Propagation delay times, fan out, power dissipation, noise margins. Design of MOS and bipolar logic families, including NMOS, CMOS, standard and advanced TTL, ECL, and BiCMOS. Inverter, combinational and sequential logic circuit design, MOS memories, VLSI circuits. Computer simulations using PSPICE. Lecture, lab. Fee. Prerequisite: EEE 335.

M EEE 433 Analog Integrated Circuits. (4)

fall and spring

Analysis, design, and applications of modern analog circuits using integrated bipolar and field-effect transistor technologies. Lecture, lab. Fee. Prerequisite: EEE 335.

M EEE 434 Quantum Mechanics for Engineers. (3)

fall

Angular momentum, wave packets, Schroedinger wave equation, probability, problems in one dimension, principles of wave mechanics, scattering, tunneling, central forces, angular momentum, hydrogen atom, perturbation theory, variational techniques. Prerequisites: EEE 241, 352.

M EEE 435 Microelectronics. (3)

spring

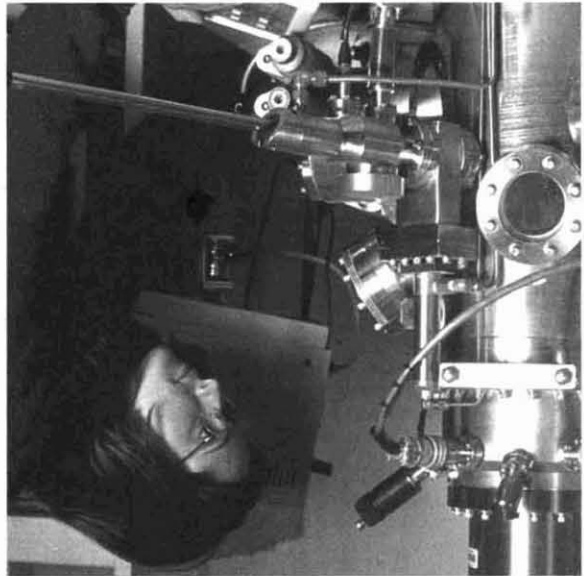
Introduces basic CMOS processing and fabrication tools. Covers the fundamentals of thermal oxidation, CVD, implantation, diffusion, and process integration. Internet lecture, Internet or on-campus lab. Fee. Pre- or corequisite: EEE 436.

M EEE 436 Fundamentals of Solid-State Devices. (3)

fall and spring

Semiconductor fundamentals, pn junctions, metal-semiconductor contacts, metal-oxide-semiconductor capacitors and field-effect transistors, bipolar junction transistors. Prerequisite: EEE 352.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.



Hands-on experience is an important part of the engineering curriculum.

John Phillips photo

- M EEE 463 Electrical Power Plant. (3)**
fall
 Nuclear, fossil, and solar energy sources. Analysis and design of steam supply systems, electrical generating systems, and auxiliary systems. Power plant efficiency and operation. Prerequisites: CHM 114 (or 116); MAE 240 (or PHY 241); MAT 274 (or 275).
fall
M EEE 470 Electric Power Devices. (3)
 Analyzes devices used for short circuit protection, including circuit breakers, relays, and current and voltage transducers. Protection against switching and lightning over voltages. Insulation coordination. Prerequisite: EEE 360.
M EEE 471 Power System Analysis. (3)
spring
 Review of transmission line parameter calculation. Zero sequence impedance, symmetrical components for fault analysis, short circuit calculation, review of power flow analysis, power system stability, and power system control concepts. Prerequisite: EEE 360.
M EEE 473 Electrical Machinery. (3)
fall
 Operating principles, constructional details, and design aspects of conventional DC and AC machines, transformers and machines used in computer disc drives, printers, wrist watches, and automobiles. Prerequisite: EEE 360.
M EEE 480 Feedback Systems. (4)
fall and spring
 Analysis and design of linear feedback systems. Frequency response and root locus techniques. Series compensation, and state variable feedback. Fee. Lecture, lab. Prerequisite: EEE 203 or MAE 318.
M EEE 481 Computer-Controlled Systems. (3)
fall
 Implements computer-based, embedded, control systems using MATLAB XPC Target toolbox. Small-scale, representative projects demonstrate theoretical issues and provide hands-on expertise. Prerequisites: both EEE 203 and 230 (or CSE 230) or only MAE 318.
M EEE 488 Senior Design Laboratory I. (3)
fall and spring
 Design process: research, concept, feasibility, simulation, specifications, benchmarking, and proposal generation. Technical communications and team skills enrichment. Fee. Lecture, lab. Prerequisites: ENG 102 (or 105 or 108); EEE 241, 334, 350; four area pathway courses.
M EEE 489 Senior Design Laboratory II. (3)
fall and spring
 Implement, evaluate, and document EEE 488 design. Social, economic, and safety considerations. Technical communications and team skills enrichment. Fee. Lecture, lab. Prerequisite: EEE 488 in the immediately preceding semester.
M EEE 492 Honors Directed Study. (1-6)
selected semesters
M EEE 493 Honors Thesis. (1-6)
selected semesters
M EEE 498 Pro-Seminar. (1-7)
selected semesters
 Topics may include the following:
 • Real-Time DSP
 Fee. Credit is allowed for only EEE 498 or 591.
M EEE 499 Individualized Instruction. (1-3)
selected semesters
 Omnibus Courses. For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63. Graduate-Level Courses. For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/catalog on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.
- spring*
 Radiation interactions, damage, dose, and instrumentation. Cosmic rays, satellite effects; soft errors; transmutation doping. Fission
- M EEE 460 Nuclear Concepts for the 21st Century. (3)**
 EEE 350.
 communication networks. Prerequisite: EEE 203. Pre- or corequisite: model. Focus on functionality and performance of protocols used in Fundamentals of communication networks. Study of Seven-Layer OSI
- M EEE 459 Communication Networks. (3)**
spring
 EEE 203, 350.
 digital and analog communications. Fee. Lecture, lab. Prerequisites: communication systems. Introduction to and overview of modern Signal analysis techniques applied to the operation of electrical
- M EEE 455 Communication Systems. (4)**
fall and spring
 Prerequisite: EEE 341.
 Principles of fiber-optic communications. Fee. Lecture, lab.
- M EEE 448 Fiber Optics. (4)**
fall
 Prerequisite: EEE 341.
 Impedance matching transformers; measurements. Lecture, lab. Fee. Waveguides; circuit theory for waveguiding systems; microcrowave devices, systems, and energy sources; striplines and microstrips; loop, and microstrip antennas; antenna arrays; smart antennas; Fundamental parameters; radiation integrals; wireless systems; wire
- M EEE 445 Microwaves. (4)**
fall
 ground effects; multipath. Prerequisite: EEE 341.
- M EEE 443 Antennas for Wireless Communications. (3)**
spring
 concepts. Prerequisite: EEE 435 or instructor approval.
 materials; personnel and operations; hazard management; advanced Microcathination, controlled environments, cleanroom layout and systems, modeling, codes and legislation, ultrapure water, production that play important roles in commercial and communication electronics; light-emitting diodes, injection lasers, and photodetectors. Prerequisite: EEE 436.
- M EEE 439 Semiconductor Facilities and Classroom Practices. (3)**
fall
 Basic operating principles of various types of optoelectronic devices
- M EEE 437 Optoelectronics. (3)**
selected semesters

Department of Industrial Engineering

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480/965-3185

GWC 502

Gary L. Hogg, Chair

Regents' Professor: Montgomery

Professors: Cochran, Fowler, Henderson, Hogg, Hubele, Runger, Shunk, Wolfe, Ye

Associate Professors: Anderson-Rowland, Mackulak, Moor, Villalobos

Assistant Professors: Gel, Keha, Kulahci, Wu

Senior Lecturer: Thompson

Lecturer: Chattin

The industrial engineer (IE) provides leadership for organizations in establishing and maintaining competitiveness in the global marketplace through system integration and productivity improvement. As in other engineering fields, industrial engineering is concerned with solving problems through the application of scientific and practical knowledge. What sets industrial engineering apart from other engineering disciplines is its broader scope. An IE evaluates the total picture of productivity to make each system perform at its best with the right combination of human resources, natural resources, synthetic structures, and equipment. An IE bridges the gap between management and operations, working with and motivating people as well as determining what tools should be used and how they should be used.

INTEGRATION OF TECHNOLOGY AND PEOPLE

Industrial engineers are the "productivity people" who provide the necessary leadership and skills to integrate technology and people. No challenge can be greater than improving productivity, which is the application of knowledge and skills to provide improved goods and services that enhance quality of life. Such improvement must be achieved without waste of physical and human resources while maintaining environmental balance. This requires that IEs possess a wide range of interests and expertise to fulfill job responsibilities. To be competitive in the global economy, it is essential to emphasize and continually improve the quality of goods and services. Industrial engineering is the only engineering discipline offering course work in designing and implementing quality assurance systems.

An IE deals with people as well as technology. In fact, industrial engineering is often called the "people-oriented profession" because the IE's primary function is to integrate people with technology-oriented systems. For this reason, IEs are active in the fields of ergonomics and human factors.

Many industrial engineers will find themselves involved with interdisciplinary teams. IEs are often leaders of teams composed of electrical and mechanical engineers, accountants, computer scientists, and planners.

DIVERSE APPEAL OF INDUSTRIAL ENGINEERING

Skills in industrial engineering are applicable to every kind of organization. IEs learn how to approach, think about, and solve productivity and integration problems in diverse settings. They work in a variety of industries, including manufacturing facilities, banks, hospitals, government, transportation, construction, and social services. Within this wide range of organizations, IEs get involved in projects such as designing and implementing quality control systems, computer-based management information systems, and manufacturing operating systems.

IEs have a sound background in technology integration, management theory and application, engineering economics, and cost analysis. They are well equipped to deal with current organizational problems. As a matter of fact, more than half of all professional IEs are in management positions. Industrial engineers are prime candidates for promotion through the management career path, especially in high-tech organizations.

Industrial engineering students at the Fulton School of Engineering gain experience in the development and use of analytical tools. Students learn to understand the problems of clients and respond quickly because through the IE program, they have had the opportunity to develop first-rate analytical and people skills. These skills, when applied to the professional world, play a vital role for organizations competing in today's global marketplace.

INDUSTRIAL ENGINEERING—BSE

The curriculum in Industrial Engineering builds upon mathematics, computer utilization, and the engineering core. Beyond this foundation, the curriculum includes a number of required IE core courses, IE electives, and focus study area electives, enabling each student to focus on a specific career objective.

Successful completion of this curriculum prepares the student to embark on a career in industrial engineering or to pursue advanced study in graduate school.

Suggested career-focused study areas are as follows:

1. *Industrial and management systems:* for a broad traditional IE career in the design and analysis of manufacturing and service systems.
2. *Information and telecommunications systems:* for a career in the application of integrated computer and telecommunication systems to manufacturing and service systems analysis and design.
3. *Global industrial engineering leadership:* for a career in global manufacturing and service organizations.
4. *High-tech manufacturing:* for a career in the design and analysis of integrated manufacturing systems.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

IRA A. FULTON SCHOOL OF ENGINEERING

5. *Preprofessional and service systems*: for a career in law, medicine, or public service or for a career in the design and analysis of health care, agribusiness, banking/financial, and government/public-administration systems.

ADMISSION REQUIREMENTS

Preprofessional Program (lower-division courses). All students entering the Industrial Engineering program are admitted as preprofessional. The only exception to this is for students who qualify to be admitted directly into any Fulton School of Engineering professional program. All students are required to complete the first- and second-year sequence of lower-division courses. In addition, preprofessional students must take the following skill-set courses in order to be considered for admission to the professional program. The GPA for all skill-set courses must be 2.50 or higher.

Required Skill-Set

BME 111	Engineering Perspectives on Biological Systems ¹	3
CSE 110	Principles of Programming with Java CS ¹	3
ECN 211	Macroeconomic Principles SB	3
ENG 101	First-Year Composition ²	3
	or ENG 105 Advanced First-Year Composition (3)	
	or ENG 107 English for Foreign Students (3)	
IEE 100	Introduction to Engineering Design for IE CS	3
MAT 294 ST:	Calculus for Engineers I ¹	3
MAT 294 ST:	Calculus for Engineers II ¹	3
PHY 121	University Physics I: Mechanics SQ ^{1,3}	3
PHY 122	University Physics Laboratory I SQ ^{1,3}	1
Required skill-set total		25

¹ The GPA for science and mathematics courses must be 2.50 or higher.

² A minimum grade of "C" (2.00) is required.

³ Both PHY121 and 122 must be taken to secure SQ credit.

Professional Program. Students admitted to the professional program are eligible to take upper-division engineering courses. Students with applicable transfer credit will be evaluated based on the same GPA criteria for the skill-set courses. All students seeking professional status must be in the process of completing their skill-set courses in order to apply to the professional program. Please visit the academic advisor for details on applying to the professional program. Professional status will be granted once the skill-set courses and required grades are attained.

DEGREE REQUIREMENTS

A minimum of 120 semester hours is necessary for the BSE degree in Industrial Engineering. A minimum of 45 upper-division hours is required. Students must attain a GPA of at least "C" (2.00) for each course in industrial engineering.

GRADUATION REQUIREMENTS

In addition to fulfilling school and major requirements, students must satisfy all university graduation requirements. See "University Graduation Requirements," page 89. For information concerning admission, degree, course, and

graduation requirements for the School of Engineering, see "Admission," page 372, and subsequent sections.

COURSE REQUIREMENTS

Students take 55 semester hours of university English proficiency and general studies course work, 26 semester hours of lower-division engineering courses, 24 semester hours of upper-division industrial engineering courses, three semester hours of industrial engineering upper-division electives, and 12 semester hours of career-focused study area electives of which at least nine are upper-division. Each career-focused study area has an associated list of recommended study area courses. A total of 45 semester hours of IE courses are included in the overall course requirements for the IE degree. The course work for the undergraduate degree can be classified into the following categories:

First-Year Composition

Choose among the course combinations below	6
ENG 101 First-Year Composition ^{1,2} (3)	
ENG 102 First-Year Composition ¹ (3)	
———— or ————	
ENG 105 Advanced First-Year Composition ^{1,2} (3)	
Elective chosen with an advisor (3)	
———— or ————	
ENG 107 English for Foreign Students ^{1,2} (3)	
ENG 108 English for Foreign Students ¹ (3)	
First-year composition total	6

General Studies/Program Requirements

<i>Humanities and Fine Arts/Social and Behavioral Sciences</i>	
ECN 211 Macroeconomic Principles SB ²	3
HU electives	6-9
SB electives	3-6
Humanities and fine arts/social and behavioral sciences subtotal	15

Literacy and Critical Inquiry

Six semester hours of literacy and critical inquiry credit is satisfied by courses in the major.

Natural Sciences/Basic Sciences

BME 111 Engineering Perspectives on Biological Systems ²	3
PHY 121 University Physics I: Mechanics SQ ^{2,4}	3
PHY 122 University Physics Laboratory I SQ ^{2,4}	1
PHY 131 University Physics II: Electricity and Magnetism SQ ⁵	3
PHY 132 University Physics Laboratory II SQ ⁵	1
Natural sciences/basic sciences subtotal	11

Mathematical Studies

IEE 280 Probability and Statistics for Engineering Problem Solving CS ¹	3
MAT 242 Elementary Linear Algebra	2
MAT 275 Modern Differential Equations MA	3
MAT 294 ST: Calculus for Engineers I ²	3
MAT 294 ST: Calculus for Engineers II ²	3
MAT 294 ST: Calculus for Engineers III	3
Mathematical studies subtotal	17

General studies/program requirement total 43

Major

Lower-Division Engineering Courses

CSE 110 Principles of Programming with Java CS ²	3
CSE 205 Concepts of Computer Science and Data Structures CS	3

DEPARTMENT OF INDUSTRIAL ENGINEERING

IEE 100 Introduction to Engineering Design for IE CS ^{1,2}	3
IEE 210 Introduction to Industrial Engineering ¹	3
IEE 220 Business and Industrial Engineering ¹	3
MAE 212 Engineering Mechanics.....	4
or CEE 211 Engineering Mechanics: Statics and Dynamics (4)	
MSE 250 Structure and Properties of Materials.....	3
EEE 202 Circuits I.....	4
Lower-division subtotal.....	26
<i>Upper-Division Industrial Engineering Required Courses¹</i>	
IEE 300 Economic Analysis for Engineers.....	3
IEE 305 Information Systems Engineering CS.....	3
IEE 368 Facilities Analysis and Design L.....	3
or IEE 369 Work Analysis and Design L (3)	
IEE 376 Operations Research Deterministic Techniques/ Applications CS.....	3
IEE 385 Introduction to Engineering Probability CS.....	3
IEE 461 Production Control.....	3
IEE 470 Stochastic Operations Research.....	3
IEE 474 Quality Control CS.....	3
IEE 475 Simulating Stochastic Systems CS.....	3
IEE 490 Project in Design and Development L.....	3
Industrial engineering elective area ³	3
Career-focused area electives ⁶	12
Upper-division courses subtotal.....	45
Major total.....	71
Degree requirements total.....	120

¹ A minimum grade of "C" (2.00) or higher is required for graduation.

² This course is to be taken as part of skill-set.

³ For information about these electives, see "Industrial Engineering Elective Area," on this page.

⁴ Both PHY 121 and 122 must be taken to secure SQ credit.

⁵ Both PHY 131 and 132 must be taken to secure SQ credit.

⁶ For information about these electives, see "Career-Focused Study Area Electives," on this page.

Industrial Engineering Elective Area. Students select three semester hours of industrial engineering electives. For course information, see the list of recommended courses in the department advising office.

Career-Focused Study Area Electives. Students select a minimum of 12 semester hours (at least nine upper-division hours) from one of the following five career-focused study areas:

Industrial and Management Systems¹

IEE 369 Work Analysis and Design L ²	3
or IEE 368 Facilities Analysis and Design L (3) ²	
IEE 431 Engineering Administration ²	3
IEE 437 Human Factors Engineering ²	3
Any approved engineering or business elective.....	3

Information and Telecommunication Systems¹

IEE 405 Developing Information Systems Applications ²	3
Any approved upper-division Information and Telecommunications electives.....	9

Global Industrial Engineering Leadership

ECN 306 Survey of International Economics SB, G.....	3
IBS 300 Principles of International Business G.....	3
IBS 400 Cultural Factors in International Business C, G.....	3
Any approved international business elective.....	3

High-Tech Manufacturing

EEE 352 Properties of Electronic Materials.....	4
EEE 435 Microelectronics.....	3
EEE 436 Fundamentals of Solid-State Devices.....	3
MSE 353 Introduction to Materials Processing and Synthesis.....	3
MSE 441 Analysis of Materials Failures.....	3
MSE 470 Polymers and Composites.....	3

Preprofessional and Service Systems

Focus area courses ³	12
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¹ Certain focus areas may require more than 12 semester hours due to course prerequisites.

² A minimum grade of "C" (2.00) or higher is required for graduation.

³ A student desiring a focus area other than those listed is invited to create his or her own that concentrates on a professional service area. The student is expected to formulate a set of four courses (12 semester hours) that supports his or her career option. The student needs to submit a petition to the department that explains and supports the focus and the courses selected. The associate chair for undergraduate studies must approve the petition before the student begins study in the focus area. For more information, see the IE academic advisor.

Industrial Engineering Program of Study Typical Four-Year Sequence

First Year

First Semester

BME 111 Engineering Perspectives on Biological Systems.....	3
ENG 101 First-Year Composition.....	3
IEE 100 Introduction to Engineering Design for IE CS.....	3
MAT 294 ST: Calculus for Engineers I.....	3
HU/SB elective ¹	3
Total.....	15

Second Semester

CSE 110 Principles of Programming with Java CS.....	3
ECN 211 Macroeconomic Principles SB.....	3
ENG 102 First-Year Composition.....	3
MAT 294 ST: Calculus for Engineers II.....	3
PHY 121 University Physics I: Mechanics SQ ²	3
PHY 122 University Physics Laboratory I SQ ²	1
Total.....	16

Second Year

First Semester

IEE 210 Introduction to Industrial Engineering.....	3
IEE 220 Business and Industrial Engineering.....	3
MAT 242 Elementary Linear Algebra.....	2
MAT 294 ST: Calculus for Engineers III.....	3
PHY 131 University Physics II: Electricity and Magnetism SQ ³	3
PHY 132 University Physics Laboratory II SQ ³	1
Total.....	15

Second Semester

CSE 205 Concepts of Computer Science and Data Structures CS.....	3
--	---

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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IEE 280 Probability and Statistics for Engineering Problem Solving <i>CS</i>	3
MAT 275 Modern Differential Equations <i>MA</i>	3
MSE 250 Structure and Properties of Materials	3
HU/SB elective ¹	3
Total	15

Third Year

First Semester

EEE 202 Circuits I.....	4
IEE 300 Economic Analysis for Engineers.....	3
IEE 305 Information Systems Engineering <i>CS</i>	3
MAE 212 Engineering Mechanics.....	4
or CEE 211 Engineering Mechanics: Statics and Dynamics (4)	
Total	14

Second Semester

IEE 368 Facilities Analysis and Design <i>L</i>	3
or IEE 369 Work Analysis and Design <i>L</i> (3)	
IEE 376 Operations Research Deterministic Techniques/Applications <i>CS</i>	3
IEE 385 Introduction to Engineering Probability <i>CS</i>	3
HU/SB elective ¹	3
Focus area course	3
Total	15

Fourth Year

First Semester

IEE 470 Stochastic Operations Research.....	3
IEE 474 Quality Control <i>CS</i>	3
IEE 475 Simulating Stochastic Systems <i>CS</i>	3
HU/SB elective ¹	3
Focus area course	3
Total	15

Second Semester

IEE 461 Production Control.....	3
IEE 490 Project Design and Development <i>L</i>	3
IE Technical Elective	3
Focus area course	6
Total	15

Total degree requirements..... 120

¹ Engineering students may not use aerospace studies (AES) or military science (MIS) courses to satisfy HU or SB requirements.

² Both PHY 121 and 122 must be taken to secure SQ credit.

³ Both PHY 131 and 132 must be taken to secure SQ credit.

INDUSTRIAL ENGINEERING (IEE)

M IEE 100 Introduction to Engineering Design for IE. (3)

fall and spring
Introduces industrial engineering design; teaming, the profession of engineering, computer models in engineering communication skills; quality and customer satisfaction. Integrated lecture/lab. Fee.
General Studies: CS

M IEE 210 Introduction to Industrial Engineering. (3)

fall and spring
History of IE: IE career paths; ethical, social, and contemporary issues; introduction to IE techniques, methods, and their application; case studies. Prerequisite: IEE 100.

M IEE 220 Business and Industrial Engineering. (3)

fall and spring
Introduces business for industrial engineers, including business/financial structures, fundamentals of cost and accounting, role of business/engineering in society. Prerequisite: IEE 210.

M IEE 280 Probability and Statistics for Engineering Problem Solving. (3)

fall and spring or summer
Applications-oriented course with computer-based experience using statistical software for formulating and solving engineering problems. Fee. Integrated lecture/lab. Prerequisite: MAT 271 or 294 ST: Calculus for Engineers II.
General Studies: CS

M IEE 294 Special Topics. (1-4)

fall and spring
Topics may include the following:
• Industrial Engineering Applications Seminar. (2)

M IEE 300 Economic Analysis for Engineers. (3)

fall and spring
Economic evaluation of alternatives for engineering decisions, emphasizing the time value of money. Prerequisites: IEE 100; MAT 270 (or 294 ST: Calculus for Engineers I).

M IEE 305 Information Systems Engineering. (3)

fall
Overview of computer and information systems applications. Topics include client/server; distributed computing; networks; process modeling; e-commerce; enterprise applications; Internet. Fee. Prerequisite: CSE 205.
General Studies: CS

M IEE 360 Manufacturing Processes. (3)

fall and spring
Production technique and equipment. Casting and molding, forming, machining, joining and assembly, computer-integrated manufacturing, rapid prototyping, and electronics manufacturing. Cross-listed as MAE 351. Credit is allowed for only IEE 360 or MAE 351. Fee. Prerequisite: MSE 250.

M IEE 361 Manufacturing Processes Lab. (1)

fall and spring
Series of labs designed to illustrate concepts presented in IEE 360 on production technique and equipment. Fee. Corequisite: IEE 360 or MAE 351.

M IEE 368 Facilities Analysis and Design. (3)

fall
Planning, analysis, and design of the tangible physical assets of the firm. Emphasizes facilities location, materials handling, automation, computer integration, and utilization of financial resources. Applications in diverse fields. Lecture, lab. Fee. Prerequisites: ENG 101; IEE 300.
General Studies: L

M IEE 369 Work Analysis and Design. (3)

spring
Planning, analysis, and design of methods of accomplishing work. Emphasizes human factors, work planning, methods analysis and design, and work measurement. Applications in diverse fields. Lecture, lab. Fee. Prerequisites: ENG 101; IEE 300.
General Studies: L

M IEE 376 Operations Research Deterministic Techniques/Applications. (3)

fall and spring
Industrial systems applications with deterministic operations research techniques. Resource allocation, product mix, production, transportation, task assignment, networks. Prerequisites: CSE 205; MAT 242.
General Studies: CS

M IEE 385 Engineering Statistics with Probability. (3)

fall and spring
Designing statistical studies for solutions to engineering problems. Methods include regression, design and analysis of experiments, and other statistical topics. Prerequisite: IEE 280.
General Studies: CS

M IEE 394 Special Topics. (1–4)

fall and spring

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

M IEE 405 Developing Information Systems Applications. (3)

spring

Analysis and design of distributed information system applications using object and relational architectures. Integrated lecture/lab.

Prerequisites: CSE 205; IEE 305.

M IEE 431 Engineering Administration. (3)

fall and summer

Introduces quantitative and qualitative approaches to management functions, engineering administration, organizational analysis, decision making, and communication. Credit is allowed for only IEE 431 or 541. *Prerequisite:* senior standing.

M IEE 437 Human Factors Engineering. (3)

fall

Study of the human psychological and physiological factors that underlie the design of equipment and the interaction between people and machines. Credit is allowed for only IEE 437 or 547.

M IEE 461 Production Control. (3)

fall

Techniques for the planning, control, and evaluation of production systems. Project management, forecasting, inventory control, scheduling, enterprise requirements planning. Fee. *Prerequisites:* CSE 100 (or 110); IEE 376, 385.

M IEE 463 Computer-Aided Manufacturing and Control. (3)

spring

Computer control in manufacturing, CIM, NC, logic controllers, group technology, process planning, and robotics. Cross-listed as MAE 453. Credit is allowed for only IEE 463 or MAE 453. Credit is allowed for only IEE 463 or 543. Fee. *Prerequisite:* IEE 360 or MAE 351.

General Studies: CS

M IEE 470 Stochastic Operations Research. (3)

fall and spring

Modeling and analysis with emphasis on stochastic operations research. Models for stochastic processes, including Markov chains, queueing and decision analysis. *Prerequisites:* IEE 280, 376.

M IEE 474 Quality Control. (3)

fall

Basic statistical process control techniques, capability analysis, design of experiments, and acceptance sampling plans. *Prerequisite:* IEE 385.

General Studies: CS

M IEE 475 Simulating Stochastic Systems. (3)

fall and spring

Analyzes stochastic systems using basic queueing networks and discrete event simulation. Basic network modeling, shared resources, routing, assembly logic. Fee. *Prerequisites:* CSE 205; IEE 385.

General Studies: CS

M IEE 490 Project in Design and Development. (3)

fall and spring

Individual or team capstone project in creative design and synthesis. Fee. *Prerequisites:* IEE 376, 475.

General Studies: L

M IEE 492 Honors Directed Study. (1–6)

selected semesters

M IEE 493 Honors Thesis. (1–6)

selected semesters

M IEE 494 Special Topics. (1–4)

fall and spring

Topics may include the following:

- Information Systems Development Tools. (3)

M IEE 499 Individualized Instruction. (1–3)

selected semesters

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

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

Department of Mechanical and Aerospace Engineering

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480/965-3291

ECG 346

Robert E. Peck, Chair

Aerospace Engineering

Professors: Chattopadhyay, Mignolet, Wie

Associate Professors: Lee, Wells

Assistant Professor: Mikellides

Mechanical Engineering

Professors: Adrian, Boyer, Davidson, Fernando, Peck, Roy, Shah, Sieradzki, Squires, Tseng, Van Schilfgaarde, Yao

Associate Professors: Chen, McNeill, Peralta, Phelan,

Assistant Professors: Calhoun, Friesen, Posner

The Department of Mechanical and Aerospace Engineering houses two undergraduate programs: Aerospace Engineering and Mechanical Engineering. Both programs prepare students for immediate entry into professional employment in the engineering field or for graduate study. The curricula in Aerospace and Mechanical Engineering emphasize fundamental principles of mechanical and thermal sciences as well as contemporary tools of engineering practice.

The Aerospace Engineering and Mechanical Engineering programs at ASU are accredited by the

ENGINEERING ACCREDITATION COMMISSION
OF ABET

111 MARKET PLACE, SUITE 1050

BALTIMORE MD 21202-4012

410/347-7700

INTEGRATED BSE—MS PROGRAM

The Integrated BSE—MS is designed to provide selected high-achieving MAE undergraduate students with the opportunity to combine advanced undergraduate course work with graduate course work and to accelerate graduate degree completion. Up to nine semester hours of approved graduate-level course work taken as technical electives during the senior year may apply to both undergraduate and graduate degrees.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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The program is particularly suited for students with strong academic backgrounds who are motivated to pursue independent research. Participants will have an opportunity to work in a laboratory/research environment and to engage in theoretical and/or experimental work with faculty and doctoral student mentors. Students will showcase their research at both the undergraduate/graduate research symposia in the Fulton School, and they will be eligible for travel grants to present their work at national conferences.

A minimum of two semesters of full-time enrollment in MAE is required. Applications are normally submitted with two semesters remaining in the senior year. A minimum of 90 credit hours of course work applicable to the BSE degree with a cumulative GPA of 3.50 to 4.00 or higher must be completed before beginning the joint degree program.

Students must apply for admission to the program through the MAE department and the Division of Graduate Studies (DGS) by submitting an application for the joint BSE—MS program in Aerospace or Mechanical Engineering. Forms are available at the MAE Graduate Advising Office, ECG 339, or can be downloaded from the MAE Web site.

AEROSPACE ENGINEERING—BSE

The Aerospace Engineering curriculum is designed to provide students with an education in technological areas critical to the design and development of aerospace vehicles and systems. The program emphasizes aeronautical engineering with required courses covering aerodynamics, aerospace materials, aircraft structures, propulsion, flight mechanics, and stability and control. Required astronautics topics include orbital mechanics, attitude control, and rocket propulsion.

The Aerospace Engineering program offers incoming freshmen a degree track with emphasis in astronautics. Enrollment in the astronautics track is limited, and interested students should contact the advising office in the Department of Mechanical and Aerospace engineering. Students should refer to the Web site of the Department of Mechanical and Aerospace Engineering for the latest information regarding the new offerings.

The Aerospace Engineering program has four educational objectives, which describe the expected capabilities and achievements of graduates during the first several years following completion of the program. The objectives of the program are to

1. provide graduates with the ability to think in a critical and evaluative manner and to consider a broad perspective, in order to solve technical and non technical problems;
2. prepare professionally successful graduates who provide effective leadership, who act in an ethical manner and whose skills include the ability to communicate well and to work successfully within diverse groups;
3. provide the depth and breadth of engineering education that prepares graduates for employment in the aerospace engineering profession, admission to graduate programs in Aerospace engineering or a related field, or the pursuit of advanced education in other

professional areas, such as business, law, or medicine; and

4. cultivate in our graduates a spirit of inventiveness, creativity, and entrepreneurship.

Students are prepared for a career in Aerospace Engineering by a thorough grounding in the fundamentals of mathematics and science, instruction in engineering sciences, and experience in engineering design, which is distributed throughout the curriculum. Students are encouraged to select elective general studies courses that complement the program's technical content and promote the program objectives.

DEGREE REQUIREMENTS

In order to attain the Bachelor of Science in Engineering in Aerospace Engineering degree, students must complete a minimum of 120 semester hours of course work, including 45 upper-division hours. In addition to those courses specifically required for a degree in Aerospace Engineering, students must fulfill all university First-Year Composition and General Studies requirements. The Ira A. Fulton School of Engineering does not permit the use of pass/fail courses as part of a degree program, and credit hours earned more than five years before admission to the program are normally not accepted for transfer credit.

ADMISSION TO THE PROFESSIONAL PROGRAM

Admission to the professional program in Aerospace Engineering is competitive, and the level of achievement necessary for promotion will be based on several factors, including the number of places available and the number of students requesting professional status in a given year. Students must complete, or be currently enrolled in, the courses in the Aerospace Engineering skill-set before making application to the professional program. Students may not enroll in upper-division courses in the Department of Mechanical and Aerospace Engineering until they are admitted to professional status.

For admission to professional status in Aerospace Engineering, a minimum grade of "C" (2.00) is required in all chemistry, mathematics, and physics courses, and in all courses in the skill-set. It is anticipated that a minimum GPA of approximately 2.80 in the skill-set and overall will be necessary for professional admission. Under no circumstances will students with a GPA lower than 2.50 (in the skill-set and overall) be considered for promotion to professional status in Aerospace Engineering.

The following courses make up the skill-set in Aerospace Engineering. Students must have completed these courses, or be enrolled in them, in order to apply to the professional program in the major. All skill-set courses are normally taken during the first three semesters of a typical four-year program in Aerospace Engineering.

CHM 114 General Chemistry for Engineers SQ.....	4-5
or CHM 115 General Chemistry with Qualitative Analysis SQ ¹ (5)	
or CHM 116 General Chemistry II SQ ¹ (4)	
ENG 102 First-Year Composition	3
or ENG 105 Advanced First-Year Composition (3)	
or ENG 108 English for Foreign Students (3)	

DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING

MAE 100 Introduction to Mechanical and Aerospace Engineering CS	3
MAE 212 Engineering Mechanics.....	4
MAT 275 Modern Differential Equations MA.....	3
MAT 294 ST: Calculus for Engineers II.....	3
PHY 131 University Physics II: Electricity and Magnetism SQ ²	3
PHY 132 University Physics Laboratory II SQ ²	1
Total	24–25

¹ CHM 115 and 116 have a prerequisite of CHM 113, which cannot be used for degree credit.

² Both PHY 131 and 132 must be taken to secure SQ credit.

GRADUATION REQUIREMENTS

In addition to achieving professional status in Aerospace Engineering and completing all required course work, students must earn a minimum GPA of 2.00 in the major and overall. A minimum grade of “C” (2.00) is required in all upper-division major courses. The department may require additional or remedial course work for students experiencing academic difficulties.

COURSE REQUIREMENTS

The following constitute specific course requirements for the Bachelor of Science in Engineering degree for Aerospace Engineering:

First-Year Composition¹

Choose among the course combinations below 6

ENG 101 First-Year Composition (3)

ENG 102 First-Year Composition (3)²

— or —

ENG 105 Advanced First-Year Composition (3)²

Approved Elective (3)

— or —

ENG 107 English for Foreign Students (3)

ENG 108 English for Foreign Students (3)²

First-year composition subtotal..... 6

General Studies/Program Requirements³

Humanities and Fine Arts/Social and Behavioral Sciences

Humanities and Fine Arts Courses..... 6–9

Social and Behavioral Sciences 6–9

Humanities and fine arts/social and

behavioral sciences subtotal 15

Literacy and Critical Inquiry

Six semester hours of literacy and critical inquiry credit is satisfied by courses in the major.

Mathematical Studies¹

MAE 100 Introduction to Mechanical and Aerospace Engineering CS²..... 3

MAT 275 Modern Differential Equations MA..... 3

MAT 294 ST: Calculus for Engineers I..... 3

MAT 294 ST: Calculus for Engineers II²..... 3

MAT 294 ST: Calculus for Engineers III 3

MAT 343 Applied Linear Algebra..... 3

Mathematical studies subtotal..... 18

Natural Sciences¹

BME 111 Engineering Perspectives on Biological Systems 3

CHM 114 General Chemistry for Engineers SQ²..... 4–5

or CHM 115 General Chemistry with Qualitative Analysis SQ⁴,⁵ (5)

or CHM 116 General Chemistry II SQ⁵ (4)

PHY 121 University Physics I: Mechanics SQ ⁶	3
PHY 122 University Physics Laboratory I SQ ⁶	1
PHY 131 University Physics II: Electricity and Magnetism SQ ² , ⁷	3
PHY 132 University Physics Laboratory II SQ ² , ⁷	1
Natural sciences subtotal.....	15–16

General studies/program requirements total 48

Aerospace Engineering Major

Lower-Division

EEE 202 Circuits I..... 4

MAE 212 Engineering Mechanics²..... 4

MAE 213 Solid Mechanics..... 3

MAE 214 Computer-Aided Engineering I..... 1

MAE 240 Thermofluids I..... 4

Lower-division subtotal..... 16

Upper-Division¹

MAE 313 Aircraft Dynamics and Control..... 3

MAE 318 Sensors and Controls..... 5

MAE 322 Mechanics of Materials..... 4

MAE 344 Fundamentals of Aerospace Design..... 3

MAE 360 Aerodynamics⁵..... 4

MAE 362 High-Speed Aerodynamics⁸..... 4

MAE 384 Numerical Methods for Engineers 3

MAE 400 Engineering Profession 3

MAE 415 Vibration Analysis..... 3

MAE 462 Space Vehicle Dynamics and Control 3

MAE 463 Propulsion 3

MAE 468 Aerospace Systems Design L..... 3

Technical electives 6

Upper-division subtotal..... 47

Aerospace major total 63

General elective⁹..... 3

Program total..... 120

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

² This is an aerospace engineering skill-set course; it must be completed before promotion can be considered. A minimum grade of “C” (2.00) is required.

³ See “General Studies,” page 93. Students are encouraged to select HU and SB courses to complement their technical program and to promote the program objectives. Suggested HU/SB courses are available from the Department of Mechanical and Aerospace Engineering.

⁴ Students taking CHM 115 will receive 4 semester hours of credit toward the Aerospace Engineering degree.

⁵ CHM 115 and 116 have a prerequisite of CHM 113, which cannot be used for degree credit.

⁶ Both PHY 121 and 122 must be taken to secure SQ credit.

⁷ Both PHY 131 and 132 must be taken to secure SQ credit.

⁸ Students must complete both MAE 360 and 362 to secure L credit.

⁹ General electives must be taken for a letter grade (A to E). Courses that are remedial for or prerequisites for any course required for the BSE degree in Aerospace Engineering are not approved for use as the free elective. Students must receive prior approval from the department to receive free elective credit.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 93.

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TECHNICAL ELECTIVES

Students must select two courses from the following list of technical electives. Students may, with prior approval of the advisor and department chair, select an alternative course that supports a specific career objective. Though in general both technical electives will be 300- or 400-level courses, at least one of them must have upper-division designation. Graduate courses are permitted for students with a GPA of 3.00 or higher and with the approval of the instructor, the advisor and the dean. Students with a GPA of 3.50 or higher may wish to consider the Integrated BSE—MS program when selecting technical electives.

IEE 300 Economic Analysis for Engineers
MAE 340 Thermofluids II
MAE 341 Mechanism Analysis and Design
MAE 351 Manufacturing Processes
MAE 372 Fluid Mechanics
MAE 404 Finite Elements in Engineering
MAE 406 CAD/CAM Applications in MAE
MAE 417 Control System Design
MAE 426 Design of Aerospace Structures
MAE 434 Internal Combustion Engines
MAE 435 Turbomachinery
MAE 455 Polymers and Composites
MAE 465 Rocket Propulsion
MAE 466 Rotary Wing Aerodynamics and Performance
MAE 469 Projects in Astronautics or Aeronautics
MAE 471 Computational Fluid Dynamics
MAT 421 Applied Computational Methods CS
MAT 423 Numerical Analysis I CS
MAT 425 Numerical Analysis II CS
MSE 440 Mechanical Properties of Solids
MSE 441 Analysis of Material Failures

TYPICAL FOUR-YEAR SEQUENCE

The following presents a typical schedule for students wishing to complete the BSE in Aerospace Engineering within four years. When selecting a semester course schedule, students should consider that most upper-division courses are taught only once per academic year. Students may not register for upper-division courses in the major until they are accepted into the professional program in Aerospace Engineering.

Aerospace Engineering Program of Study Typical Four-Year Sequence

First Year

Fall Semester

CHM 114 General Chemistry for Engineers SQ	4-5
or CHM 115 General Chemistry with Qualitative Analysis SQ ^{1, 2} (5)	
or CHM 116 General Chemistry II SQ ² (4)	
ENG 101 First-Year Composition	3
MAE 100 Introduction to Mechanical and Aerospace Engineering CS ³	3
MAT 294 ST: Calculus for Engineers I	3
Total	13-14

Spring Semester

ENG 102 First-Year Composition ³	3
MAT 275 Modern Differential Equations MA ³	3
MAT 294 ST: Calculus for Engineers II ³	3
PHY 121 University Physics I: Mechanics SQ ⁴	3

PHY 122 University Physics Laboratory I SQ ⁴	1
HU/SB elective ⁴	3
Total	16

Second Year

Fall Semester

BME 111 Engineering Perspectives on Biological Systems	3
MAE 212 Engineering Mechanics ³	4
MAT 294 ST: Calculus for Engineers III	3
PHY 131 University Physics II: Electricity and Magnetism SQ ^{3, 6}	3
PHY 132 University Physics Laboratory II SQ ^{3, 6}	1
Total	14

Spring Semester

EEE 202 Circuits I	4
MAE 213 Solid Mechanics	3
MAE 214 Computer-Aided Engineering I	1
MAE 240 Thermofluids I	4
MAT 343 Applied Linear Algebra	3
Total	15

Third Year

Fall Semester

MAE 318 Sensors and Controls	5
MAE 322 Mechanics of Materials	4
MAE 360 Aerodynamics ⁷	4
MAE 384 Numerical Methods for Engineers	3
Total	16

Spring Semester

MAE 313 Aircraft Dynamics and Control	3
MAE 344 Fundamentals of Aerospace Design	3
MAE 362 High-Speed Aerodynamics ⁷	4
HU/SB electives ⁴	6
Total	16

Fourth Year

Fall Semester

MAE 415 Vibration Analysis	3
MAE 462 Space Vehicle Dynamics and Control	3
MAE 463 Propulsion	3
HU/SB elective ⁵	3
Technical elective	3
Total	15

Spring Semester

MAE 400 Engineering Profession	3
MAE 468 Aerospace Systems Design L	3
General elective	3
HU/SB elective ⁵	3
Technical elective	3
Total	15
Total degree requirements	120

¹ Students taking CHM 115 will receive 4 semester hours of credit toward the Aerospace Engineering degree.

² CHM 115 and 116 have a prerequisite of CHM 113, which cannot be used for degree credit.

³ This is an aerospace engineering skill-set course; it must be completed before promotion can be considered. A minimum grade of "C" (2.00) is required.

⁴ Both PHY 121 and 122 must be taken to secure SQ credit

- ⁵ Aerospace Engineering Students may not use ASE or MIS courses for general studies credit.
- ⁶ Both PHY 131 and 132 must be taken to secure SQ credit
- ⁷ Both MAE 360 and 362 must be completed to secure L credit.

MECHANICAL ENGINEERING—BSE

Mechanical Engineering is a creative, diverse discipline that draws upon a number of basic sciences to design, build and control the devices, machines, processes and systems that are the mainstay of modern industrialized society. The field involves the conversion of energy resources into mechanical work through various engines and power plants; the transmission of energy and power via devices such as heat exchangers, machine elements and actuators, and the efficient use of energy to perform a variety of beneficial tasks such as transportation, manufacturing, agriculture, environmental control, domestic chores, healthcare, and security. Since all hardware products must be constructed of solid materials and because most products contain parts that transmit forces, mechanical engineering is involved in the structural integrity and materials selection for almost every product on the market.

Mechanical engineers are employed in virtually every kind of industry. They are involved in seeking new knowledge through research, in generating creative design and development, and in the production, control, management, and sales of the devices and systems needed by society. Therefore a major strength of a mechanical engineering education is the flexibility it provides in future employment opportunities for its graduates.

The Mechanical Engineering program has four educational objectives, which describe the expected capabilities and achievements of graduates during the first several years following completion of the program. The objectives of the program are to

1. provide graduates with the ability to think in a critical and evaluative manner and to consider a broad perspective, in order to solve technical and non technical problems;
2. prepare professionally successful graduates who provide effective leadership, who act in an ethical manner and whose skills include the ability to communicate well and to work successfully within diverse groups;
3. provide the depth and breadth of engineering education that prepares graduates for employment in the Mechanical engineering profession, admission to graduate programs in Mechanical engineering or a related field, or the pursuit of advanced education in other professional areas, such as business, law, or medicine; and
4. cultivate in our graduates a spirit of inventiveness, creativity and entrepreneurship.

Students are prepared for a career in Mechanical Engineering through a curriculum that includes study of the principles governing the use of energy; the principles of design, instruments, and control devices; and the application of these to the creative solution of practical modern problems. Students are encouraged to select elective general studies

courses that complement the program’s technical content and promote its objectives.

DEGREE REQUIREMENTS

In order to attain the Bachelor of Science in Engineering in Mechanical Engineering degree, students must complete a minimum of 120 semester hours of course work, including 45 upper-division hours. In addition to those courses specifically required for a degree in Mechanical Engineering, students must fulfill all university First-Year Composition and General Studies requirements. The Ira A. Fulton School of Engineering does not permit the use of pass/fail courses as part of a degree program, and credit hours earned more than five years before admission to the program are normally not accepted for transfer credit.

ADMISSION TO THE PROFESSIONAL PROGRAM

Admission to the professional program in Mechanical Engineering is competitive, and the level of achievement necessary for promotion is based on several factors, including the number of places available and the number of students requesting professional status in a given year. Students must complete, or be currently enrolled in, the courses in the Mechanical Engineering skill-set before making application to the professional program. Students may not enroll in upper-division courses in the Department of Mechanical and Aerospace Engineering until they are admitted to professional status.

For admission to professional status in Mechanical Engineering, a minimum grade of “C” (2.00) is required in all chemistry, mathematics, and physics courses, and in all courses in the skill-set. It is anticipated that a minimum GPA of approximately 2.80 in the skill-set and overall will be necessary for professional admission. Under no circumstances will students with a GPA lower than 2.50 (in the skill-set and overall) be considered for promotion to professional status in Mechanical Engineering.

The following courses make up the skill-set in Mechanical Engineering. Students must have completed these courses or be enrolled in them in order to apply to the professional program in the major. All skill-set courses are normally taken during the first three semesters of a typical four-year program in Mechanical Engineering.

CHM 114 General Chemistry for Engineers <i>SQ</i>	4-5
or CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i> ¹ (5)	
or CHM 116 General Chemistry II <i>SQ</i> ¹ (4)	
ENG 102 First-Year Composition.....	3
or ENG 105 Advanced First-Year Composition (3)	
or ENG 108 English for Foreign Students (3)	
MAE 100 Introduction to Mechanical and Aerospace Engineering CS	3
MAE 212 Engineering Mechanics.....	4
MAT 275 Modern Differential Equations <i>MA</i>	3
MAT 294 ST: Calculus for Engineers II.....	3
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ²	3

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 93.

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PHY 132 University Physics Laboratory II SQ ²	1
Total	24-25

¹ CHM 115 and 116 have a prerequisite of CHM 113, which cannot be used for degree credit.

² Both PHY 131 and 132 must be taken to secure SQ credit.

GRADUATION REQUIREMENTS

In addition to achieving professional status in Mechanical Engineering and completing all required course work, students must earn a minimum GPA of 2.00 in the major and overall. The department may require additional or remedial course work for students experiencing academic difficulties.

COURSE REQUIREMENTS

The following constitute specific course requirements for the Bachelor of Science in Engineering degree for Mechanical Engineering:

First-Year Composition¹

Choose among the course combinations below	6
ENG 101 First-Year Composition (3)	
ENG 102 First-Year Composition (3) ²	
----- or -----	
ENG 105 Advanced First-Year Composition (3) ²	
Approved Elective (3)	
----- or -----	
ENG 107 English for Foreign Students (3)	
ENG 108 English for Foreign Students (3) ²	
Total	6

General Studies/Program Requirements³

<i>Humanities and Fine Arts/Social and Behavioral Sciences</i>	
Humanities and Fine Arts Courses.....	6-9
Social and Behavioral Sciences	6-9
<i>Humanities and fine arts/social and behavioral sciences subtotal</i>	
	15
<i>Literacy and Critical Inquiry</i>	
Six semester hours of literacy and critical inquiry credit is satisfied by courses in the major.	
<i>Mathematical Studies¹</i>	
MAT 275 Modern Differential Equations MA ²	3
MAT 294 ST: Calculus for Engineers I.....	3
MAT 294 ST: Calculus for Engineers II ²	3
MAT 294 ST: Calculus for Engineers III	3
MAT 343 Applied Linear Algebra.....	3
Mathematical studies subtotal.....	15
<i>Natural Sciences¹</i>	
BME 111 Engineering Perspectives on Biological Systems	3
or BCH 361 Principles of Biochemistry (3)	
CHM 114 General Chemistry for Engineers SQ ²	4-5
or CHM 115 General Chemistry with Qualitative Analysis SQ ^{4, 5} (5)	
or CHM 116 General Chemistry II SQ ^{4, 5} (4)	
CHM 231 Elementary Organic Chemistry SQ.....	3
or CHM 240 Introduction to Physical Chemistry CS (3)	
PHY 121 University Physics I: Mechanics SQ ⁶	3
PHY 122 University Physics Laboratory I SQ ⁶	1
PHY 131 University Physics II: Electricity and Magnetism SQ ^{2, 7}	3
PHY 132 University Physics Laboratory II SQ ^{2, 7}	1
Natural sciences subtotal.....	18-19
General studies/program requirements total	48

Mechanical Engineering Major

<i>Lower-Division</i>	
EEE 202 Circuits I.....	4
MAE 100 Introduction to Mechanical and Aerospace Engineering CS ²	3
MAE 212 Engineering Mechanics ²	4
MAE 213 Solid Mechanics.....	3
MAE 214 Computer-Aided Engineering I.....	1
MAE 240 Thermofluids I.....	4
MSE 250 Structure and Properties of Materials.....	3
Lower-division subtotal.....	22
<i>Upper-Division¹</i>	
MAE 318 Sensors and Controls.....	5
MAE 322 Mechanics of Materials.....	4
MAE 323 Computer-Aided Engineering II	1
MAE 340 Thermofluids II	3
MAE 342 Principles of Design	3
MAE 343 Computer-Aided Engineering III	1
MAE 384 Numerical Methods for Engineers	3
MAE 400 Engineering Profession	3
MAE 488 Mechanical Engineering Design I.....	3
MAE 489 Mechanical Engineering Design II	3
MAE 491 Experimental Mechanical Engineering L.....	3
Technical electives ⁸	12
Upper-division subtotal.....	44
Mechanical engineering major total.....	66
Program total.....	120

¹ A minimum grade of "C" (2.00) is required.

² This is a mechanical engineering skill-set course; it must be completed before promotion can be considered. A minimum grade of "C" (2.00) is required.

³ See "General Studies," page 93. Students are encouraged to select HU and SB courses to complement their technical program and to promote the program objectives. Suggested HUSB courses are available from the Department of Mechanical and Aerospace Engineering.

⁴ Students taking CHM 115 will receive four semester hours of credit toward the Mechanical Engineering degree.

⁵ CHM 115 and 116 have a prerequisite of CHM 113, which cannot be used for degree credit.

⁶ Both PHY 121 and 122 must be taken to secure SQ credit.

⁷ Both PHY 131 and 132 must be taken to secure SQ credit.

⁸ Mechanical Engineering students must select upper-division technical electives.

Technical Electives

Students select four technical electives from among all upper-division courses offered in the Department of Mechanical and Aerospace Engineering that are not required for the major in mechanical engineering. Students may, with prior approval of the advisor and department chair, select an alternative course that supports a specific career objective. Normally, only one technical elective from outside the Department of Mechanical and Aerospace Engineering will be approved. Because a minimum of 45 upper-division hours are required for graduation, technical electives must be numbered 300 or above. Graduate courses are permitted for students with a GPA of 3.00 or higher and with the approval of the instructor, the advisor, and the dean. Students with a GPA of 3.50 or higher may wish to consider the Integrated BSE-MS program when selecting technical electives.

DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING

Typical Four-Year Sequence

The following presents a typical schedule for students wishing to complete the BSE in Mechanical Engineering within four years. When selecting a semester course schedule, students should consider that many upper-division courses in Mechanical and Aerospace Engineering are taught only once per academic year. Students may not register for upper-division courses in the major until they are accepted into the professional program in Mechanical Engineering.

Mechanical Engineering Program of Study Typical Four-Year Sequence

First Year

Fall Semester

CHM 114 General Chemistry for Engineers SQ ^{1, 2}	4-5
or CHM 115 General Chemistry with Qualitative Analysis SQ ^{3, 4} (5)	
or CHM 116 General Chemistry II SQ ⁴ (4)	
ENG 101 First-Year Composition ²	3
MAE 100 Introduction to Mechanical and Aerospace Engineering CS ¹	3
MAT 294 ST: Calculus for Engineers I ^{1, 2}	3
HU/SB elective ⁵	3
Total	16-17

Spring Semester

ENG 102 First-Year Composition ^{1, 2}	3
MAT 275 Modern Differential Equations MA ^{1, 2}	3
MAT 294 ST: Calculus for Engineers II ^{1, 2}	3
PHY 121 University Physics I: Mechanics SQ ⁶	3
PHY 122 University Physics Laboratory I SQ ⁶	1
HU/SB elective ⁵	3
Total	16

Second Year

Fall Semester

CHM 231 Elementary Organic Chemistry SQ.....	3
or CHM 240 Introduction to Physical Chemistry CS (3)	
MAE 212 Engineering Mechanics ¹	4
MAT 294 ST: Calculus for Engineers III ²	3
PHY 131 University Physics II: Electricity and Magnetism SQ ^{1, 2, 7}	3
PHY 132 University Physics Laboratory II SQ ^{1, 2, 7}	1
Total	14

Spring Semester

MAE 213 Solid Mechanics.....	3
MAE 214 Computer-Aided Engineering I.....	1
MAE 240 Thermofluids I.....	4
MAT 343 Applied Linear Algebra.....	3
MSE 250 Structure and Properties of Materials.....	3
Total	14

Third Year

Fall Semester

EEE 202 Circuits I.....	4
MAE 322 Mechanics of Materials.....	4
MAE 323 Computer-Aided Engineering II.....	1
MAE 340 Thermofluids II.....	3
MAE 384 Numerical Methods for Engineers.....	3
Total	15

Spring Semester

BME 111 Engineering Perspectives on Biological Systems.....	3
or BCH 361 Principles of Biochemistry (3)	
MAE 318 Sensors and Controls.....	5
MAE 342 Principles of Design.....	3
MAE 343 Computer-Aided Engineering III.....	1
Technical elective.....	3
Total	15

Fourth Year

Fall Semester

MAE 488 Mechanical Engineering Design I.....	3
MAE 491 Experimental Mechanical Engineering L.....	3
HU/SB elective ⁵	3
Technical electives.....	6
Total	15

Spring Semester

MAE 400 Engineering Profession.....	3
MAE 489 Mechanical Engineering Design II.....	3
HU/SB electives ⁵	6
Technical elective.....	3
Total	15
Total degree requirements	120

- ¹ This is a mechanical engineering skill-set course; it must be completed before promotion can be considered. A minimum grade of "C" (2.00) is required.
- ² A minimum grade of "C" (2.00) is required.
- ³ Students taking CHM 115 will receive four semester hours of credit toward the Mechanical Engineering degree.
- ⁴ CHM 115 and 116 have a prerequisite of CHM 113, which cannot be used for degree credit.
- ⁵ Aerospace Engineering Students may not use ASE or MIS courses for general studies credit.
- ⁶ Both PHY 121 and 122 must be taken to secure SQ credit.
- ⁷ Both PHY 131 and 132 must be taken to secure SQ credit.

MECHANICAL AND AEROSPACE ENGINEERING (MAE)

M MAE 100 Introduction to Mechanical and Aerospace Engineering. (3)

fall and spring

Introduces mechanical and aerospace engineering, design process, teaming, the profession of mechanical and aerospace engineering, computer models in engineering, communication skills, CAD tools, and programming tools. Fee. Prerequisites: high school algebra and physics; familiarity with computer applications.

General Studies: CS

M MAE 191 First-Year Seminar. (1-3)

selected semesters

Discussion of and critical thinking about topics of current intellectual importance, taught by faculty in their areas of expertise and illuminating many paths of discovery at ASU. "Y" grade. Seminar.

M MAE 212 Engineering Mechanics. (4)

fall, spring, selected summers

Force systems, resultants, moments and equilibrium. Kinematics and kinetics of particles, systems of particles and rigid bodies. Energy and momentum principles. Lecture, recitation. Prerequisites: PHY 121, 122. Pre- or corequisite: preferably MAT 275 (or 274).

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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M MAE 213 Solid Mechanics. (3)

fall, spring, selected summers

Equilibrium, strain-displacement relations, and stress-strain-temperature relations. Applications to force transmission and deformations in axial, torsional, and bending of bars. Combined loadings. Lecture, recitation. Prerequisite: preferably MAE 212 or CEE 211.

M MAE 214 Computer-Aided Engineering I. (1)

fall, spring, selected summers

Introduces geometry and construction techniques in CAD, technical drawing conventions, generating drawings from CAD models. Lab. Fee. Pre- or corequisite: preferably MAE 213 or CEE 213.

M MAE 240 Thermofluids I. (4)

fall, spring, selected summers

Introductory concepts of thermodynamics, fluid mechanics, and heat transfer. Prerequisites: CHM 114; preferably MAE 212 (or CEE 211); PHY 131, 132.

M MAE 313 Aircraft Dynamics and Control. (3)

spring

Aircraft static stability; equations of motion; dynamic modes and stability; stability derivatives; response to controls; introduction to automatic control of aircraft. Prerequisites: MAE 318, 360.

M MAE 318 Sensors and Controls. (5)

fall and spring

Introduces measurement systems, feedback control modelling and dynamics of physical systems, computer simulations and real-time experiments. Integrated lecture/lab. Fee. Prerequisites: EEE 202; MAE 212.

M MAE 322 Mechanics of Materials. (4)

fall and spring

Three-dimensional stress analysis, failure theories, energy methods, finite elements, torsion of noncircular members, unsymmetrical bending, beam column, fatigue and fracture. Fee. Lecture, lab. Prerequisite: MAE 213; MAT 343. Pre- or corequisite: MAE 384.

M MAE 323 Computer-Aided Engineering II. (1)

fall, spring, selected summers

Introduces finite-element analysis, pre- and postprocessing, solving problems with FEA. Lab. Fee. Prerequisite: MAE 214. Pre- or corequisite: MAE 322.

M MAE 340 Thermofluids II. (3)

fall and spring

Intermediate concepts of thermodynamics, fluid mechanics, and heat transfer. Prerequisite: MAE 240.

M MAE 341 Mechanism Analysis and Design. (3)

once a year

Positions, velocities, and accelerations of machine parts; cams, gears, flexible connectors, and rolling contact; introduces synthesis. Prerequisite: MAE 212.

M MAE 342 Principles of Design. (3)

fall and spring

The design process; conceptual and embodiment design of mechanical elements; form synthesis; material selection, failure modes, manufacturability tolerances, common mechanisms and machine elements. Fee. Lecture, lab (project). Prerequisites: MAE 318, 322; MSE 250.

M MAE 343 Computer-Aided Engineering III. (1)

fall, spring, selected summers

Solution to fluid mechanics and heat transfer problems using Finite Element Analysis (FEA). Lab. Fee. Prerequisites: MAE 214, 240.

M MAE 344 Fundamentals of Aerospace Design. (3)

spring

Design theory and design tools applied to aerospace engineering. Engineering drawings, aircraft performance, RFP's, Federal Aviation Regulations and military specifications, aircraft sizing, rapid prototyping. Fee. Lab, projects. Prerequisites: MAE 322, 360, 384.

M MAE 351 Manufacturing Processes. (3)

fall and spring

Production technique and equipment. Casting and molding, forming, machining, joining and assembly, computer-integrated manufacturing, rapid prototyping, and electronics manufacturing. Cross listed as IEE 360. Credit is allowed for only MAE 351 or IEE 360. Fee. Prerequisite: MSE 250.

M MAE 360 Aerodynamics. (4)

fall

Airfoils and wings, ideal flow, panel methods, boundary layers, finite-difference solutions, wind-tunnel testing. 3 hours lecture, 1 hour lab. Fee. Prerequisites: ENG 102; MAE 240. Pre- or corequisite: MAE 384.

M MAE 362 High-Speed Aerodynamics. (4)

spring

Compressible flow at subsonic and supersonic speeds; ducts, nozzles, and diffusers; normal and oblique shocks, transonic flow, numerical solutions; experimental applications. 3 hours lecture, 1 hour lab. Fee. Prerequisites: preferably MAE 360 (or 240 and instructor approval), 384.

M MAE 372 Fluid Mechanics. (3)

once a year

Applies basic principles of fluid mechanics to problems in viscous and compressible flow. Prerequisites: MAE 340 (or 360), 384.

M MAE 382 Thermodynamics. (3)

once a year

Applied thermodynamics; gas mixtures, psychrometrics, property relationships, power and refrigeration cycles, and reactive systems. Prerequisite: MAE 240.

M MAE 384 Numerical Methods for Engineers. (3)

fall and spring

Numerical methods and computational tools for selected problems in engineering. Cross listed as CEE 384. Credit is allowed for only MAE 384 or CEE 384. Prerequisites: preferably MAT 275 or 274, preferably 343 or 242 or 342. Pre- or corequisite: MAT 272 or 294 ST: Calculus for Engineers III.

M MAE 394 Special Topics. (1-4)

selected semesters

M MAE 400 Engineering Profession. (3)

fall and spring

Impact of mechanical and aerospace engineering in a global and societal context; effects of and on globalization, environment, sustainability, economy, politics; engineering ethics and business practices. Prerequisites: MAE 362 (or 491); senior standing in Aerospace or Mechanical Engineering.

M MAE 404 Finite Elements in Engineering. (3)

once a year

Introduces ideas and methodology of finite element analysis. Applications to solid mechanics, heat transfer, fluid mechanics, and vibrations. Prerequisites: MAE 213 (or CEE 213), 384 (or CEE 384).

M MAE 406 CAD/CAM Applications in MAE. (4)

once a year

Solution of engineering problems with the aid of state-of-the-art software tools in solid modeling, engineering analysis, and manufacturing; selection of modeling parameters; reliability tests on software. Fee. 3 hours lecture, 3 hours lab. Prerequisites: MAE 342 (or 344), 384.

M MAE 415 Vibration Analysis. (3)

spring

Free and forced response of single and multiple degree of freedom systems, continuous systems; applications in mechanical and aerospace systems numerical methods. Fee. Prerequisites: MAE 213, 384.

M MAE 417 Control System Design. (3)

once a year

Tools and methods of control system design and compensation, including simulation, response optimization, frequency domain techniques, state variable feedback, and sensitivity analysis. Introduces nonlinear and discrete time systems. Prerequisite: MAE 318.

DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING

M MAE 426 Design of Aerospace Structures. (3)

once a year

Flight vehicle loads, design of semimonocoque structures, local buckling and crippling, fatigue, aerospace materials, composites, joints, and finite element applications. Prerequisite: MAE 322.

M MAE 433 Air Conditioning and Refrigeration. (3)

once a year

Air conditioning processes; environmental control; heating and cooling loads; psychrometry; refrigeration cycles. Prerequisite: MAE 340 or instructor approval.

M MAE 434 Internal Combustion Engines. (3)

once a year

Performance characteristics, combustion, carburetion and fuel-injection, and the cooling and control of internal combustion engines. Computer modeling. Fee. Lab. Prerequisite: MAE 340 or instructor approval.

M MAE 435 Turbomachinery. (3)

once a year

Design and performance of turbomachines, including steam, gas and hydraulic turbines, centrifugal pumps, compressors, fans, and blowers. Prerequisite: MAE 340 or 360.

M MAE 436 Combustion. (3)

once a year

Thermochemical and reaction rate processes; combustion of gaseous and condensed-phase fuels. Applications to propulsion and heating systems. Pollutant formation. Prerequisite: MAE 340 or instructor approval.

M MAE 442 Mechanical Systems Design. (4)

spring

Applies design principles and techniques to the synthesis, modeling, and optimization of mechanical, electromechanical, and hydraulic systems. Fee. Lecture, lab. Prerequisites: MAE 318, 342 (or 344).

M MAE 446 Thermal Systems Design. (3)

once a year

Applies engineering principles and techniques to the modeling and analysis of thermal systems and components. Presents and demonstrates optimization techniques and their use. Prerequisite: MAE 340.

M MAE 447 Robotics and Its Influence on Design. (3)

once a year

Robot applications, configurations, singular positions, and work space; modes of control; vision; programming exercises; design of parts for assembly. Prerequisite: MAE 318.

M MAE 453 Computer-Aided Manufacturing and Control. (3)

spring

Computer control in manufacturing, CIM, NC, logic controllers, group technology, process planning, and robotics. Cross-listed as IEE 463. Credit is allowed for only IEE 463 or MAE 453. Credit is allowed for only IEE 463 or 543. Fee. Prerequisite: IEE 360 or MAE 351.

General Studies: CS

M MAE 455 Polymers and Composites. (3)

fall

Relationship between chemistry, structure, and properties of engineering polymers. Design, properties, and behavior of fiber composite systems. Cross-listed as MSE 470. Credit is allowed for only MAE 455 or MSE 470. Prerequisites: MSE 211 (or CEE 213 or MAE 213), 250.

M MAE 462 Space Vehicle Dynamics and Control. (3)

fall

Attitude dynamics and control, launch vehicles, orbital mechanics, orbital transfer/rendezvous, space mission design, space structures, spacecraft control systems design. Prerequisite: MAE 318.

M MAE 463 Propulsion. (3)

fall

Fundamentals of gas-turbine engines and design of components. Principles and design of rocket propulsion and alternative devices. Lecture, design projects. Prerequisites: MAE 362, 364.

M MAE 465 Rocket Propulsion. (3)

once a year

Rocket flight performance; nozzle design; combustion of liquid and solid propellants; component design; advanced propulsion systems; interplanetary missions; testing. Prerequisite: MAE 340 or 362.

M MAE 466 Rotary Wing Aerodynamics and Performance. (3)

once a year

Introduces helicopter and propeller analysis techniques. Momentum, blade-element, and vortex methods. Hover and forward flight. Ground effect, autorotation, and compressibility effects. Prerequisite: MAE 360 or instructor approval.

M MAE 468 Aerospace Systems Design. (3)

fall and spring

Group projects related to aerospace vehicle design, working from mission definition and continuing through preliminary design. Fee. Prerequisite: MAE 344. Pre- or corequisite: MAE 463.

General Studies: L

M MAE 469 Projects in Astronautics or Aeronautics. (3)

fall and spring

Various multidisciplinary team projects available each semester. Projects include design of high-speed rotocraft autonomous vehicles, liquid-fueled rockets, microaerial vehicles, satellites. Fee. Prerequisite: instructor approval.

M MAE 471 Computational Fluid Dynamics. (3)

once a year

Numerical solutions for selected problems in fluid mechanics. Fee. Prerequisites: MAE 340 (or 360), 364.

M MAE 488 Mechanical Engineering Design I. (3)

fall

Conceptual and embodiment design; modeling; rapid prototyping. Team project. MAE 488 and 489 must be taken in consecutive semesters. Lecture, discussion. Fee. Prerequisites: MAE 340, 342.

M MAE 489 Mechanical Engineering Design II. (3)

spring

Detail design; fabrication and testing. Team project. MAE 488 and 489 must be taken in consecutive semesters. Lecture, discussion. Fee. Prerequisite: MAE 488.

M MAE 491 Experimental Mechanical Engineering. (3)

fall and spring

Experimental and analytical studies of phenomena and performance of fluid flow, heat transfer, thermodynamics, refrigeration, and mechanical power systems. Fee. 6 hours lab. Prerequisites: MAE 318, 340.

General Studies: L

M MAE 492 Honors Directed Study. (1–6)

selected semesters

M MAE 493 Honors Thesis. (1–6)

selected semesters

M MAE 496 Pro-Seminar. (1–3)

selected semesters

Special topics for advanced students. Applies the engineering disciplines to design and analysis of modern technical devices and systems. Prerequisite: instructor approval.

M MAE 499 Individualized Instruction. (1–3)

selected semesters

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

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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

Programs in Engineering Special Studies

The major of Engineering Special Studies accommodates students whose educational objectives require more intensity of concentration on a particular subject or more curricular flexibility within an engineering discipline than the traditional departmental majors generally permit. The major is a School of Engineering program. Unlike the departmental major areas, however, there is not a separate faculty. The faculty teaching and advising in these programs are from the various departments within the School of Engineering.

For many students, engineering studies form the basis of preparation for professional engineering work where proficiency in the application of science and the physical and social technologies is brought to bear on problems of a large scope. The necessary breadth that these students seek often is not obtainable in traditional engineering fields. Rather, specially designed programs of course work that merge the required principles and approaches drawn from all fields of engineering and other pertinent disciplines are desired.

ENGINEERING SPECIAL STUDIES—BSE

At the current time there is only one concentration available for this program—premedical engineering.

Premedical Engineering. In recent decades, the interrelation between engineering and medicine has become vigorous and exciting. Rapidly expanding technology dictates that engineering will continue to become increasingly involved in all branches of medicine. As this develops, so will the need for physicians trained in the engineering sciences—medical men and women with a knowledge of computer technology, transport phenomena, biomechanics, bioelectric phenomena, operations research, and cybernetics. This concentration is of special interest to students who desire entry into a medical college and who have medical interests in research, aerospace and undersea medicine, artificial organs, prostheses, biomedical engineering, or biophysics. Since both engineering and medicine have as their goal the well-being of humans, this program is compatible with any field of medical endeavor. This program is administered by the faculty of the Harrington Department of Bioengineering.

ADMISSION REQUIREMENTS

Preprofessional Program. All students admitted to the Engineering Special Studies program with a concentration in premedical engineering will be admitted to the preprofessional program. During the time students are in the preprofessional program, they will follow the sequence of first- and second-year courses shown in the Typical Four-Year Sequence for the concentration. Promotion from the preprofessional program to the professional program is not automatic and a separate application procedure is required.

Promotion is based on performance in a collection of skill-set courses all of which are included in the typical first three semesters of the program. The skill-set courses are:

Skill-Set Courses

BIO 188 General Biology II ¹ SQ	4
BME 100 Introduction to Bioengineering CS	3
BME 294 ST: Conservation Principles in Bioengineering	3
CHM 116 General Chemistry II SQ ²	4
MAT 294 ST: Calculus for Engineers I	3
MAT 294 ST: Calculus for Engineers II	3
PHY 121 University Physics I: Mechanics SQ ³	3
PHY 122 University Physics Laboratory I SQ ³	1
PHY 131 University Physics II: Electricity and Magnetism SQ ⁴	3
PHY 132 University Physics Laboratory II SQ ⁴	1
Skill-set course total	28

¹ Note that BIO 187 is required by many medical schools in addition to BIO 188. BIO 187 cannot be used as a technical elective.

² To fulfill medical school admission requirements, premedical students generally should choose CHM 116. Note that CHM 113 is required by many medical schools in addition to CHM 116. CHM 113 cannot be used as a technical elective.

³ Both PHY 121 and 122 must be taken for SQ to secure credit.

⁴ Both PHY 131 and 132 must be taken for SQ to secure credit.

Professional Program. Admission to the professional program is competitive. All students seeking admission to the professional program must follow the application procedure described in the Harrington Department of Bioengineering Web site. Admission is granted to those applicants who have demonstrated high promise for professional success. Transfer students who have completed the equivalent required lower-division skill-set courses may also apply to the professional program. While only students who have been admitted to the bioengineering program are eligible to apply to the professional program, prior attendance at ASU is not required. Completion of the specified preprofessional course work does not guarantee admission to the professional program.

DEGREE REQUIREMENTS

A minimum of 120 semester hours is necessary for the BSE degree in Engineering Special Studies with a concentration in Premedical Engineering. A minimum of 45 upper-division hours is required. Students must attain a GPA of at least 2.00 for the courses in the major field.

GRADUATION REQUIREMENTS

In addition to fulfilling school and major requirements, majors must satisfy all university graduation requirements. See "University Graduation Requirements," page 89.

Note: To fulfill medical school admission requirements, BIO 187 General Biology is required in addition to the degree requirements and is best taken in summer session before the Medical College Admission Test.

COURSE REQUIREMENTS

The course work for the undergraduate degree can be classified into the following categories (in semester hours):

PROGRAMS IN ENGINEERING SPECIAL STUDIES

First-Year Composition¹

Choose among the course combinations below	6
ENG 101 First-Year Composition (3)	
ENG 102 First-Year Composition (3)	
-----or-----	
ENG 105 Advanced First-Year Composition (3)	
Elective chosen with an advisor (3)	
-----or-----	
ENG 107 English for Foreign Students (3)	
ENG 108 English for Foreign Students (3)	
First-year composition subtotal.....	6

General Studies/Program Requirements

<i>Humanities and Fine Arts/Social and Behavioral Sciences</i>	
HU/SB and awareness area courses ²	15
Total	15

Literacy and Critical Inquiry

Six hours of literacy and critical inquiry credit is satisfied by courses in the major.

Natural Sciences

BIO 188 General Biology II SQ ^{1,2}	4
CHM 113 General Chemistry I SQ	4
CHM 116 General Chemistry II SQ	4
CHM 233 General Organic Chemistry I ³	3
CHM 237 General Organic Chemistry Laboratory I ³	1
PHY 121 University Physics I: Mechanics SQ ⁴	3
PHY 122 University Physics Laboratory I SQ ⁴	1
PHY 131 University Physics II: Electricity and Magnetism SQ ⁵	3
PHY 132 University Physics Laboratory II SQ ⁵	1
Natural sciences subtotal.....	24

Mathematical Studies

CSE 100 Principles of Programming with C++ CS	3
MAT 274 Elementary Differential Equations MA	3
MAT 294 ST: Calculus for Engineers I	3
MAT 294 ST: Calculus for Engineers II	3
MAT 343 Applied Linear Algebra	3
Mathematical studies subtotal.....	15

General Studies/program requirements total 54

Lower-Division Engineering Courses

BME 100 Introduction to Bioengineering CS	3
BME 235 Physiology for Engineers	4
BME 294 ST: Conservation Principles in Bioengineering	3
EEE 202 Circuits I	4
IEE 280 Probability and Statistics for Engineering Problem Solving CS	3
MAE 212 Engineering Mechanics	4
Lower-division subtotal.....	21

Upper-Division Courses in Major

BME 300 Bioengineering Product Design	3
BME 318 Biomaterials	4
BME 331 Bioengineering Transport Phenomena	3
BME 350 Signals and Systems for Bioengineers	3
BME 370 Microcomputer Applications in Bioengineering	3
BME 413 Biomedical Instrumentation L ⁶	3
BME 417 Biomedical Engineering Capstone Design I	4
BME 423 Biomedical Instrumentation Laboratory L ⁶	1
BME 434 Applications of Bioengineering Transport Phenomena	3
or BME 416 Biomechanics (3)	
or BME 419 Biocontrol Systems (3)	
BME 490 Biomedical Engineering Capstone Design II	4

CHM 234 General Organic Chemistry II	3
CHM 238 General Organic Chemistry Laboratory II	1
CHM 341 Elementary Physical Chemistry	3
Technical electives ⁷	1
Upper-division courses in major subtotal.....	39
Program total.....	120

- ¹ A minimum grade of "C" (2.00) is required.
- ² Note that BIO 187 is required by many medical schools in addition to BIO 188. BIO 187 cannot be used as a technical elective.
- ³ If CHM 233/237 is taken to satisfy the natural science requirement, these courses are not eligible to be applied as technical electives.
- ⁴ Both PHY 121 and PHY 122 must be taken to secure SQ credit.
- ⁵ Both PHY 131 and PHY 132 must be taken to secure SQ credit.
- ⁶ Both BME 413 and BME 423 must be taken to secure L credit.
- ⁷ Acceptable courses require advisor approval.

**Premedical Engineering
Program of Study
Typical Four-Year Sequence**

First Year

First Semester	
BME 100 Introduction to Bioengineering CS	3
CHM 113 General Chemistry I SQ	4
ENG 101 First-Year Composition	3
MAT 294 ST: Calculus for Engineers I	3
Total.....	13

Second Semester

BIO 188 General Biology II SQ ¹	4
CHM 116 General Chemistry II SQ	4
ENG 102 First-Year Composition	3
MAT 294 ST: Calculus for Engineers II	3
PHY 121 University Physics I: Mechanics SQ ²	3
PHY 122 University Physics Laboratory I SQ ²	1
Total.....	18

Second Year

First Semester

BME 294 ST: Conservation Principles in Bioengineering	3
CHM 233 General Organic Chemistry I ³	3
CHM 237 General Organic Chemistry Laboratory I ³	1
CSE 100 Principles of Programming with C++ CS	3
PHY 131 University Physics II: Electricity and Magnetism SQ ⁴	3
PHY 132 University Physics II Laboratory SQ ⁴	1
Total.....	14

Second Semester

BME 235 Physiology for Engineers	4
EEE 202 Circuits I	4
IEE 280 Probability and Statistics for Engineering Problem Solving	3
MAT 275 Modern Differential Equations MA	3
HU/SB and awareness area course ⁵	3
Total.....	17

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

IRA A. FULTON SCHOOL OF ENGINEERING

Third Year

First Semester

BME 318 Biomaterials	4
CHM 341 Elementary Physical Chemistry	3
MAE 212 Engineering Mechanics	4
MAT 343 Applied Linear Algebra	3
HU/SB and awareness area course ⁵	3
Total	17

Second Semester

BME 300 Bioengineering Product Design	3
BME 331 Bioengineering Transport Phenomena	3
BME 350 Signals and Systems for Bioengineers	3
BME 370 Microcomputer Applications in Bioengineering	3
HU/SB and awareness area course ⁵	3
Total	15

Fourth Year

First Semester

BME 413 Biomedical Instrumentation L ⁶	3
BME 417 Biomedical Engineering Capstone Design I	4
BME 423 Biomedical Instrumentation Laboratory L ⁶	1
BME 434 Applications of Bioengineering Transport Phenomena	3

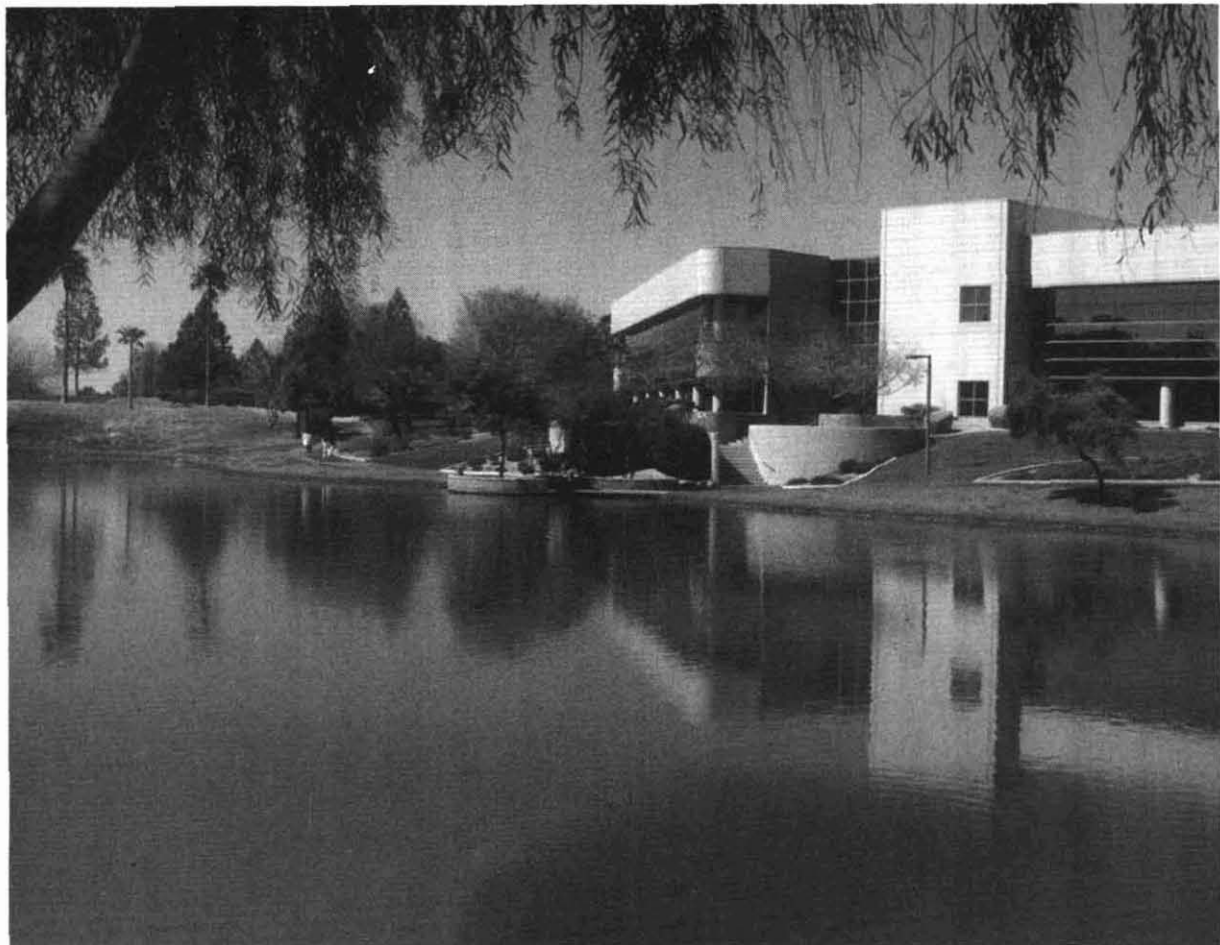
or BME 416 Biomechanics (3) or BME 419 Biocontrol Systems (3)	3
CHM 234 General Organic Chemistry II	1
CHM 238 General Organic Chemistry Laboratory II	1
Total	15

Second Semester

BME 490 Biomedical Engineering Capstone Design II	4
HU/SB electives ⁵	6
Technical elective	1
Total	11

Total degree requirements 120

- ¹ Note that BIO 187 is required by many medical schools in addition to BIO 188. BIO 187 cannot be used as a technical elective.
- ² Both PHY 121 and PHY 122 must be taken to secure SQ credit.
- ³ If CHM 233/237 is taken to satisfy the natural science requirement, these courses are not eligible to be applied as technical electives.
- ⁴ Both PHY 131 and PHY 132 must be taken to secure SQ credit.
- ⁵ Engineering students may not use aerospace studies (AES) or military science (MIS) courses to fulfill HU or SB requirements.
- ⁶ Both BME 413 and BME 423 must be taken to secure L credit.



ASU Research Park

Tim Trumble photo

The Katherine K. Herberger College of Fine Arts

herbergercollege.asu.edu

Art, School of	442
Dance, Department of	464
Music, School of	470
Theatre and Film, School of	483

PURPOSE

The Katherine K. Herberger College of Fine Arts at ASU provides both preprofessional and professional education in the arts disciplines and an opportunity for nonmajors to become culturally literate through participation in the creative and performing arts.

The college, through its programs in art, dance, music, and theatre, reflects a wide range of challenges facing the contemporary artist and scholar. The arts, as an integral part of the curriculum, offer the student a rewarding educational experience balanced and strengthened by studies in related fine arts areas, the humanities, social sciences, and the natural sciences.

In addition to professional curricula offered in each department and school, the college provides courses designed to meet the specific educational needs of students pursuing majors in other colleges throughout the university. The cultural life of the university community is further enriched by study opportunities offered at off-campus sites. The Katherine K. Herberger College of Fine Arts also offers community audiences many hours of cultural enjoyment through a myriad of art exhibitions, music and dance concerts, dramatic productions, operas, lectures, and seminars.

ORGANIZATION

The college houses the School of Art, the Department of Dance, the School of Music, and the School of Theatre and Film. An average of 2,600 students per semester enroll as majors in various degree programs offered through these units. The college also includes the ASU Art Museum and the Institute for Studies in the Arts.

ADMISSION

Students meeting the university requirements for admission may matriculate in the Katherine K. Herberger College of Fine Arts. Separate admission procedures and approvals are required for some programs within the college. Students must contact specific departments or schools for details.

Transfer of Community College Credits. The university standards for evaluation of transfer credit are listed under

“Transfer Credit,” page 71. Transfer students are encouraged to contact their department or school or the Katherine K. Herberger College of Fine Arts Student Academic Services (GHALL 116) to ensure a smooth transition to the Katherine K. Herberger College of Fine Arts. Credits transferred from any accredited junior or community college may be accepted up to a maximum of 64 semester hours. (A community college student planning to transfer at the end of his or her first or second year should plan to take community college courses that meet the requirements of the ASU curriculum selected. Students attending Arizona community colleges are permitted to follow the degree requirements specified in the ASU *General Catalog* in effect at the time they began their community college work, providing their college attendance has been continuous.)

Courses transferred from community colleges are not accepted as upper-division credit at ASU. Arizona students are urged to refer to the *Course Applicability System* for transferability of specific courses from Arizona community colleges. For more information, access the Web site at az.transfer.org/cas.

In choosing courses at a community college, students should be aware that a minimum of 45 semester hours of work taken at the university must be upper-division credits. While attending a community college, it is suggested that students select courses similar to ASU General Studies lower-division courses in the major field.

For optimal course selection, access the ASU Transfer Guides on the Web at www.asu.edu/provost/articulation.

General Transfer Credit. Direct transfer of courses from other accredited institutions to the Katherine K. Herberger College of Fine Arts are subject to (1) the existence of parallel and equal courses in the college’s curriculum and (2) departmental or school evaluation of studio courses with respect to performance standards. Every candidate for the bachelor’s degree must earn a minimum of 30 semester hours in resident credit at ASU. Transfer students enrolled in the college must complete a minimum of 15 semester hours of resident credit in the major as approved by the faculty.

ADVISING

Undergraduate academic advising is handled as a centralized activity within the college. To offer personalized

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 93.

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

Katherine K. Herberger College of Fine Arts Baccalaureate Degrees and Majors

Major	Degree	Concentration ¹	Administered By
Art	BA	Art history, digital art, museum studies, or studio art	School of Art
	BFA	Art education, ceramics, drawing, fibers, intermedia, metals, painting, photography, printmaking, or sculpture	School of Art
Dance	BFA	Choreography, dance education, dance studies, or performance	Department of Dance
Film	BA	Film and media production	School of Theatre and Film
Music	BA	—	School of Music
Music Education ²	BM	Choral-general, instrumental, or string	School of Music
Music Therapy ²	BM	—	School of Music
Performance	BM	Collaborative piano, guitar, jazz, keyboard, music theatre, orchestral instrument, or voice	School of Music
Theatre	BA	Optional: acting or scenography ¹	School of Theatre and Film
Theory and Composition	BM	Composition or theory	School of Music

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

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

attention, each academic unit establishes its own graduate advising procedures. Students are encouraged to make appointments through the Herberger Student Academic Services central office. For more information, call 480/965-4495.

Baccalaureate Degrees

The three baccalaureate degrees differ in curricula with respect to the amount of specialization permitted in the major field. The BA degree provides a broad, scholarly, humanistic program, while the other two programs place greater emphasis upon the major field. See the “Katherine K. Herberger College of Fine Arts Baccalaureate Degrees and Majors” table, on this page, for more information.

The university General Studies curriculum plays an integral role within the educational mission of the university and as such constitutes an important component of all undergraduate degrees in the Katherine K. Herberger College of Fine Arts. See “General Studies,” page 93, for more information.

In cooperation with the College of Education, a K–12 endorsement for teacher certification is available in the disciplines of art, dance, and music for students preparing for a teaching career in the public schools. Students should, with the advice and counsel of their arts education advisors, fulfill the requirements for the appropriate area of specialization under the Bachelor of Fine Arts or Bachelor of Music degrees. In addition, a student wishing to be admitted to the Initial Teacher Certification (ITC) program in the College of Education (leading to teaching certification) must consult with an advisor from the Office of Student Services in the College of Education before applying for the ITC. Students must have completed 56 semester hours with a minimum GPA of 2.50. Further details on admission requirements and procedures for the ITC can be found under “Teacher Education,” page 350.

Minors

The Katherine K. Herberger College of Fine Arts provides an opportunity for students majoring in other disciplines to sustain their interest in the arts through a structured program of required courses and electives leading to a minor. The minor is not intended as a substitute for professional work in the arts, but as a complement to various liberal arts and preprofessional curricula.

Minors are offered in Art History, Dance, Music, and Theatre. The total number of semester hours required for a minor ranges from 18 to 25. Students should contact the relevant academic unit for specific requirements and guidelines regarding the minor.

Graduate Degrees

Master’s programs range from 30 to 60 semester hours, depending upon the degree chosen. Doctoral programs vary in scope and curricula. See the “Katherine K. Herberger College of Fine Arts Graduate Degrees and Majors” table, page 439, for more information. See the *Graduate Catalog* for specific requirements.

UNIVERSITY GRADUATION REQUIREMENTS

In addition to fulfilling college and major requirements, students must meet all university graduation requirements. For more information, see “University Graduation Requirements,” page 89.

GENERAL STUDIES REQUIREMENT

All students enrolled in a baccalaureate degree program must satisfy a university requirement of a minimum of 35 semester hours of approved course work in General Studies, as described under “General Studies,” page 93. All three General Studies awareness areas are required. Consult with an advisor for an approved list of courses. General Studies courses are listed in the “General Studies Courses” table,

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

Katherine K. Herberger College of Fine Arts Graduate Degrees and Majors

Major	Degree	Concentration ¹	Administered By
Art	MA	Art education or art history	School of Art
	MFA	Ceramics, digital technology, drawing, fibers, intermedia, metals, painting, photography, printmaking, sculpture, or wood	School of Art
Composition	MM	Optional: interdisciplinary digital media and performance ¹	School of Music
Creative Writing	MFA ²	—	Creative Writing Committee
Curriculum and Instruction	PhD ³	Art education	School of Art
Dance	MFA	Optional: interdisciplinary digital media and performance ¹	Department of Dance
History and Theory of Art ⁴	PhD	—	School of Art
Music	MA	Ethnomusicology, music history and literature, or music theory	School of Music
	DMA	Conducting, interdisciplinary digital media and performance, music composition, music education, or performance	School of Music
Music Education	MM	Choral music, general music, instrumental music, or jazz studies	School of Music
Music Therapy	MM	—	School of Music
Performance	MM	Collaborative piano, music theatre/opera musical direction, music theatre/opera performance, performance, or performance pedagogy	School of Music
Theatre	MA	—	School of Theatre and Film
	MFA	Directing, interdisciplinary digital media, performance, performance design, or theatre for youth	School of Theatre and Film
	PhD	Theatre and performance of the Americas or theatre for youth	School of Theatre and Film

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

² This program is administered by the Division of Graduate Studies.

³ This program is administered in collaboration with the College of Education.

⁴ This major is jointly offered with the University of Arizona.

page 96, in the course descriptions, in the *Schedule of Classes*, and in the *Summer Sessions Bulletin*.

Courses in the major or in a related field area may not be used to satisfy both the major and core area portions of the General Studies requirement. Concurrent listings in the literacy areas, numeracy (computer applications) areas, and awareness areas are an exception. Students are encouraged to consult with an academic advisor to ensure that they comply with all necessary requirements.

COLLEGE DEGREE REQUIREMENTS

The Katherine K. Herberger College of Fine Arts degree requirements supplement the General Studies requirement. Descriptions of additional required courses follow. Students are encouraged to consult with an academic advisor to ensure that they comply with all necessary requirements.

Fine arts majors must take at least six semester hours of fine arts course work in areas outside of the major school or department. These courses may be in art, dance, music, or theatre. A student may concurrently fulfill this requirement and the humanities and fine arts portion of the General Stud-

ies requirement by selecting approved courses as indicated in the *Schedule of Classes*. This requirement may also be met by taking any Katherine K. Herberger College of Fine Arts course outside of the student's major.

All BA degrees require the equivalent of 16 semester hours in one foreign language except for the BA degrees in Theatre and Art with concentrations in digital art and studio art. Foreign language study is strongly recommended but not required for these degree programs. Course work may be selected in any language and must follow the sequence of language courses 101, 102, 201, and 202. This requirement may be fulfilled at the secondary school level or by examination. If acquired in secondary school, two years of instruction in one foreign language is considered the equivalent of one year of college instruction. Transfer students are placed in language study at the level above completed work.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

Candidates for the BM degree in Performance with a concentration in voice have specific foreign language requirements, which are stated in the degree requirements. There is no foreign language requirement for other concentrations of the BFA or BM degrees.

ACADEMIC STANDARDS AND RETENTION

Good Standing. Students in the Katherine K. Herberger College of Fine Arts are considered in good standing for the purpose of retention if they maintain a cumulative GPA of 2.00 or higher in all courses taken at ASU. However, to gain admission into certain undergraduate degree programs in the college, students must maintain a minimum GPA within their major and/or a minimum cumulative GPA. These minimum GPAs vary according to the given program.

Probation. Any student who does not maintain good standing is placed on academic probation. A student on academic probation is required to observe any limitations or rules the college may impose as a condition for retention.

Students are encouraged to seek advising from their major academic advisor, in an effort to improve academic standing. All Herberger College of Fine Arts students who are placed on academic probation and continuing probation are required to submit completed student progress reports to the office of the assistant dean of the college. The student progress report is a means to monitor the academic performance that a probation/continuing probation student is achieving in each of his or her courses, during the semester.

Completed student progress reports must be returned to the Herberger College of Fine Arts Office, GHALL 116, every second Friday. The assistant dean will then review each report. Progress reports are required until the student earns a cumulative GPA of 2.00 or higher.

Disqualification. A student who is on probation becomes disqualified if the student (1) has not returned to good standing or (2) has not met the required semester GPA.

Disqualification is exercised at the discretion of the college and becomes effective on the first day of the fall or spring semester following college action. A disqualified student is notified by the Office of the Registrar and/or the dean of the college and is not allowed to register for a fall or spring semester at the university until reinstated. A student who is disqualified may not attend as a nondegree student.

Reinstatement. Students seeking reinstatement after disqualification should contact the Katherine K. Herberger College of Fine Arts Student Services Office regarding procedures and guidance for returning to good standing. When reinstatement includes readmission, application must be made to the Readmissions Section of the Office of the Registrar.

All academic disciplinary action is a function of the Katherine K. Herberger College of Fine Arts Student Services Office, GHALL 116, under the direction of the assistant dean of the college. Students having academic problems should call this office for advising at 480/965-4495.

MAJOR REQUIREMENTS

The minimum requirement for a baccalaureate degree is the completion of 120 semester hours with a minimum cumulative GPA of 2.00. Of these 120 semester hours, at least 45 must be selected from upper-division courses.

Several professional programs within the college require additional semester hours for graduation and a higher cumulative GPA of their students. To be acceptable as degree credit, all course work in the major discipline must show an earned grade of "C" (2.00) or higher.

In addition to the general information given below, consult the school and departmental sections that follow for specific degree requirements.

Bachelor of Arts (BA) Degree. The BA degree requires from 45 to 69 semester hours for the major. Depending on the major, 18 to 24 semester hours must be selected from upper-division (300- or 400-level) courses. The semester-hour requirements in the major are distributed between a field of specialization (30 to 53 semester hours) and one or more related fields. The exact content of the major is selected by a student in consultation with an advisor under the rules and regulations of the department or school concerned. A successful entrance audition is also required for admission to the BA degree in Music or Theatre programs.

Bachelor of Fine Arts (BFA) Degree. The BFA degree requires 79 semester hours for the major. At least 30 of these hours, depending on the major, must be selected from upper-division (300- or 400-level) courses. The curriculum for the major is designed as preprofessional study. Auditions are required for entrance into Dance major classes, and auditions and/or interviews are required for admission into the BFA program in Dance with specialization. Specific information can be obtained through the HCFA Advisement Office.

Bachelor of Music (BM) Degree. The BM degree requires a minimum of 79 semester hours for the major (depending on the area of specialization). The required number of upper-division (300- or 400-level) courses is dependent upon the area of specialization. The curriculum is designed to provide a broad yet concentrated preparation with a choice of specialization among various areas. See the "Katherine K. Herberger College of Fine Arts Baccalaureate Degrees and Majors" table, page 438, for available majors and concentrations. An entering undergraduate music student, regardless of the area of specialization, must pass an entrance audition in his or her primary performing medium (voice or instrument).

Academic Standards. The terms of disqualification, reinstatement, and appeals are consistent with those set forth by the university under "Retention and Academic Standards," page 86. In addition, a student disqualified in any program is normally not eligible for reinstatement for two semesters.

SPECIAL PROGRAMS

Working closely with faculty, visiting scholars, and artists-in-residence, students in all fields of the college participate in dynamic, innovative programs. Students

receive a great deal of individual attention to their creative work and artistic development.

School of Art. The School of Art is among the highest ranked programs in the country. The faculty are nationally recognized and the programs offer students diverse educational opportunities in studio art (ceramics, digital, drawing, fibers, intermedia, metals, painting, photography, printmaking, and sculpture), art history and museum studies, and art education. Some of the unique offerings include bookmaking and papermaking, film, neon, digital video, computer animation, and foundry. In addition, internships are available in galleries and museums throughout the Phoenix area. The Eleanor A. Robb Children's Art Workshop is an on-campus program taught by students in art education for school-age children in the metropolitan area. Northlight, Harry Wood, Gallery 100, and Step galleries host exhibitions of student art work. Visiting artists and guest lecturers enrich the basic curriculum. Graduates of the School of Art have been accepted to top graduate schools and many are in leadership positions in art, education, and industry.

Department of Dance. The department's strengths include choreography and performance, dance science and somatics, educational outreach and methodology, media and technology, as well as contemporary directions. Prominent and renowned faculty and guest artists create repertory for dance majors and for the *Dance Arizona Repertory Theatre (DART)*, the repertory and community partnership company. Through instructional curriculum, workshop intensives, guest residencies, strong performance programs, professional internships, and apprenticeships, students are exposed to and trained to meet the demands of professional preparations. An environment that encourages creative collaboration, interdisciplinary views, and community awareness is central to the mission of the department.

School of Music. Ranked among the top programs in the United States, the School of Music offers a broad scope of degree options for the study of performance, music education, music therapy, composition, theory, history and literature, jazz, music theatre, ethnomusicology, pedagogy, interdisciplinary digital media, accompanying, and conducting. This wide spectrum of areas is supported by special programs and facilities that enrich the opportunities for professional training and musical growth. Music education and pedagogy are supplemented by the Piano and Guitar Preparatory Programs, the Music for Tots series, and special classes for certification in Orff and Kodály methods. Performance opportunities are enhanced by a wide variety of ensembles, including such groups as marimba, African drumming, gamelan, and mariachi. Voice students may pursue training in opera or in Broadway musicals. Composition students work in the Electronic Music Studio, and all benefit from the Electronic Classroom, a state-of-the-art computer facility. A variety of community partnerships, including a gang intervention program, stem from the music therapy area. The scope and variety of the School of Music's programs are made possible by the wide range of expertise of the faculty, who are performers, teachers, conductors, composers, and scholars recognized nationally and internationally.

School of Theatre and Film. Offering the BA in Theatre and the BA in Film (with a concentration in film and media production), the school provides a comprehensive liberal arts approach to the study and practice of the theatre and film arts. Students have opportunities to study across the range of curricular areas: performance and directing, design and production, theatre and performance studies, playwriting and dramaturgy, theatre for youth, and film. Students pursuing the BA in Theatre may choose to specialize by seeking admission to acting or design and production concentrations. The BA in Film is a joint program of the Herberger College of Fine Arts and the College of Liberal Arts and Sciences, with the film and media production concentration housed in the School of Theatre and Film. The breadth of curricular offerings is made possible by faculty nationally and internationally recognized for their expertise and excellence.

An active production program is integral to the theatre curriculum. Productions are mounted in the 496-seat Galvin Playhouse and the 162-seat Lyceum Theatre; student-generated projects take place in the Prism Theatre Lab. With special emphasis on creating new work and original interpretations, the school is devoted to moving the art of the theatre into the future.

Of special note are the departments' highly ranked programs in playwriting, which feature a Mainstage Festival of New Work each year and multiple readings and workshop series; the Performance in the Borderlands Project, which provides opportunities for performance and scholarship of and about the southwest borderlands region; and Theatre for Youth, which attracts artists and scholars from around the world. The Child Drama Special Collections in Hayden Library supports their endeavors.

Arts, Media, and Engineering. The Arts, Media, and Engineering Graduate Research and Education (AME) program is cosponsored by the Katherine K. Herberger College of Fine Arts and the Ira A. Fulton School of Engineering. Graduate degrees with concentrations in media and arts are offered collaboratively through AME by the Departments of Computer Science and Engineering, Dance, and Electrical Engineering and the Schools of Art, Music, and Theatre and Film. The concentrations aim to train hybrid arts-engineering graduate students who draw their creativity from the arts and their methodology from the sciences. The concentrations focus on in-depth studies that fully integrate discipline-specific studies with development of arts and media technologies and research-oriented practices.

SCHOOL OF EXTENDED EDUCATION

The university-wide School of Extended Education provides an interactive link between ASU and the diverse communities it serves. The college assesses lifelong learning requirements and works in partnership with campuses, other colleges, and the community to serve learners, using a network of locations, programs, schedules, and technologies.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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For more information, see "School of Interdisciplinary Studies," page 139, or access the Web site at www.asu.edu/xed.

GENERAL INFORMATION

Undergraduate Credit for Graduate Courses. To enable interested students to benefit as much as possible from their undergraduate studies, the Division of Graduate Studies and the Katherine K. Herberger College of Fine Arts extend to seniors with a GPA of at least 2.50 the privilege of taking 500-level graduate courses for undergraduate credit. Students requesting to take 500-level graduate courses must have the approval of the class instructor and their academic advisor.

Preprofessional Programs. Students preparing for admission to professional graduate schools should obtain information regarding admission requirements by writing directly to the schools in which they are interested.

Courses. The academic units within the Katherine K. Herberger College of Fine Arts may use the CFA prefix for course offerings that cross disciplinary boundaries.

COLLEGE OF FINE ARTS (CFA)

M CFA 194 Special Topics. (1–4)

fall

Topics may include the following:

- Academic Balance for the Fine Arts Major. (1)

M CFA 484 Internship. (1–12)

fall and spring

M CFA 494 Special Topics. (3)

fall and spring

M CFA 498 Pro-Seminar. (1–7)

fall and spring

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

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

ARTS, MEDIA, AND ENGINEERING (AME)

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

School of Art

herbergercollege.asu.edu/art

480/965-3468

ART 102

Regents' Professors: Klett, Weiser

Professors: Britton, Codell, Collins, Duncan, Eckert, Erickson, Fahlman, Gillingwater, Hajcek, Magenta, Marc, Maxwell, Meissinger, Neubauer, Pittsley, Risseuw, Schleif, Schmidt, Schoebel, Stokrocki, Sweeney, Versteegen, White, Wolfthal, Young

Associate Professors: Brown, Gully, Jenkins, McIver, Newport, Pessler, Schutte, Segura, Serwint, Umberger

Assistant Professors: Anand, Ellsworth, Hood, McDonah, Mesch, Schneider

Senior Lecturer: Mittman

All students registering in a School of Art degree program enroll through the Katherine K. Herberger College of Fine Arts. Each degree program and area of specialization has its own check sheet, which describes the specific course sequence and special requirements. Check sheets are available online at art.asu.edu.

Art majors seeking a second BA or BFA degree in art must petition the Katherine K. Herberger College of Fine Arts after completing 12 semester hours in the specialization of the second degree. The second degree in art requires at least 30 semester hours of courses that meet art requirements in the major. These 30 semester hours should not duplicate any of the courses taken for the first degree.

Portfolio Reviews

Students who have been admitted to the School of Art before the fall semester of 2006 need to submit application materials, including a portfolio, for acceptance into upper division classes (300 and 400 levels) in the following programs: BA in Art with a concentration in digital art; BFA in art with concentrations in drawing, intermedia, painting, and photography. Eligibility for these programs requires a GPA of at least 2.70 overall and 3.00 for art classes. Portfolio deadlines are March 1 for acceptance into fall semester upper-division classes and October 1 for spring classes. Transfer students are encouraged to apply a semester before attending ASU. Students who have been admitted before the fall of 2006 must follow the course prerequisites and program requirements appropriate for their catalog year.

Preprofessional Programs

Effective fall semester 2006, all students applying to degree programs in the School of Art will be admitted to the preprofessional program without a concentration classification. Choices of concentrations include: art education, art history, ceramics, digital art, drawing, fibers,

intermedia, metals, museum studies, painting, photography, printmaking, sculpture, and studio art. Students remain in the preprofessional program until they have been accepted into a professional program concentration; eligibility is determined through a performance review.

Students pursuing studio concentrations must complete the following classes to prepare for acceptance into the professional program: ARS 101 and 102, ART 111, 112, 113, and 115. In addition, students must successfully complete 12 semester hours of the following 200-level studio classes: 2-D class, 3-D class, a course related to the concentration in which they are applying, and a studio elective class (3-D or 2-D). Students must complete the 200-level concentration class in the semester before the application is submitted. The application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Students pursuing the art education concentration must complete the following classes to prepare for acceptance into the professional program: ARS 101 and 102, ART 111, 112, 113, and 115. In addition, students must successfully complete 12 semester hours of the following 200-level classes: 2-D class, 3-D class, ARE 250 (formerly ARE 450) with a grade of 3.00 or higher, and a studio elective class (3-D or 2-D). Students must complete ARE 250 the semester before the application is submitted. The application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must maintain an overall GPA of 2.70 and an art of GPA 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Students pursuing the art history or museum studies concentration must complete the following classes with grades of 3.00 or higher for acceptance into the professional program: ENG 101 and 102, ARS 101 and 102. Students must maintain a GPA of 3.00 for a minimum of 30 semester hours to be eligible for the professional program. Applicants should submit materials during the semester in which they are completing 30 semester hours.

It is recommended that transfer students who meet the above requirements apply the semester before they plan to attend the School of Art and by the March 1 or October 1 deadline. For specifics regarding application materials and criteria for acceptance into upper division professional programs, access the Web site at art.asu.edu/undergraduate.

Students will be notified by mail and e-mail of their acceptance status. For students applying in the semester during which they are completing preprofessional requirements, the acceptance status of students will not be final until grades are posted.

Once students majoring in art have been accepted into the professional program for a concentration, the School of Art will add the concentration designation to the major, and they will be able to register for upper-division classes in the concentration to which they were admitted and into related upper-division classes within other concentrations in the major.

Denial of Acceptance into a Professional Program

Students who are not accepted through portfolio review will remain in the preprofessional program for a maximum of one year (two semesters following their first application to the professional program) with the following conditions:

1. they will continue to work with school of art advisors,
2. they will continue to take 100- or 200-level art courses appropriate for acceptance into a concentration,
3. they may reapply to the same concentration no more than two times, once during each of the following semesters, and
4. students who have not been accepted within a year of the first unsuccessful portfolio review will work with School of Art advisors to choose another major suited to their interests.

Appeals by applicants who are denied must be submitted as a petition to the School of Art Standards Committee within 30 days of the date of the e-mail and/or letter notifying students of their status regarding acceptance into the professional program.

Studio and Art History Foundations

Students must complete 18 semester hours of studio and art history foundations requirements to be eligible for acceptance into upper division professional BA and BFA programs in studio art.

Studio and Art History Foundations Requirements

ARS 101 Art from Prehistory Through Middle Ages <i>HU, H</i>	3
ARS 102 Art from Renaissance to Present <i>HU, H</i>	3
ART 111 Drawing I: Foundations.....	3
ART 112 2-D Design	3
ART 113 Color.....	3
ART 115 3-D Design	3
Total.....	18

Professional Programs

In studio concentrations, the professional program consists of nine to 15 semester hours of required upper-division courses in the concentration core, seven to 15 semester hours of upper-division electives in the concentration (including one to three semester hours of senior exhibition and portfolio), and nine to 17 semester hours of School of Art classes (ARA, ARE, ARS, and ART) outside of the concentration. In addition to courses in the professional program, six to 12 semester hours of art history beyond ARS 101 and 102 are required.

The art education professional program consists of 21 semester hours of art education, including 18 semester hours of upper-division courses, 21 semester hours of a proficiency in art (studio or art history), including 12 semester hours of upper-division courses. In addition to courses in the professional program, six semester hours of art history beyond ARS 101 and 102 are required.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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The art history professional program consists of 27 semester hours of art history courses and 16 semester hours of foreign language or related study (if the language proficiency requirement has been met).

The museum studies professional program consists of 30 semester hours of art history, ART 409 or ARA 460, and 16 semester hours of foreign language or related study (if the language proficiency requirement has been met). ASB 471 Introduction to Museums or ARS 494 ST: Introduction to Museums is also recommended.

Transfer Courses in Art

Courses from other departments, when approved by a student's faculty advisor and the School of Art, may be applied to the major if deemed appropriate to the student's program of study. Transfer art courses which do not have the same title and description as ASU catalog courses must have the approval of the School of Art Standards Committee.

Senior Exhibition

All majors in studio BFA programs and the BA in Art with a concentration in digital art program must successfully complete ART 494 ST: Senior Exhibition and Portfolio for graduation. Graduating students in these areas must submit acceptable work to a faculty sponsor in their area of concentration for a group exhibition, a portfolio of 10 to 15 images, and an artist's statement.

Art—BA

The faculty in the School of Art offer four concentrations for students in the BA degree in Art program: art history, digital art, museum studies, and studio art. These concentrations are intended to give the student a broadly based general education in the field with specialized work at the upper-division level.

The major in Art consists of 45 to 79 semester hours, depending on the concentration. BA degree programs are especially suited for individuals pursuing interdisciplinary studies or a minor in another discipline. All courses in the major must be completed with a grade of "C" (2.00) or higher.

Graduation Requirements. In addition to fulfilling the major requirements, students must meet all university graduation requirements and college degree requirements.

See "University Graduation Requirements," page 89, and "College Degree Requirements," page 439.

ART HISTORY CONCENTRATION

The art history concentration consists of a minimum of 61 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 12 semester hours of a related subject field, six semester hours of art history, six semester hours of ENG 101 and 102 or ENG 105, and six semester hours of General Studies.

Application for acceptance into the professional program occurs during the semester in which the 30 semester hours of preprofessional study is being completed. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate. The professional program

requirements include 27 semester hours of art history courses, including a minimum of 18 semester hours of upper-division courses.

Additional requirements include 16 semester hours of foreign language or a demonstrated language proficiency (not American sign language). If the foreign language proficiency is demonstrated, 16 semester hours of related study is required, which must be approved by the department. Satisfactory completion of ARS 480 Research Methods is required before the senior year.

Preprofessional Art History Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester 2006 or later will be admitted to the preprofessional program without a concentration classification (i.e., art history). Students interested in the Art History BA program will pursue the preprofessional courses below.

ENG 101 First-Year Composition*	3
ENG 102 First-Year Composition*	3
General Studies	6
Total	12

* ENG 105 or 107 and 108 also accepted.

Related Subject Field. Select four courses (12 semester hours) from those with the prefix APH, ARA, ARE, or from the following:

ART 101 Photography I	3
ART 111 Drawing I: Foundations	3
ART 112 2-D Design	3
ART 113 Color	3
ART 115 3-D Design	3
ART 274 Wood I	3
ART 294 Special Topics	3
Total	12

Art History

ARS 101 Art from Prehistory Through Middle Ages <i>HU, H</i>	3
ARS 102 Art from Renaissance to Present <i>HU, H</i>	3
Total	6

Applying to Art History Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted in fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete ENG 101 and 102 or equivalent and ARS 101 and 102 with a grade of B (3.00) or higher before the semester in which the application is submitted. Students must maintain an overall GPA of 3.00 for a minimum of 30 semester hours to be eligible for the professional program. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Art History Requirements

Forty-three semester hours with a minimum of 18 semester hours of upper-division courses are required.

Art History

ARS 480 Research Methods <i>L</i>	3
ARS 498 PS: Art History	3

Any ARS course.....	6
Total	12

Also required is at least one 300- or 400-level art history (ARS) course from each of the following areas:

Ancient.....	3
Medieval.....	3
Modern/contemporary.....	3
Non-Western	3
Renaissance/Baroque	3
Total	15

Foreign Language or Additional Art History Related Study

Sixteen semester hours of language courses or demonstrated proficiency in a foreign language is required. American Sign Language cannot be used for this requirement. If the language proficiency is met, additional courses are required in interdisciplinary related studies (e.g., architecture history, anthropology, history, religious studies, global studies)

Free Electives

Students must select a minimum of 18 semester hours of free electives.

BIS CONCENTRATION

A concentration in art history is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

Related Subject Field. Select three courses (nine semester hours) from those with the prefix APH, ARA, ARE, or from the following:

ART 101 Photography I.....	3
ART 111 Drawing I: Foundations	3
ART 112 2-D Design	3
ART 113 Color	3
ART 115 3-D Design	3
ART 274 Wood I.....	3
ART 294 Special Topics	3

Also required is an approved upper-division elective (ARA, ARE, or ARS).

Foreign Language. Sixteen semester hours of 101, 102, 201, and 202 foreign language courses; or a demonstrated proficiency in at least one foreign language equivalent to the level attained through the completion of two years of study at the college level is required. For specific courses, see the "Department of Languages and Literatures," page 580. (SHS courses are not acceptable.)

DIGITAL ART CONCENTRATION

The digital art concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The preprofessional program requirements

include 18 semester hours of foundations courses and 12 semester hours of 200-level classes, which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. In addition, nine semester hours of art history is required (six semester hours at the upper-division level). The upper-division professional program requirements include 10 semester hours of digital art core, 14 semester hours of studio art digital electives, including the Senior Exhibition and Portfolio, and 12 semester hours of related study outside of the digital art concentration.

Portfolio Review. Students who have been admitted to the BA in digital art before fall of 2006 need to submit application materials, including a portfolio, for acceptance into digital art upper division classes (300 and 400 levels) and must have a minimum cumulative GPA of 2.70 and an art GPA of 3.00. The portfolio deadlines are October 1 for spring classes and March 1 for fall classes.

Preprofessional Digital Art Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester 2006 or later are admitted to the preprofessional program without a concentration classification (i.e., digital art). Students interested in the digital art BA program will pursue the preprofessional courses below.

Studio and Art History Foundations Requirements. Eighteen semester hours are required. See "Studio and Art History Foundations," page 443.

Preprofessional Digital Art Electives

Choose one of the following courses	3
ART 101 Photography I (3)	
ART 204 Photography II (3)	
ART 211 Drawing II (3)	
ART 214 Life Drawing I (3)	
ART 223 Painting I (3)	
ART 227 Watercolor I (3)	
ART 253 Introduction to Printmaking (3)	
Choose one of the following courses	3
ART 231 Sculpture I (3)	
ART 261 Ceramic Survey (3)	
ART 272 Jewelry I (3)	
ART 274 Wood I (3)	
ART 276 Fibers I (3)	
ART 294 ST: Intermedia (3)	
ART 294 ST: Digital Media.....	3
Any 2-D or 3-D ART course	3
Total.....	12

Art History. Nine semester hours are required, including six semester hours of upper-division courses, which must include six semester hours of 20th-century and three semester hours of non-Western art. This requirement does not need to be completed before applying to the digital art professional program.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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Applying to Digital Art Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted in the fall semester of 2006, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete ART 294 Digital Media before the semester that the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures access the Web site at art.asu.edu/undergraduate.

Professional Digital Art Requirements. A minimum of 24 semester hours of upper-division courses is required.

Digital Art Core Requirements

ART 345 Visualization and Prototyping I	3
ART 346 3-D Computer Imaging and Animation CS.....	3
ART 440 New Media Concepts	3
ART 441 Video Art.....	1
Total	10

Digital Art Electives

Choose from the following	12
ART 348 Animation Motion Studies (3)	
ART 394 ST: Guided Study (3)	
ART 440 New Media Concepts (3)	
ART 441 Video Art (1)	
ART 449 Computer Animation and Video (3)	
ART 450 Computer Animation and Audio (3)	
ART 470 Computer Animation Portfolio CS (3)	
ART 484 Internship (3)	
ART 494 ST: Digital Processes for Printmaking (3)	
ART 494 ST: Visualization and Prototyping II (3)	
ART 494 ST: Web Art (3)	
ART 499 Individualized Instruction (3)	
ART 494 ST: Senior Exhibition and Portfolio.....	2
Total	14

Related Subject Area. A minimum of 12 semester hours of upper-division courses is required. The related subject requirement includes courses outside of the digital art concentration associated with the media and conceptual direction of students' art work. This may include courses outside of the department directly related to digital media, installation art, and the cultural contexts for digital art. Courses must be approved by the department.

Free Electives. Students must select a minimum of four semester hours of free electives.

MUSEUM STUDIES CONCENTRATION

The museum studies concentration consists of a minimum of 67 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include six semester hours of ARS 101 and 102, six semester hours of ENG 101 and 102 or ENG 105, and 18 semester hours of general studies. Application for acceptance into the professional program occurs after the completion of ARS 101, 102, and ENG 101, 102; and during the semester in which the 30 semester hours of preprofessional study is being completed. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate for deadlines and application procedures.

The upper-division professional program requirements include 36 semester hours of art history courses. A minimum of 30 semester hours of upper-division courses is required in the Museum Studies professional program. Additional requirements include 16 semester hours of foreign language or a demonstrated language proficiency (not American sign language). If the foreign language proficiency is demonstrated, 16 semester hours of related study is required, which must be approved by the department. Satisfactory completion of ARS 480 Research Methods is required before the senior year.

Preprofessional Museum Studies Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester 2006 or later are admitted to the preprofessional program without a concentration classification (i.e., museum studies). Students interested in the Museum Studies BA program will pursue the preprofessional courses below.

ENG 101 First-Year Composition*	3
ENG 102 First-Year Composition*	3
General Studies GS	6

* ENG 105 or 107 and 108 also accepted.

Art History

ARS 101 Art from Prehistory Through Middle Ages <i>HU, H</i>	3
ARS 102 Art from Renaissance to Present <i>HU, H</i>	3
General Studies GS	6
Total.....	12

Applying to Museum Studies Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted in fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete ENG 101 and 102 or equivalent and ARS 101, 102 with a grade of B (3.00) or higher before the semester in which the application is submitted. Students must maintain an overall GPA of 3.00 for a minimum of 30 semester hours to be eligible for the professional program. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Museum Studies Requirements. Fifty-two semester hours with a minimum of 30 semester hours of upper-division courses are required.

Art History

ARS 201 Art of Asia <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
ART 409 Photographic Exhibition	3
or ARS 460 Art Now (3)	
Ancient	3
Medieval	3
Modern/contemporary.....	3
Non-Western	3

Renaissance/Baroque	3
ARS or ASB*	3
Total	27

* ARS 494 ST: Introduction to Museums or ASB 471 Introduction to Museums is recommended.

Foreign Language. Sixteen semester hours of foreign language courses or demonstrated proficiency in a foreign language is required. American sign language cannot be used for this requirement. If the language proficiency is demonstrated, additional courses are required in interdisciplinary related studies (e.g., architecture history, anthropology, history, religious studies, global studies)

Related Study Requirements. Select nine semester hours of courses in Business, Recreation, Business Administration, and/or Public Programs.

Choose three from the following courses*	9
ACC 394 ST: Accounting and Financial Analysis (3)	
MGT 380 Management and Strategy for Nonmajors (3)	
MKT 382 Advertising and Marketing Communication (3)	
NLM 191 First-Year Seminar (3)	
NLM 300 Fund Raising and Resource Development (3)	
NLM 310 Volunteer Management (3)	
NLM 430 Managing Nonprofit Organizations (3)	
D PAF 300 Public Management and Administration (3)	
D PAF 340 Public Management and Policy (3)	
D PAF 420 Public Leadership (3)	
WPC 380 Small Business Leadership (3)	
WPC 381 Small Business Accounting and Finance (3)	

* See an advisor for department approved substitutes.

Free Electives. Students must select a minimum of 12 semester hours of free electives.

STUDIO ART CONCENTRATION

The studio art concentration consists of a minimum of 63 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 18 semester hours of foundations requirements and 12 semester hours of 200-level classes, which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. The upper-division professional program requirements include nine semester hours of studio art core; 15 semester hours of studio art electives related to either the 2-D or 3-D studio core emphasis, including the senior exhibition and portfolio; and 12 semester hours of related study outside of the studio art core.

Preprofessional Studio Art Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester 2006 or later are admitted to the pre-professional program without a concentration classification (i.e., studio art). Students interested in the Studio BA program will pursue the preprofessional courses below.

Studio and Art History Foundations Requirements. Eighteen semester hours of required courses. See "Studio and Art History Foundations," page 443.

Preprofessional Studio Art Electives
Choose one of the following courses

ART 101 Photography I (3)	
ART 204 Photography II (3)	
ART 211 Drawing II (3)	
ART 214 Life Drawing I (3)	
ART 223 Painting I (3)	
ART 227 Watercolor I (3)	
ART 253 Introduction to Printmaking (3)	
Choose one of the following courses	3
ART 231 Sculpture I (3)	
ART 261 Ceramic Survey (3)	
ART 272 Jewelry I (3)	
ART 274 Wood I (3)	
ART 276 Fibers I (3)	
ART 294 ST: Intermedia (3)	
ART 294 ST: Digital Media	3
Any 2-D or 3-D ART course	3
Total.....	12

Applying to Studio Art Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted in fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete a three semester hour 2-D or 3-D ART course in the emphasis to which they are applying before the semester that the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Studio Art Requirements. A minimum of 24 semester hours of upper-division courses is required.

Studio Art Core Requirements. Select nine semester hours of upper division courses in the 2-D or 3-D emphasis selected.

Studio Art Department Art Electives. A minimum of 15 semester hours is required.

ART 494 ST: Senior Exhibition and Portfolio.....	3
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Twelve semester hours of courses related to the 2-D or 3-D emphasis must be selected.

Related Study Requirements. A minimum of 12 semester hours of upper-division courses is required. The related subject requirement includes courses outside of the 2-D or 3-D emphasis selected that relate to the media and conceptual direction of students' art work and may include classes outside of the department directly related to studio media, installation art, and the cultural contexts for studio art. Courses must be approved by the department.

Free Electives. Students must select a minimum of four semester hours of free electives.

Art History Minor

The School of Art offers a minor in Art History consisting of 18 semester hours of course work, including 12 upper-division electives. A minimum grade of "C" (2.00) is

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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required in all classes in the minor. For those pursuing a minor, a minimum overall GPA of 2.00 is required. Courses may not be double counted in a major and the minor, and a minimum of 12 semester hours of resident credit at the Tempe campus is required.

ARS 100 or 300 may be used toward a minor. ARS 100 and 300 may not be used toward an Art History minor if the student is an Art major or has credit in ARS 101 and 102.

Required Courses. Select two of the following four required courses:

ARS 101 Art from Prehistory Through Middle Ages HU, H	3
ARS 102 Art from Renaissance to Present HU, H	3
ARS 201 Art of Asia HU, G, H	3
ARS 202 Art of Africa, Oceania, and the Americas HU, G, H	3

Elective Courses. Students pursuing an art history minor select four three-semester-hour upper-division courses. A seminar is strongly recommended for those considering graduate study. Students need to be aware of lower-division prerequisites for all upper-division courses. Interested students should contact the School of Art for specific requirements and admission procedures.

Art—BFA

The faculty in the School of Art offer ten concentrations for students in the BFA in Art program: art education, ceramics, drawing, fibers, intermedia, metals, painting, photography, printmaking, and sculpture. With the exception of art education, which focuses on preparing students as instructors of art, each concentration is designed to prepare students as artists. The major in Art consists of 75 semester hours of course work in each concentration. At least 30 upper-division semester hours must be earned within the major. All courses in the major must be completed with a grade of "C" (2.00) or higher. Specific requirements for each concentration are recommended by the faculty advisors of the area and are listed on School of Art check sheets.

Graduation Requirements. In addition to fulfilling the major requirements, students must meet all university graduation requirements and college degree requirements. See "University Graduation Requirements," page 89, and "College Degree Requirements," page 439.

ART EDUCATION CONCENTRATION

The art education concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 18 semester hours of foundations requirements, and 12 semester hours of 200-level classes, which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. The upper-division professional program requirements include 18 semester hours of art education core classes and 21 semester hours of art proficiency courses, which include a minimum of 12 upper division hours. Teaching experience is provided in an on campus Saturday program for children ages five to 15. Participation in the program is part of the requirements for ARE 486 Art Education: Strategies and Applications. ARE 486 meets the state certification requirement for the

elementary methods class, and ARE 496 Methods and Assessment of Learning in Art meets the requirement for the secondary methods class in the subject area. Both of these courses have prerequisites.

Preprofessional Art Education Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester of 2006 will be admitted to the preprofessional program without a concentration classification (i.e., art education). Students interested in the Art Education BFA program in the School of Art will pursue the preprofessional courses below.

Studio and Art History Foundations Requirements. Eighteen semester hours of required courses. See "Studio and Art History Foundations," page 443.

Preprofessional Art Education Electives

ARE 250 Teaching Inquiry in Art	3
Choose one of the following courses	3
ART 101 Photography I (3)	
ART 204 Photography II (3)	
ART 211 Drawing II (3)	
ART 214 Life Drawing I (3)	
ART 223 Painting I (3)	
ART 227 Watercolor I (3)	
ART 253 Introduction to Printmaking (3)	
Choose one of the following courses	3
ART 231 Sculpture I (3)	
ART 261 Ceramic Survey (3)	
ART 272 Jewelry I (3)	
ART 274 Wood I (3)	
ART 276 Fibers I (3)	
ART 294 ST: Intermedia (3)	
Any 2-D or 3-D ART course	3
Total	12

Art History. Six semester hours of upper-division courses are required. This must include a course in 20th-century art, and non-Western art is recommended for the second course. This requirement does not need to be completed before applying to the Art Education professional program.

Applying to Art Education Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete the ARE 250 course before the semester that the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate. Application to the College of Education professional program is a separate process.

Professional Art Education Requirements. Thirty-nine semester hours with a minimum of 30 semester hours of upper-division courses are required.

Art Education Core Requirements

ARE 370 Teaching Visual Culture	3
ARE 440 Disciplines of Art Education	3
ARE 482 Teaching Art Processes	3
ARE 486 Art Education: Strategies and Applications	3

ARE 494 ST: Art Education	3
ARE 496 Methods and Assessment of Learning in Art	3
Total	18

Art Education School of Art Proficiency. Twenty-one semester hours approved by an art education faculty advisor, with a minimum of 12 semester hours of upper-division courses. Select from Art History and Museum Education (ARA 394 ST: Art Museum Education Service Learning), or ART (2-D studio art), or ART (3-D studio art).

Free Electives. Students must select a minimum of four semester hours of free electives.

Teacher Certification. A student pursuing a BFA degree in Art with a concentration in art education may also choose to become certified for teaching art K–12. If certification is elected while pursuing the art education undergraduate degree, additional semester hours are required in the College of Education. Students must make special application to the Initial Teacher Certification (ITC) program in the College of Education. Application deadlines for the ITC programs are February 1 for fall admission and September 1 for spring admission. Appointments with an advisor can be made in the Office of Student Services in the College of Education, or by calling 480/965-5555.

Certification is also available through the postbaccalaureate program in the College of Education. Interested students should contact an advisor in the College of Education and in art education for admission requirements to the postbaccalaureate program.

Art education courses for this program are as follows:

ARE 250 Teaching Inquiry in Art	3
ARE 482 Teaching Art Processes	3
ARE 486 Art Education: Strategies and Applications	3
ARE 496 Methods and Assessment of Learning in Art	3
Total	12

In addition to the art education courses, students must complete the following: education courses, field experiences, and student teaching.

The BFA degree in Art with a concentration in art education and the postbaccalaureate program for certification in art have a special art education application procedure. This procedure is separate from, and in addition to, the admission requirements of ASU. This procedure is separate from, and in addition to, the admission requirements of ASU and acceptance into the Art Education professional upper-division program. Acceptance is based on acceptance into the Art Education professional undergraduate program or a GPA of 2.50 for the post baccalaureate program, six semester hours of upper-division art history, and a B (3.00) or higher in ARE 250 and 440.

In addition, undergraduate and postbaccalaureate students seeking K–12 certification should check requirements and deadlines for admission to the College of Education professional program. To be accepted into student teaching, a student must be recommended in writing by the art education faculty and must have completed all art education classes. For additional student teaching requirements, see “Student Teaching,” page 355. Students who are not recommended may complete the BFA degree in Art with a concen-

tration in art education without certification or may reapply after meeting any deficiencies in knowledge and skills related to the teaching of art.

CERAMICS CONCENTRATION

The ceramics concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 18 semester hours of foundations requirements and 12 semester hours of 200 level classes which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. In addition, six semester hours of upper division art history is required. The upper-division professional program requirements include 12 semester hours of ceramics core classes, 10 to 12 semester hours of elective ceramics courses, including ART 494 ST: Senior Exhibition and Portfolio, and 15 to 17 semester hours of School of Art courses outside of ceramics (ARA, ARE, ARS, ART).

Preprofessional Ceramics Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester 2006 or later are admitted to the preprofessional program without a concentration classification (i.e., ceramics). Students interested in the Ceramics BFA will pursue the preprofessional courses below.

Studio and Art History Foundations Requirements. Eighteen semester hours of required courses. See “Studio and Art History Foundations,” page 443.

Preprofessional Ceramics Electives

Choose one of the following courses	3
ART 101 Photography I (3)	
ART 204 Photography II (3)	
ART 211 Drawing II (3)	
ART 214 Life Drawing I (3)	
ART 223 Painting I (3)	
ART 227 Watercolor I (3)	
ART 253 Introduction to Printmaking (3)	
Choose one of the following courses	3
ART 231 Sculpture I (3)	
ART 272 Jewelry I (3)	
ART 274 Wood I (3)	
ART 276 Fibers I (3)	
ART 294 ST: Intermedia (3)	
ART 261 Ceramic Survey	3
Any 2-D or 3-D ART course	3
Total	12

Art History. Six semester hours of upper-division courses are required, including a 20th-century and a non-Western art elective. This requirement does not need to be completed before applying to the ceramics professional program.

Applying to Ceramics Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted fall semester 2006 or later, the application for acceptance into

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 93.

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the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete the ART 261 course before the semester that the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Ceramics Requirements. Thirty-nine semester hours with a minimum of 30 semester hours of upper-division courses are required.

Ceramics Core Requirements

ART 360 Ceramic Throwing	3
ART 364 Ceramic Handbuilding I.....	3
ART 460 Ceramic Clay	3
or ART 463 Ceramic Glaze (3)	
ART 466 Special Problems Ceramics.....	3
Total	12

Ceramics Electives¹

Choose from the following	9
ART 365 Ceramic Handbuilding II (3)	
ART 460 Ceramic Clay (3)	
ART 463 Ceramic Glaze (3)	
ART 466 Special Problems in Ceramics (3)	
ART 494 ST: Senior Exhibition and Portfolio ²	1-3
Total	10-12

1 Electives in ceramics must include 10 to 12 semester hours of upper-division course work.

2 Course selection must include one to three semester hours of ART 494 ST: Senior Exhibition and Portfolio.

School of Art Electives in Major. Fifteen to 17 semester hours with a minimum of 12 semester hours of upper-division courses are required. These are department electives outside of ceramics courses that are selected from upper-division classes in other art concentrations that are open to those admitted to professional programs in the department (ART, ARA, ARS, ARE).

Free Electives. Students must select a minimum of four semester hours of free electives.

DRAWING CONCENTRATION

The drawing concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 18 semester hours of foundations requirements and 12 semester hours of 200-level classes, which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. In addition, nine semester hours of art history is required (6 semester hours upper-division). The upper-division professional program requirements include 15 semester hours of drawing core classes, seven to nine semester hours of elective drawing courses, including ART 494 ST: Senior Exhibition and Portfolio, and 12 to 14 semester hours of School of Art courses outside of drawing (ARA, ARE, ARS, ART).

Portfolio Review. Students who have been admitted to the BFA in Drawing, before the fall of 2006 need to submit application materials, including a portfolio, for acceptance

into drawing upper-division classes (300 and 400 levels) and must have a minimum cumulative GPA of 2.70 and an art GPA of 3.0. The portfolio deadlines are October 1 for spring classes and March 1 for fall classes.

Preprofessional Drawing Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester of 2006 or later are admitted to the preprofessional program without a concentration classification (i.e., drawing). Students interested in the Drawing BFA program will pursue the preprofessional courses below.

Preprofessional Drawing Electives

ART 211 Drawing II	3
ART 214 Life Drawing I.....	3
Choose one of the following courses	3
ART 231 Sculpture I (3)	
ART 261 Ceramic Survey (3)	
ART 272 Jewelry I (3)	
ART 274 Wood I (3)	
ART 276 Fibers I (3)	
ART 294 ST: Intermedia (3)	
Any 2-D or 3-D ART course	3
Total.....	12

Art History. Nine semester hours are required, including six semester hours of upper-division courses, which must include a non-Western elective. This requirement does not need to be completed before applying to the drawing professional program.

Applying to Drawing Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete ART 211 and 214 before the semester in which the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Drawing Requirements. Thirty-six semester hours with a minimum of 30 semester hours of upper-division courses are required.

Drawing Core Requirements

ART 311 Drawing III.....	3
ART 314 Life Drawing II	3
ART 315 Figure Drawing III	3
ART 411 Drawing IV.....	3
ART 414 Life Drawing III	3
Total.....	15

Drawing Electives¹

Choose from the following.....	9
ART 411 Drawing IV (3)	
ART 414 Life Drawing III (3)	
ART 494 ST: Drawing (3)	
ART 494 ST: Senior Exhibition and Portfolio ²	1-3
Total.....	10-12

1 Electives in drawing must include 10 to 12 semester hours of upper-division course work.

2 Course selection must include one to three semester hours of ART 494 ST: Senior Exhibition and Portfolio.

School of Art Electives in Major. Twelve to fourteen semester hours with a minimum of twelve semester hours of upper-division courses are required. These are department electives outside of drawing courses that are selected from upper-division classes in other art concentrations that are open to those admitted to professional programs in the department (ART, ARA, ARS, ARE).

Free Electives. Students must select a minimum of four semester hours of free electives.

FIBERS CONCENTRATION

The fibers concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 18 semester hours of foundations requirements and 12 semester hours of 200-level classes, which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. In addition, six semester hours of upper-division art history is required. The upper-division professional program requirements include 12 semester hours of fibers core classes, 10 to 12 semester hours of elective fibers courses, including ART 494 ST: Senior Exhibition and Portfolio, and 15 to 17 semester hours of School of Art courses outside of fibers (ARA, ARE, ARS, ART).

Preprofessional Fibers Requirements. A minimum of 30 semester hours is required. Students who enter the university in the fall semester of 2006 are admitted to the preprofessional program without a concentration classification (i.e., fibers). Students interested in the Fibers BFA program in the School of Art at ASU will pursue the preprofessional courses below.

Studio and Art History Foundations Requirements. Eighteen semester hours of required courses. See "Studio and Art History Foundations," page 443.

Preprofessional Fibers Electives

Choose one of the following courses	3
ART 101 Photography I (3)	
ART 204 Photography II (3)	
ART 211 Drawing II (3)	
ART 214 Life Drawing I (3)	
ART 223 Painting I (3)	
ART 227 Watercolor I (3)	
ART 253 Introduction to Printmaking (3)	
Choose one of the following courses	3
ART 231 Sculpture I (3)	
ART 261 Ceramic Survey (3)	
ART 272 Jewelry I (3)	
ART 274 Wood I (3)	
ART 294 ST: Intermedia (3)	
ART 276 Fibers I	3
Any 2-D or 3-D ART course	3
Total	12

Art History. Six semester hours of upper-division courses are required, including a 20th-century and a non-Western elective. This requirement does not need to be completed before applying to the fibers professional program.

Applying to Fibers Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete ART 276 before the semester in which the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Fibers Requirements. Thirty-nine semester hours with a minimum of 30 semester hours of upper-division courses are required.

Fibers Core Requirements

ART 376 Woven Structures I	3
ART 377 Surface Design	3
ART 476 Woven Structures II.....	3
ART 477 Printed Textiles.....	3
Total.....	12

Fibers Electives¹

Choose from the following.....	9
ART 476 Woven Structures II (3)	
ART 477 Printed Textiles (3)	
ART 478 Advanced Surface Design (3)	
ART 494 ST: Fibers and Surface (3)	
ART 494 ST: Senior Exhibition and Portfolio ²	1-3
Total.....	10-12

- 1 Electives in fibers must include 10 to 12 semester hours of upper-division course work.
- 2 Course selection must include one to three semester hours of ART 494 ST: Senior Exhibition and Portfolio.

School of Art Electives in Major. Fifteen to 17 semester hours with a minimum of 12 semester hours of upper-division courses are required. These are department electives outside of fibers courses that are selected from upper-division classes in other art concentrations that are open to those admitted to professional programs in the department (ART, ARA, ARS, ARE).

Free Electives. Students must select a minimum of four semester hours of free electives.

INTERMEDIA CONCENTRATION

The intermedia concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 18 semester hours of foundations and 12 semester hours of 200-level classes which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. In addition, nine semester hours of art history is required, including six semester hours of upper division. The upper division professional program requirements include 13 semester hours of intermedia core

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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classes, 14 semester hours of elective intermedia courses, including ART 494 ST: Senior Exhibition and Portfolio, and nine semester hours of School of Art courses outside of intermedia (ARA, ARE, ARS, ART).

Portfolio Review. Students who have been admitted to the BFA in Intermedia before the fall of 2006 need to submit application materials, including a portfolio, for acceptance into intermedia upper-division classes (300 and 400 levels) and must have a minimum cumulative GPA of 2.70 and an art GPA of 3.00. The portfolio deadlines are October 1 for spring classes and March 1 for fall classes.

Preprofessional Intermedia Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester 2006 or later are admitted to the preprofessional program without a concentration classification (i.e., intermedia). Students interested in the Intermedia BFA program in the School of Art will pursue the preprofessional courses below.

Studio and Art History Foundations Requirements. Eighteen semester hours of required courses. See "Studio and Art History Foundations," page 443.

Preprofessional Intermedia Electives

Choose one of the following courses	3
ART 101 Photography I (3)	
ART 204 Photography II (3)	
ART 211 Drawing II (3)	
ART 214 Life Drawing I (3)	
ART 223 Painting I (3)	
ART 227 Watercolor I (3)	
Choose one of the following courses	3
ART 231 Sculpture I (3)	
ART 261 Ceramic Survey (3)	
ART 272 Jewelry I (3)	
ART 274 Wood I (3)	
ART 276 Fibers I (3)	
ART 294 ST: Introduction to Intermedia.....	3
Any 2-D or 3-D ART course	3
Total	12

Art History. Nine semester hours are required, including six semester hours of upper-division courses, which must include three semester hours of non-Western art and three semester hours of 20th-century art. This requirement does not need to be completed before applying to the intermedia professional program.

Applying to Intermedia Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete ART 294 ST: Introduction to Intermedia before the semester that the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/ undergraduate.

Professional Intermedia Requirements. Thirty-six semester hours with a minimum of 30 hours of upper-division courses are required.

Intermedia Core Requirements

ART 439 Mixed Media	3
ART 440 New Media Concepts	3
or ART 441 Video Art (3)	
ART 443 Intermedia	3
An upper-division digital intermedia course.....	3
Total.....	12

Intermedia Electives

Choose from the following.....	12
ART 345 Visualization and Prototyping (3)	
ART 346 3-D Computer Imaging and Animation (3)	
ART 348 Animation Motion Studies (3)	
ART 439 Mixed Media (3)	
ART 440 New Media Concepts (3)	
ART 441 Video Art (3)	
ART 443 Intermedia (3)	
ART 449 Computer Animation and Video (3)	
ART 450 Computer Animation and Audio (3)	
ART 470 Computer Animation Portfolio (3)	
ART 494 ST: Intermedia (3)	
ART 494 ST: Senior Exhibition and Portfolio.....	2
Total.....	14

School of Art Electives in Major. Nine semester hours with a minimum of 6 semester hours of upper-division courses are required. These are department electives outside of intermedia courses that are selected from upper-division classes in other art concentrations that are open to those admitted to professional programs in the department (ART, ARA, ARS, ARE).

Free Electives. Students must select a minimum of four semester hours of free electives

METALS CONCENTRATION

The metals concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 18 semester hours of foundations requirements and 12 semester hours of 200-level classes, which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. In addition, six semester hours of upper division art history. The upper-division professional program requirements include 12 semester hours of metals core classes; 10 to 12 semester hours of elective metals courses, including ART 494 ST: Senior Exhibition and Portfolio; and 15 to 17 semester hours of School of Art courses outside of metals (ARA, ARE, ARS, ART).

Preprofessional Metals Requirements. Students who enter the university in fall semester 2006 or later are admitted to the preprofessional program without a concentration classification (i.e., metals). Students interested in the Metals BFA program will pursue the preprofessional courses below.

Studio and Art History Foundations Requirements. Eighteen semester hours of required courses. See "Studio and Art History Foundations," page 443.

Preprofessional Metals Electives

Choose one of the following courses	3
ART 101 Photography I (3)	
ART 204 Photography II (3)	
ART 211 Drawing II (3)	
ART 214 Life Drawing I (3)	
ART 223 Painting I (3)	
ART 227 Watercolor I (3)	
Choose one of the following courses	3
ART 231 Sculpture I (3)	
ART 261 Ceramic Survey (3)	
ART 274 Wood I (3)	
ART 276 Fibers I (3)	
ART 294 ST: Intermedia (3)	
ART 272 Jewelry I	3
Any 2-D or 3-D ART course	3
Total	12

Art History. Six semester hours of upper-division courses are required, including a 20th-century art and a non-Western art elective. This requirement does not need to be completed before applying to the metals professional program.

Applying to Metals Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted in the fall semester of 2006, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete the ART 272, Jewelry I, course before the semester that the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Metals Requirements. Thirty-nine semester hours with a minimum of 30 semester hours of upper-division courses are required.

Metals Core Requirements

ART 372 Jewelry II	3
ART 373 Metalworking	3
ART 472 Advanced Jewelry	3
ART 473 Advanced Metalworking	3
Total	12

Metals Electives¹

Choose from the following	9
ART 472 Advanced Jewelry (3)	
ART 473 Advanced Metalworking (3)	
ART 494 ST: Metals (3)	
ART 499 Individualized Instruction (3)	
ART 494 ST: Senior Exhibition and Portfolio ²	1-3
Total	10-12

- 1 Electives in metals must include 10 to 12 semester hours of upper-division course work.
- 2 Course selection must include one to three semester hours of ART 494 ST: Senior Exhibition and Portfolio.

School of Art Electives in Major. Fifteen to 17 semester hours are required with a minimum of 12 semester hours of upper-division courses. These are department electives outside of metals courses that are selected from upper-division classes in other art concentrations that are open to those

admitted to professional programs in the department (ART, ARA, ARS, ARE).

Free Electives. Students must select a minimum of four semester hours of free electives.

PAINTING CONCENTRATION

The painting concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 18 semester hours of foundations requirements and 12 semester hours of 200-level classes, which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. In addition, nine semester hours of art history, including six semester hours of upper division. The upper division professional program requirements include 15 semester hours of painting core classes; seven to nine semester hours of elective painting courses, including ART 494 ST: Senior Exhibition and Portfolio; and 12 to 14 semester hours of School of Art courses outside of painting (ARA, ARE, ARS, ART).

Portfolio Review. Students who have been admitted to the BFA in Painting before the fall of 2006 need to submit application materials, including a portfolio, for acceptance into painting upper division classes (300 and 400 levels) and must have a minimum cumulative GPA of 2.70 and an art GPA of 3.00. The portfolio deadlines are October 1 for spring classes and March 1 for fall classes.

Preprofessional Painting Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester 2006 or later are admitted to the pre-professional program without a concentration classification (i.e., painting). Students interested in the Painting BFA program will pursue the preprofessional courses below.

Studio and Art History Foundations Requirements.

Eighteen semester hours of required courses. See "Studio and Art History Foundations," page 443.

Preprofessional Painting Electives

ART 223 Painting I	3
ART 227 Watercolor I	3
Choose one of the following	3
ART 231 Sculpture I (3)	
ART 261 Ceramic Survey (3)	
ART 272 Jewelry I (3)	
ART 274 Wood I (3)	
ART 276 Fibers I (3)	
ART 294 ST: Intermedia (3)	
Any 2-D or 3-D ART course	3
Total	12

Art History. Nine semester hours are required, including six semester hours of upper-division courses, which must include three semester hours of non-Western art and three semester hours of 20th-century art. This requirement does not need to be completed before applying to the painting professional program.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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Applying to Painting Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete the ART 223, Painting I, and ART 227, Watercolor I, courses before the semester that the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Painting Requirements. Thirty-six semester hours with a minimum of 30 semester hours of upper-division courses.

Painting Core Requirements

ART 323 Painting II.....	3
ART 327 Watercolor II.....	3
ART 423 Painting III.....	3
ART 425 Figure Painting.....	3
Total.....	12

Painting Electives¹

Choose from the following.....	12
ART 423 Painting III(3)	
ART 425 Figure Painting (3)	
ART 427 Advanced Watermedia (3)	
ART 494 ST: Painting (3)	
ART 499 Individualized Instruction (3)	
ART 494 ST: Senior Exhibition and Portfolio ²	1-3
Total.....	13-15

- 1 Electives in painting must include 13 to 15 semester hours of upper-division course work.
- 2 Course selection must include one to three semester hours of ART 494 ST: Senior Exhibition and Portfolio.

School of Art Electives in Major. Twelve to 14 semester hours with a minimum of 12 semester hours of upper-division courses are required. These are department electives outside of painting courses that are selected from upper-division classes in other art concentrations that are open to those admitted to professional programs in the department (ART, ARA, ARS, ARE).

Free Electives. Students must select a minimum of four semester hours of free electives

PHOTOGRAPHY CONCENTRATION

The photography concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The professional program in photography is fine arts versus commercially oriented.

The preprofessional program requirements include 18 semester hours of foundations requirements and 12 semester hours of 200-level classes, which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. In addition, 12 semester hours of art history, including nine semester hours of upper division. The upper-division professional program requirements include 12 semester hours of photography core

classes, 10 to 12 semester hours of elective photography courses, including ART 494 ST: Senior Exhibition and Portfolio, and nine to 11 semester hours of School of Art courses outside of photography (ARA, ARE, ARS, ART)

Portfolio Review. Students who have been admitted to the BFA in Photography before the fall of 2006 need to submit application materials, including a portfolio, for acceptance into photography upper-division classes (300 and 400 levels) and must have a minimum cumulative GPA of 2.70 and an art GPA of 3.0. The portfolio deadlines are October 1 for spring classes and March 1 for fall classes.

Preprofessional Photography Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester 2006 or later are admitted to the preprofessional program without a concentration classification (i.e., photography). Students interested in the Photography BFA program will pursue the preprofessional courses below.

Studio and Art History Foundations Requirements.

Eighteen semester hours of required courses. See "Studio and Art History Foundations," page 443.

Preprofessional Photography Electives

ART 101 Photography I.....	3
ART 204 Photography II.....	3
Choose one of the following courses.....	3
ART 231 Sculpture I (3)	
ART 261 Ceramic Survey (3)	
ART 272 Jewelry I (3)	
ART 274 Wood I (3)	
ART 276 Fibers I (3)	
ART 294 ST: Intermedia (3)	
Any 2-D or 3-D ART course.....	3
Total.....	12

Art History. Twelve semester hours are required, including nine hours of upper-division courses. Students must take ARS 250 History of Photography and three semester hours of non-Western art. This requirement does not need to be completed before applying to the photography professional program.

Applying to Photography Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete ART 201 Photography I and ART 204 Photography II before the semester in which the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Photography Requirements. Thirty-three to 36 semester hours with a minimum of 30 semester hours of upper-division courses.

Photography Core Requirements

ARA 202 Understanding Photographs.....	3
ART 304 Advanced Photography.....	3

ART 305 Color Photography I.....	3
ART 308 Digital Photographic Images I.....	3
Total	12

Photography Electives¹

Choose from the following	9
ART 305 Color Photography I (3)	
ART 401 Nonsilver Photography (3)	
ART 403 Senior Photographic Projects (3)	
ART 404 Portraiture Photography (3)	
ART 407 View Camera (3)	
ART 409 Photographic Exhibition (3)	
ART 494 ST: Senior Exhibition and Portfolio ²	1-3
Total	10-12

- 1 Electives in photography must include 10 to 12 semester hours of upper-division course work.
- 2 Course selection must include one to three semester hours of ART 494 ST: Senior Exhibition and Portfolio.

School of Art Electives. Nine to eleven semester hours with a minimum of 9 semester hours of upper-division courses are required. These are department electives outside of photography courses that are selected from upper-division classes in other art concentrations that are open to those admitted to professional programs in the department (ART, ARA, ARS, ARE).

Free Electives. Students must select a minimum of four semester hours of free electives

PRINTMAKING CONCENTRATION

The printmaking concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 18 semester hours of foundations requirements and 12 semester hours of 200-level classes, which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. In addition, nine semester hours of art history is required, including six semester hours of upper division and Non-Western. The upper-division professional program requirements include nine semester hours of printmaking core classes, 13 to 15 semester hours of elective printmaking courses including ART 494 ST: Senior Exhibition and Portfolio, and 12 to 14 semester hours of School of Art courses outside of printmaking (ARA, ARE, ARS, ART)

Preprofessional Printmaking Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester 2006 or later are admitted to the preprofessional program without a concentration classification (i.e., printmaking). Students interested in the Printmaking BFA program will pursue the preprofessional courses below.

Studio and Art History Foundations Requirements. Eighteen semester hours of required courses. See "Studio and Art History Foundations," page 443.

Preprofessional Printmaking Electives

ART 253 Introduction to Printmaking.....	3
Choose one of the following courses	3
ART 101 Photography I (3)	

ART 204 Photography II (3)	
ART 211 Drawing II (3)	
ART 214 Life Drawing I (3)	
ART 223 Painting I (3)	
ART 227 Watercolor I (3)	
Choose one of the following courses	3
ART 231 Sculpture I (3)	
ART 261 Ceramic Survey (3)	
ART 272 Jewelry I (3)	
ART 274 Wood I (3)	
ART 276 Fibers I (3)	
ART 294 ST: Intermedia (3)	
Any 2-D or 3-D ART course	3
Total.....	12

Art History. Nine semester hours are required, including six semester hours of upper-division courses, which must include three semester hours of non-Western art. This requirement does not need to be completed before applying to the printmaking professional program.

Applying to Printmaking Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is being completed. Students must complete ART 253 Introduction to Printmaking before the semester that the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/undergraduate.

Professional Printmaking Requirements. Thirty-six semester hours with a minimum of 30 semester hours of upper-division courses.

Printmaking Core Requirements

ART 351 Intaglio I.....	3
ART 352 Lithography I.....	3
ART 354 Screen Printing I.....	3
Total.....	9

Printmaking Electives¹

Choose from the following.....	12
ART 355 Photo Process for Printmaking I (3)	
ART 451 Advanced Intaglio (3)	
ART 452 Advanced Lithography (3)	
ART 454 Advanced Screen Printing (3)	
ART 455 Advanced Photo Processes for Printmaking (3)	
ART 456 Fine Printing and Bookmaking I (3)	
ART 457 Fine Printing and Bookmaking II (3)	
ART 458 Papermaking (3)	
ART 459 Monoprinting (3)	
ART 494 ST: Printmaking (3)	
ART 494 ST: Senior Exhibition and Portfolio ²	1-3
Total.....	13-15

- 1 Electives in printmaking must include 13 to 15 semester hours of upper-division course work.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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² Course selection must include one to three semester hours of ART 494 ST: Senior Exhibition and Portfolio.

School of Art Electives in Major. Twelve to 14 semester hours are required with a minimum of 12 semester hours of upper-division courses. These are department electives outside of printmaking courses that are selected from upper-division classes in other art concentrations that are open to those admitted to professional programs in the department (ART, ARA, ARS, ARE).

Free Electives. Students must select a minimum of four semester hours of free electives.

SCULPTURE CONCENTRATION

The sculpture concentration consists of a minimum of 75 semester hours of preprofessional and professional program requirements. The preprofessional program requirements include 18 semester hours of foundations requirements and 12 semester hours of 200-level classes, which must include a minimum of three semester hours of 2-D courses and three semester hours of 3-D courses. In addition, six semester hours of upper-division art history is required. The upper-division professional program requirements include 12 semester hours of sculpture core classes, 13-15 semester hours of elective sculpture courses including ART 494 ST: Senior Exhibition and Portfolio, and 12 to 14 semester hours of School of Art courses outside of sculpture (ARA, ARE, ARS, ART)

Preprofessional Sculpture Requirements. A minimum of 30 semester hours is required. Students who enter the university in fall semester 2006 or later are admitted to the pre-professional program without a concentration classification (i.e., sculpture). Students interested in the Sculpture BFA program will pursue the preprofessional courses below.

Studio and Art History Foundations Requirements. Eighteen semester hours of required courses. See "Studio and Art History Foundations," page 443.

Preprofessional Sculpture Electives

ART 231 Sculpture I.....	3
ART 274 Wood I.....	3
Choose one of the following courses.....	3
ART 101 Photography I (3)	
ART 204 Photography II (3)	
ART 211 Drawing II (3)	
ART 214 Life Drawing I (3)	
ART 223 Painting I (3)	
ART 227 Watercolor I (3)	
Any 2-D or 3-D ART course.....	3
Total	12

Art History. Six hours of upper-division courses are required. This requirement does not need to be completed before applying to the sculpture professional program.

Applying to Sculpture Professional Program

The application deadlines are October 1 for spring classes and March 1 for fall classes. For students admitted in fall semester 2006 or later, the application for acceptance into the professional program is submitted during the semester in which the 30 semester hours of preprofessional study is

being completed. Students must complete ART 231 Sculpture I and ART 274 Wood I before the semester in which the application is submitted. Students must maintain an overall GPA of 2.70 and an art GPA of 3.00. For deadlines and application procedures, access the Web site at art.asu.edu/ undergraduate.

Professional Sculpture Requirements. Thirty-nine semester hours with a minimum of 30 semester hours of upper-division courses.

Sculpture Core Requirements

ART 331 Sculpture II.....	3
ART 332 Sculpture III.....	3
ART 431 Special Problems in Sculpture	3
Total	9

Sculpture Electives¹

Choose four from the following courses.....	12
ART 333 Foundry Casting Methods (3)	
ART 374 Wood II (3)	
ART 431 Special Problems in Sculpture (3)	
ART 432 Neon Sculpture (3)	
ART 435 Foundry Research Methods (3)	
ART 436 Architectural Sculpture (3)	
ART 437 Film Animation (3)	
ART 438 Experimental Systems in Sculpture (3)	
ART 474 Advanced Wood (3)	
ART 494 Special Topics in Sculpture (3)	
ART 494 ST: Senior Exhibition and Portfolio ²	1-3
Total	13-15

1 Electives in sculpture must include 13 to 15 semester hours of upper-division course work.

2 Course selection must include one to three semester hours of ART 494 ST: Senior Exhibition and Portfolio.

School of Art Electives in Major. Fifteen to 17 semester hours are required with a minimum of 12 semester hours of upper-division courses. These are department electives outside of sculpture courses that are selected from upper-division classes in other art concentrations that are open to those admitted to professional programs in the department (ART, ARA, ARS, ARE).

Free Electives. Students must select a minimum of four semester hours of free electives.

GRADUATE PROGRAMS

The faculty in the School of Art offer programs leading to the MA degree in Art, with a concentration in art education or art history; the Master of Fine Arts degree with a concentration in ceramics, digital technology, drawing, fibers, intermedia, metals, painting, photography, printmaking, sculpture, or wood; and a PhD degree in History and Theory of Art. In cooperation with the College of Education, the Doctor of Philosophy degree is offered with a concentration in art education. For more information, see the *Graduate Catalog*.

ART AUXILIARY (ARA)

For more ARA courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D

(Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M ARA 202 Understanding Photographs. (3)

once a year

Slide lecture course in understanding photography as a fine art form.

M ARA 311 Art Appreciation and Human Development. (3)

fall

Foundations of art for children and young adults. Emphasizes learning, development, and understanding art in historical and cultural contexts. Lecture, discussion. Fee (online only). Prerequisites: ENG 101, 102; junior standing; nonmajor.

General Studies: HU

M ARA 394 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Art Museum Education Service Learning

M ARA 460 Gallery Exhibitions. (3)

fall and spring

Practical experience in all phases of department gallery operations and preparation of gallery publications. May be repeated for credit. Prerequisite: instructor approval.

M ARA 488 Understanding Art. (3)

fall and spring

Understanding art as an emergent cultural phenomenon with an emphasis on a critical examination of conceptual issues in art. Requires writing. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: L/HU

M ARA 494 Special Topics. (1–4)

fall and spring

Topics may include the following:

- Advanced Photo Aesthetics. (3)

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

ART EDUCATION (ARE)

M ARE Note 1. May be repeated once by students who are not accepted into the professional program. Contact your academic advisor in the School of Art for more information.

M ARE Note 2. Requires acceptance into the appropriate professional program or instructor approval. Contact your academic advisor in the School of Art for more information.

M ARE 250 Teaching Inquiry in Art. (3)

fall, spring, summer

Using inquiry to investigate artworks and to teach others to make and understand art. Introduces viewpoints of art. 2 hours lecture, 2 hours applied practice. See ARE Note 1. Pre- or corequisites: ARS 101, 102; 6 hours of ART (Studio) credit.

M ARE 301 Studio Art and Human Development. (3)

once a year

Study of human development in studio art from early childhood to adult years.

M ARE 370 Teaching Visual Culture. (3)

fall and spring

Explores issues and applications of everyday aesthetics that contain powerful technological, social, and economic factors. Lecture, discussion. See ARE Note 2.

M ARE 440 Disciplines of Art Education. (3)

fall and spring

Explorations in art education's disciplines, history, and people's artmaking development at diverse age levels and abilities. Lecture, discussion. See ARE Note 2.

M ARE 482 Teaching Art Processes. (3)

spring

Art traditions of the 20th century as a basis for studio and art history instruction. Meets art postbaccalaureate certification requirement. 2 hours lecture, 2 hours studio. See ARE Note 2.

M ARE 486 Art Education: Strategies and Applications. (3)

fall

Implementation and evaluation of art instruction for K–12 population. Includes teaching of Saturday classes in the Children's Art Workshop. Meets art postbaccalaureate certification requirement. Prerequisite: ARE 482.

M ARE 494 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Art Education. (3)

M ARE 496 Methods and Assessment of Learning in Art. (3)

once a year

Individual or group research on the assessment of art learning incorporating theory and practice. Meets art postbaccalaureate certification requirement. Prerequisites: both ARE 370 and 486 or only instructor approval.

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

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

ART HISTORY (ARS)

For more ARS courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M ARS 100 Introduction to Art. (3)

fall, spring, summer

Understanding of art and its relationship to everyday life through painting, sculpture, architecture, and design. No credit for Art majors or non-Art majors who have completed ARS 101 or 102 or 300.

General Studies: HU

M ARS 101 Art from Prehistory Through Middle Ages. (3)

fall, spring, summer

History of Western art from the Paleolithic period through the Middle Ages.

General Studies: HU, H

M ARS 102 Art from Renaissance to Present. (3)

fall, spring, summer

History of Western art from the Renaissance to the present.

General Studies: HU, H

M ARS 201 Art of Asia. (3)

once a year

History of the art of the Asian cultures, with emphasis on China, Japan, and India. Meets non-Western art history requirement.

General Studies: HU, G, H

M ARS 202 Art of Africa, Oceania, and the Americas. (3)

spring

History of art of Africa, Oceania, and the New World. Meets non-Western art history requirement. Lecture, discussion. Cross-listed as AFH 202. Credit is allowed for only AFH 202 or ARS 202.

General Studies: HU, G, H

M ARS 250 History of Photography. (3)

once a year

History of photography from the 19th century to the present.

General Studies: HU

M ARS 300 Introduction to Art. (3)

fall and spring

Course content same as ARS 100 but requires a higher level of accomplishment and comprehension. No credit for Art majors or non-Art majors who have completed ARS 100. Fee.

General Studies: HU

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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M ARS 302 Issues: Art of Africa, Oceania, and the Americas. (3)

once a year

Issues in the art of Africa, Oceania, and the Americas related to ritual, gender, transformation of tradition, and encounters with Europeans. Lecture, discussion. Prerequisite: ENG 102.

General Studies: HU, G, H

M ARS 310 The Renaissance in Tuscany. (3)

summer

Course taught in Florence, Italy. History of arts in Tuscany with focus on city of Florence from 14th through 16th centuries. Completion of ARS 101 and 102 suggested. Lecture, tours.

M ARS 340 Art in America. (3)

once a year

American art from colonial times through the Second World War. Not available to students who have completed ARS 542. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU, H

M ARS 362 Pre-Columbian Art. (3)

once a year

Architecture, sculpture, ceramics, painting, and other arts of Mesoamerica before European contact. Meets non-Western art history requirement. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU, H

M ARS 394 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Ancient Art
Fee.
- Art and Culture of Ancient Egypt
Fee.
- Manga and Anime
Fee.
- 20th-Century Artists
Fee.

M ARS 400 History of Printmaking. (3)

once a year

History of the print as an art form and its relation to other modes and forms of artistic expression. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU, H

M ARS 402 Art of Ancient Egypt. (3)

selected semesters

Aesthetic, philosophical, and cultural basis of Egyptian art from pre-Dynastic period through New Kingdom. Emphasis on sculpture and architectural monuments. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU, H

M ARS 404 Greek Art. (3)

once a year

History of art, architecture of Aegean civilizations (Cycladic, Minoan, Mycenaean) and of Greece to end of Hellenistic period. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU, H

M ARS 406 Roman Art. (3)

once a year

Art and architecture of Etruria, the Roman Republic, and the Roman Empire. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU, H

M ARS 410 Early Christian and Byzantine Art. (3)

once a year

Art and architecture of the early church and the Byzantine Empire from the 4th to the 15th century. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU

M ARS 412 Early Medieval Art. (3)

selected semesters

Painting, sculpture, architecture, and the minor arts from Migration, Carolingian, and Ottonian periods considered within religious, social, and economic contexts. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU, H

M ARS 414 Romanesque Art. (3)

once a year

Sculpture, painting, architecture, and minor arts in western Europe, ca. 1030–1200, considered within religious, economic, and social contexts. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU, H

M ARS 416 Gothic Art. (3)

once a year

Painting, sculpture, and architecture in western Europe during the Gothic period. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU

M ARS 417 Late Gothic Art in Central Europe. (3)

selected semesters

Sculpture, painting, and architecture of the late-Gothic style, ca. 1350–1525, considered within religious, social, economic, and political contexts. Prerequisites: both ARS 101 and 102 or only instructor approval.

M ARS 418 Renaissance Art in Northern Europe. (3)

once a year

Graphics, painting, sculpture, and architecture, ca. 1450–1550. Reformation themes and Renaissance style considered within religious, political, social, and economic contexts. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU

M ARS 420 Early Renaissance Art in Italy. (3)

selected semesters

Painting, sculpture, and architecture in Italy from 1300 to 1500. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU, H

M ARS 422 Italian High Renaissance Art and Mannerism. (3)

once a year

History of Italian art during the 16th century, including the achievements and influence of Leonardo da Vinci, Raphael, and Michelangelo. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU

M ARS 424 Italian Baroque Art. (3)

once a year

Italian painting, sculpture, and architecture of the 17th century. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU

M ARS 426 Art of the 17th Century in Northern Europe. (3)

once a year

Baroque painting, sculpture, and architecture in Flanders, the Netherlands, France, and England. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU, H

M ARS 428 Art of the 18th Century. (3)

once a year

History of painting, sculpture, architecture, graphic arts, and the decorative arts from 1700 to the French Revolution (1789). Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU, H

M ARS 430 Art of Spain and Its Colonies. (3)

once a year

Architecture, painting, and sculpture from 1500 to 1800. Colonial focus on central Mexico and the American Southwest. Prerequisite: ARS 102 or instructor approval.

General Studies: HU, H

M ARS 432 19th-Century French Art and Culture. (3)

fall

History of painting, graphic arts, sculpture, and architecture, 1800 to 1900 in France in its political, social, and economic contexts.

Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU, H

M ARS 434 Art and Visual Culture of 19th Century. (3)

spring

History of European art (all media) from French Revolution to Paris World Fair of 1900. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU

M ARS 436 The Artist, War, and Revolution (Versailles to Vietnam). (3)*fall*

Critical study of artistic responses to war and revolution in Europe and United States from French Revolution to Vietnam conflict.

Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU

M ARS 438 Art of the 20th Century I. (3)*once a year*

Developments and directions in art between 1900 and World War II.

Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU, H

M ARS 439 Art of the 20th Century II. (3)*once a year*

Art since World War II, with consideration of new concepts and experimentation with media and modes of presentation. Prerequisites: a combination of ARS 101 and 102 and 438 or only instructor approval.

General Studies: HU, H

M ARS 442 Critical Issues in American Painting. (3)*once a year*

Explores themes and social issues in American art with a critical study of American painting from the 18th century to 1850. Lecture, discussion. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU

M ARS 458 Critical Theories in the Visual Arts. (3)*selected semesters*

Examines current critical theories through their application to all visual arts. May include new historicism, Marxism, deconstruction, post-structuralism, semiotics, Lacanian psychoanalysis, feminism, postmodernism. Lecture, discussion, student presentations.

Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU

M ARS 459 Writing Art Criticism. (3)*selected semesters*

Traditional and contemporary approaches to the criticism of art. Students write critical essays. Latter half of the semester stresses the criticism of contemporary art in various media. Prerequisite: ARS 458 or instructor approval.

M ARS 460 Art Now. (3)*fall or spring*

Critical overview of major issues and controversies of the last 10 years within the global, national, and local art scene. Lecture, discussion, gallery visits. Prerequisite: ARS 439.

M ARS 465 Native North American Art. (3)*once a year*

Native American art forms of the United States and Canada from prehistoric times to the present. Meets non-Western art history requirement. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU, C, H

M ARS 466 Native American Art of the Southwest. (3)*once a year*

American Indian art in the southwestern states from its origins to the present day. Meets non-Western art history requirement.

Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU, C, H

M ARS 468 Art of the Arctic and Northwest Coast. (3)*selected semesters*

Art associated with ceremony, shamanism, and daily life in the Arctic and on the Northwest Coast. Meets non-Western art history requirement. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU, C, H

M ARS 469 Mexican Art. (3)*once a year*

Art of Mexico and related Central American cultures from the prehistoric to the contemporary schools. Meets non-Western art history requirement. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU, H

M ARS 472 Art of China. (3)*once a year*

Study of major forms in Chinese art: ritual bronze, sculpture, ceramic, calligraphy, painting, and architecture. Meets non-Western art history requirement. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU

M ARS 473 Art of Japan. (3)*once a year*

Japanese art from the Joman period to the present. Meets non-Western art history requirement. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU

M ARS 475 Chinese Painting. (3)*once a year*

From Ku K'ai-chin to Ch'i Pai-shih. Major artists, styles, and movements in Chinese painting. Meets non-Western art history requirement. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: HU

M ARS 480 Research Methods. (3)*fall and spring*

Methodology and resource material for art historical research.

Techniques of scholarly and critical writing and evaluation of bibliographic sources. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: L

M ARS 484 Internship. (1–12)*selected semesters*

Topics may include the following:

- Museum

M ARS 485 Women in the Visual Arts. (3)*spring*

Historical study of art by women in various media; related social, political, educational issues; representation of women in art. Lecture, discussion. Prerequisites: both ARS 101 and 102 or only instructor approval.

General Studies: L

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

Topics may include the following:

- History of Photography. (3)
- Introduction to Museums. (3)

M ARS 498 Pro-Seminar. (1–7)*once a year*

Undergraduate seminar. Problems or criticism in topics that may include the following:

- American Art. (3–6)
- American Indian Art. (3–6)
- Ancient Art. (3–6)
- Art History. (3–6)
- Baroque Art. (3–6)
- British Empire. (3–6)
- Chinese Art. (3–6)
- Medieval Art. (3–6)
- Modern Art. (3–6)
- Photographic History. (3–6)
- Pre-Columbian Art. (3–6)
- Renaissance Art. (3–6)

Prerequisite: instructor approval.

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

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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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ART (ART)

For more ART courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M ART Note 1. May be repeated once by students who are not accepted into the professional program. Contact your academic advisor in the School of Art for more information.

M ART Note 2. Requires acceptance into the appropriate professional program or instructor approval. Contact your academic advisor in the School of Art for more information.

Studio Core Curriculum

M ART 111 Drawing I: Foundations. (3)

fall, spring, summer
Fundamental, technical, and perceptual skills using common drawing media and their application to pictorial organization. 6 hours a week.

M ART 112 2-D Design. (3)

fall, spring, summer
Fundamentals of pictorial design. 6 hours a week.

M ART 113 Color. (3)

fall, spring, summer
Principles of color theory as related to the visual arts. 6 hours a week.

M ART 115 3-D Design. (3)

fall, spring, summer
Fundamentals of 3-D form. 6 hours a week. Fee.

M ART 294 Special Topics. (3)

fall and spring

Ceramics

M ART 261 Ceramic Survey. (3)

fall, spring, summer
Handforming methods, throwing on the wheel, decorative processes, and glaze application. Lab. 6 hours a week. Fee. See ART Note 1. Prerequisites: both ART 112 and 115 or only instructor approval.

M ART 360 Ceramic Throwing. (3)

fall and spring
Design analysis and production of functional pottery. Emphasizes throwing techniques, surface enrichment, and glaze application. May be repeated once for credit. 6 hours a week. Fee. See ART Note 2.

M ART 364 Ceramic Handbuilding I. (3)

fall
Search for form using handbuilding techniques. Kiln firing and related problems. Fee. See ART Note 2.

M ART 365 Ceramic Handbuilding II. (3)

spring
Continuation of ART 364 with an additional focus on large-scale works, surface treatments, and glaze decoration with related kiln firing applications. Fee. Prerequisites: a combination of ARS 101 and 102 and ART 364 or only instructor approval.

M ART 394 Special Topics. (1–4)

selected semesters
Topics may include the following:

- Ceramics
Fee.
- Turning
Fee.

M ART 460 Ceramic Clay. (3)

spring
Research into various clay body formulations, local natural materials, slip glazes, and engobes. Lecture, lab, studio. Fee. Prerequisites: both ART 360 and 364 or only instructor approval.

M ART 463 Ceramic Glaze. (3)

fall
Glaze calculation and formulation using various glaze colors and surfaces. Lecture, lab, studio. Fee. Prerequisite: ART 460 or instructor approval.

M ART 466 Special Problems in Ceramics. (3)

fall, spring, summer
Emphasizes personal expression within structure of seminars, critiques, and studio work. Professional methods of presentation/documentation of work. May be repeated for credit. 6 hours a week. Fee. Prerequisite: ART 364 or instructor approval.

M ART 494 Special Topics. (1–4)

selected semesters
Topics may include the following:

- Ceramics Printmaking
Fee.
- Enameling
Fee.
- Senior Exhibition and Portfolio
Fee.
- Turning
Fee.
- Vapor Glazes
Fee.

Drawing

M ART 211 Drawing II. (3)

fall, spring, summer
Continued development of technical and perceptual skills. Emphasizes materials and pictorial content. 6 hours a week. See ART Note 1. Prerequisites: both ART 111 and 112 (or 113) or only instructor approval.

M ART 214 Life Drawing I. (3)

fall, spring, summer
Develops skill and expressiveness in drawing the basic form, construction, and gesture from the human figure. Lab. 6 hours a week. Fee. See ART Note 1. Prerequisites: both ART 111 and 112 or only instructor approval.

M ART 311 Drawing III. (3)

fall and spring
Emphasizes composition, exploration of drawing media. 6 hours a week. See ART Note 2.

M ART 314 Life Drawing II. (3)

fall and spring
Drawing from the model with greater reference to structural, graphic, and compositional concerns. 6 hours a week. Fee. See ART Note 2.

M ART 411 Drawing IV. (3)

fall and spring
Visual and intellectual concepts through problem solving and independent study. Emphasizes the individual creative statement. May be repeated for credit. 6 hours a week. Prerequisites: ART 311; instructor approval.

M ART 414 Life Drawing III. (3)

fall and spring
Various media and techniques on an advanced level. The human figure as an expressive vehicle in various contexts. May be repeated for credit. 6 hours a week. Fee. See ART Note 2.

M ART 415 Art Anatomy. (4)

selected semesters
Study of human anatomical structures as applied to the practice of figure-oriented art. 3 hours lecture, 5 hours studio a week. Fee. See ART Note 2.

M ART 494 Special Topics. (1–4)

fall and spring
Topics may include the following:

- Drawing. (3)

Fibers

M ART 276 Fibers I. (3)

fall and spring
Explores traditional and contemporary materials and basic techniques related to fibers. Embroidery, feltmaking, dyeing, block printing, plaiting, 3-D structures. Fee. See ART Note 1. Prerequisites: both ART 112 and 115 or only instructor approval.

M ART 294 Special Topics. (1–4)

selected semesters
Topics may include the following:

- Fibers for Nonmajors

Fee.

M ART 376 Woven Structures I. (3)

once a year

Explores weaver- and loom-controlled structures with an emphasis on formal issues, historic precedence, and contemporary investigations. Fee. See ART Note 2.

M ART 377 Surface Design. (3)

fall and spring

Applies dyes and pigments on cloth exploring techniques, formal issues, and content. Cyanotype, monoprinting, painting on silk, resists, stenciling. Fee. See ART Note 2.

M ART 394 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Fibers Design for Nonmajors
Fee.

M ART 476 Woven Structures II. (3)

fall and spring

Emphasizes personal expressions and continues technical exploration in woven structures. May be repeated for credit. 6 hours a week. Fee. Prerequisite: ART 376 or instructor approval.

M ART 477 Printed Textiles. (3)

once a year

Techniques for screen printing on fabric exploring pattern as a compositional element. Various stencil methods, including photographic processes. May be repeated for credit. Studio. Fee. Prerequisite: ART 377 or instructor approval.

M ART 478 Advanced Surface Design. (3)

spring in odd years

Emphasizes personal expression with advanced problems in stitch resist, arashi shibori, transfers, indigo, vat and disperse dyes, and pigments. Studio. Fee. Prerequisites: both ART 377 and 477 or only instructor approval.

M ART 479 3-D Fibers. (3)

fall and spring

Explores traditional and nontraditional 3-D fiber techniques and media. Discussion, research, and critiques augment technical demonstrations. May be repeated for credit. Studio. Fee. See ART Note 2.

M ART 494 Special Topics. (1–4)

selected semesters

Topics may include the following:

- 3-D Fibers
Fee.
- Fibers and Surface
Fee.
- Print Textiles
Fee.
- Senior Exhibition and Portfolio

Intermedia

M ART 294 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Digital Media
- Intermedia
- Introduction to Intermedia

M ART 345 Visualization and Prototyping I. (3)

spring in even years

Studio/seminar introduces concepts of computer visualization, modeling, and rapid prototyping in an interdisciplinary manner. Lecture, studio. See ART Note 2.

M ART 346 3-D Computer Imaging and Animation. (3)

fall and spring

3-D modeling and animation. Emphasizes concepts and fine arts applications. Studio. Fee. See ART Note 2.

General Studies: CS

M ART 348 Animation Motion Studies. (3)

fall and spring

Computer animation motion studies, modeling, and editing for fine arts. Studio. Fee. Prerequisites: ART 346; junior standing; instructor approval.

M ART 439 Mixed Media. (3)

fall and spring

Exploring visual effects by combining traditional and nontraditional methods, techniques, and concepts. May be repeated for credit. Studio. 6 hours a week. See ART Note 2.

M ART 440 New Media Concepts. (3)

fall and spring

Continued experiments with new media and interdisciplinary concerns in art. May be repeated for credit. 6 hours a week. Fee. See ART Note 2. Corequisite: ART 441.

M ART 441 Video Art. (1)

fall and spring

Utilizing video and audio equipment essential to the production of broadcast quality video art. May be repeated for credit. 2 hours a week. Corequisite: ART 440.

M ART 442 Folk/Outsider Art. (3)

fall

Explores ideas, attitudes, and art of contemporary "self-taught," "visionary," and "outsider" artists. Research and studio practice. Lecture, studio. Prerequisites: both ART 113 and 115 or only instructor approval.

M ART 443 Intermedia. (3)

fall and spring

Experimental, conceptual, and interdisciplinary studio art with emphasis on new media and technologies. May be repeated once for credit. 6 hours a week. See ART Note 2.

M ART 449 Computer Animation and Video. (3)

fall and spring

Integrates 3-D fine arts animation with video and compositing. May be repeated for credit. Studio. Fee. Prerequisite: ART 348 or instructor approval.

M ART 450 Computer Animation and Audio. (3)

fall and spring

Integrates audio with 3-D animation for fine arts applications. Includes compositing and effects. May be repeated for credit. Studio. Fee. Prerequisites: ART 449; instructor approval.

M ART 470 Computer Animation Portfolio. (3)

fall and spring

Production of videotape and CD 3-D animation portfolios for fine arts and industry integrating animation, video, and audio. May be repeated for credit. Studio. Fee. Prerequisites: ART 449; instructor approval. *General Studies: CS*

M ART 484 Internship. (1–12)

selected semesters

M ART 494 Special Topics. (1–4)

fall and spring

Topics may include the following:

- Digital. (3)
- Digital Individualized Study
Fee.
- Digital Processes for Printmaking
Fee.
- Intermedia. (3)
- Intermedia Elective. (3)
- Mixed Media. (3)
- Nonelectronic Intermedia. (3)
- Senior Exhibition and Portfolio
Fee.
- Visualization and Prototyping II. (3)
- Web Art
Fee.

Metals

M ART 272 Jewelry I. (3)

fall and spring

Emphasizes fabrication in jewelry making. Basic techniques of cutting and piercing, forging and soldering, and forming. Not open to seniors.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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6 hours a week. Lab. Fee. See ART Note 1. Prerequisites: both ART 112 and 115 or only instructor approval.

M ART 372 Jewelry II. (3)

fall and spring

Fabricated approach to jewelry making. Techniques in stone setting and surface embellishment. 6 hours a week. Fee. See ART Note 2.

M ART 373 Metalworking. (3)

once a year

Compression, die, and stretch forming as applied to hollow form construction. Hot and cold forging techniques as applied to smithing. 6 hours a week. Fee. Prerequisites: a combination of ARS 101 and 102 and ART 113 and 115 and 272 or only instructor approval.

M ART 472 Advanced Jewelry. (3)

fall and spring

Jewelry making with emphasis on developing personal statements and craftsmanship. May be repeated for credit. 6 hours a week. Fee. Prerequisites: ART 372; instructor approval.

M ART 473 Advanced Metalworking. (3)

once a year

Forging and forming techniques in individualized directions. May be repeated for credit. 6 hours a week. Fee. Prerequisites: ART 373; instructor approval.

M ART 494 Special Topics. (1–4)

fall and spring

Topics may include the following:

- Metals. (3)
- Senior Exhibition and Portfolio

Painting

M ART 223 Painting I. (3)

fall, spring, summer

Fundamental concepts and materials of traditional and experimental painting media. Emphasizes preparation of painting supports, composition, and color. Lab. 6 hours a week. See ART Note 1. Prerequisites: both ART 111 and 113 or only instructor approval.

M ART 227 Watercolor I. (3)

fall and spring

Fundamental concepts, materials, and techniques of watercolor. Emphasizes problem solving, basic skills, composition, and color. 6 hours a week. Fee. See ART Note 1. Prerequisites: both ART 111 and 113 or only instructor approval.

M ART 323 Painting II. (3)

fall and spring

Development of competency in skills and expression. Assigned problems involve light, space, color, form, and content. 6 hours a week. See ART Note 2.

M ART 327 Watercolor II. (3)

once a year

Explorations of personal expression in watercolor. Continued development of watercolor skills using traditional and experimental materials and techniques. 6 hours a week. Fee. See ART Note 2.

M ART 423 Painting III. (3)

fall and spring

May be repeated for credit. 6 hours a week. See ART Note 2.

M ART 425 Figure Painting. (3)

fall and spring

The human figure clothed and nude as the subject for painting in selected media. May be repeated for credit. 6 hours a week. Fee. Prerequisites: both ART 314 and 323 or only instructor approval.

M ART 427 Advanced Watermedia. (3)

fall and spring

Continuation of ART 327. Advanced techniques, concepts, and methods with watercolor and other water-based media on paper. May be repeated for credit. 6 hours a week. Fee. Prerequisite: ART 327 or instructor approval.

M ART 494 Special Topics. (1–4)

fall and spring

Topics may include the following:

- Painting. (3)
- Senior Exhibition and Portfolio

Photography

M ART 101 Photography I. (3)

fall and spring

Development of skills and techniques of black and white photography. Emphasizes camera work and darkroom procedures. Must be taken with ART 102. Corequisite: ART 102.

M ART 102 Photography I Lab. (0)

fall and spring

Must be taken with ART 101. Fee. Corequisite: ART 101.

M ART 204 Photography II. (3)

fall and spring

Photography as an art medium with additional exploration into personal photographic aesthetics. 6 hours a week. Fee. See ART Note 1. Prerequisite: ART 101.

M ART 294 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Digital Art. (3)

M ART 304 Advanced Photography. (3)

fall and spring

Interpretation and manipulation of light as a tool in the performance of expressive photography. 6 hours a week. Fee. See ART Note 2.

M ART 305 Color Photography I. (3)

fall and spring

Applies color transparencies and prints to photographic art. May be repeated for credit. Fee. See ART Note 2.

M ART 308 Digital Photographic Images I. (3)

fall and spring

Scanning, manipulation, refinement, and compositing of photographic images on the computer. Lab, studio. Fee. See ART Note 2.

M ART 394 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Digital Art. (3)

M ART 401 Nonsilver Photography. (3)

fall and spring

Recognition of the inherent characteristics of nonsilver processes and their use in communicating ideas. May be repeated for credit. 6 hours a week. Fee. Prerequisite: ART 304 or instructor approval.

M ART 403 Senior Photographic Projects. (3)

fall and spring

Technical and philosophical refinement of personal aesthetic with various photographic media. May be repeated for credit. 6 hours a week. Fee. See ART Note 2.

M ART 404 Portraiture Photography. (3)

fall and spring

Photographing people. Critical discussions and slide lectures on issues in portraiture. May be repeated for credit. 6 hours a week. Fee. See ART Note 2.

M ART 406 Photo Techniques. (3)

fall and spring

Camera and darkroom techniques with emphasis on creative control of the black and white print. 6 hours a week. Prerequisite: ART 204 or instructor approval.

M ART 407 View Camera. (3)

fall and spring

View camera and darkroom techniques. Studio, lab. Fee. See ART Note 2.

M ART 408 Digital Photographic Images II. (3)

fall and spring

Develops personal aesthetic in digital photography. May be repeated for credit. 6 hours a week. Studio. Prerequisite: ART 308 or instructor approval.

M ART 409 Photographic Exhibition. (3)

once a year

Care of photographic prints, print presentation, and exhibition. Practical experience in gallery operations. May be repeated for credit. 6 hours a week. Prerequisite: ART 304 or instructor approval.

M ART 410 Landscape Photography. (3)

fall and spring

Photographing landscapes. Critical discussion and presentations on issues in landscape photography. May be repeated for credit. Studio. 6

hours a week. Prerequisites: a combination of ART 304 and 305 and 308 or only instructor approval.

M ART 494 Special Topics. (1–4)

fall and spring

Topics may include the following:

- Collotype
Fee.
- Digital Photographic Images II. (3)
Fee.
- Digital Printing
Fee.
- Documentary Photography
Fee.
- Issues in Digital Photography
Fee.
- Landscape Photography
Fee.
- 19th-Century Photo Processes. (3)
- Photo. (3)
- Photographic Fabrications
Fee.
- Photogravure
Fee.
- Senior Exhibition and Portfolio

M ART 498 Pro-Seminar. (1–7)

selected semesters

Topics may include the following:

- Landscape Photography: Theory
Fee.

Printmaking

M ART 253 Introduction to Printmaking. (3)

once a year

Introduction to basic monotype, intaglio, relief, and related techniques. Studio. Fee. See ART Note 1. Prerequisite: ART 113.

M ART 351 Intaglio I. (3)

fall and spring

Introduces contemporary and traditional developmental techniques for black and white prints. 6 hours a week. Fee. See ART Note 2.

M ART 352 Lithography I. (3)

fall and spring

Monochromatic and color planographic printmaking utilizing stone and aluminum plate processes. 6 hours a week. Fee. See ART Note 2.

M ART 354 Screen Printing I. (3)

fall and spring

Introduces paper, direct, and photographic stencil techniques. 6 hours a week. Fee. See ART Note 2.

M ART 355 Photo Process for Printmaking I. (3)

fall

Introduces photographic principles and skills for photomechanical printmaking processes, including photosilkscreen, photolitho, and photoetching. 6 hours a week. Fee. See ART Note 2.

M ART 394 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Relief Printmaking
Fee.

M ART 451 Advanced Intaglio. (3)

fall and spring

Various contemporary and traditional methods of printing to achieve color prints. May be repeated for credit. 6 hours a week. Fee. Prerequisite: ART 351 or instructor approval.

M ART 452 Advanced Lithography. (3)

fall and spring

Continuation of ART 352. May be repeated for credit. 6 hours a week. Fee. Prerequisite: ART 352 or instructor approval.

M ART 453 Experimental Printmaking. (3)

fall and spring

Alternative techniques and methods to traditional approaches to printmaking. May be repeated for credit. Studio. Prerequisites: ART 351, 352, 354, 394 ST: Relief Printmaking, 456 (or 459).

M ART 454 Advanced Screen Printing. (3)

once a year

Continuation of ART 354. May be repeated for credit. 6 hours a week. Fee. Prerequisite: ART 354 or instructor approval.

M ART 455 Advanced Photo Processes for Printmaking. (3)

once a year

Continued study of photomechanical techniques and applications to printmaking or photographic processes. Fee. Prerequisite: ART 355 or instructor approval.

M ART 456 Fine Printing and Bookmaking I. (3)

once a year

Letterpress printing and typography as fine art. Study of history, alphabets, mechanics of hand typesetting, presswork, and various forms of printed matter. Fee. See ART Note 2.

M ART 457 Fine Printing and Bookmaking II. (3)

once a year

Continuation of ART 456. Bookbinding, book design and printing, advanced typography, theory, and presswork. May be repeated for credit. Fee. Prerequisites: ART 456; instructor approval.

M ART 458 Papermaking. (3)

fall and spring

History, theory, demonstrations, sheet forming, collage treatments, and 3-D approaches. May be repeated for credit. 6 hours a week. Fee. See ART Note 2.

M ART 459 Monoprinting. (3)

fall and spring

Nonmultiple printed image using a variety of technical approaches. May be repeated for credit. 6 hours a week. Fee. See ART Note 2.

M ART 494 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Artists' Books
Fee.
- Experimental Paper
Fee.
- Experimental Printmaking
Fee.
- Relief Printmaking
Fee.
- Senior Exhibition and Portfolio

Sculpture

M ART 231 Sculpture I. (3)

fall, spring, summer

Explores sculptural forms through concepts related to basic materials. Focuses on studio production, safety, aesthetic criticism, and history of sculpture. 6 hours a week. Fee. See ART Note 1. Prerequisites: both ART 111 and 115 or only instructor approval.

M ART 274 Wood I. (3)

fall and spring

Fundamental woodworking techniques to produce creative functional 3-D objects. 6 hours a week. Fee. See ART Note 1.

M ART 331 Sculpture II. (3)

fall and spring

Continuation of ART 231 with an emphasis on metal fabrication as an expressive sculptural process. Techniques in welding, cutting and bending of metals and their aesthetics. 6 hours a week. Fee. See ART Note 2.

M ART 332 Sculpture III. (3)

fall and spring

Explores diverse media with a focus on mold-making processes. Development of the sculpture portfolio. 6 hours a week. Fee. Prerequisites: a combination of ARS 101 and 102 and ART 331 or only instructor approval.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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M ART 333 Foundry Casting Methods. (3)

fall and spring

Fine art and techniques of metal casting: mold making, foundry safety, finishing techniques, application of patinas, and history of casting. May be repeated for credit. 6 hours a week. Fee. Prerequisites: a combination of ARS 101 and 102 and ART 332 or only instructor approval.

M ART 374 Wood II. (3)

fall and spring

Individual and directed problems in wood related to the production of unique functional art objects. 6 hours a week. Fee. See ART Note 2.

M ART 394 Special Topics. (1-4)

selected semesters

Topics may include the following:

- Carving

Fee.

M ART 431 Special Problems in Sculpture. (3)

fall and spring

Development of a personal approach to sculpture. Emphasizes form, individual problems, and related color technology. Professional practices and presentation. May be repeated for credit. 6 hours a week. Fee. Prerequisites: ART 332; instructor approval.

M ART 432 Neon Sculpture. (3)

fall

Techniques for creating neon in an art context. Glass tube bending and fabrication. Construction of artworks utilizing light-generating gasses. May be repeated for credit. 6 hours a week. Fee. See ART Note 2.

M ART 435 Foundry Research Methods. (3)

fall and spring

Research in foundry techniques. Studio. Pre- or corequisite: ART 333 or instructor approval.

M ART 436 Architectural Sculpture. (3)

selected semesters

Sculptural concepts as related to architecture and other man-made environments. Scale drawing, models, and relief sculpture. May be repeated for credit. 6 hours a week. Fee. Prerequisite: ART 332 or instructor approval.

M ART 437 Film Animation. (3)

fall

Production of short 16mm films that feature articulated sculptural objects, models, dolls, puppets, and graphics through the use of single-frame filming techniques. May be repeated for credit. 6 hours a week. Fee. Prerequisite: instructor approval.

M ART 438 Experimental Systems in Sculpture. (3)

spring

Simple electrical and mechanical systems that can be utilized in the context of studio art and installations. Requires active production of studio artworks. May be repeated for credit. 6 hours a week. Fee. See ART Note 2.

M ART 474 Advanced Wood. (3)

fall and spring

Extended experience and advanced techniques in the use of wood to create functional works of art. May be repeated for credit. 6 hours a week. Fee. Prerequisites: ART 374; instructor approval.

M ART 494 Special Topics. (1-4)

selected semesters

Topics may include the following:

- Advanced Sculpture
- Carving
- Fee.
- Film: Post-Production
- Fee.
- Foundry Casting Methods
- Fee.
- Foundry Research Methods
- Fee.
- Live Action Filmmaking
- Fee.
- Senior Exhibition and Portfolio
- Special Topics in Sculpture

Special Studio Art

M ART 394 Special Topics. (1-4)

selected semesters

Topics may include the following:

- Guided Study

M ART 499 Individualized Instruction. (1-3)

selected semesters

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

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

Department of Dance

herbergercollege.asu.edu/dance

480/965-5029

PEBE 107A

Professors: Kaplan, Murphey

Associate Professors: Jackson, Ma, Mooney

Clinical Associate Professor: Vissicaro

Assistant Professors: Dyer, Fitzgerald, Parrish, Tsukayama

Associate Research Professional: Mitchell

Senior Lecturer: Schupp

Lecturer: Valentin-Martinez

The Department of Dance is committed to providing a stimulating and diverse environment where students develop as scholars, educators, and artists through participation in innovative programs, residencies, performances, and partnerships. All students registering in a degree program enroll through the Katherine K. Herberger College of Fine Arts. Admission policies and procedures and the specific requirements of each Bachelor of Fine Arts degree concentration are available from the Department of Dance Advisement Office.

Audition/Admission. Students applying to the university as freshmen or transfer students who are interested in becoming dance majors are granted preprofessional status. Individuals intending to enroll in the undergraduate dance degree program and participate in dance major classes are required to pass an entrance audition before being admitted to the department's dance major classes. These auditions take place in the fall and spring of each academic year. Auditions, conducted by the Dance faculty, determine technical proficiency, placement, and scholarship awards. Criteria for placement in dance technique classes are published in the department's student handbook. The handbook is available through the Dance Advisement Office and on the department's Web site. Students who do not successfully

complete the audition are allowed to remain in preprofessional status for two semesters. At the end of that term they are allowed to re-audition.

By the second semester of their sophomore year all dance preprofessional students who have passed the audition must petition for admission into one of the four concentrations: choreography, dance education, dance studies, or performance. Depending upon the concentration selected, the petition process may include a technique audition, and the submission of video tapes of choreographed works, an artistic portfolio, a writing sample, and a written statement of intent and/or research interests. All students are interviewed and must have a 3.00 GPA before being accepted into an area of concentration.

Specific criteria and policies related to petition procedures for each of the concentrations are available through the Herberger College of Fine Arts (HCFA) Advisement Office and on the Web site. Admission is highly selective. Students who fail to meet the criteria for the concentrations are not dismissed from the Bachelor of Fine Arts program and may re-petition once during the following semester. If a student still fails to meet the criteria of one of the four concentrations, he or she will not be dismissed from the university altogether; the student may transfer to another program. Students should work closely with the department advisor during the decision-making process.

Scholarship Auditions. Highly competitive scholarship auditions are conducted for incoming and transfer students during the Spring Admission Audition. For more information, contact the HCFA Advisement Office.

Transfer Students, Dance Minors, and Bachelor of Interdisciplinary Studies Students. Transfer, minor, and BIS students must successfully complete the admittance audition before enrolling in Dance major courses. Additionally, transfer students who have completed music theory for dance, dance production, or choreography courses at other institutions must also take placement examinations in these areas. These examinations are offered during the August and January orientation periods.

DANCE—BFA

The faculty in the Department of Dance offer a Bachelor of Fine Arts (BFA) degree at the undergraduate level with four areas of concentration: choreography, dance education, dance studies, and performance. All new students are admitted into the preprofessional program and petition for admission into one of the concentrations during the sophomore year of study. Transfers, who have successfully completed the admission audition, may petition into one of the four concentrations after one semester in residence. Further details may be obtained from the HCFA Advisement Office.

Graduation Requirements. In addition to fulfilling the major requirements, students must meet all university graduation requirements and college degree requirements. At least 45 semester hours must be upper-division courses. See "University Graduation Requirements," page 89, and "College Degree Requirements," page 439.

Preprofessional Dance Major Program. First-semester preprofessional students who passed the audition should take the following courses:

DAN 134 Technique and Theory of Modern Dance.....	3
DAN 135 Technique and Theory of Ballet.....	2
ENG 101 First-Year Composition.....	3
Dance elective.....	2
General Studies courses.....	6
Total.....	16

Core Curriculum

The Dance major consists of a minimum of 59 semester hours in the dance core. All courses in the major must be completed with a grade of "C" (2.00) or higher. The following areas make up the core curriculum.

Technique. Twenty-six semester hours in ballet and modern technique are required.

Performance. Two upper-division courses are required.

Theory. The following dance theory courses are required:

DAH 201 Dance in World Cultures <i>HU, G</i>	3
or DAH 191 First-Year Seminar (3)	
DAN 221 Rhythmic Theory for Dance I.....	2
DAN 222 Rhythmic Theory for Dance II.....	2
DAN 340 Dance Kinesiology.....	4
Total.....	11

Choreography and Improvisation. The following courses are required:

DAN 264 Improvisational Structures.....	3
DAN 265 Approaches to Choreography.....	3
Total.....	6

History. Choose two of the following three courses:

DAH 301 Philosophy and Criticism of Dance <i>LHU</i>	3
DAH 302 Cross-Cultural Dance Studies <i>LHU, 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.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

Concentration Requirements. The following courses are required for the choreography concentration:

DAN 321 Music Literature for Dance.....	3
DAN 364 Choreography and Accompaniment.....	3
DAN 365 Advanced Choreography.....	3
DAN 480 Senior Performance in Dance	4
Total	13

Dance Education Concentration

Core Curriculum. See “Core Curriculum,” page 465.

Concentration Requirements. The following courses are required for the dance education concentration:

DAN 350 Methods of Teaching Children’s Dance.....	3
DAN 352 Dance Education Theory.....	3
DAN 354 Integrated Approaches in Dance Education.....	3
DAN 356 Methods of Teaching Contemporary Dance Technique and Composition in Secondary Education	4
DAN 364 Choreography and Accompaniment.....	3
DAN 496 Senior Dance Education Capstone.....	4
Total	20

A student pursuing the dance education concentration may also choose to become certified to teach dance (K–12) in Arizona public schools. In addition to the dance concentration courses, students must complete education courses, two semesters of field experience, and one semester of student teaching. Students should apply to the College of Education in the middle of the sophomore year. To be considered for admission to the Initial Teacher Certification (ITC) program, students must complete an application portfolio specified by the College of Education. Application deadlines for the ITC programs are February 1 for fall admission and September 1 for spring admission. Students should be advised that additional semester hours are required to complete certification requirements. For more information, contact the College of Education Office of Student Services, or phone 480/965-5555.

For specific information related to the ITC application deadlines and eligibility for admission, see “Initial Teacher Certification Professional Program Admission,” page 350.

Additional requirements for certification are listed on the check sheet available from the College of Education or Department of Dance.

Dance Studies Concentration

Core Curriculum. See “Core Curriculum,” page 465.

Concentration Requirements. The following courses are required for the dance studies concentration:

DAH 495 Theory and Methods of Dance Research.....	3
DAH 496 Senior Dance Studies Capstone	4
Total	7

Eighteen additional semester hours in related fields must be approved by the BFA Dance Studies Committee. The content of related fields should support the research project.

Additional requirements are listed on the check sheet available from the Department of Dance.

Performance Concentration

Core Curriculum. See “Core Curriculum,” page 465.

Concentration Requirements. The following courses are required for the performance concentration:

DAN 321 Music Literature for Dance	3
DAN 380 Performance Studies Practicum	3
DAN 480 Senior Performance in Dance	4
THP 101 Acting: An Introduction	3
Total.....	13

Performance. Choose from the following four courses (six semester hours are required):

DAN 371 Dance Theatre Performance/Production	1-3
DAN 471 Dance Arizona Repertory Theatre.....	3-4
DAN 472 Concert Dance.....	2
DAN 494 ST: Guest Artists	3

Additional requirements are listed on the check sheet available from the Department of Dance.

MINOR

The department offers a minor in Dance consisting of 18 semester hours of course work, including 12 upper-division hours. A minimum grade of “B” (3.00) is required in all courses. Additional Dance minor requirements include the following:

Dance Minor Requirements

Choose from the following courses.....	3
DAH 101 Introduction to Dance (3)	
DAH 191 First-Year Seminar (1-3)	
DAH 201 Dance in World Cultures <i>HU, G</i> (3)	
Choose from the following courses.....	3
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)	
Choose from the following courses ¹	2-3
DAN 134 Technique and Theory of Modern Dance (3)	
DAN 135 Technique and Theory of Ballet (2)	
DAN 234 Technique and Theory of Modern Dance (3)	
DAN 235 Technique and Theory of Ballet (2)	
DAN 334 Technique and Theory of Modern Dance (3)	
DAN 335 Technique and Theory of Ballet (2)	
DAN 434 Technique and Theory of Modern Dance (3)	
DAN 435 Technique and Theory of Ballet (2)	
Choose from the following courses ²	2
DAN 130 Dance (2)	
DAN 194 Special Topics (1-4)	
DAN 294 Special Topics (1-4)	
DAN 394 Special Topics (1-4)	
Dance Electives	7-8
Total.....	17-19

¹ No more than a total of three major level techniques courses may be taken; transfer credit will not fulfill the major-level technique requirement.

² There is no limit on the total number of nonmajor technique courses that may be taken.

Questions about the minor may be referred to Herberger Academic Advising.

BIS CONCENTRATION

A concentration in dance is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

All students interested in the dance concentration must successfully complete the Audition/Admission. For more information, see "Audition/Admission," page 464.

GRADUATE PROGRAM

Dance—MFA

The MFA degree in Dance is a 60-semester-hour program designed to provide opportunities for the student to continue to develop in areas of dance technique, choreography, performance, and production; to gain further understanding of the philosophy, history, theory, education, and science and somatics of dance; and to begin to chart the direction of the future through technology, media opportunities, outreach, and community partnerships.

DANCE HISTORY (DAH)

M DAH 101 Introduction to Dance. (3)

fall and spring

Introduces the art and profession of dance. Explores development of modern, ballet, and other movement forms from global perspectives. Lecture, lab.

General Studies: G

M DAH 191 First-Year Seminar. (1–3)

selected semesters

M DAH 201 Dance in World Cultures. (3)

fall, spring, summer

Orientation to theory and methods of studying dance cultures around the world. Fee. Lecture, lab. Pre- or corequisite: both ENG 101 and 102 or only ENG 105.

General Studies: HU, G

M DAH 300 Focus on Dance. (3)

fall, spring, summer

Specialized study of cultural and theatrical aspects of dance, such as social dance forms, specific genres or historical periods. May be repeated for credit. Lecture, studio. Fee.

General Studies: HU

M DAH 301 Philosophy and Criticism of Dance. (3)

fall and spring

Philosophical issues in dance and dance criticism, with emphasis on written analysis and interpretation. Fee. Prerequisite: 1 semester of First-Year Composition.

General Studies: L/HU

M DAH 302 Cross-Cultural Dance Studies. (3)

fall

Examines the field of ethnochoreology, ethnographic methods, and interpretive research practices. Develops critical writing, thinking, and viewing skills for comparative dance study. Lecture, media lab. Prerequisite: DAH 201. Pre- or corequisite: DAH 191 or instructor approval.

General Studies: L/HU, G

M DAH 401 Dance History. (3)

fall and spring

History of dance with a focus on Western forms from the Renaissance to contemporary times. Fee.

General Studies: HU

M DAH 492 Honors Directed Study. (1–6)

fall and spring

May be repeated for credit. Prerequisite: honors advisor approval.

M DAH 495 Theory and Methods of Dance Research. (3)

spring

Examines modes of inquiry, data gathering techniques, data analysis and representation, prospectus design, and presentation style for dance research studies. Seminar. Fee. Prerequisite: instructor approval. Pre- or corequisite: DAH 301 or 302.

M DAH 496 Senior Dance Studies Capstone. (2)

fall and spring

Original research that integrates dance and a related field of interest. Includes production of written document and public presentation. Fall semester must be completed before spring registration. May be repeated for a total of 4 semester hours. Prerequisite: DAH 495.

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

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

DANCE (DAN)

M DAN 130 Dance. (2)

fall, spring, summer

Introduces styles and forms of dance; ballet, modern, jazz, tap, ballroom, ethnic. May be repeated for credit. Topics may include the following:

- Ballet I
Fee.
- Ballet II
Fee.
- Beginning Modern I
Fee.
- Jazz I
Fee.
- Tap I
Fee.
- Tap II
Fee.

M DAN 134 Technique and Theory of Modern Dance. (3)

fall and spring

Elementary concepts of modern dance technique. Development of movement quality and performance skills. 6 hours weekly. May be repeated for credit. Fee. Prerequisites: Dance major; placement audition.

M DAN 135 Technique and Theory of Ballet. (2)

fall and spring

Elementary ballet technique with emphasis on alignment, control, and development of the feet with proper awareness of style and phrasing. 4 hours weekly. May be repeated for credit. Fee. Prerequisite: placement audition.

M DAN 194 Special Topics. (1–4)

selected semesters

Topics may include the following:

- African Dance
Fee.
- Argentine Tango I
- Ballet I
- Beginning Ballet
Fee.
- Big Band Swing I
- Competitive International Ballroom I
- Contemporary Dance
- Country Western I
- Hip Hop I
- Improvisation

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

THE KATHERINE K. HERBERGER COLLEGE OF FINE ARTS

- Irish Dance I
- Irish Step I
- Irish Step II
- Latin Salsa I
Fee.
- Latin/Swing/Ballroom I
- Strictly Ballroom
- Swing/Lindy I
Fee.
- West African Dance I

M DAN 210 Dance Production I. (3)

fall

Theory and practice of lighting, scenery, sound, and stage management for dance production. Labs cover all areas of production. Lecture, lab. Fee.

M DAN 211 Dance Production II. (3)

spring

Theory and practice of arts management and costume design for dance production. Labs cover all areas of production. Lecture, lab. Fee.

M DAN 221 Rhythmic Theory for Dance I. (2)

fall

Elements of music, music structures, and their relationship to dance. Emphasis on rhythmic analysis and dance accompaniment. Fee.

M DAN 222 Rhythmic Theory for Dance II. (2)

spring

Continuation of DAN 221 with an emphasis on small group/movement projects in relation to musical time and structure. CD-ROM work included. Fee. Prerequisite: DAN 221 or proficiency exam.

M DAN 230 Dance. (2)

fall, spring, summer

Intermediate levels. Continuation of DAN 130. May be repeated for credit.

M DAN 234 Technique and Theory of Modern Dance. (3)

fall and spring

Intermediate concepts of modern dance technique. Development of movement quality and performance skills. 6 hours weekly. May be repeated for credit. Fee. Prerequisite: placement audition.

M DAN 235 Technique and Theory of Ballet. (2)

fall and spring

Advanced study of elementary ballet technique through the traditional exercises, with proper awareness of style and phrasing. 4 hours weekly. May be repeated for credit. Fee. Prerequisite: placement audition.

M DAN 237 Beginning Pointe. (1)

fall and spring

Study of elementary pointe technique through the traditional exercises. 2 hours weekly. May be repeated for credit. Prerequisites: basic ballet training; instructor approval.

M DAN 264 Improvisational Structures. (3)

fall

Introduces basic improvisational and choreographic principles with emphasis on current media and technology, group structures, and movement invention. Lecture, studio.

M DAN 265 Approaches to Choreography. (3)

fall

Intermediate application of basic choreographic principles with emphasis on improvisation, form, content, and evaluative skills. Lecture, studio. Prerequisite: DAN 264 or instructor approval.

M DAN 294 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Argentine Tango II
- Ballet II
- Beginning Ballet
Fee.
- Competitive International Ballroom II
- Country Western II
- Intermediate Ballet
Fee.
- Irish Dance II
- Irish Step I
- Irish Step II
- Latin Salsa II
- Latin/Swing/Ballroom II
- Latin Team II

- Swing/Lindy II
- West African Dance II

M DAN 311 Dance for the Classroom Teacher. (3)

fall and spring

Develops teaching methodology for implementation of dance curriculum in K–12 classrooms. Lecture, lab, studio. Prerequisite: non-Dance major.

M DAN 321 Music Literature for Dance. (3)

fall and spring

Historical survey of music and compositional elements relative to dance. Emphasis on analysis of choreography from a musical standpoint. Lecture, lab, CD-ROM lab. Fee. Prerequisites: both DAN 221 and 222 or only instructor approval. Pre- or corequisite: MUS 340.

M DAN 323 Dance, Computers, and Multimedia. (3)

fall and spring

Introduces desktop multimedia as it relates to dance creation, education, production, and research. Lecture, lab. Fee. Prerequisite: ART 112 or instructor approval. Pre- or corequisites: DAN 264, 265. *General Studies: CS*

M DAN 330 Dance. (2)

fall, spring, summer

Advanced levels. Continuation of DAN 230. May be repeated for credit.

M DAN 334 Technique and Theory of Modern Dance. (3)

fall and spring

Advanced concepts of modern dance technique. Development of movement quality and performance skills. 6 hours weekly. May be repeated for credit. Fee. Prerequisite: placement audition.

M DAN 335 Technique and Theory of Ballet. (2)

fall and spring

Intermediate ballet technique with emphasis on strength, dynamics, rhythmical impulses, and transitions with awareness of proper style and phrasing. 4 hours weekly. May be repeated for credit. Fee. Prerequisite: placement audition.

M DAN 337 Intermediate Pointe. (1)

fall and spring

Study of intermediate and advanced pointe technique through the traditional exercises. 2 hours weekly. May be repeated for credit. Fee. Prerequisite: DAN 237 or instructor approval.

M DAN 340 Dance Kinesiology. (4)

fall and spring

Principles of kinesiology applied to dance movement, including identification of muscular imbalances, inherited anatomical differences, and pathomechanics in dance technique. Prerequisites: both BIO 201 and admission to a Dance BFA concentration or only instructor approval.

M DAN 342 Ideokinesis. (2)

selected semesters

Study of posture using the visualization of image/goals to facilitate improved alignment and movement efficiency. May be repeated for credit. Lecture, studio.

M DAN 350 Methods of Teaching Children's Dance. (3)

fall

Theory and practice of teaching creative dance to children. Lecture, studio, field experience. Fee. Prerequisite: Dance major or instructor approval.

M DAN 351 Methods of Teaching Ballet. (3)

spring

Analysis and acquisition of teaching techniques and materials for ballet. Lecture, studio. Pre- or corequisite: DAN 352.

M DAN 352 Dance Education Theory. (3)

fall

Motivation; learning; assessment; historical, cultural, and social constructs; outreach; service; advocacy; curriculum development in dance education. Lecture, field experience. Fee. Prerequisite: Dance major or instructor approval.

M DAN 354 Integrated Approaches in Dance Education. (3)

spring

New methods of dance education pedagogy. Students gain essential skills to employ and integrate instructional technology within their dance curricula. Lecture, lab, field experience, media lab. Prerequisite: both DAN 350 and 352 or only instructor approval.

M DAN 356 Methods of Teaching Contemporary Dance Technique and Composition in Secondary Education. (4)*fall*

Analysis and acquisition of skills and materials for teaching contemporary dance technique and composition in secondary education. Lecture, studio, field experience. Fee. Pre- or corequisites: both DAN 350 and 352 or only instructor approval.

M DAN 364 Choreography and Accompaniment. (3)*fall*

Experience in the use of traditional and nontraditional musical structures as a basis for choreographic projects. Lecture, studio. Prerequisite: DAN 321 or instructor approval.

M DAN 365 Advanced Choreography. (3)*spring*

Investigation and practice of contemporary styles of choreography. Studio. Prerequisites: DAN 264 and 265 (or their equivalents).

M DAN 371 Dance Theatre Performance/Production. (1–3)*fall and spring*

Performance or technical theatre work in designated dance productions. 3 hours a week per semester hour. May be repeated for credit. Prerequisite: instructor approval.

M DAN 380 Performance Studies Practicum. (3)*spring*

Focus on developing rehearsal skills and achieving performance excellence through the preparation of three completed works. Studio, lab.

M DAN 394 Special Topics. (1–4)*selected semesters*

Topics may include the following:

- Advanced Hip Hop
- Ballet Methodology
- Capoeira
- Competition/Exhibition
- Competition/Exhibition II
- Competitive Ballroom/Latin
- Competitive International Ballroom
- Competitive International Ballroom III
- Integrated Approaches in Dance Education
 - Fee.
- Intermediate Ballet
 - Fee.
- Intermediate Hip Hop
- Intermediate Modern Dance
- International Ballroom
- Latin Formation Teams
- Latin Salsa III
- Latin Salsa IV
- Latin/Swing/Ballroom III
- Pilates Mat
- Pilates/Yoga
- Swing/Latin/Ballroom III

M DAN 434 Technique and Theory of Modern Dance. (3)*fall and spring*

Preparation in the performance and comprehension of professional-level modern dance technique. 6 hours weekly. May be repeated for credit. Fee. Prerequisite: placement audition.

M DAN 435 Technique and Theory of Ballet. (2)*fall and spring*

Study of professional advanced ballet technique with emphasis on preparation for performance. 4 hours weekly. May be repeated for credit. Fee. Prerequisite: placement audition.

M DAN 443 Bodywork for Dancers. (2)*spring*

Introduces various massage therapy modalities for dancers, including Shiatsu, Swedish massage, sports massage and proprioceptive neuromuscular facilitation techniques.

M DAN 445 Laban Movement Analysis. (3)*spring*

Theory and practice of Laban movement analysis and Bartenieff fundamentals through movement investigation, observation, notation, and analysis. Lecture, studio. Prerequisite: admission to a BFA in Dance concentration.

M DAN 471 Dance Arizona Repertory Theatre. (1–4)*fall and spring*

Preprofessional modern dance company, emphasizing outreach and performance. Opportunity to work with guest artists and community schools and organizations. May be repeated for credit. Lecture, studio. Fee. Prerequisite: instructor approval.

M DAN 472 Concert Dance. (2)*fall and spring*

Extensive preparation of repertory or new works created by experienced choreographers. Simulates dance company experience, culminating in performance. Studio. Fee. Prerequisites: audition; instructor approval.

M DAN 480 Senior Performance in Dance. (2)*fall*

Original choreography for group performance with analysis and critique of problems encountered in production. Dance majors realizing a performance capstone project must repeat this course for a total of 4 semester hours. Prerequisites: DAN 364, 365.

M DAN 484 Dance Internship. (1–3)*fall and spring***M DAN 494 Special Topics. (1–4)***once a year*

Topics may include the following:

- Collaborative Multimedia
 - Fee.
- Concert Dance. (2)
- Dance Education and Technology
 - Fee.
- Guest Artists
- Integrative Teaching Methods
 - Fee.
- Senior Dance Education Project
- Sound Design
 - Fee.

M DAN 496 Senior Dance Education Capstone. (2)*fall and spring*

Original dance education research that includes written document and public presentation. May be repeated for a total of 4 semester hours. Lecture, lab. Prerequisites: a combination of DAN 350 and 352 and 352 and 356 or only instructor approval.

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

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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

School of Music

herbergercollege.asu.edu/music

480/965-3371

MUSIC E185

**Kimberly Marshall, Associate Director,
Graduate Studies**

**Karen M. Bryan, Associate Director,
Undergraduate Studies**

Regents' Professors: Hickman, Pagano

Professors: Bailey, Britton, Cosand, Crowe, DeMars, Doan, Dreyfoos, Hackbarth, Hamilton, Hill, Humphreys, Koonce, Marshall, Oldani, Pilafian, Reber, Rikakis, Rogers, Russell, Schildkret, Sellheim, Smith, Solís, Spring, Stauffer, Sunkett, Thompson, Williamson, Wytko

Associate Professors: E. Buck, N. Buck, Bush, Carpenter, Haefer, Holbrook, Kocour, Kopta, Lyman, May, McLin, Norton, Rio, Rockmaker, Rotaru, Schuring, Wilson

Assistant Professors: Barefield, Bryan, Campbell, Cuciurean, Ericson, Feisst, FitzPatrick, Gentry, Jiang, Landschoot, Meir, Mills, Montilla, Province, Rampe, Schmidt, Sullivan, Swartz

Senior Lecturers: Crotty, Larson, Mook, Shellans

Lecturer: Tongret

The School of Music in the Katherine K. Herberger College of Fine Arts at ASU is an accredited institutional member of the National Association of Schools of Music. The requirements for entrance and graduation set forth in this catalog are in accordance with the published regulations of the association.

The School of Music strives to create an environment that enriches and enlivens the role of music in our society by providing the highest level of instruction and research for music professionals in the fields of performance, conducting, pedagogy, music education, music therapy, music history, music theory, and composition.

The following statement of basic musicianship is endorsed by the School of Music:

All musicians, whether performers, composers, scholars, or teachers, share common professional needs. Every musician must to some extent be a performer, a listener, a historian, a composer, a theorist, and a teacher. For this reason, certain subject matter areas and learning processes are common to all baccalaureate degrees in music.

Basic musicianship is developed in studies that prepare the student to function in a variety of musical roles that are supportive of his/her major concentration. All undergraduate curricula, therefore, provide the following:

1. A conceptual understanding of such musical properties as *sound, rhythm, melody, harmony, texture, and form* and opportunities for developing a comprehensive grasp of their interrelationships as they form the cognitive-affective basis for listening, composing and performing.
2. Repeated opportunities for enacting in a variety of ways the roles of listener (analysis), performer (interpretation), composer (creation), scholar (research), and teacher.
3. A repertory for study that embraces all cultures and historical periods.

All students registering in a School of Music major program enroll through the Katherine K. Herberger College of Fine Arts.

Audition/Admission Requirements. *All students who wish to enroll in an undergraduate music degree program are required to pass an entrance audition in their primary performing medium (instrument or voice) before being admitted to the School of Music. Audition forms and specific audition requirements for each instrument or voice may be obtained upon request by contacting the School of Music, or by accessing the Web site at music.asu.edu. Official dates for these auditions are set for each academic year.*

Until the audition process is finished, all students interested in majoring in Music at ASU enter the university in the preprofessional program. Upon successful completion of the audition, the student is admitted to his or her specified degree option.

Students may audition up to three times for admission. Students may enroll in music ensembles, concert attendance, and general studies until the audition is successfully completed. Students are encouraged to obtain additional instruction on their major instrument with a private instructor. These private instructions are not required and do not generate university course semester hours. The reauditions are heard and evaluated by School of Music faculty.

Admission to the composition concentration is subject to the approval of the composition faculty based upon an evaluation of the student's compositions and/or interview.

Diagnostic Examinations. All freshmen must take a theory diagnostic exam. If the student scores less than 70 percent, they must take an online fundamentals course before enrolling in MTC 125. All transfer students and entering freshmen with a background in piano must take a diagnostic examination in piano during orientation week of their first semester on campus. All students are required to attain a minimum level of piano proficiency.

Continuation in the composition program is subject to review in the sophomore or junior year.

All Music Education majors, including transfer and post-baccalaureate students, must perform an additional audition before being admitted to the teacher education program. Normally, this audition occurs during the sophomore year.

All students majoring in Music Therapy must pass MUE 211 Music in Recreation and a music therapy faculty review and screening interview before being passed into upper-division study.

MUSIC—BA

The Bachelor of Arts degree requires a minimum of 120 semester hours for graduation.

The Music major consists of 70 semester hours and includes the requirements that follow for each area of study.

In addition to fulfilling the major requirements, students must meet all university graduation requirements and college degree requirements. See "University Graduation Requirements," page 89, and "College Degree Requirements," page 439.

Music History. The following music history courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History.....	3
MHL 342 Music History.....	3
Upper-division MHL course	3
Total	12

Nine elective upper-division semester hours in music history and/or theory are also required.

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
MTC 320 Modal Counterpoint.....	2
or MTC 321 Tonal Counterpoint (2)	
MTC 422 Musical Acoustics	3
Total	17

Major Performing Medium. Eight semester hours of MUP 111 Studio Instruction or MUP 311 Studio Instruction are required. At least four of these hours must be at ASU. Four semester hours of ensemble participation are required.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Diagnostic Examination. Four semesters of class piano (MUP 131, 132, 231, 232), unless waived by a diagnostic examination at the time of entrance, are required.

The remaining semester hours in music are selected by the student in consultation with an advisor. Course work may be chosen from ethnomusicology, music education, music history, music theory, and performance. Students must select sufficient elective courses to complete the 120 semester hours required for graduation.

Foreign Language. Sixteen semester hours in one language are required for the Bachelor of Arts degree.

BACHELOR OF MUSIC DEGREE

All Bachelor of Music (BM) degree programs require 120 semester hours for graduation excluding Music Education (125 to 129 semester hours) and Music Therapy (128 semester hours). The BM curriculum offers majors in Music Education, Music Therapy, Performance, and Theory and Composition.

The curricula for the Music Education and Music Therapy majors require more than 120 semester hours. A student wishing to complete these programs in four years is required to take more than 15 semester hours per semester or to attend summer sessions.

The music curriculum for the BM majors on the pages that follow consists of a minimum of 79 semester hours. In addition, the Music Education major provides certification to students interested in teaching in the public schools.

In addition to fulfilling the major requirements, students must meet all university graduation requirements and college degree requirements. See "University Graduation Requirements," page 89, and "College Degree Requirements," page 439.

MUSIC EDUCATION—BM

Students in Music Education must complete the requirements for the Initial Teacher Certification program offered through the College of Education.

Teacher Certification. The Music Education program leads to K–12 certification in music for the State of Arizona.

The undergraduate music education program contains three concentrations. The instrumental concentration is designed for those interested in teaching band in the public schools. The string concentration focuses on those who wish to teach strings and orchestra. The choral/general concentration is geared toward those interested in teaching general music or choir.

Teaching music education requires a K–12 endorsement in Arizona. All students in the Initial Teacher Certification (ITC) program take classes in elementary and secondary methods. The field experience requirement (three semesters) usually involves placements at the elementary, middle, and high school levels. Student teaching includes two experiences: elementary/middle, elementary/high, or middle/high school.

Students submit a special application to the ITC program in the College of Education. Application deadlines for the ITC program are February 1 for fall admission and September 1 for spring admission. Appointments with an advisor can be made in the Office of Student Services, College of Education, by calling 480/965-5555.

Certification is also available through the postbaccalaureate program in the College of Education. Interested students should contact an advisor in the College of Education and in music education for admission requirements to the postbaccalaureate program.

Choral-General Concentration

This degree program may include instrumental music as a minor teaching field.

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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MTC 222 Music Theory: 19th Century.....	3
MTC 223 Music Theory: 20th Century.....	3
Total	12

Music History. The following music history courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History.....	3
MHL 342 Music History.....	3
Total	9

Conducting. The following conducting courses are required:

MUP 209 Beginning Choral Conducting	1
MUP 339 Choral Conducting	2
Total	3

Music Education. The following music education courses are required:

MUE 110 Introduction to Music Education	1
MUE 313 Elementary Music Methods	3
MUE 315 General Music in the Secondary Schools	2
MUE 480 Choral Methods.....	3
Total	9

Major Performing Medium. Eight semester hours of MUP 111 Studio Instruction and eight semester hours of MUP 311 Studio Instruction are required to obtain a proficiency level necessary to meet the graduation recital requirement. MUP 495 Performance completes the requirement.

Minor Performing Medium. A proficiency equal to six semesters of study in keyboard or voice (whichever is not the major performing medium) is required. Students wishing to extend their proficiency beyond this level may continue to study in MUP 321 Studio Instruction.

Ensemble. Eight different semesters of participation, including at least six semesters of MUP 352 Concert Choir and/or MUP 353 University Choir, four of which must be at ASU, are required.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Instrumental Concentration

It is strongly recommended that this degree program include courses in choral music or courses in jazz education.

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
Total	12

Music History. The following music history courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History.....	3

MHL 342 Music History.....	3
Total.....	9

Conducting. The following conducting courses are required:

MUP 210 Beginning Instrumental Conducting	1
MUP 340 Instrumental Conducting.....	2
Total.....	3

Music Education. The following music education courses are required:

MUE 110 Introduction to Music Education.....	1
MUE 315 General Music in the Secondary Schools	2
MUE 317 Educational Methods for Violin and Viola.....	1
MUE 318 Educational Methods for Cello and String Bass	1
MUE 327 Educational Methods for Trumpet and Horn	1
MUE 328 Educational Methods for Trombone, Euphonium, and Tuba.....	1
MUE 336 Educational Methods for Percussion.....	1
MUE 337 Educational Methods for Flute, Clarinet, and Saxophone	1
MUE 338 Educational Methods for Double Reed Instruments	1
MUE 481 Instrumental Practicum/Methods	5
MUE 482 Instrumental Practicum/Methods	5
Total.....	20

Major Performing Medium. Eight semester hours of MUP 111 Studio Instruction and eight semester hours of MUP 311 Studio Instruction are required to obtain a proficiency level necessary to meet the graduation recital requirement. MUP 495 Performance completes the requirement.

Ensemble. Eight different semesters of participation in an ensemble are required, four of which must be at ASU. Two of the four ASU semesters must be in marching band. Wind and percussion players must have a minimum of six semesters of MUP 361 Marching and Concert Bands or an equivalent large ensemble.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Diagnostic Examination. Two semesters of class piano (MUP 131, 132), unless waived by a diagnostic examination at the time of entrance, are required.

Additional Requirements. One semester of class voice and one semester of a small ensemble are required.

String Concentration

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
Total.....	12

Music History. The following music history courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History.....	3
MHL 342 Music History.....	3
Total	9

Conducting. The following conducting courses are required:

MUP 210 Beginning Instrumental Conducting	1
MUP 340 Instrumental Conducting.....	2
Total	3

Music Education. The following music education courses are required:

MUE 110 Introduction to Music Education	1
MUE 315 General Music in the Secondary Schools	2
MUE 317 Educational Methods for Violin and Viola.....	1
or MUE 318 Educational Methods for Cello and String Bass (1)	
MUE 327 Educational Methods for Trumpet and Horn	1
or MUE 328 Educational Methods for Trombone, Euphonium, and Tuba (1)	
MUE 335 Educational Methods for Guitar.....	1
MUE 336 Educational Methods for Percussion	1
MUE 337 Educational Methods for Flute, Clarinet, and Saxophone	1
or MUE 338 Educational Methods for Double Reed Instruments (1)	
MUE 482 Instrumental Practicum/Methods	5
MUE 485 String Practicum/Methods	5
Total	18

Also required are three semesters of MUP 121 Studio Instruction on string instruments other than the major instrument, to be chosen in consultation with the music education faculty.

Major Performing Medium. Eight semester hours of MUP 111 Studio Instruction and eight semester hours of MUP 311 Studio Instruction are required to obtain a proficiency level necessary to meet the graduation recital requirement. MUP 495 Performance completes the requirement.

Ensemble. Eight different semesters of participation in an ensemble are required, four of which must be at ASU. Six semesters of MUP 345 Symphony Orchestra or an equivalent are required.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Recommended Elective. MUE 313 Elementary Music Methods is recommended.

Diagnostic Examination. Two semesters of class piano (MUP 131, 132), unless waived by a diagnostic examination at the time of entrance, are required.

Additional Requirements. One semester of class voice and one semester of a small ensemble are required.

MUSIC THERAPY—BM

Students are eligible to apply for the Certification Exam offered by the Certification Board for Music Therapists upon completion of the requirements for graduation.

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
Total.....	12

Music History. The following music history courses are required:

MHL 194 ST: Music and Culture	3
MHL 201 MacLiteracy for Musicians CS.....	3
MHL 341 Music History.....	3
MHL 342 Music History.....	3
Total.....	12

Conducting. One of the following two courses is required:

MUP 209 Beginning Choral Conducting.....	1
MUP 210 Beginning Instrumental Conducting	1

Music Education. The following music education courses are required:

MUE 211 Music in Recreation	2
MUE 313 Elementary Music Methods	3
MUE 335 Educational Methods for Guitar.....	1
MUE 336 Educational Methods for Percussion.....	1
MUE 389 Repertoire for Music Therapy.....	3
Total.....	10

Music Therapy. The following music therapy courses are required:

MUE 161 Introduction to Music Therapy.....	2
MUE 261 Music Therapy as a Behavioral Science	2
MUE 361 Music Therapy Theory and Practice in Psychopathology	3
MUE 362 Music Therapy Techniques	3
MUE 381 Music Therapy Research L.....	3
MUE 384 Therapy Preclinical I.....	1
MUE 385 Therapy Preclinical II.....	1
MUE 386 Therapy Preclinical III	1
MUE 387 Therapy Preclinical IV	1
MUE 388 Therapy Preclinical V (elective).....	1
MUE 441 Psychology of Music.....	3
MUE 475 Group Process and Music Therapy	1
MUE 476 Internship in Music Therapy	1
Total.....	23

Major Performing Medium. A minimum of 12 semester hours are required in the major performing medium, which must include at least four semester hours of MUP 311 Studio Instruction.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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Voice. Two semesters of study in voice are required.

Ensembles. Six semesters of ensemble participation are required with at least four semesters in large groups.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Additional Requirements. These courses are also required:

BIO 201 Human Anatomy and Physiology I SG	4
CDE 232 Human Development SB	3
PGS 101 Introduction to Psychology SB	3
PGS 466 Abnormal Psychology SB	3
PSY 230 Introduction to Statistics CS	3
or STP 226 Elements of Statistics CS (3)	
SOC 101 Introductory Sociology SB	3
SPE 311 Orientation to Education of Exceptional Children SB, C	3
DAN dance course	3-4
Total	25-26

Diagnostic Examination. Four semesters of class piano (MUP 131, 132, 231, 232), unless waived by a diagnostic examination at the time of entrance, are required. Music therapy competencies (as established by the American Music Therapy Association) are evaluated before and after the music therapy internship, to determine entry-level skill acquisition before graduation.

PERFORMANCE—BM

Collaborative Piano Concentration

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
MTC 428 Advanced Form and Analysis	3
Total	15

Music History. The following courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History	3
MHL 342 Music History	3
MHL upper-division course	3
Total	12

Diction and Repertoire. The following courses are required:

MUP 250 Diction for Singers	1
MUP 451 Repertoire	2
MUP 453 Song Literature	2
MUP 454 Song Literature	2
Total	7

Conducting. One of the following two courses is required:

MUP 209 Beginning Choral Conducting	1
MUP 210 Beginning Instrumental Conducting	1

Major Performing Medium. The following courses are required:

MUP 127 Studio Instruction	16
MUP 311 Studio Instruction	8
MUP 337 Studio Instruction: Collaborative Piano	8
Total	32

In addition, each student accompanies two half recitals (MUP 495 Performance), one for a singer and one for an instrumentalist, during his or her junior year. (A half solo recital may be substituted for either of the above.) During the senior year, the student accompanies two full recitals (MUP 496 Performance), one vocal and one instrumental.

Ensemble. Two semesters of MUP 379 Chamber Music Ensembles, one semester of MUP 379 Chamber Music Ensembles: Piano, four semesters of MUP 388 Collaborative Piano, one semester of MUP 487 Collaborative Piano, and two semesters of ensemble electives (minimum of six different semesters) are required.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Guitar Concentration

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
MTC 320 Modal Counterpoint	2
or MTC 321 Tonal Counterpoint (2)	
Total	14

Music History. The following music history courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History	3
MHL 342 Music History	3
MHL upper-division course	3
Total	12

Repertoire and Pedagogy. The following courses are required:

MUP 451 Repertoire	2
MUP 481 Performance Pedagogy and Materials	2
Total	4

Conducting. MUP 210 Beginning Instrumental Conducting is required.

Major Performing Medium. Sixteen semester hours of MUP 127 Studio Instruction and 16 semester hours of MUP 327 Studio Instruction are required to attain a proficiency level necessary to meet the graduation recital requirements. A half recital (MUP 495 Performance) and a full recital (MUP 496 Performance) are also required.

Ensemble. Eight semester hours of ensemble are required within a minimum of six different semesters. Four of the

eight semester hours must be MUP 379 Chamber Music Ensembles: Guitar.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Diagnostic Examination. Four semesters of class piano (MUP 131, 132, 231, 232), unless waived by a diagnostic examination at the time of entrance, are required.

Jazz Concentration

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
MTC 315 Modern Arranging.....	2
MTC 316 Modern Arranging.....	2
MTC 440 Jazz Theory and Ear Training	2
MTC 441 Jazz Composition	2
Total	20

Music History. The following music history courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History.....	3
MHL 342 Music History.....	3
MHL elective	3
Total	12

Conducting. MUP 210 Beginning Instrumental Conducting is required.

Major Performing Medium. Eight semester hours of MUP 111 Studio Instruction and eight semester hours of MUP 311 Studio Instruction are required to obtain a proficiency level necessary to meet the graduation recital requirements. Two half recitals (MUP 495 Performance) are required, with one in the jazz idiom.

Four semesters of MUP 379 Chamber Music Ensembles: Jazz are required.

Improvisation. The following courses are required:

MUP 117 Applied Jazz Improvisation	1
MUP 141 Jazz Fundamentals	1
MUP 217 Applied Jazz Improvisation*	4
MUP 317 Applied Jazz Improvisation*	4
Total	10

* This two-semester-hour course must be repeated for a total of four semester hours of credit.

Workshops. The following courses are required:

MUP 235 Jazz Piano.....	1
MUP 236 Jazz Piano.....	1
MUP 319 Recording Studio Techniques	2
Total	4

Ensemble. Eight semesters of ensemble are required, including six semesters of MUP 379 Chamber Music Ensembles and two semesters of MUP 386 Jazz Band.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Diagnostic Examination. Two semesters of class piano (MUP 131, 132), unless waived by a diagnostic examination at the time of entrance, are required.

Keyboard Concentration

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
MTC 425 Studies in 20th-Century Theory	3
Total.....	15

Music History. The following music history courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History.....	3
MHL 342 Music History.....	3
MHL 440 Music Since 1900 L.....	3
MHL upper-division course	3
Total.....	15

Repertoire and Pedagogy. The following courses are required:

MUP 440 Keyboard Harmony	1
MUP 451 Repertoire.....	2
MUP 481 Performance Pedagogy and Materials.....	2
or MUP 482 Piano Pedagogy (2)	-
Total.....	5

Conducting. One of the following two courses is required:

MUP 209 Beginning Choral Conducting.....	1
MUP 210 Beginning Instrumental Conducting	1

Harpichord. One semester hour of harpichord is required.

Major Performing Medium. Sixteen semester hours of MUP 127 Studio Instruction and 16 semester hours of MUP 327 Studio Instruction are required to attain a proficiency level necessary to meet the graduation recital requirements. A half recital (MUP 495 Performance) and a full recital (MUP 496 Performance) are required.

Ensemble. Eight semester hours of ensemble within a minimum of six different semesters are required, including two semesters of accompanying and two semesters of chamber music.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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Music Theatre Concentration

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
Total	12

Music History. The following music history courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History	3
MHL 342 Music History	3
Total	9

Major Performing Medium. Eight semester hours of MUP 111 Studio Instruction and eight semester hours of MUP 311 Studio Instruction are required to attain a proficiency level necessary to meet the graduation requirement of a public performance of two roles, both of which must be of major proportion.

Music Theatre. Five semesters of MUP 370 Music Theatre: Techniques; four semesters of MUP 371 Music Theatre: Workshops; eight semesters of MUP 373 Music Theatre: Performance; two semesters of MUP 374 Music Theatre: Production; and one semester of MUP 451 Repertoire: Broadway Musicals are required.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Conducting. MUP 209 Beginning Choral Conducting is required.

Additional Requirements. Six semester hours in theatre and 11 semester hours in dance are required.

Diagnostic Examination. Three semesters of class piano (MUP 131, 132, 231), unless waived by a diagnostic examination at the time of entrance, are required.

Opera Option. For those students whose goal is opera performance, the following substitutions to the course of study may be made: MUP 451 Repertoire: Opera instead of MUP 451 Repertoire: Broadway Musicals, two semesters of MUP 371 Music Theatre: Workshops (Aria Preparation), and three semesters of MUP 250 Diction for Singers instead of five semester hours of dance. Permission of the director of the music theatre program is required.

Orchestral Instrument Concentration

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
Total	12

Music History. The following courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History	3
MHL 342 Music History	3
MHL upper-division course	3
Total	12

Repertoire and Pedagogy. The following courses are required:

MUP 451 Repertoire	2
MUP 481 Performance Pedagogy and Materials	2
Total	4

Conducting. The following courses are required:

MUP 210 Beginning Instrumental Conducting	1
MUP 340 Instrumental Conducting	2
Total	3

Major Performing Medium. Sixteen semester hours of MUP 127 Studio Instruction and 16 semester hours of MUP 327 Studio Instruction are required to attain a proficiency level necessary to meet the graduation recital requirements. A half recital (MUP 495 Performance) and a full recital (MUP 496 Performance) are required.

Ensemble. Eight semester hours of large ensembles within a minimum of six different semesters are required plus four semester hours of small ensembles within a minimum of four different semesters.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Diagnostic Examination. Four semesters of class piano (MUP 131, 132, 231, 232), unless waived by a diagnostic examination at the time of entrance, are required.

Voice Concentration

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
Total	12

Music History. The following music history courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History	3
MHL 342 Music History	3
MHL upper-division course	3
Total	12

Repertoire and Pedagogy. Two semester hours of MUP 451 Repertoire and two semester hours of MUP 481 Performance Pedagogy and Materials are required.

Also required are two semester hours selected from MUP 453 Song Literature or 454 Song Literature or a repeated enrollment of MUP 451 Repertoire.

Diction. Three semester hours of MUP 250 Diction for Singers is required, which includes one hour each of Italian, German, and French.

Conducting. MUP 209 Beginning Choral Conducting is required.

Major Performing Medium. Sixteen semester hours of MUP 127 Studio Instruction and 16 semester hours of MUP 327 Studio Instruction are required to attain a proficiency level necessary to meet the graduation recital requirements. A half recital (MUP 495 Performance) and a full recital (MUP 496 Performance) are required.

Ensemble. Four different semesters of large vocal ensembles are required plus four semester hours of ensembles within four different semesters to be selected from large and/or small ensembles.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Language. Sixteen semester hours are required in more than one foreign language, chosen from French, German, and Italian. A student may select one year of one language and one semester of the others, chosen in consultation with the studio teacher and advisor.

Diagnostic Examination. Four semesters of class piano (MUP 131, 132, 231, 232), unless waived by a diagnostic examination at the time of entrance, are required.

THEORY AND COMPOSITION—BM

Composition Concentration

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
MTC 320 Modal Counterpoint	2
MTC 321 Tonal Counterpoint	2
MTC 433 Orchestration	3
MTC 436 Electronic Studio Techniques I	2
Total	21

An additional five semester hours, to be selected from MTC 422, 425, 428, 429, 430, 437, and 441 are required.

Three semesters of MTC 123 Beginning Composition and four semesters of MTC 323 Composition are also required. At least three semesters of MTC 323 Composition must be taken at ASU.

Music History. The following courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History	3
MHL 342 Music History	3
MHL upper-division course	3
Total	12

Conducting. Choose between MUP 209 Beginning Choral Conducting or MUP 210 Beginning Instrumental Conducting.

Applied Music. Ten semester hours of study in applied music are required, at least eight of which must be in MUP 111 Studio Instruction.

Ensemble. Six semesters of participation in an ensemble are required.

Final Project. MTC 495 Final Project is required.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Diagnostic Examination. Four semesters of class piano (MUP 131, 132, 231, 232), unless waived by a diagnostic examination at the time of entrance, are required.

Additional Requirements. At least nine semester hours of electives to be chosen from MTC, MHL, or MUP (excluding courses taken to meet Class Piano proficiency) are required. MHL 440 Music Since 1900 may be used to satisfy the General Studies L requirement.

Theory Concentration

Music Theory. The following music theory courses are required:

MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
MTC 222 Music Theory: 19th Century	3
MTC 223 Music Theory: 20th Century	3
MTC 320 Modal Counterpoint	2
MTC 321 Tonal Counterpoint	2
MTC 323 Composition	2–3
MTC 422 Musical Acoustics	3
MTC 425 Studies in 20th-Century Theory	3
MTC 428 Advanced Form and Analysis	3
MTC 496 Theory Project	3
Total	30–31

Also required are 10 semester hours of electives in MTC courses at the 300 level or above, to be chosen in consultation with an advisor.

Music History. The following courses are required:

MHL 194 ST: Music and Culture	3
MHL 341 Music History	3
MHL 342 Music History	3
MHL upper-division course	3
Total	12

Conducting. Choose between MUP 209 Beginning Choral Conducting or MUP 210 Beginning Instrumental Conducting.

Applied Music. Twelve semester hours of study in applied music are required, eight of which must be in MUP 111 Studio Instruction.

Ensemble. Eight semesters of participation in an ensemble are required.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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Final Project. MTC 496 Theory Project is required.

Recital Attendance. Six semesters of MUP 100 Concert Attendance are required.

Diagnostic Examination. Four semesters of class piano (MUP 131, 132, 231, 232), unless waived by a diagnostic examination at the time of entrance, are required.

Additional Requirements. MHL 440 Music Since 1900 may be used to satisfy the General Studies L requirement.

MUSIC MINOR

The School of Music offers a minor in Music consisting of 25 semester hours of course work. A minimum grade of “C” (2.00) is required in all courses.

MHL 194 ST: Music and Culture	3
MHL 341 Music History.....	3
MHL 342 Music History.....	3
MTC 125 Basic Music Theory	3
MTC 221 Music Theory: 18th Century	3
Electives*	10
Total	25

* Electives may be chosen from MUS, MHL, MTC, and selected MUP courses. The minor does not include Studio Instruction.

Diagnostic Examination. Students pursuing minor in music must first take a Theory Diagnostic Exam.

Interested students should contact the School of Music for specific requirements and admission procedures. Electives should include a minimum four semester hours of ensemble participation.

BIS CONCENTRATION

A concentration in music is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see “School of Interdisciplinary Studies,” page 139.

Students pursuing a concentration in music must first take a Theory Diagnostic Exam. Interested students should contact the School of Music for specific requirements and admission procedures.

GRADUATE PROGRAMS

The faculty in the School of Music offer graduate programs leading to the following degrees: Master of Arts, Master of Music, and Doctor of Musical Arts. Refer to the “Katherine K. Herberger College of Fine Arts Graduate Degrees and Majors” table, page 439, for a list of majors and concentrations. A document on graduate degree programs in music may be obtained by contacting the School of Music. See the *Graduate Catalog* for information on all graduate degrees.

MUSIC HISTORY/LITERATURE (MHL)

M MHL 140 Music as Culture. (3)

fall and spring
Introduces a range of practical and intellectual challenges presented by encounters with various kinds of music. Prerequisite: music major; successful completion of the School of Music entrance audition and theory diagnostic exam.

M MHL 194 Special Topics. (1–4)

selected semesters
Topics may include the following:
• Music and Culture. (3)

M MHL 201 MacLiteracy for Musicians. (3)

fall, spring, summer
Instruction in basic Macintosh computer literacy, including generic applications and music-specific programs with hands-on experience. Lecture, lab. Fee.
General Studies: CS

M MHL 341 Music History. (3)

fall and spring
Western music from the Greeks to the present day. Need not be taken in sequence with MHL 342. Prerequisite: MTC 221.

M MHL 342 Music History. (3)

fall and spring
See MHL 341. Prerequisite: MTC 221.

M MHL 344 Music in World Cultures. (3)

spring
Examines the relations among music, dance, theatre, religion, and social status in Asia, Africa, Oceania, Europe, and the United States.
General Studies: HU, G

M MHL 352 The Evolution of Jazz. (3)

selected semesters
Origin, development, and styles of jazz music and its exponents. Prerequisite: MTC 223.
General Studies: H

M MHL 363 Survey of Russian Music. (3)

fall in odd years
Examines music and musical life in Russia, the Soviet Union, and the post-Soviet C.I.S. from the Middle Ages to the present. Lecture, discussion. Prerequisite: MHL 342 or instructor approval.
General Studies: HU

M MHL 437 Topics in 17th-Century Music. (3)

fall in odd years
Selected topics exploring the musical styles of the 17th century and their cultural contexts. Prerequisites: MHL 341, 342; MTC 223.
General Studies: L

M MHL 438 Topics in 18th-Century Music. (3)

fall in even years
Selected topics exploring the musical styles of the 18th century and their cultural contexts. Prerequisites: MHL 341, 342; MTC 223.
General Studies: H

M MHL 439 Topics in 19th-Century Music. (3)

spring
Selected topics exploring the musical styles of the 19th century and their cultural contexts. Prerequisites: MHL 341, 342; MTC 223.
General Studies: L, H

M MHL 440 Music Since 1900. (3)

fall and summer
Examines stylistic trends, major composers and their works, and cultural contexts in music since 1900. Prerequisites: MHL 341, 342; MTC 223.
General Studies: L

M MHL 456 History of Opera. (3)

spring in odd years
Development of opera from its creation ca. 1600 to present. Emphasis placed on major stylistic developments and representative works. Prerequisites: MHL 341, 342; MTC 222.

M MHL 466 North American Indian Music. (3)

spring in odd years
Various styles of Indian music in the United States, Canada, and Mexico. Open to Music majors and nonmajors.
General Studies: L/HU, C

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

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

MUSIC THEORY AND COMPOSITION (MTC)

M MTC 123 Beginning Composition. (1)

fall and spring

Intended for freshmen and sophomores in the composition concentration. Introduces composing. May be repeated for credit. Prerequisite: instructor approval.

M MTC 125 Basic Music Theory. (3)

fall

Notation, scales, keys, modes, intervals, chords, basic part writing and composition. Development of related aural skills through sight-singing and dictation. Prerequisite: any music major or instructor approval.

M MTC 221 Music Theory: 18th Century. (3)

spring

Styles, techniques, and idioms of 18th-century music; emphasizes analysis, composition (part writing), and related aural skills, with applications for performance. Prerequisite: MTC 125.

M MTC 222 Music Theory: 19th Century. (3)

fall

Styles, techniques, and idioms of 19th-century music; emphasizes analysis, composition (part writing), and related aural skills, with applications for performance. Prerequisite: MTC 221.

M MTC 223 Music Theory: 20th Century. (3)

spring

Styles, techniques, and idioms of 20th-century music; emphasizes innovative treatments of musical elements, analysis, and composition; related aural skills. Prerequisite: MTC 222.

M MTC 315 Modern Arranging. (2)

fall

Techniques in arranging for the contemporary jazz, radio, television, and studio orchestra. Prerequisite: MTC 223.

M MTC 316 Modern Arranging. (2)

spring

Continuation of MTC 315. Prerequisite: MTC 315.

M MTC 320 Modal Counterpoint. (2)

fall

Counterpoint based on 16th-century vocal polyphonic style. Prerequisite: MTC 221.

M MTC 321 Tonal Counterpoint. (2)

spring

Counterpoint based on 18th-century polyphonic style. Prerequisite: MTC 221.

M MTC 323 Composition. (2–3)

fall and spring

Writing music compositions, with emphasis on basic techniques and smaller structures. May be repeated for credit. Prerequisite: 3 semesters of MTC 123 or instructor approval.

M MTC 327 Intermediate Form and Analysis. (3)

fall and spring

Organizing elements in the most important contrapuntal and homophonic musical forms from the Renaissance through the 19th century. Prerequisite: MTC 222.

M MTC 422 Musical Acoustics. (3)

fall

Properties of sound and tone. Harmonic series, instruments, the ear, auditorium acoustics, and the reproduction of sound. Assumes a thorough knowledge of musical notation, intervals, scales, and harmony, or 2 years of music theory.

M MTC 425 Studies in 20th-Century Theory. (3)

fall

Continued development of analytical techniques and aural skill, with an examination of theoretical systems applicable to 20th-century music. Prerequisite: MTC 223.

M MTC 428 Advanced Form and Analysis. (3)

spring

Organizing principles of the large forms of musical composition in the 19th and 20th centuries. Prerequisite: MTC 327.

M MTC 429 Canon and Fugue. (2)

fall in odd years

Writing of canons and fugues in tonal style. Prerequisite: MTC 321.

M MTC 430 20th-Century Counterpoint. (2)

spring in even years

Counterpoint studies utilizing 20th-century idioms. Prerequisite: MTC 223.

M MTC 433 Orchestration. (3)

spring in odd years

Studies scoring music for full and chamber orchestras. Includes examination of individual orchestral instruments (characteristics and performance techniques). Prerequisite: MTC 223.

M MTC 436 Electronic Studio Techniques I. (2)

fall

Principles of analog electronic music systems and their application in the composition of electronic music. Assumes a thorough knowledge of music notation and intervals.

M MTC 437 Electronic Studio Techniques II. (2)

spring

Principles of digital electronic music systems and their applications in the composition of electronic music. Prerequisite: MTC 436.

M MTC 440 Jazz Theory and Ear Training. (2)

fall

Advanced study of jazz harmonic systems. Daily oral drills. Prerequisite: MTC 223.

M MTC 441 Jazz Composition. (2)

fall

Creative writing in the smaller forms and in the idiom of jazz. Prerequisite: MTC 321.

M MTC 495 Final Project. (0)

fall and spring

Half recital of compositions or approval of a large-scale composition or a research paper.

M MTC 496 Theory Project. (3)

fall and spring

Supervised individual writing project dealing with music theory.

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

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

MUSIC EDUCATION (MUE)

For more MUE courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M MUE 110 Introduction to Music Education. (1)

spring

Overview of music education. Orientation to student characteristics, teacher roles, and foundations of philosophy and history. Requires school observations.

M MUE 161 Introduction to Music Therapy. (2)

fall

Overview of the profession of music therapy and its applications in mental health, rehabilitation, and special education.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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M MUE 211 Music in Recreation. (2)

fall

Materials, methods, and organizational structures appropriate for recreational music. Prerequisite: ability to read music, as determined by the instructor.

M MUE 261 Music Therapy as a Behavioral Science. (2)

fall

Orientation to preclinical experience with emphasis on observation skills, assessment, goal setting, and professional ethics. Requires off-campus observations. Prerequisite: MUE 161.

M MUE 310 Music in Early Childhood Education. (3)

spring

Identifying and understanding musical needs of young children. Methods and materials for program development for classroom teachers.

M MUE 311 Music for the Classroom Teacher. (3)

fall and spring

Development of the classroom music program in the elementary school. Requires no previous music experience or course work. Prerequisite: nonmusic major or minor.

M MUE 313 Elementary Music Methods. (3)

fall

Methods of instruction, planning, and presentation of appropriate contents in music. For music educators and music therapists. Prerequisite: any music major.

M MUE 315 General Music in the Secondary Schools. (2)

fall and spring

Curriculum, student characteristics, and teaching strategies for general music. Prerequisite: any music major.

M MUE 317 Educational Methods for Violin and Viola. (1)

fall and spring

Teaching and playing skills for music teachers. 3 hours per week.

M MUE 318 Educational Methods for Cello and String Bass. (1)

fall and spring

Teaching and playing skills for music teachers. 3 hours per week.

M MUE 327 Educational Methods for Trumpet and Horn. (1)

fall and spring

Teaching and playing skills for music teachers. 3 hours per week.

M MUE 328 Educational Methods for Trombone, Euphonium, and Tuba. (1)

fall and spring

Teaching and playing skills for music teachers. 3 hours per week.

M MUE 335 Educational Methods for Guitar. (1)

fall and spring

Teaching and playing skills for music teachers. 3 hours per week.

M MUE 336 Educational Methods for Percussion. (1)

fall and spring

Teaching and playing skills for music teachers. 3 hours per week.

M MUE 337 Educational Methods for Flute, Clarinet, and Saxophone. (1)

fall and spring

Teaching and playing skills for music teachers. 3 hours per week.

M MUE 338 Educational Methods for Double Reed Instruments. (1)

fall and spring

Teaching and playing skills for music teachers. 3 hours per week.

M MUE 361 Music Therapy Theory and Practice in Psychopathology. (3)

fall

Influence of music on behavior; principles and practices of music therapy and psychiatric clients. Prerequisites: MUE 211, 261; Music Therapy major.

M MUE 362 Music Therapy Techniques. (3)

spring

Organization, administration, and use of music in rehabilitation with various client populations. Prerequisites: MUE 361; Music Therapy major.

M MUE 381 Music Therapy Research. (3)

spring

Statistics and research design appropriate for investigations in music therapy.

General Studies: L

M MUE 384 Therapy Preclinical I. (1)

fall and spring

Paired students provide music therapy for small groups at a community agency for mentally retarded, geriatric, or physically disabled clients for a minimum of 10 clock hours. Prerequisites: MUE 211, 261.

M MUE 385 Therapy Preclinical II. (1)

fall and spring

Individual placement in ASU Music Therapy Clinic.

M MUE 386 Therapy Preclinical III. (1)

fall and spring

See MUE 385.

M MUE 387 Therapy Preclinical IV. (1)

fall and spring

Individual clinical work in a community mental health facility.

M MUE 388 Therapy Preclinical V. (1)

fall and spring

See MUE 387.

M MUE 389 Repertoire for Music Therapy. (3)

spring

Music skills repertoire for music therapy, including units on brass, strings, woodwinds, electronic instruments, computer music, and improvisation techniques. Lab. Prerequisites: MUE 211; Music Therapy major.

M MUE 441 Psychology of Music. (3)

spring

Psychological and physiological aspects of music emphasizing musical behavior, function, perception, and learning. Prerequisite: junior standing or instructor approval.

M MUE 475 Group Process and Music Therapy. (1)

fall

Principles of group process, verbal counseling, professional writing, as related to music therapy practice. Prerequisites: MUE 362; Music Therapy major.

M MUE 476 Internship in Music Therapy. (1)

fall and spring

Full-time, 6-month, off-campus residency in an approved clinical institution.

M MUE 480 Choral Methods. (3)

spring

Methods of instruction, organization, and presentation of appropriate content in choral music classes. Prerequisite: Secondary Education major.

M MUE 481 Instrumental Practicum/Methods. (5)

fall

Instrumental music as a means of developing music skills, understandings, and attitudes in elementary and secondary school students. Prerequisite: Secondary Education major.

M MUE 482 Instrumental Practicum/Methods. (5)

spring

See MUE 481. Prerequisites: MUE 481 (or 485); Secondary Education major.

M MUE 485 String Practicum/Methods. (5)

fall

For students preparing to administer a string program and teach strings at the elementary level. Lecture, lab.

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

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

MUSIC PERFORMANCE (MUP)

M MUP 100 Concert Attendance. (0)

fall and spring

6 semesters required for all music majors. A total of 4 convocations and 6 approved recitals required each semester.

M MUP 111 Studio Instruction. (2)*fall and spring*

Bassoon, cello, clarinet, contrabass, cornet, euphonium, flute, guitar, harp, harpsichord, horn, oboe, organ, percussion, piano, saxophone, trombone, trumpet, tuba, viola, violin, voice. Minimum contact of 1 hour plus studio class weekly. May be repeated for credit. May not be taken for audit. Fee. Prerequisites: any music major; placement examination; audition.

M MUP 117 Applied Jazz Improvisation. (1)*fall and spring*

Principles, methods, and theory of jazz performance and pedagogy. May be repeated for credit. Studio. Prerequisites: placement examination; audition.

M MUP 121 Studio Instruction. (1)*fall, spring, summer*

Secondary or minor instrument instruction. Bassoon, cello, clarinet, contrabass, cornet, euphonium, flute, guitar, harp, harpsichord, horn, oboe, organ, percussion, piano, saxophone, trombone, trumpet, tuba, viola, violin, voice. Minimum contact of 1/2 hour per week. May be repeated for credit. May not be taken for audit. Fee. Prerequisites: any music major; instructor approval.

M MUP 127 Studio Instruction. (4)*fall and spring*

Bassoon, cello, clarinet, contrabass, cornet, euphonium, flute, guitar, harp, harpsichord, horn, oboe, organ, percussion, piano, saxophone, trombone, trumpet, tuba, viola, violin, voice. Minimum contact of 1 hour plus studio class weekly. May be repeated for credit. May not be taken for audit. Fee. Prerequisites: Performance major; placement examination; audition.

M MUP 131 Class Piano. (1)*fall and spring*

4-semester sequence (with MUP 132, 231, and 232) designed for those with little or no piano experience. Emphasizes keyboard technique, sight reading, simple accompaniments, and improvisation. 2 hours per week. May not be taken for audit. Prerequisite: any music major.

M MUP 132 Class Piano. (1)*spring*

See MUP 131.

M MUP 133 Class Voice. (1)*fall and spring*

4-semester sequence (with MUP 134, 233, and 234) open to all students. 2 hours per week. May not be taken for audit.

M MUP 134 Class Voice. (1)*fall and spring*

See MUP 133. Prerequisite: MUP 133 or instructor approval.

M MUP 141 Jazz Fundamentals. (1)*fall*

Principles, methods, and theory of jazz performance and pedagogy.

M MUP 209 Beginning Choral Conducting. (1)*fall and spring*

Essentials of choral conducting techniques. 2 hours per week.

M MUP 210 Beginning Instrumental Conducting. (1)*spring*

Essentials of instrumental conducting techniques. 2 hours per week.

M MUP 217 Applied Jazz Improvisation. (2)*fall and spring*

Emphasizes basic jazz literature, chord symbol reading, melodic patterns and concepts, ear training, analysis of improvised solos, and pedagogical issues. May be repeated for credit. Studio. Prerequisites: MUP 117 (2 semesters); placement examination; audition.

M MUP 231 Class Piano. (1)*fall*

See MUP 131.

M MUP 232 Class Piano. (1)*spring*

See MUP 131.

M MUP 233 Class Voice. (1)*fall and spring*

See MUP 133. Prerequisite: MUP 134 or instructor approval.

M MUP 234 Class Voice. (1)*fall and spring*

See MUP 133. Prerequisite: MUP 233 or instructor approval.

M MUP 235 Jazz Piano. (1)*fall*

2-semester sequence (with MUP 236) designed for jazz keyboard experience. Emphasizes chord symbol reading, simple improvisation, and voicing. 2 hours per week. Prerequisite: MUP 132.

M MUP 236 Jazz Piano. (1)*spring*

See MUP 235. Prerequisite: MUP 132.

M MUP 237 Fretboard Harmony. (1)*fall and spring*

Scales, chords, harmony, basic improvisation for the guitar. 2 hours per week.

M MUP 250 Diction for Singers. (1)*fall and spring*

Use of phonetics in the study of song and opera literature. Language emphasis differs each semester. May be repeated for credit.

M MUP 301 Advanced Class Piano. (1)*fall*

Required for the choral-general concentration of the Music Education major. Open to other music majors who have completed MUP 232. Emphasizes accompaniments, ensemble playing, score reading, advanced harmonizations, repertoire, technique, and improvisation. 2 hours per week. May not be taken for audit. Prerequisites: MUP 232 (or proficiency); any music major; placement examination.

M MUP 302 Advanced Class Piano. (1)*spring*

Required for the choral-general concentration of the Music Education major. Open to other music majors who have completed MUP 301. A sequential continuation of MUP 301 skills that include both group and studio instruction. 2 hours per week. May not be taken for audit. Prerequisites: MUP 301 (or proficiency); any music major; placement examination.

M MUP 311 Studio Instruction. (2)*fall and spring*

See MUP 111. Fee.

M MUP 317 Applied Jazz Improvisation. (2)*fall and spring*

Emphasizes listening, analysis, and performance of advanced jazz literature and composition in contemporary styles. May be repeated for credit. Studio. Prerequisites: MUP 217 (2 semesters); placement examination; audition.

M MUP 319 Recording Studio Techniques. (2)*spring*

Study of both analog and digital recording methods. Includes lab time on recording console and tape machines. Lab.

M MUP 321 Studio Instruction. (1)*fall, spring, summer*

See MUP 121. Fee.

M MUP 327 Studio Instruction. (4)*fall and spring*

See MUP 127. Fee.

M MUP 337 Studio Instruction: Collaborative Piano. (2)*spring*

Repertoire to be selected from vocal and instrumental literature. 1 hour lesson per week. May be repeated for credit. Prerequisites: Performance major with a concentration in collaborative piano; placement examination.

M MUP 339 Choral Conducting. (2)*fall and spring*

Elements of choral conducting technique and interpretation. 3 hours per week. Prerequisite: MUP 209.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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M MUP 340 Instrumental Conducting. (2)

fall

Fundamentals of score reading and interpretation of instrumental music. 3 hours per week. Prerequisite: MUP 210.

M MUP 344 Chamber Orchestra. (1)

fall and spring

Important masterpieces from all periods of music are performed throughout the year. May be repeated for credit. Prerequisite: audition with director.

M MUP 345 Symphony Orchestra. (1)

fall and spring

Over a 4-year period, the student is introduced to the masterpieces of symphony orchestra literature. 3 times per week. May be repeated for credit. Prerequisite: audition with director.

M MUP 346 Sinfonietta. (1)

fall and spring

Symphonic orchestra that presents approximately six concerts annually, performing masterpieces of the classical repertoire. 3 times per week. May be repeated for credit. Prerequisite: audition with director.

M MUP 350 Choral Union. (1)

fall and spring

Open to all students in the university and to interested singers in the community by audition. Preparation and performance of the larger choral works. 2 hours per week. May be repeated for credit. Prerequisite: audition with director.

M MUP 352 Concert Choir. (1)

fall and spring

Important masterpieces from all periods of music are performed. May be repeated for credit. Prerequisite: instructor approval.

M MUP 353 University Choir. (1)

fall and spring

4 hours per week. May be repeated for credit. Prerequisite: instructor approval.

M MUP 355 Sun Devil Singers. (1)

fall and spring

Rehearsal and performance of music for mixed voices. 3 hours per week. May be repeated for credit. Prerequisites: audition with director; instructor approval.

M MUP 357 Women's Chorus. (1)

fall and spring

2 hours per week. May be repeated for credit. Prerequisite: instructor approval.

M MUP 361 Marching and Concert Bands. (1)

fall and spring

Staging of formations and drills for football games and other events (fall); masterpieces of symphonic band literature (spring). Meets daily. May be repeated for credit. Prerequisite: audition with director.

M MUP 362 Wind Ensemble. (1)

fall and spring

Rehearsal and performance of literature for wind ensemble. 2 hours per week in fall, 4 hours in spring. Performing ensemble. May be repeated for credit. Prerequisite: instructor approval.

M MUP 363 Chamber Winds. (1)

fall and spring

Rehearsal and performance of advanced literature for chamber winds. 2 hours per week. Performing ensemble. May be repeated for credit. Prerequisite: instructor approval.

M MUP 370 Music Theatre: Techniques. (1)

fall and spring

Exercises and improvisations for the singer/actor emphasizing body awareness, basic music theater performance skills, and freedom of the vocal and breath mechanisms. Section 1 (Movement for Singers); Section 2 (Expression); Section 3 (Interpretation); Section 4 (Advanced Expression); Section 5 (Advanced Interpretation). Sections 2 through 5 must be taken in sequence. Each section: 3 hours per week. May be repeated for credit.

M MUP 371 Music Theatre: Workshops. (1)

fall and spring

Development of specific skills for musical-dramatic interpretation. Section 1 (Aria Preparation); Section 2 (Broadway I); Section 3 (Broadway II). Each section: 1 hour lecture, demonstration, 1 lab per week. May be repeated for credit.

M MUP 372 Music Theatre: Orchestras. (1)

fall and spring

Participation in Lyric Opera Theatre productions. Section 1 (Orchestra); Section 2 (Chamber Orchestra); Section 3 (Chamber Ensemble). May be repeated for credit. Prerequisites: audition with director; instructor approval.

M MUP 373 Music Theatre: Performance. (1)

fall and spring

Participation in Lyric Opera Theatre productions. Section 1 (Principal Roles); Section 2 (Chorus). May be repeated for credit. Prerequisites: audition with director; instructor approval.

M MUP 374 Music Theatre: Production. (1)

fall and spring

Participation in Lyric Opera Theatre productions. Section 1 (Vocal Performance); Section 2 (Technical Music Theatre); Section 3 (Problems in Production) to be taken concurrently with MUP 373, Section 2. May be repeated for credit.

M MUP 376 New Music Ensemble. (1)

fall and spring

Rehearsal and performance of music written in the last 20 years. May be repeated for credit. Prerequisite: instructor approval.

M MUP 377 Brass Choir. (1)

fall and spring

Specializing in public performance of music written for brass instruments. 2 hours per week. May be repeated for credit. Prerequisite: instructor approval.

M MUP 379 Chamber Music Ensembles. (1)

fall and spring

Brass, guitar, keyboard, mixed, percussion, string, vocal, and woodwind ensembles. 2 hours per week. May be repeated for credit. Prerequisite: instructor approval.

M MUP 385 Percussion Ensemble. (1)

fall and spring

Rehearsal and performance of standard and original repertoire for the percussion ensemble and related instruments. 2 hours per week. May be repeated for credit. Prerequisite: instructor approval.

M MUP 386 Jazz Band. (1)

fall and spring

Rehearsal and performance of new, traditional, and Latin literature for jazz bands. 4 hours per week. May be repeated for credit. Prerequisite: instructor approval.

M MUP 387 Ethnomusicology Ensembles. (1)

fall and spring

Performance learning experience for the music of various cultures of the world. May be repeated for credit. Prerequisite: knowledge of instrument or instructor approval.

M MUP 388 Collaborative Piano. (1)

fall and spring

Piano accompaniments found in vocal and instrumental literature; discussion of styles and performance practices; experience in public performance. 2 hours per week. May be repeated for credit. Prerequisite: Performance major with a concentration in collaborative piano or instructor approval.

M MUP 440 Keyboard Harmony. (1)

fall

Performance-oriented class emphasizing chord progressions, harmonization, figured bass realization, stylistic improvisation, transposition, open score reading, and sight reading. Prerequisite: Performance major with a concentration in keyboard or instructor approval.

M MUP 451 Repertoire. (2)

fall and spring

Literature available for performance in all performing media. May be repeated for credit. Prerequisite: junior standing in major performance field.

M MUP 453 Song Literature. (2)

once a year

Early Italian, English, German, and French art song.

M MUP 454 Song Literature. (2)

once a year

American, Russian, Spanish, Scandinavian, and contemporary song.

M MUP 481 Performance Pedagogy and Materials. (2)*fall and spring*

Principles and methods of performance techniques for each performance field. May be repeated for credit. Prerequisite: senior standing or instructor approval.

M MUP 482 Piano Pedagogy. (2)*selected semesters*

Continuation of MUP 481 (Piano). Problems and techniques of teaching intermediate to advanced piano students. Prerequisites: junior standing in Performance (keyboard or collaborative piano concentration); instructor approval.

M MUP 487 Collaborative Piano. (1)*fall and spring*

Piano accompaniments found in vocal and instrumental literature; discussion of styles and performance practices; experience in public performance. 2 hours per week. May be repeated for credit. May not be taken for audit. Prerequisite: Performance major with a concentration in collaborative piano or keyboard.

M MUP 495 Performance. (0)*fall*

For candidates of a BM degree in which 1/2 recital is a requirement. Prerequisite: BM degree candidate.

M MUP 496 Performance. (0)*fall*

For candidates of a BM degree in which a full recital is a requirement. Prerequisites: BM degree candidate; MUP 495.

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

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

MUSIC (MUS)

For more MUS courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M MUS 100 Fundamentals of Music Notation. (3)*fall and spring*

Provides nonmusic majors with sufficient symbol literacy to begin work in the field of musical learning. Credit not applicable toward any music degree.

M MUS 340 Survey of Music History. (3)*fall, spring, summer*

Major composers, compositions, and periods in the history of music. Credit does not apply to major requirements for music degrees. Fee.

*General Studies: HU, H***M MUS 347 Jazz in America. (3)***fall, spring, summer*

Current practices employed by contemporary jazz musicians; the historical development of jazz techniques. Credit does not apply to major requirements for music degrees. Lecture, discussion. Cross-listed as AFH 347. Credit is allowed for only AFH 347 or MUS 347. Fee.

*General Studies: HU, C***M MUS 354 Popular Music. (3)***fall, spring, summer*

Emphasizes historical, cultural, and performance patterns in a variety of popular idioms such as, but not limited to, rock, folk, jazz, and Afro-American music. May be repeated for credit when topics vary. Credit does not apply to major requirements for music degrees. Fee.

*General Studies: HU***M MUS 355 Survey of American Music. (3)***fall, spring, summer*

Growth and development of American music. Credit does not apply to major requirements for music degrees. Fee.

*General Studies: HU, C, H***M MUS 356 Survey of the Musical Theatre. (3)***once a year*

Music's place in the theatre, viewed in terms of historical importance and relative function. Credit does not apply to major requirements for music degrees. Fee.

*General Studies: HU***M MUS 410 History of Women in Music. (3)***fall*

Surveys musical achievements of women as well as the historical contexts that shaped and defined their artistic development. Pre- or corequisite: ENG 102 or 105.

General Studies: HU, C, H

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

School of Theatre and Filmherbergercollege.asu.edu/theatre

480/965-5337

GHALL 232

Linda Essig, Chair

Professors: Barker, Bedard, Eckard, Edwards, Essig, Giner, Honegger, Knapp, Saldaña, Thomson, Valenti

Associate Professors: Acker, Anderson, Furr-Soloman, Reyes, Riske, Sterling, Underiner

Assistant Professors: Gharavi, McMahon, Ocampo-Guzman, Pinholster, Rivera-Servera, Woodson

Clinical Assistant Professors: Coffman, Thacker

For advising purposes, all students registering in a Theatre degree program enroll through the Katherine K. Herberger College of Fine Arts. Special advising check sheets, providing complete information regarding requirements and suggested electives, are available in the School of Theatre and Film office and on its Web site for the BA degree program.

**PREMAJOR PROGRAM AND INTERVIEWS/
AUDITIONS FOR THE BA IN THEATRE**

Effective fall 2006, all undergraduate students applying for and gaining admission to ASU as a potential Theatre major will be first admitted to the premajor program in Theatre. This classification will remain in effect until the student has passed an entry interview or audition to the BA Theatre program.

Entry interviews or auditions will be held three times per year: early April for entering freshman who have not yet begun their course work, late October for currently enrolled students and transfer students who will begin in the spring semester, and mid-February for students starting in spring

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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semester or who fail to meet entry criteria the first time. Once entry criteria have been met, the student's major code will be changed to Theatre and he or she will be able to register for majors-only courses.

Incoming freshman and transfer students who are unable to travel to the Tempe campus in April can be admitted into the premajor program and interview or audition in late October for formal admission as a Theatre major. Specific dates for interviews or auditions can be obtained from the Herberger College of Fine Arts and the School of Theatre and Film.

If a student fails to pass the entry criteria, he or she will remain in the premajor program for a maximum of one year with the following provisos: (1) continued advising through the Herberger College of Fine Arts; (2) placement in General Studies courses appropriate to the planned major, including THE 125 Orientation to Theatre to better prepare for subsequent admission interview or auditions. The student can seek formal entry (no more than two times), once in each of the following semesters (excluding winter and summer sessions). If a student fails to pass the entry criteria after three attempts, he or she will work with the School of Theatre and Film and Herberger College of Fine Arts advisors to choose another major suited to his or her interests.

Transfer students should seek formal entry through successful passage of the interview or audition process before the start of their first semester so that they can transfer in as Theatre majors. If they are unable to meet entry criteria, then the provisos listed in the above paragraph will apply. Transfer students who do not meet entry criteria on their first attempt will be required to take THE 125 Orientation to Theatre to better prepare them for a subsequent successful interview/audition process.

Criteria for Formal Admission to the BA in Theatre Program

In addition to the scheduled interview or audition with faculty, premajors in Theatre must submit the following application materials to be considered for admission as a Theatre major in the Herberger College of Fine Arts:

1. a three-page, double-spaced essay answering the question: "Why are the theatre and the performing arts important, and how will their study further your own goals?";
2. a short (no more than two-pages, double spaced) critical essay about a theatrical production or film the student has seen;
3. at least one and no more than three letters of reference from a teacher or someone with whom the student has had professional and/or artistic interaction. (Do not submit letters from relatives or close friends. These letters may be mailed directly to the Herberger College of Fine Arts [see the address below] or included with your application materials); and
4. one item of the students's choosing from among the following:
 - a. an additional writing sample of any length on a theatre or film topic of the student's choice;

- b. two one-minute audition monologues (one contemporary, one not);
- c. a portfolio of at least ten images of theatrical design, visual arts, or production activity that may include scene or costume sketches, lighting storyboards, drafting, artwork, or audio material;
- d. an original ten-minute play;
- e. a two to three page essay answering the question, "How does theatre benefit children and adolescents?";
- f. an original screenplay of any length; or
- g. an original video (no more than ten minutes in length).

The admissions committee will be composed of a cross-disciplinary group of theatre faculty appointed on staggered terms. The committee provides students with written feedback on their materials submitted for admission.

All admissions materials should be mailed to:

STUDENT ACADEMIC SERVICES
 HERBERGER COLLEGE OF FINE ARTS
 ARIZONA STATE UNIVERSITY
 PO BOX 872102
 TEMPE AZ 85287-2102

Admissions materials should be received by January 15 for mid-February interviews or auditions; by March 1 for early April interviews or auditions; and by September 15 for October interviews or auditions. Students can call 480/965-4495 with any questions about the application process or to schedule an interview or audition.

Freshmen and sophomores who meet university and departmental standards must receive a grade of "C" (2.00) or higher in all major courses and a 2.50 cumulative GPA during their first semester to continue in the BA Theatre program. Students failing to meet these requirements have one semester of departmental probation to receive a "C" (2.00) or higher in major courses and raise their cumulative GPA to 2.50. Students failing to meet the above requirements by the end of the first year (two semesters) are asked to seek advising regarding other majors.

THEATRE—BA

The major in Theatre consists of 57 or 58 semester hours. The following 33 or 34 semester hours of core courses are required of all BA degree candidates:

THE 125 Orientation to Theatre	1
THE 220 Principles of Dramatic Analysis L	3
THE 320 History of the Theatre I HU, H	3
THE 321 History of the Theatre II HU, H	3
THE 440 Experimental Theatre and Performance	3
THP 102 Acting: Fundamentals	3
THP 218 The Director's Vision	3
THP 301 Theatre Production	1
THP 301 Theatre Production*	1
THP 313 Fundamentals of Design	3
THP 428 Theatre and the Future	3
Total	27

* One semester hour must involve running a production.

One of the following two courses (three or four semester hours) is required:

THP 213 Introduction to Technical Theatre	4
THP 214 Introduction to Costuming	3

Three semester hours of departmental approved course work in dramatic literature are also required. Check the department advising office for a list of eligible courses.

Twenty-four semester hours of THE and THP electives are selected by the student and advisor to complete the 57 or 58 semester hours required in the major. These 24 semester hours can constitute an optional focus area for the student, which involves enrolling in related course work from one of six subject areas in Theatre: (1) theatre and performance studies; (2) directing and performance; (3) design and production; (4) playwriting and dramaturgy; (5) theatre for youth; and (6) film. A list of recommended courses appropriate to each area is available from the department advising office. Undergraduate students interested in pursuing Arizona teacher certification or endorsement for Theatre are encouraged to pursue the focus area in theatre for youth, then obtain postbaccalaureate teacher certification through the ASU College of Education or another Arizona educational institution. General Studies courses make up 35 semester hours of the total courses required. Additional elective courses are selected with an advisor to meet the total 120 semester hours required for the degree.

Within the major, only courses with a grade of "C" (2.00) or higher may be applied toward graduation.

Students who transfer 55 semester hours or more are required to enter with and retain a 2.50 GPA in theatre courses and a 2.00 cumulative GPA.

Acting Concentration

The major in Theatre with a concentration in acting prepares students for both advanced graduate study in the field and independent career pursuits in performance. In addition to required core courses, the acting concentration consists of 23 or 24 semester hours. The following nine semester hours are required:

THP 272 Acting: Introduction to Movement	3
THP 277 Acting: Introduction to Voice.....	3
THP 285 Acting: Beginning Scene Study	3

One of the following two courses (two or three semester hours) is also required toward the end of the program of study:

THP 388 Acting: Audition Techniques	3
THP 489 Acting: Career Development.....	2

Twelve semester hours in acting elective course work completes the concentration.

Students are strongly encouraged to apply for admission to the concentration at the end of the freshman year to allow for three academic years of supervision. Transfer students should apply for the concentration at the end of their first semester at ASU. Admission requirements include an audition with a committee of acting faculty members (conducted at the end of each semester) plus the submission of a one-page letter of intent, a résumé, and an unofficial transcript (minimum 2.50 overall GPA and a 3.00 Theatre GPA required). Retention in the concentration is based on satis-

factory artistic work and growth, production participation, evidence of a strong work ethic, and maintenance of a minimum 2.50 overall GPA and a 3.00 Theatre GPA.

Eligible students denied admission into the acting concentration can reapply the following year.

Scenography Concentration

The major in Theatre with a concentration in scenography prepares students for advanced graduate study in the field and entry-level careers in performance design and technology. In addition to core course requirements, the concentration in scenography consists of 24 or 25 semester hours. Twelve semester hours from among the following are required:

THP 317 Stage Management	3
THP 340 Scene Design	3
THP 345 Lighting Design.....	3
THP 350 Sound Design	3
THP 430 Costume Design	3
THP 442 Drawing.....	3
THP 494 ST: Technical Direction.....	3
THP 494 ST: Multimedia Design in Theatre	3

One of the following two courses (three or four semester hours), not taken as part of the core, is also required:

THP 213 Introduction to Technical Theatre	4
THP 214 Introduction to Costuming	3

Nine semester hours in theatre design or theatre technology elective course work, which may be accomplished through production courses, completes the concentration.

Application for admission into the concentration is suggested at the end of the freshman year to allow three years of academic supervision. Transfer students should apply for the concentration during their first semester at ASU. Admission requirements include an interview with design and production faculty (conducted at the end of each semester) and submission of a letter of intent, a portfolio, and an unofficial transcript (a minimum GPA of 2.50 is required). A résumé is optional. Design and production faculty will meet monthly with students as a group to monitor personal progress, to assess portfolio development, and to develop a community. Retention in the program is based on satisfactory artistic growth (as evidenced in a mandatory portfolio reflecting work completed during each semester), production participation, and maintenance of a 2.50 GPA. For more information, see the *BA in Scenography Concentration Handbook*.

Eligible students denied admission into the scenography concentration can appeal in writing to the director of the undergraduate scenography program.

FILM—BA

Admission to the BA in Film (Film and Media Production)

The BA in Film is a joint effort of the Katherine K. Herberger College of Fine Arts (HCFA) and the College of Liberal Arts and Sciences (CLAS). Students take a core group

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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of six courses spread across both colleges before seeking admission to the concentration in film and media production offered by the School of Theatre and Film or the concentration in film and media studies offered by CLAS. Students in the premajor program, exploratory students, or others can apply for admission to the BA in Film with a concentration in film and media production in the semester in which they are completing the 18-semester hour core of BA in Film courses. Applicants to the film and media production concentration must have a minimum GPA of 3.00 in the core classes.

These courses must be completed with a minimum 3.00 GPA by the end of the semester in which application is made to the BA in Film with a concentration in film and media production.

FMS 100 Introduction to Film (CLAS)	3
FMS 200 Film History (CLAS)	3
FMS 270 Race and Ethnicity in American Film (CLAS)	3
THE 201 Film: The Creative Process I: Production Survey (HCFA) (formerly THE 300)	3
THE 400 FOF: Introduction to Ethics in Entertainment* (HCFA)	3
THP 261 Introduction to Screenwriting (HCFA)	3

* Course renumbering is in process; see an academic advisor to confirm course eligibility.

Students interested in the film and media production concentration must submit the following application materials by the first week of March to be considered for acceptance:

1. interview with faculty—the interview date for students is the first week of April;
2. a three-page, double-spaced essay answering the question “Why do you want to study film and media production, and how will this study further your own goals?”;
3. a short (no more than two-page, double-spaced) critical essay about a film the applicant has seen;
4. at least one and no more than three letters of reference from teachers or others with whom the applicant has had a professional and/or artistic interaction;
5. one of the following:
 - a. an original screenplay of any length
 - b. an original video (no more than 10 minutes in length) on DVD or VHS.

Transfer students who are eligible to apply to the film program who are unable to travel to the Tempe campus in April can be admitted into the premajor program and interview in October for formal admission to the major.

All supplemental materials should be sent to:

STUDENT ACADEMIC SERVICES
 HERBERGER COLLEGE OF FINE ARTS
 ARIZONA STATE UNIVERSITY
 PO BOX 872102
 TEMPE AZ 85287-2102

Materials should be received by March 1, 2006. Call 480/965-4495 with any questions about the application process or interviews.

The admissions committee is made up of a cross-disciplinary group of theatre/film faculty appointed on staggered terms. The committee provides students with written feedback on the material submitted for admission.

Film and Media Production Concentration

The BA in Film with a concentration in film and media production consists of 57 semester hours. The following are required of all students:

FMS 100 Introduction to Film	3
FMS 200 Film History	3
FMS 270 Race and Ethnicity in American Film	3
THE 201 Film: The Creative Process I: Production Survey	3
THE 220 Principles of Dramatic Analysis	3
THE 400 Introduction to Ethics in Entertainment*	3
THE 403 Independent Film	3
THP 261 Introduction to Screenwriting	3
THP 387 Acting: TV and Film	3
THP 428 Theatre and the Future (capstone)	6
THP 494 ST: Business Ethics in Entertainment Media	3
Selected FMP courses*	9

* Course renumbering is in process; see an academic advisor to confirm course eligibility.

Total of required courses: 45 semester hours; an additional 12 hours of approved courses in production are also required.

A minimum GPA of 3.00 must be maintained in all required courses for continuation in the concentration.

GRADUATION REQUIREMENTS

In addition to fulfilling the major requirements, students must meet all university graduation requirements. See “University Graduation Requirements,” page 89.

MINOR

The department offers a minor in Theatre consisting of 22 semester hours of course work. The following courses are required:

THE 100 Introduction to Theatre HU	3
THE 300 Film: The Creative Process I HU	3
THE 320 History of the Theatre I HU, H	3
THP 101 Acting: An Introduction	3
THP 301 Theatre Production	1
Concentration area*	9
Total	22

* Also required are three three-hour courses within the same curricular area. Contact the department for options and course requirements.

Courses ordinarily limited to majors only are available to minors on a second-priority basis; that is, minors may not preregister for these courses, but are allowed to register after all majors’ needs have been met. All prerequisites for the minor courses must be met (see course listings). Transfer students may transfer up to nine semester hours toward their minor. A “C” (2.00) or higher is required for all courses in the minor.

BIS CONCENTRATION

A concentration in theatre is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

GRADUATE PROGRAMS

The faculty in the School of Theatre and Film offer programs leading to the MA degree in Theatre; the Master of Fine Arts degree in Theatre with concentrations in directing, integrated digital media, performance, performance design, and theatre for youth; the PhD degree in Theatre with concentrations in theatre and performance of the Americas and theatre for youth; and, in conjunction with the Department of English, an interdisciplinary Master of Fine Arts degree in Creative Writing (playwriting). See the *Graduate Catalog* for details.

FILM AND MEDIA PRODUCTION (FMP)

M FMP 194 Special Topics. (1–4)

selected semesters

M FMP 294 Special Topics. (1–4)

selected semesters

M FMP 394 Special Topics. (1–4)

selected semesters

M FMP 484 Internship. (1–12)

selected semesters

M FMP 494 Special Topics. (1–4)

selected semesters

M FMP 498 Pro-Seminar. (1–7)

selected semesters

M FMP 499 Individualized Instruction. (1–3)

selected semesters

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

THEATRE (THE)

For more THE courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M THE 100 Introduction to Theatre. (3)

fall, spring, summer

Surveys theatre production from the Greeks to contemporary theatre. Taught in conjunction with distance learning. Lecture, discussion, guest artists. Fee. Prerequisite: nonmajor.

General Studies: HU

M THE 125 Orientation to Theatre. (1)

fall

Orientation to university and department resources and procedures. Career planning and guidance. Attendance and written responses to theatre productions. Required for BA Theatre majors. Prerequisite: Theatre premajor or major.

M THE 201 Film: The Creative Process I. (3)

fall, spring, summer

History, elements, and techniques of theatrical film: cinematography, directing, acting, scriptwriting, producing, and criticism. Lecture, demonstration via film, video, and DVD. Fee.

General Studies: HU

M THE 220 Principles of Dramatic Analysis. (3)

fall and spring

Analysis, evaluation, and interpretation of dramatic literature for theatrical production. Emphasizes the traditional canon of dramatic literature and traditional structures and forms of drama. Prerequisites: ENG 101 (or 105 or 107); Theatre major. Prerequisite with a grade of "B" (3.00) or higher: THE 125.

General Studies: L

M THE 301 Film: The Creative Process II. (3)

fall and spring

Advanced study of contemporary cinema history and film techniques; analyzes social changes in film, multicultural filmmaking, and the star system. Lecture, demonstration via film, video, and DVD. Prerequisite: THE 201.

General Studies: HU

M THE 320 History of the Theatre I. (3)

fall and spring

Traces major developments in theatre production and dramatic literature from their beginnings to the mid-17th century. Lecture, student presentations. Prerequisite: Theatre major or minor.

General Studies: HU, H

M THE 321 History of the Theatre II. (3)

spring

Traces major developments in theatre production and dramatic literature from the mid-17th century to the 20th century. Lecture, student presentations. Prerequisite: Theatre major or minor.

General Studies: HU, H

M THE 322 Theatre History and Culture. (3)

fall, spring, summer

Critically examines major developments in theatre history, historiography, and dramatic literature. Internet. Prerequisite: nonmajor.

General Studies: HU, H

M THE 325 Play Reading for Educational Theatre. (1)

fall and spring

Assigned independent readings in plays for secondary school play production. Prerequisite: written instructor approval.

M THE 400 Focus on Film. (3)

fall and spring

Specialized study of prominent film artists, techniques, and genres. Emphasizes the creative process. May be repeated for credit. Topics may include the following:

- Film Production Part I
Fee.
- Film Production Part II
Fee.

Prerequisite: ENG 102 or 105 or 108.

M THE 403 Independent Film. (3)

once a year

Examines the independent film movement from the French New Wave to contemporary independent filmmakers. Lecture, demonstration via film, video, and DVD.

General Studies: HU

M THE 404 Foreign Films and Filmmakers. (3)

fall and spring

Films and filmmakers from Europe, Asia, Australia, the Far East, South America, and the Caribbean. Emphasizes cultural content and filmmaking philosophies.

General Studies: G

M THE 405 Film: Great Performers and Directors. (3)

fall, spring, summer

Examines processes and influences of one or more great film performers and/or directors. May be repeated for credit when topics vary. Topics may include the following:

- Alfred Hitchcock
Fee.
- Hollywood Rebels
Fee.

General Studies: HU

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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M THE 406 American Multicultural Film. (3)

fall and spring

Examines Native, African, Asian, and Latina and Latino American films and film artists in cinema history and production. Internet course. Fee. Prerequisite: ENG 102 or 105 or 108.

General Studies: HU, C

M THE 422 Latina and Latino Theatre. (3)

selected semesters

Readings, discussion, video of dramatic literature and production styles of Latina and Latino playwrights and theatre companies in the United States. Prerequisite: ENG 102 or 105 or 108.

M THE 423 African American Theatre. (3)

selected semesters

Readings, discussion, video of the history and dramatic literature of African American playwrights and theatre companies in the United States. Prerequisite: ENG 102 or 105 or 108.

General Studies: C

M THE 424 Trends in Theatre for Youth. (3)

selected semesters

Surveys the history, literature, and contemporary practices in theatre for youth.

M THE 426 Theatre of the Americas. (3)

fall and spring

Selected studies in pre-Columbian theatre forms and texts of the Aztecs, Mayans, Caribbean islands, and North American Indians. Internet course. Prerequisite: ENG 102 or 105 or 108.

M THE 430 History of Costume: Western Tradition. (3)

selected semesters

Studies major costume styles throughout history of Western civilization and how these fashions reflected society. Explores how styles can be used by theatrical costumers.

M THE 440 Experimental Theatre and Performance. (3)

fall and spring

Explores 20th-century modernist theatrical forms and movements and development of alternative strategies for analyzing contemporary theatre and performance. Prerequisites: THE 220, 320, 321; Theatre major.

M THE 480 Methods of Teaching Theatre. (3)

spring

Applies materials, techniques, and theories for theatre with 9th-through 12th-grade students. Emphasizes curriculum development and praxis. Prerequisite: Theatre Education or Theatre for Youth majors or instructor approval.

M THE 494 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Ethics in Entertainment
 - Performance Technology I
- Fee.

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

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

THEATRE PERFORMANCE AND PRODUCTION (THP)

For more THP courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalog/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M THP 101 Acting: An Introduction. (3)

fall, spring, summer

Introduces basic principles of acting. Topics include terminology, scene and character analysis, exercises and improvisation, audition preparation. Studio. Prerequisite: nonmajor.

M THP 102 Acting I: Fundamentals. (3)

fall and spring

Explores and applies basic principles of acting. Topics include terminology, scene and character analysis, exercises and improvisation, audition preparation. Studio. Prerequisite: Theatre major.

M THP 201 Theatre Production Crew. (1)

fall and spring

Participation in university mainstage theatre production backstage and board operations. May be repeated for credit. Lab. Prerequisites: application; written instructor approval.

M THP 213 Introduction to Technical Theatre. (4)

fall and spring

Procedures of technical theatre production and demonstration. Topics include design and construction of scenery, lighting, and properties. 3 hours lecture, 3 hours lab. Fee. Prerequisite: Theatre major.

M THP 214 Introduction to Costuming. (4)

fall and spring

Basic principles of costume design, construction, and survey of selected historical periods, including makeup styles. Costume design project and production experience. 3 hours lecture, 2 hours lab. Fee. Prerequisite: Theatre major.

M THP 218 The Director's Vision. (3)

fall and spring

History, theory, and principles of directing. Examines director's role and responsibilities, play selection, conceptualizing, ground plans, blocking. Fee. Prerequisites: THE 220; THP 102.

M THP 260 Introduction to Playwriting. (3)

selected semesters

Basic skills of playwriting, including exercises in monologues, scenes, and conflict and resolution, leading to completion of a one-act play. Prerequisite: ENG 101 or 105 or 107.

M THP 261 Introduction to Screenwriting. (3)

once a year

Basic skills of screenwriting, including exercises in conflict and resolution, plot points, and theories of three-act structure and design. Prerequisite: ENG 101 or 105 or 107.

M THP 272 Acting: Introduction to Movement. (3)

fall and spring

Movement vocabulary and physical training in relaxation, alignment, conditioning, and stage presence. Application to performance. Studio. Prerequisite with a grade of "B" (3.00) or higher: THP 101 or 102 or written instructor approval.

M THP 277 Acting: Introduction to Voice. (3)

fall and spring

Exercises and techniques to free the voice and improve quality and projection. Application to performance. Studio. Prerequisite with a grade of "B" (3.00) or higher: THP 101 or 102 or written instructor approval.

M THP 285 Acting II: Beginning Scene Study. (3)

fall and spring

Rehearsal techniques and application of action to dramatic text. Emphasizes realistic drama. Studio. Prerequisite with a grade of "B" (3.00) or higher: THP 101 or 102 or written instructor approval. Pre- or corequisite: THE 220.

M THP 301 Theatre Production. (1–2)

fall and spring

Participation in university mainstage theatre productions (e.g., acting, construction, stage management). May be repeated for credit. Lab. Prerequisites: THP 213 (or 214 or written instructor approval); application.

M THP 307 Acting: Research and Performance. (1–3)

once a year

Acting in theatre projects, productions, or collaborative performances in directing classes. May be repeated for credit. Studio. Prerequisite: written instructor approval.

M THP 311 Improvisation with Youth. (3)

fall, spring, summer

Basic materials, techniques, and theories for facilitating improvisational drama with children and youth. Not open to freshmen.

M THP 312 Puppetry and Children. (3)

fall, spring, summer

Construction and manipulation of puppets; practice in performance skills. Emphasizes educational and recreational uses of puppetry by and with children. Fee. Prerequisite: junior standing or above.

M THP 313 Fundamentals of Design. (3)

fall and spring

Art and practice of scenic, costume, and lighting design for the theatre and the media. Prerequisite: THP 213 or 214.

M THP 317 Stage Management. (3)*selected semesters*

Readings in stage management and participation as a stage manager in a university theatre production. Prerequisite: written instructor approval.

M THP 318 Directing for the Stage. (3)*fall and spring*

Director's approach to text analysis and articulation of ideas. Basic tools, rehearsal schedules, staging, rehearsal and audition techniques, scene work. Prerequisites: THP 213, 218; instructor approval.

M THP 320 Acting: Solo and Collaborative Performance. (3)*once a year*

Creation and development of original performance art works combining text, movement, multimedia, visual art; the actor as writer, designer, performer. Studio. Prerequisite: written instructor approval.

M THP 322 Acting: Voice-Overs and Radio Drama. (3)*selected semesters*

Applies effective vocal techniques to commercials, books on tape, radio dramas. Preparation of audition tape, performance in radio drama. Studio. Prerequisite: written instructor approval.

M THP 331 Costume Construction. (3)*selected semesters*

Uses of materials and techniques for stage costumes with actual construction of period apparel. Prerequisite: THP 214 or instructor approval.

M THP 340 Scene Design. (3)*once a year*

Studio projects in designing scenery for contemporary stages. Fee. Prerequisite: THP 213 or written instructor approval. Prerequisite with a grade of "C" (2.00) or higher: THE 220.

M THP 345 Lighting Design. (3)*once a year*

Principles and theory of stage lighting design, including design process and execution, equipment, and light plots. Lecture, lab. Fee. Prerequisite: THP 213 or written instructor approval. Prerequisite with a grade of "C" (2.00) or higher: THE 220.

M THP 350 Sound Design. (3)*once a year*

Introduces the equipment, process, and recording techniques used in sound design for the theatre. Lecture, studio. Fee. Prerequisite with a grade of "C" (2.00) or higher: THE 220.

M THP 360 Intermediate Playwriting. (3)*once a year*

Continued development of skills in playwriting through specific exercises and completion of a full-length play. Prerequisite: ENG 210 Introduction to Creative Writing (drama) or THP 260.

M THP 372 Acting: Advanced Movement. (3)*once a year*

Movement techniques for the classical and nonrealistic theatre. Studio. Prerequisite: THP 272 or written instructor approval.

M THP 377 Acting: Voice and Speech. (3)*once a year*

Introduces phonetic alphabet, exercises, and techniques for voice and speech improvement. Application to performance. Studio. Prerequisite: THP 277.

M THP 378 Acting: Stage Dialects. (3)*once a year*

Major dialects needed for actors; techniques for researching and learning dialects; phonetic analysis of dialects. Studio. Prerequisite: THP 377 or written instructor approval.

M THP 385 Acting: Classical Scene Study. (3)*once a year*

Rehearsal and performance of Shakespeare and other classical playwrights. Emphasizes understanding poetic language, vocal and physical skills. Studio. Prerequisites: THP 377; written instructor approval.

M THP 386 Acting: The Meisner Approach. (3)*fall and spring*

Improvisations and exercises developed by Sanford Meisner applied to scene work. Studio. Prerequisite with a grade of "B" (3.00) or higher: THP 101 or 102 or written instructor approval.

M THP 387 Acting: TV and Film. (3)*fall and spring*

Professional television and film acting techniques, terminology, and on-camera experience. Studio. Fee. Prerequisite with a grade of "B" (3.00) or higher: THP 101 or 102 or written instructor approval.

M THP 388 Acting: Audition Techniques. (3)*once a year*

Techniques and preparation for stage, commercial, and TV/film auditions utilizing monologues, cold readings, and personal style. Studio. Prerequisite with a grade of "B" (3.00) or higher: THP 101 or 102 or written instructor approval.

M THP 394 Special Topics. (1–4)*fall and spring***M THP 401 Theatre Practicum. (1–2)***fall and spring*

Production assignments for advanced students of technical production, stage and business management, and design. May be repeated for credit. Prerequisites: THP 301; written instructor approval.

M THP 406 Advanced Scenography. (3)*selected semesters*

Process of production collaboration among scenographers, directors, and playwrights. Taught in conjunction with THP 519. Prerequisites: a combination of THP 214 and 340 and 345 or both THP 313 and 340.

M THP 411 Methods of Teaching Drama. (3)*fall*

Applies materials, techniques, and theories with grades K–8 youth. Regular participation with children. Prerequisite: THP 311 or written instructor approval.

M THP 418 Directing the Actor. (3)*once a year*

Practical applications of directing for the stage. Rehearsal and presentation of scenes and short plays. Prerequisites: THP 318; instructor approval.

M THP 428 Theatre and the Future. (3)*fall and spring*

Capstone course exploring visions of the future of theatre. Results in a project in creative or scholarly form. Prerequisites: THE 440; senior standing; Theatre major.

M THP 430 Costume Design. (3)*selected semesters*

Principles of costume design with projects in both modern and period styles. Includes budgets and fabric/pattern estimates. Lecture, studio. Prerequisite: THP 214.

M THP 431 Advanced Costume Construction. (3)*selected semesters*

Specialized training in costume construction problems and crafts with projects in tailoring, millinery, and period accessories. Prerequisites: both THP 214 and 331 or only instructor approval.

M THP 435 Advanced Technical Theatre. (3)*selected semesters*

Selection of materials, drafting of working drawings, tool operation, and construction techniques. 2 hours lecture, 2 hours lab. Prerequisites: both THP 340 and 345 or only written instructor approval.

M THP 440 Advanced Scene Design. (3)*selected semesters*

Advanced studio projects in designing scenery for a variety of stage forms. Fee. Prerequisite: THP 340 or written instructor approval.

M THP 441 Scene Painting. (3)*selected semesters*

Studio projects in painting stage scenery. Fee. Prerequisite: THP 340 or written instructor approval.

M THP 442 Drawing. (3)*selected semesters*

Techniques in drawing and rendering for scenic, costume, and lighting design. Prerequisite: written instructor approval.

M THP 444 Drafting for the Stage. (3)*selected semesters*

Fundamentals of and practice in graphic techniques for the stage. Introduces computer-aided design for the stage. 2 hours lecture, 3 hours studio. Fee. Prerequisites: THP 213; written instructor approval.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.



The Katherine K. Herberger College of Fine Arts Department of Dance is one of the nation's leading contemporary dance and dance education programs.

Tim Trumble photo

M THP 460 Advanced Playwriting. (3)

selected semesters

Practice and study of creating characters, dialogue, scenes, plays, and monologues for the stage, culminating in a full-length script. May be repeated for credit. Studio, lecture. Prerequisite: instructor approval.

M THP 461 Scripts in Progress. (3)

fall and spring

Studio work with the instructor, centered on revisions of original plays. May be repeated for credit. Studio. Prerequisite: THP 460 or written instructor approval.

M THP 445 Advanced Lighting Design. (3)

selected semesters

Specialized techniques in stage lighting. Advanced application of design process, graphic techniques of design presentation, and use of qualities of light. Lecture, class workshops. Fee. Prerequisite: THP 345 or written instructor approval.

M THP 450 Theatre Organization and Management. (3)

once a year

Overview of nonprofit arts: organizational design, strategic planning, financial management, and leadership. Prerequisite: written instructor approval.

M THP 481 Secondary School Play Production. (3)

fall

Methods of directing, designing, and coordinating play production experiences at the secondary school level. Off-campus practicum. Prerequisite: THP 318 or instructor approval.

M THP 482 Theatre for Social Change. (3)

fall and spring

Interactive theatre techniques (e.g., Boal, drama therapy, playback theatre) to examine and combat institutional, social, cultural, interpersonal, and personal oppressions. Lecture, lab.

General Studies: C

M THP 483 Acting: Viewpoints and Composition. (3)

spring

Training in Anne Bogart's viewpoints and composition techniques; application to rehearsal and performance, and creating new work. Studio. Prerequisite: THP 285 or written instructor approval.

M THP 484 Internship. (1–4)

selected semesters

M THP 489 Acting: Career Development. (2)

selected semesters

Familiarization with the business of acting: self-promotional tools and techniques, marketing strategies, finances, interview skills, and actor unions. Studio. Prerequisites with a grade of "B" (3.00) or higher: both THP 101 (or 102) and junior (or senior) standing or only written instructor approval.

M THP 494 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Advanced Screenwriting
- Business Ethics in Entertainment Media
- Multimedia Design in Theatre
- Performance and Technology
- Problems in Directing
- Storytelling
- Student Production Board
- Technical Direction
- Theory and Practice of Performance

M THP 498 Pro-Seminar. (1–7)

once a year

Topics may include the following:

- Directing. (1–6)
- Theatre-for-Youth Tour. (1–6)
- Theatre in Education. (1–6)

Prerequisite: written instructor approval.

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

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

Walter Cronkite School of Journalism and Mass Communication

cronkite.asu.edu

Christopher Callahan, MPA, Dean

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PURPOSE AND PHILOSOPHY

The faculty of the Walter Cronkite School of Journalism and Mass Communication offer a strong professional program that values applied scholarship. Faculty members combine excellent professional experiences with outstanding records as productive scholars.

The primary mission of the school is to

1. prepare students for careers in journalism and related fields;
2. examine mass communication through research and teaching, thereby preparing informed life-long consumers of the mass media; and
3. develop new approaches to practicing journalism in a university setting, providing ample opportunities for students and faculty to serve audiences beyond the classroom.

To that end, the school offers classroom instruction in a blend of conceptual courses (such as media law, media ethics, media history and media management) and professional skills courses (such as print and broadcast writing, editing, reporting, and production techniques). The school also offers on-campus media work experiences, including the campus newspaper *The State Press*; The Blaze radio station; "Newswatch," a weekly student-produced cable television news magazine; "ASU Web Devil"; and "Channel 2," the student-run campus cable station. Off-campus work experience opportunities include internships at newspapers, magazines, and television and radio stations. Other off-campus options include: public relations, visual journalism, sales and promotions, and media analysis and criticism.

ADMISSION

Preprofessional Admission

Students admitted to ASU must meet additional requirements to be admitted to the Walter Cronkite School of Journalism and Mass Communication with preprofessional sta-

tus. Preprofessional admission to the school does not guarantee admission to the upper-division professional program. Preprofessional students must possess a minimum 2.50 GPA with at least 12 semester hours earned before they are permitted to enroll in school courses at the 200 level. All preprofessional students who intend to take courses beyond the 100 level must pass an English proficiency examination administered by the school.

Professional Program Admission

Admission to the Walter Cronkite School of Journalism and Mass Communication professional program, which enrolls students in their junior and senior years, is competitive and based on available resources. Once a student is granted admission, the upper-division professional program may require two years to complete.

A separate application procedure is required for entry to the upper-division professional program. To be eligible to apply for admission to the professional program, students must

1. be admitted to ASU as a classified student;
2. have completed at least 56 semester hours by the close of the semester in which the application is submitted;
3. have completed lower-division courses or their equivalents, as specified below;
4. have completed, with a passing score, the English proficiency examination administered by the school; and
5. have at least a 2.50 cumulative and major GPA.

Preprofessional status students must complete the following courses:

JMC 201 Journalism Newswriting <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 cronkite.asu.edu. Precise application procedures and submission deadlines are outlined on the form. *Completion of the minimum requirements for eligibility does not*

L literacy and critical inquiry / *MA* mathematics / *CS* computer/statistics/quantitative applications / *HU* humanities and fine arts / *SB* social and behavioral sciences / *SG* natural science—general core courses / *SQ* natural science—quantitative / *C* cultural diversity in the United States / *G* global / *H* historical / See "General Studies," page 93.

WALTER CRONKITE SCHOOL OF JOURNALISM AND MASS COMMUNICATION

guarantee admission to the upper-division professional program. The admissions committee considers a variety of criteria, including major and cumulative GPA, media experience, writing ability, and commitment to the field. Students may apply twice.

ADVISING

Students should follow the sequence of courses outlined on school curriculum check sheets, their online degree audit, and the advice of the school's academic advisors. Students who enroll as preprofessional or who seek and ultimately gain professional status should meet regularly with their Walter Cronkite School of Journalism and Mass Communication academic advisor. Conscientious, careful planning and early advising are crucial to students who desire to progress through the program in a timely fashion.

DEGREES

The school offers a program leading to the Bachelor of Arts degree in Journalism and Mass Communication. Students select one of five concentrations: journalism, media analysis and criticism, media management, media production, or strategic media and public relations.

The school offers a program leading to the graduate degree Master of Mass Communication.



The Stauffer Communication Arts Building

Tim Trumble photo

TRANSFER STUDENTS

Transfer students must be formally admitted to ASU to be considered for admission to the professional program in the Walter Cronkite School of Journalism and Mass Communication.

Students completing their first two years of course work at a community college or four-year institution other than ASU should consult the school's academic advisors at least one full semester before they hope to be considered for admission to the school's professional program. Transfer student admission to ASU does not guarantee admission to the upper-division professional program.

PROGRAM REQUIREMENTS

Because the Walter Cronkite School of Journalism and Mass Communication is accredited by the Accrediting Council on Education in Journalism and Mass Communication, its students are required to take a minimum of 80 semester hours in courses outside the major of Journalism and Mass Communication, with no fewer than 65 semester hours in liberal arts and sciences. This requirement ensures that students receive a broad academic background.

At least 18 semester hours of major courses required by the school, including one writing course, must be taken at ASU. A student must receive a grade of "C" (2.00) or higher in all courses taken in the major and in the required related area.

BA REQUIREMENTS

All students are required to demonstrate proficiency in a language other than English (a spoken language or American Sign Language). Proficiency is defined as completing the second semester intermediate level, or higher, of a language other than English with a grade of "C" (2.00) or higher.

The undergraduate major in Journalism and Mass Communication consists of a minimum of 30 semester hours in Walter Cronkite School of Journalism and Mass Communication courses.

Required core courses (12 of the 30 to 39 hours are required of all students in all five concentrations):

JMC 201 Journalism Newswriting <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 12 hours) from other areas in the major.

These courses are in addition to other degree requirements. See "University Graduation Requirements," page 89.

Related Area. Each student is required to complete a 12-semester-hour related area to complement the courses taken in the major and concentration areas.

WALTER CRONKITE SCHOOL OF JOURNALISM AND MASS COMMUNICATION

GENERAL STUDIES REQUIREMENTS

Students must satisfy the university General Studies requirement found in "General Studies," page 93. Students are advised to review carefully the appropriate school curriculum check sheet to ensure that courses taken move the student toward graduation with the least amount of delay and difficulty. Note that all three General Studies awareness areas are required.

General education requirements for the Walter Cronkite School of Journalism and Mass Communication follow.

Students are required to take one course in each of the following areas: communication (applied speech), computer science, economics, English composition (beyond the freshman level), English literature, history, mathematics (numeracy requirement), two natural science lab courses, philosophy, political science (either POS 110 or 310), and psychology.

MINOR IN MASS COMMUNICATION

The Walter Cronkite School of Journalism and Mass Communication offers a minor in Mass Communication consisting of the required course MCO 120 Media and Society and 12 additional semester hours (nine of which must be upper-division hours) of Tempe campus resident credit taken from a list of approved courses. The following courses are included:

JMC 200 Introduction to Electronic Media	3
JMC 270 Public Relations Techniques	3
MCO 240 Media Issues in American Pop Culture.....	3
MCO 418 History of Mass Communication <i>SB, H</i>	3
MCO 430 International Mass Communication <i>G</i>	3
MCO 435 Emerging Media Technologies	3
MCO 450 Visual Communication <i>HU</i>	3
MCO 456 Political Communication <i>SB</i>	3
MCO 460 Race, Gender, and Media <i>C</i>	3
MCO 473 Sex, Love, and Romance in the Mass Media <i>SB</i>	3
MCO 494 Special Topics	3

To take upper-division courses, the student must be at least a sophomore (25 semester hours). To pursue the minor in Mass Communication, the student must maintain a minimum 2.00 overall GPA, obtain a minimum grade of "C" (2.00) in each course in the minor, and have a major other than Journalism and Mass Communication.

BIS CONCENTRATION

A concentration in mass communication is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

SCHOOL OF EXTENDED EDUCATION

The university-wide School of Extended Education provides an interactive link between ASU and the diverse

communities it serves. The college assesses lifelong learning requirements and works in partnership with campuses, other colleges, and the community to serve learners, using a network of locations, programs, schedules, and technologies.

For more information, see "School of Interdisciplinary Studies," page 139, or access the Web site at www.asu.edu/xed.

GRADUATE PROGRAM

Master of Mass Communication. The curriculum for the MMC degree is designed to help students achieve intellectual and professional growth, to prepare students for positions in the mass media, and to enable those currently in the media to advance their careers. For more information, see the *Graduate Catalog*.

Walter Cronkite School of Journalism and Mass Communication

cronkite.asu.edu

480/965-5011

STAUF A231

Christopher Callahan, Dean

Professors: Callahan, Craft, Cronkite, Doig, Godfrey, Merrill, Sylvester, Watson

Associate Professors: Allen, Barrett, Bramlett-Solomon, Galician, Matera, Russell, Russomanno

Assistant Professors: Gavrilos, Schwalbe, Silcock, Thornton, Wu

Clinical Professors: Itule, Leigh

Lecturer: Casavantes

Senior Administrative Professional: Leigh

JOURNALISM AND MASS COMMUNICATION (JMC)

M JMC 200 Introduction to Electronic Media. (3)

fall, spring, summer

Surveys electronic media in the United States: history, regulation, organization, programming, and effects. Prerequisites: MCO 110 (or 120); successful completion of English proficiency exam; JMC major.

M JMC 201 Journalism Newswriting. (3)

fall, spring, summer

Writing news for the print media. Fee. Prerequisites: ENG 101 (or 105); MCO 110 (or 120); successful completion of English proficiency exam; JMC major.

General Studies: L

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

WALTER CRONKITE SCHOOL OF JOURNALISM AND MASS COMMUNICATION

M JMC 202 Radio-Television Writing. (3)

fall and spring

Writing for electronic media, news, and continuity. Fee. Prerequisites: MCO 110 (or 120); successful completion of English proficiency exam; JMC major.

General Studies: L

M JMC 235 Electronic Media Production. (3)

fall and spring

Introduces basic concepts of audio and video production. Introduces operation of portable cameras, recorders, microphones, lights, editing, and postproduction equipment. Prerequisites: MCO 110 (or 120); successful completion of English proficiency exam; JMC major.

M JMC 270 Public Relations Techniques. (3)

fall, spring, summer

Theory and practice of publicity, public relations, and related techniques and procedures. Prerequisite: MCO 110 or 120.

M JMC 300 Advanced Broadcast Newswriting. (3)

fall and spring

Technique and practice in newswriting for broadcast and cable applications. Fee. Prerequisites: JMC 201; JMC professional status.

M JMC 301 Reporting. (3)

fall and spring

Fundamentals of news gathering, interviewing, and in-depth reporting. Fee. Prerequisites: JMC 201; JMC professional status.

General Studies: L

M JMC 313 Introduction to Editing. (3)

fall and spring

Copyediting and headline writing. Electronic editing on personal computer terminals. Fee. Prerequisites: JMC 301; JMC professional status.

M JMC 315 Broadcast News Reporting. (3)

fall and spring

News and information practices of networks, stations, and industry. Practice in writing, reporting, and editing with emphasis on audio. Prerequisites: JMC 301; JMC professional status.

General Studies: L

M JMC 330 Advanced Broadcast Reporting. (3)

fall and spring

News and information practices of networks, stations, and industry. Advanced practice in writing, reporting, and editing with emphasis on video. Prerequisites: JMC 300, 301; JMC professional status.

M JMC 332 Electronic Media Programming. (3)

fall and spring

Programming theory and evaluation, regulation, ethics, and responsibilities and basics of audience psychographics and effects. Prerequisites: JMC 200; JMC professional status.

M JMC 345 Videography. (3)

fall and spring

Develops an understanding of visual storytelling and how to craft a good, compelling story with pictures and sound. Lecture, lab. Fee. Prerequisites: JMC 235; JMC professional status.

M JMC 351 Photojournalism I. (3)

fall and spring

Basic camera, lighting, and scanning skills. Discusses ethics. Emphasizes shooting pictures for newspaper assignments on deadline. Students should have a 35mm (film) camera. Fee. Prerequisite: JMC 201 or instructor approval.

M JMC 401 Advanced Public Relations. (3)

fall and spring

Advanced theory and practice of publicity, public relations, and related techniques and procedures. Prerequisites for undergraduates: JMC 270; JMC professional status.

M JMC 412 Editorial Interpretation. (3)

selected semesters

The press as an influence on public opinion. Role of the editorial in analyzing and interpreting current events. Prerequisites for undergraduates: JMC 301; JMC professional status.

M JMC 413 Advanced Editing. (3)

fall and spring

Theory and practice of newspaper editing, layout and design, picture and story selection. Fee. Prerequisites for undergraduates: JMC 313; JMC professional status.

M JMC 414 Electronic Publication Design. (3)

fall and spring

Theory, organization, and practice of layout, typography, and design in traditional and multimedia publishing. Fee. Prerequisites for undergraduates: JMC 270; JMC professional status.

M JMC 415 Writing for Public Relations. (3)

fall and spring

Development of specific writing techniques for the practitioner in public relations agencies and divisions of major organizations. Fee.

Prerequisites for undergraduates: JMC 270; JMC professional status.

M JMC 417 Public Relations Campaigns. (3)

fall and spring

Theory, principles, and literature of public relations and how they relate to audiences, campaigns, and ethics. Prerequisite: JMC 401. Prerequisite for undergraduates: JMC professional status.

M JMC 420 Reporting Public Affairs. (3)

fall and spring

Instruction and assignments in reporting the courts, schools, government, city hall, social problems, and other areas involving public issues. Prerequisites for undergraduates: JMC 301; JMC professional status.

M JMC 425 Online Media. (3)

fall and spring

Focuses on the Internet from the perspective of the journalist—the best way to tell a story using words, photos, video, and audio. Lecture, lab. Fee. Prerequisites: JMC 201 (or its equivalent); JMC professional status.

M JMC 433 Media Sales and Promotion. (3)

fall and spring

Basics of electronic media marketing practices, including commercial time sales techniques and radio/TV promotion fundamentals. Prerequisites for undergraduates: JMC 200; JMC professional status.

M JMC 437 Documentary Production. (3)

fall

Emphasizes individual production projects of the student's own conception and design utilizing studio, field, and postproduction techniques. Prerequisites for undergraduates: JMC 235; JMC professional status.

M JMC 440 Magazine Writing. (3)

fall and spring

Writing and marketing magazine articles for publication. Prerequisites for undergraduates: JMC 301; JMC professional status.

M JMC 445 Science Writing. (3)

once a year

Develops writing, interviewing, reporting skills, and an understanding of key concepts in science. Lecture, lab. Fee. Prerequisites: student in BA in Journalism and Mass Communication or MMC in Mass Communication; instructor approval.

M JMC 451 Photojournalism II. (3)

spring

Emphasizes shooting and Photoshop skills for newspaper and magazine assignments. Film and digital photography, flash and studio lighting. Fee. Prerequisite: JMC 351. Prerequisite for undergraduates: JMC professional status.

M JMC 452 Photojournalism III. (3)

fall

Continued practice in shooting (film and digital) and Photoshop skills for newspapers and magazines. Emphasizes single images, picture stories, editorial illustrations, and portfolio development. 2 hours lecture, 2 hours lab. Fee. Prerequisite: JMC 451. Prerequisite for undergraduates: JMC professional status.

M JMC 465 Precision Journalism. (3)

fall and spring

Advanced reporting methods using Internet research and data analysis tools for beat and investigative stories. Lecture, lab. Fee. Prerequisites for undergraduates: JMC 301; JMC professional status.

M JMC 470 Depth Reporting. (3)

fall and spring

Introduces strategies for writing in-depth newspaper or magazine articles. Lecture, lab. Fee. Prerequisites for undergraduates: JMC 301; JMC professional status; instructor approval.

WALTER CRONKITE SCHOOL OF JOURNALISM AND MASS COMMUNICATION

M JMC 472 Media Management. (3)

fall and spring

Management principles and practices, including organization, procedures, policies, personnel problems, and financial aspects of station management. Pre- or corequisites for undergraduates: JMC 332; JMC professional status.

M JMC 475 Television Newscast Production. (3)

fall and spring

Writing, reporting, and production of the television newscast. Prerequisite: instructor approval. Prerequisite for undergraduates: JMC professional status.

M JMC 494 Special Topics. (1-4)

selected semesters

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

MASS COMMUNICATION (MCO)

M MCO 110 Introduction to Mass Communication. (3)

fall and spring

Organization, function, and responsibilities of the media and adjunct services. Primary emphasis on newspapers, radio, television, and magazines. Credit is allowed for only MCO 110 or 120. Prerequisite: ENG 101 or 105 or 107.

General Studies: SB

M MCO 120 Media and Society. (3)

fall, spring, summer

Role of newspapers, magazines, radio, television, and motion pictures in American society. Credit is allowed for only MCO 120 or 110.

Designed for nonmajors.

General Studies: SB

M MCO 240 Media Issues in American Pop Culture. (3)

fall and spring

Examines the production and consumption of popular culture as disseminated by the mass media with emphasis on the societal implications. Lecture, discussion.

M MCO 302 Media Research Methods. (3)

fall, spring, summer

Surveys research methods used in the social sciences, with a focus on mass communication. Prerequisite: JMC professional status.

M MCO 402 Mass Communication Law. (3)

fall, spring, summer

Legal aspects of the rights, privileges, and obligations of the press, radio, and television. Prerequisites: 87 earned hours; JMC professional status.

General Studies: L

M MCO 418 History of Mass Communication. (3)

fall

American journalism from its English and colonial origins to the present day. Development and influence of newspapers, magazines, radio, television, and news gathering agencies.

General Studies: SB, H

M MCO 421 Media Problems. (3)

fall and spring

Trends and problems of the mass media, emphasizing editorial decisions in the processing of information. Prerequisite: JMC professional status.

M MCO 430 International Mass Communication. (3)

fall and spring

Comparative study of communication and media systems. Information gathering and dissemination under different political and cultural systems.

General Studies: G

M MCO 435 Emerging Media Technologies. (3)

selected semesters

Surveys new telecommunication technologies in a convergent environment.

M MCO 440 Applied Media Research. (3)

fall and spring

Design, conduct, and analysis of applied media research. Students participate in the Cactus State Poll. Lab setting. Prerequisite: JMC professional status.

M MCO 450 Visual Communication. (3)

fall, spring, summer

Theory and tradition of communication through the visual media with emphasis on the continuity of traditions common to modern visual media.

General Studies: HU

M MCO 453 American Political Film. (3)

spring

Studies the depiction of the American political process, especially the electoral process, through film. Lecture, discussion.

M MCO 456 Political Communication. (3)

fall

Theory and research related to political campaign communication. The persuasive process of political campaigning, the role of the media, the candidate, and image creation.

General Studies: SB

M MCO 460 Race, Gender, and Media. (3)

spring and summer

Reading seminar designed to give a probing examination of the interface between AHANA Americans and the mass media in the United States. Lecture, discussion. Cross-listed as AFR 460. Credit is allowed for only AFR 460 or MCO 460.

General Studies: C

M MCO 464 Media and Politics: The Fourth Estate. (3)

spring

Understanding and articulation of the place of the press as the Fourth Estate in the political life of the U.S.

M MCO 470 Issues Management and Media Strategy. (3)

selected semesters

Strategic aspects of media planning and management in public relations, public affairs, crisis communication lobbying, media ethics, and government relations. Seminar. Prerequisite: JMC professional status.

M MCO 473 Sex, Love, and Romance in the Mass Media. (3)

fall, spring, summer

The role of the mass media in constructing and/or reinforcing unrealistic mythic and stereotypic images of sex, love, and romance. Lecture, discussion. Prerequisites for nonmajors: 24 hours; 2.00 GPA. Prerequisites for majors: 40 hours; 2.50 GPA.

General Studies: SB

M MCO 494 Special Topics. (3)

selected semesters

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

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

College of Law

www.law.asu.edu

Patricia D. White, JD, Dean

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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 on the east side of the university's Tempe campus. The Law Building provides every modern facility for legal education and has been described by experts involved in law building planning as setting a new standard in functional design.

The award-winning John J. Ross-William C. Blakley Law Library, named in memory of two prominent Phoenix attorneys, is one of the finest law libraries in the Southwest. The library houses a collection of more than 414,000 volumes and microform volume equivalents. The collection includes a broad selection of case reports and statutes as well as legal treatises, periodicals, encyclopedias, digests, citators, and administrative materials. The collection also includes a growing selection of special materials dealing with international law, Indian law, Mexican law, English legal history, and law and technology.

The library, housed in a dramatic and functional building that opened in August 1993, is also a selective U.S. government depository. The building provides accessible shelving for the expanding collections and comfortable study space at carrels, tables, and lounge seating located throughout the library. Additionally, the law library has a 20-station computer lab, LEXIS and WESTLAW rooms with 10 stations each, 27 meeting and study rooms, a microforms facility, and a classroom. Both buildings are equipped with wireless Ethernet access.

Students may access other campus libraries, including the Charles Trumbull Hayden Library, the Daniel E. Noble Science and Engineering Library, the Architecture and Envi-

ronmental Design Library, and the Music Library. The collections maintained in all university libraries comprise more than three million volumes.

Special Programs

Center for the Study of Law, Science, and Technology.

The center, founded by the Arizona Board of Regents in 1984, is the oldest, largest, and most comprehensive multidisciplinary research center focusing on the intersection of law and science. The center is known as a national leader in training law students to understand and manage the legal implications of new technologies. The center anticipates issues raised by new knowledge, stimulates dialogue between legal and scientific scholars, and conducts research that promotes the legal community's engagement with scientific and technological developments. The unique breadth of faculty expertise within the College of Law—29 faculty members are center fellows—supports course offerings in a broad range of law, science, and technology subjects, such as scientific evidence, intellectual property and cyberlaw, behavioral biology, health care and bioethics, information and communication technologies, statistics and mathematical methods, biotechnology, environmental and natural resource law and policy, and risk management. A certificate program provides coherence and structure to student academic development; there are specializations in biotechnology, environmental law, health care law, and intellectual property. Externships in the local legal community provide students with hands-on experience under the guidance of skilled practitioners. The center's Technology Ventures Clinic provides a unique applied clinical experience where students evaluate inventions generated by ASU researchers, devise marketing strategies, and file patent documentation. The center is a key player in several contemporary debates within the legal academic community. For example, it sponsors an annual conference on genetics and the law. It also sponsors a speaker series each semester that attracts the country's best legal scholars. The center also copublishes, with the American Bar Association Section of Science and Technology Law, *Jurimetrics: The Journal of Law, Science, and Technology*, the oldest and most widely circulated journal in the field of law and science. Students serve as editors and officers of the journal, editing articles for publication, conducting research, and developing and writing articles under the direction of the faculty editor.

Indian Legal Program. The Indian Legal Program was established in 1988 to provide legal education to law students on topics in Indian law, generate scholarship in Indian law, and provide public service to tribal governments. The college is a strong choice for students interested in studying Native American legal systems, federal Indian law, and the

complex issues confronting Indian nations and individuals. Through a Certificate in Indian Law, the college provides its students with a quality legal education and an opportunity to gain specific knowledge and expertise in Indian law.

Students have the opportunity to participate in all phases of the Indian Legal Program and gain an in-depth understanding of the legal issues affecting Indian tribes and people. Courses on Federal Indian law and seminars on advanced Indian law topics such as tribal law and government, gaming, and American Indian cultural resources protection are part of the curriculum. Students also have the opportunity to participate in internships with local tribal courts, the Native American Rights Fund, the U.S. Department of the Interior, or the Senate Committee on Indian Affairs in Washington, D.C. This variety of academic and work experience provides students with an outstanding legal education and a firm grounding in both the theoretical and practical aspects of Indian law.

Clinical Program. The College of Law's Clinical Program provides second- and third-year students with an opportunity to handle actual cases with the direct guidance of skilled faculty members. The college offers seven real-client clinics: Civil Practice Clinic, Criminal Practice Clinic, Immigration Law and Policy Clinic, Indian Legal Clinic, Mediation Clinic, Public Defender Clinic, and Technology Ventures Clinic. The college's extensive and diverse clinical program allows students to choose among a variety of different work environments.

The Civil Practice Clinic, for example, operates as a functioning law firm within the college, while students in the criminal litigation clinics work in prosecution or public defender agencies in the Phoenix area. Students in the Mediation Clinic learn how to facilitate the resolution of disputes without litigation, and students serve as mediators in real disputes in the small claims court system. Students in the Technology Ventures Clinic work collaboratively with students from other disciplines to analyze technology portfolios and participate in an intellectual property review process for technologies. Students provide legal assistance to tribal communities and governments through the Indian Legal Clinic. Immigration Law and Policy Clinic students counsel and represent immigrants detained for immigration violations. To help prepare for participation in a clinic, second-year students are offered "simulation-based" courses in lawyering theory and practice, trial advocacy, pretrial practice, and negotiation.

Committee on Law and Philosophy. Both the College of Law and the College of Liberal Arts and Sciences have groups of excellent faculty with expertise in the philosophy of the law and related areas of moral and political philosophy. These faculty members have been brought together to form the Committee on Law and Philosophy. The overall goal of the committee is to create and maintain a rich and active intellectual community in this area and to use the resources of that community to offer conferences, lectures, courses, and seminars. Areas of particular interest to members of the committee include criminal law theory, punishment, forgiveness, constitutional interpretation, human rights theory, law and literature, law and religion, and political obligation.

ADMISSION

First-year students are admitted only for the fall semester. The formal requirements for admission to the College of Law are (1) an undergraduate degree from an accredited four-year college or university and (2) a score on the Law School Admission Test (LSAT), administered by Law Services, Box 2000, Newtown, Pennsylvania 18940, in centers throughout the country.

For more information regarding admission, call 480/965-1474 or write

ADMISSIONS OFFICE
COLLEGE OF LAW
ARIZONA STATE UNIVERSITY
PO BOX 877906
TEMPE AZ 85287-7906

Retention Standards

To be eligible to continue in the college, students must maintain a cumulative weighted GPA of 70 or higher at the end of each semester or summer session. Any student who fails to achieve a 70 GPA in any one semester, regardless of the cumulative GPA, is automatically placed on probation. Continuation of enrollment for probationary students is upon such terms and conditions as the college may impose.

A student whose cumulative GPA falls below the required level or whose semester GPA is less than 70 in two consecutive semesters is dismissed but may apply to the Office of the Dean for readmission. The Office of the Dean refers the application to a faculty Committee on Readmission. Cases in which the GPA deficiency is slight and evidence of extenuating circumstances is convincing, readmission may be granted on a probationary status after a review of the reasons contributing to unsatisfactory performance and a finding that there is substantial prospect for acceptable academic performance. Continuation in the College of Law thereafter may be conditioned on achieving a level of performance higher than the overall 70 GPA. Further detailed information concerning the college's retention standards can be found in the *Statement of Student Policies*, which is available on the college's Web site at www.law.asu.edu.

Honor Code. The legal profession, a self-regulating association, depends on the integrity, honor, and personal morality of each member. Similarly, the integrity and value of an ASU College of Law degree depends on a reputation for fair competition. The college's *Honor Code* is intended as a measure to preserve the integrity of the school's diploma and create an arena in which students can compete fairly and confidently. Copies of the *Honor Code* are available from the college's Student Services Office.

ACCREDITATION

The college is fully accredited by the American Bar Association and is a member of the Association of American Law Schools.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

COLLEGE OF LAW

College of Law Graduate Degrees and Majors

Major	Degree	Concentration	Administered By
Biotechnology and Genomics	LLM	—	College of Law
Law	JD	—	College of Law
Legal Studies	MLS	—	College of Law
Tribal Policy, Law, and Government	LLM	—	College of Law

JURIS DOCTOR DEGREE

The College of Law offers a three-year program of professional studies at the graduate level leading to the degree of Juris Doctor. For more information on degrees, see the "College of Law Graduate Degrees and Majors" table, on this page and the "Concurrent and Dual Degrees" table, page 169. For more information on degrees and courses, see the *Graduate Catalog*.

Course of Study

The program of study in the College of Law is designed for full-time students. In the first year of the three-year program, the course of study is prescribed and incorporates the time-proven techniques of legal education. This first year gives students—by the "case method," by the "problem method," by "moot court," and through other techniques—an intensive exposure to basic legal processes.

As a part of the program, first-year students are assigned to small sections. In the Legal Research and Writing program, first-year students prepare legal briefs and memoranda and receive feedback through the use of practice examinations. The program focuses on the development of writing and organizational skills necessary for success in law school and the practice of law. The second and third years cover a wide range of courses varying in format as well as subject matter, allowing students to pursue both the basic subjects of law study and specialized interests. By offering great freedom in the selection of subjects, the educational experience of the second and third years is in sharp contrast to the curriculum of the first year. In addition, the college offers a number of faculty-supervised clinical education programs and a program of supervised externships.

MORE INFORMATION

Further detailed information concerning the course of study, admission practices, expenses, and financial assistance can be found on the college's Web site at www.law.asu.edu. To request application forms, call 480/965-7207 or write

ADMISSIONS OFFICE
COLLEGE OF LAW
ARIZONA STATE UNIVERSITY
PO BOX 877906
TEMPE AZ 85287-7906

For general information about the College of Law, call 480/965-1474, or access the Web site at www.law.asu.edu.

Law

www.law.asu.edu

480/965-6181

LAW 101

Patricia D. White, Dean

Gary Merchant, Executive Director

Center for the Study of Law, Science, and Technology

Catherine O'Grady, Executive Director, Clinical Programs

Jeffrie G. Murphy, and James Nickel, Codirectors,
Committee on Law and Philosophy

Rebecca Tsosie, Executive Director,
Indian Legal Program

Judith M. Stinson, Director,
Legal Research and Writing and Academic Success
Programs

Regents' Professors: Kaye, Murphy

Professors: Abbott, Bartels, Bender, Berch, Calleros, Clinton, Ellman, Feller, Gorman, Gover, Grey, Guerin, Kader, Karjala, Lowenthal, Lynk, Marchant, Nickel, O'Grady, Rose, Saks, Schatzki, Schroeder, Spritzer, Stanton, Strouse, Tsosie, Weinstein, M. White, P. White, Winer

Visiting Professors: Anderson, Barnes, Farringer-Parker, Menhkus, Plunkett

Associate Professors: Brauner, Chodorow, Demaine, Fellmeth, Gopalan, Kittrie, Sigler, Sylvester

Clinical Professors: Dallyn, Dauber, Stinson, Trotta, Warne

Clinical Associate Professors: Cruz, Davis, Herrera, Hinshaw, Langenfeld, Noreuil, Popko

LAW (LAW)

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

College of Liberal Arts and Sciences

clas.asu.edu

David A. Young, PhD, Vice President and Dean

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PURPOSE

Like all major research universities, Arizona State University provides the means for undergraduates to acquire a liberal education, an education that broadens students' understanding in the major areas of human knowledge while providing students with in-depth knowledge in their chosen areas of focus. While the professional schools and colleges can and do provide for important dimensions of a liberal education, the central academic setting for accomplishing this basic university purpose is the College of Liberal Arts and Sciences (CLAS). The college provides a particularly rich and varied set of opportunities for students to gain the kind of liberal education that helps to prepare them for a lifetime of continued learning and application of knowledge in a diverse and ever-changing world.

As a consequence of the wide range of subjects CLAS offers in the humanities, the natural sciences and mathematics, and the social and behavioral sciences, instruction is provided in a number of core areas for undergraduate students from all of the other colleges. Students with majors in business, education, engineering, nursing, and other professional colleges rely on CLAS for basic foundation courses. CLAS also offers the majority of courses meeting the General Studies requirement.

CLAS initiated and continues to participate actively with the Barrett Honors College. It also offers advising to undergraduates who are working out their undergraduate programs or are planning for graduate studies.

Most of the university faculty's engagement in the discovery and creation of knowledge and its dissemination occurs in CLAS. As an integral part of this activity, CLAS offers a wide range of graduate training programs leading to a master's or doctoral degree. For graduate degree application information, see the *Graduate Catalog* and contact either the Division of Graduate Studies or the academic unit

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

in which the degree of interest would be earned, the latter in order to receive detailed information on particular degree requirements.

ORGANIZATION

CLAS consists of the School of Global Studies, the Hugh Downs School of Human Communication, the School of Human Evolution and Social Change, the School of Justice and Social Inquiry, the School of Life Sciences, 20 academic departments, several interdisciplinary programs, 10 centers, and several research institutes and laboratories. The college offers 40 programs leading to a bachelor's degree, 31 programs leading to a master's degree, 22 programs leading to a doctoral degree, and interdisciplinary graduate programs in cooperation with other colleges. Undergraduate customized interdisciplinary degrees are also available.

For more information, access the college's Web site at clas.asu.edu.

ADMISSION

Any entering ASU student who has met the minimum university entrance requirements can be admitted to a CLAS program.

Any student who is in university good standing, who wishes to major in a subject offered by CLAS and to follow a program of study in the major may transfer into the college. Current ASU students who are changing their majors to CLAS from another ASU college are encouraged to first contact the advisor in the department they are moving to.

Transfer Students. The university standards for evaluation of transfer credit are listed under "Transfer Credit," page 71. All students who meet the university standards are admissible to CLAS. Transfer students are urged to contact the relevant academic department or the Office of Undergraduate Programs in FOUND 110, to ensure a smooth transition to CLAS. Students who have transferred course credit from institutions other than Arizona community colleges or public universities must have their transcripts evaluated by an advisor in FOUND 110. Students who have attended only Arizona community colleges, Northern Arizona University, or the University of Arizona have evaluations performed in the department of the major.

Courses transferred from two-year colleges are accepted as lower-division credit only. Students are urged to choose their community college courses carefully, in view of the fact that a minimum of 45 semester hours of work taken at the university must be upper-division credit (see "Community Colleges," page 72).

ADVISING

All students are urged to seek advising in the appropriate college unit before registration. Students must follow the calendar published in the *Schedule of Classes* each semester for information and deadlines pertaining to enrollment, adding/dropping classes, and withdrawals.

In addition to information provided by an advisor, students must read the requirements for university General Studies, college graduation, and major degree requirements in their edition of the *ASU General Catalog*. See "General Studies," page 93, "University Graduation Requirements,"

page 89, "College Graduation Requirements," page 503, and the section of the department offering the major. The *ASU General Catalog* is the governing source for all degree requirements.

Regular Advising. All students are strongly urged to seek advising in the appropriate college unit before registration.

Advising Locations. CLAS students should seek routine advising at the locations shown in the "Advising Locations" table, on this page.

The Office of Undergraduate Programs, in FOUND 110, is the central resource center for academic information in the college. Requests from students, departmental advisors, and faculty for clarification of rules, procedures, and advising needs of the college and university should be directed to that office.

Advising Locations

Student	Location
Career advising (all majors)	FOUND 110 (480/965-6506)
Declared majors in academic good standing	Department of major

Mandatory Advising. The following categories of Liberal Arts and Sciences students *must* receive advising and *must* be cleared on the Mandatory Advising Computer System (MACS) before their classes are scheduled:

1. students in their first semester at ASU;
2. students on probation;
3. students with a cumulative GPA of less than 2.00;
4. students in their first three semesters (in selected departments);
5. other students with "special admissions" status; and
6. students who have been disqualified (these students are allowed to attend ASU summer and winter sessions only and must be advised in the Office of Undergraduate Programs in FOUND 110).

Students in the above mandatory advising categories should consult an advisor in the appropriate advising location listed in the previous section. Students are encouraged to check their mandatory advising status each semester before attempting registration transactions.

Advising for Preprofessional Programs. Special advising is available for students planning to enter the fields listed in the "Advising for Preprofessional Programs" table, page 501. The professional programs shown in the table are not majors in themselves; that is, there are no majors called "premedical," "prelaw," etc. In each program, the student must select an established major in CLAS or in one of the other colleges.

Pre-Health Professions. Students pursuing admission to professional schools in the health professions must choose a major offered by ASU. However, specific courses must be taken to prepare the student to take the MCAT or other entrance examinations and to succeed in postbaccalaureate training. Therefore, students who plan to pursue a health

Advising for Preprofessional Programs

Professional Field	Office Where Advisor Is Located
Dentistry ^{1, 2}	Pre-Health Professions, LSC 206C
Foreign service	Department of chosen major
Law	Office of Undergraduate Programs, FOUND 110
Medicine ¹	Pre-Health Professions, LSC 206C
Ministry	Department of Religious Studies, ECA 365
Occupational therapy ¹	Pre-Health Professions, LSC 206C
Optometry ^{1, 2}	Pre-Health Professions, LSC 206C
Osteopathy ¹	Pre-Health Professions, LSC 206C
Pharmacy ¹	Pre-Health Professions, LSC 206C
Physical therapy ¹	Pre-Health Professions, LSC 206C
Podiatry ^{1, 2}	Pre-Health Professions, LSC 206C

¹ Students preparing for a career in these areas should register in the Pre-Health Professions office, 480/965-2365.

² No school in Arizona offers a program in dentistry, optometry, or podiatry. Students interested in pursuing these professions should confer with Pre-Health Professions advisors concerning out-of-state schools where they may complete their training.

profession should meet regularly with the Pre-Health Professions office for guidance. While this guidance does not replace the need to meet with an advisor in the department of the student's major, pre-health advising is a necessary supplement. To schedule a meeting with Pre-Health Professions, located in LSC 206, call 480/965-2365.

Prelaw. The American Bar Association does not recommend any specific major for students who wish to apply to law school upon graduation. ASU does not have a "prelaw" degree program. Therefore, students should select a major that interests them. Recent surveys of law school graduates indicate that students would be well advised to take one or two semesters of accounting as a supplement to their major curriculum. In addition, the American Bar Association recommends a variety of courses in the classics, in economics, and in mathematical reasoning. Courses that engage the student in intense critical analysis and a substantial amount of writing are also recommended. As the student approaches the second semester of his or her junior year, the student should contact the prelaw advisor in the college or department of his or her major to obtain information regarding the procedure to apply to law school.

Career Advising: CLASWorks. A degree in the liberal arts and sciences prepares a student for careers that include but are not limited to business, government/public service, nonprofit organizations, the arts, science and research, and most corporate environments. By the time of graduation, CLAS students have developed the ability to solve problems, analyze data, communicate ideas, and execute complex plans. To identify career paths that best fit a student's interests and talents, the Office of Undergraduate Programs offers individualized career advising. To make an appointment, call 480/965-6506.

Internships. All students are encouraged to complete at least one internship before graduation. Many CLAS disciplines have well-established internship programs, so students should begin with their academic departments. Contact information may be found on the Web at clas.asu.edu/students/clasworks. To develop a successful internship experience, students are encouraged to meet with the director of CLASWorks for a career advising session soon after arriving on campus.

DEGREES

Majors. Programs leading to the BA and BS degrees are offered by CLAS, with majors in the subjects listed in the "College of Liberal Arts and Sciences Baccalaureate Degrees and Majors" table, page 502. Each major is administered by the academic department indicated.

Concurrent degrees and second baccalaureate degrees. Students who wish to pursue a concurrent degree in CLAS may not double count courses from one major to the other. Each major must consist of a minimum of 30 semester hours unique to that major. Students who wish to obtain concurrent degrees must realize that there are certain combinations that would not be approved because there is too great an overlap between the courses required for each major. Similarly, students who earn one baccalaureate degree may not earn a second baccalaureate degree in the same major or in a major that does not contain 30 core hours unique to that major. For example, a student may not pursue a degree in two life science fields (with the exception of Clinical Laboratory Sciences).

Minors. Although not required for graduation, special college-approved minors are available in most departments. Check department program descriptions for details. Minors must have at least 18 hours of designated courses, including at least 12 hours of upper-division work. The college requires a grade of at least "C" (2.00) in all upper-division courses in the minor. Some departments have stricter requirements. A minimum of six upper-division hours in the minor must be taken in residence at the Tempe campus.

University policies prohibit the "double-counting" of courses from the major for the minor. Specific questions concerning double-counting, as well as general questions about the approval processes for minors, should be taken up with an academic advisor in the department offering the minor or the Office of Undergraduate Programs in FOUND 110.

Refer to the CLAS portion of the "ASU Minors" table, page 127.

Graduate Degrees. See the "College of Liberal Arts and Sciences Graduate Degrees and Majors" table, page 506. Refer to the *Graduate Catalog* for requirements.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

College of Liberal Arts and Sciences Baccalaureate Degrees and Majors

Major	Degree	Concentration ¹	Administered By
African and African American Studies	BA	Humanities/arts; politics and society; or social and behavioral sciences	African and African American Studies Program
American Indian Studies	BS	—	American Indian Studies Program
Anthropology	BA	—	School of Human Evolution and Social Change
Asian Languages (Chinese/Japanese)	BA	—	Department of Languages and Literatures
Biochemistry	BA	—	Department of Chemistry and Biochemistry
	BS	Optional: medicinal chemistry ¹	Department of Chemistry and Biochemistry
Biology	BS	Optional: biology and society ¹	School of Life Sciences
Chemistry	BA	—	Department of Chemistry and Biochemistry
	BS	Optional: environmental chemistry ¹	Department of Chemistry and Biochemistry
Chicana and Chicano Studies	BA	Humanities/cultural sciences or social sciences/policy	Department of Chicana and Chicano Studies
Clinical Laboratory Sciences	BS	—	School of Life Sciences
Communication	BA, BS	—	Hugh Downs School of Human Communication
Computational Mathematical Sciences	BS	—	Department of Mathematics and Statistics
Conservation Biology	BS	—	School of Life Sciences
Economics	BS	—	Department of Economics ²
English	BA	Creative writing, linguistics, or literature	Department of English
Family and Human Development	BS	Optional: family studies/child development ¹	Department of Family and Human Development
Film	BA	Film and media studies	College of Liberal Arts and Sciences
French	BA	—	Department of Languages and Literatures
Geography	BA, BS	Meteorology-climatology or urban studies	Department of Geography
Geological Sciences	BS	—	Department of Geological Sciences
German	BA	—	Department of Languages and Literatures
Global Studies	BA	—	School of Global Studies
History	BA	—	Department of History
Integrated Studies	BA, BS	—	College of Liberal Arts and Sciences
Italian	BA	—	Department of Languages and Literatures
Justice Studies	BS	—	School of Justice and Social Inquiry
Kinesiology	BS	Exercise science, movement science, or teacher preparation ²	Department of Kinesiology
Liberal Studies ³	BLS	—	College of Liberal Arts and Sciences

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

² The department is in the W. P. Carey School of Business, which also offers this major, with different requirements.

³ This degree program has special eligibility requirements; for more information, contact the Office of Undergraduate Programs.

College of Liberal Arts and Sciences Baccalaureate Degrees and Majors (continued)

Major	Degree	Concentration ¹	Administered By
Mathematics	BA	—	Department of Mathematics and Statistics
	BS	Optional: statistics ¹	Department of Mathematics and Statistics
Microbiology	BS	—	School of Life Sciences
Molecular Biosciences/ Biotechnology	BS	—	School of Life Sciences
Philosophy	BA	—	Department of Philosophy
Physics	BS	—	Department of Physics and Astronomy
Plant Biology	BS	Environmental science and ecology or plant biochemistry and molecular biology	School of Life Sciences
Political Science	BA, BS	—	Department of Political Science
Psychology	BA, BS	—	Department of Psychology
Religious Studies	BA	—	Department of Religious Studies
Russian	BA	—	Department of Languages and Literatures
Sociology	BA	—	Department of Sociology
Spanish	BA	—	Department of Languages and Literatures
Speech and Hearing Science	BS	—	Department of Speech and Hearing Science
Women and Gender Studies	BA	—	Women and Gender Studies Program

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

² The department is in the W. P. Carey School of Business, which also offers this major, with different requirements.

³ This degree program has special eligibility requirements; for more information, contact the Office of Undergraduate Programs.

SCHOOL OF EXTENDED EDUCATION

The university-wide School of Extended Education provides an interactive link between ASU and the diverse communities it serves. The college assesses lifelong learning requirements and works in partnership with campuses, other colleges, and the community to serve learners, using a network of locations, programs, schedules, and technologies.

For more information, see “School of Extended Education,” page 134, or access the Web site at www.asu.edu/xed.

UNIVERSITY GRADUATION REQUIREMENTS

In addition to fulfilling college and major requirements, students must meet all university graduation requirements. For complete information, see “University Graduation Requirements,” page 89.

General Studies Requirement

All students enrolled in a baccalaureate degree program must satisfy a university requirement of a minimum of 35 hours of approved course work in General Studies, as described in “General Studies,” page 93. Note that all three General Studies awareness areas are required. Consult an advisor for an approved list of courses.

General Studies courses are listed in the “General Studies Courses” table, page 96, in the course descriptions, in the *Schedule of Classes*, and in the *Summer Sessions Bulletin*.

COLLEGE GRADUATION REQUIREMENTS

All students in the College of Liberal Arts and Sciences (CLAS) must complete the university General Studies requirement as well as all requirements in the major. In addition, the college has established requirements that are specific to the Bachelor of Arts and Bachelor of Science degrees.

- A. Bachelor of Arts Degrees. Students pursuing BA degrees in the CLAS must demonstrate intermediate proficiency in a second language by completing the courses specified below with a grade of “C” (2.00) or higher in each course. Second language course requirements consist of
 1. completion of second language course work at the intermediate level (202 or equivalent, those students completing this requirement in

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

- Ancient Greek must take both GRK 301 and 302; students completing the requirement in Portuguese or Romanian must complete POR 314 or ROM 314);
2. a foreign language course at the 300 level or higher taught in the foreign language and having 202 or its equivalent as a prerequisite;
 3. completion of secondary education at a school in which the language of instruction is not English; or
 4. completion of SHS 202 American Sign Language IV or its equivalent.
- B. Bachelor of Science degrees. Students pursuing BS degrees in the CLAS must complete six semester hours (two courses) of "Science and Society" courses. Students should consult with an advisor in the department or school of their major for a list of appropriate courses.
- C. All students are required to take a minimum of MAT 119 or higher. A grade of "C" (2.00) or higher must be earned in the chosen mathematics course.

Major Requirements

Each student is required to select a major from among the fields of study offered by CLAS. The requirements for completion of the major are described under departmental listings.

- A. The major department may require up to 45 semester hours of course work. The minimum is 30 hours. A maximum of 15 additional hours may be required in related courses and prerequisites. No more than 60 semester hours of course work may be required to complete the major, related courses, and prerequisites. Some departments require calculus-level mathematics; up to five of these semester hours may be excluded from the 60-hour maximum because they satisfy the mathematics proficiency requirement. A minimum of 12 upper-division hours in the major must be taken in residence.
- B. No credit is granted toward fulfilling major or minor requirements in any upper-division course in that subject field unless the grade in that course is at least a "C" (2.00). In CLAS, the assignment of a grade of "Y" indicates a level of performance that would have resulted in a grade of at least "C" (2.00) had the normal grading scheme been used.
See the individual departments for other minimum grade requirements.
- C. Major fields of study are classified into the following three divisions:
 1. Humanities:
 - Asian Languages (Chinese/Japanese) (CHI/JPN)
 - English (ENG)
 - French (FRE)
 - Film and Media Studies (FMS)
 - German (GER)
 - History (HST)

- Italian (ITA)
 - Philosophy (HPS, PHI)
 - Religious Studies (REL)
 - Russian (RUS)
 - Spanish (SPA)
2. Natural sciences and mathematics:
 - Biochemistry (BCH)
 - Biology (BIO)
 - Chemistry (CHM)
 - Clinical Laboratory Sciences (CLS)
 - Computational Mathematical Sciences (MAT)
 - Conservation Biology (BIO)
 - Geological Sciences (GLG)
 - Kinesiology (KIN)
 - Mathematics (MAT)
 - Microbiology (MIC)
 - Molecular Biosciences/Biotechnology (MBB)
 - Physics (AST, PHS, PHY)
 - Plant Biology (PLB)
 - Psychology (PGS, PSY)
 - Speech and Hearing Science (SHS)
 3. Social Sciences:
 - African and African American Studies (AFH, AFR, AFS)
 - American Indian Studies (AIS)
 - Anthropology (ASB)
 - Chicana and Chicano Studies (CSH, CSS)
 - Communication (COM)
 - Economics (ECN)
 - Family and Human Development (CDE, FAS)
 - Geography (GCU, GPH)
 - Global Studies (SGS)
 - Justice and Social Inquiry (JUS)
 - Political Science (POS)
 - Sociology (SOC)
 - Women and Gender Studies (WSH, WST)

General Electives

Most CLAS majors can meet all of the above requirements with fewer than the 120 semester hours required for graduation. Remaining hours are general electives that may be selected from any of the departments of CLAS and from the offerings of the other colleges.

Declaration of Graduation. The declaration of graduation, which is required by university regulations during the semester in which an undergraduate earns the 87th hour, must be filed and approved at least two weeks before the preregistration period for the subsequent semester. Students should run a new Degree Audit Reporting System report every semester to gauge how well they are meeting all requirements for graduation. Students should contact the Office of Undergraduate Programs, in FOUND 110, regarding college graduation rules and deadlines. Deadlines for filing the declaration of graduation after enrolling in the 87th hour are March 1 and October 1 of each year. Students with 87 hours must have a college-approved declaration of graduation before registering for the next semester.

Credit Requirement. All candidates for graduation in the BA and BS degree curricula are required to complete at least 120 semester hours, of which at least 45 hours must consist of upper-division courses. A minimum ASU cumulative GPA of 2.00 is required for graduation.

Concurrent Degrees. Students who wish to obtain concurrent degrees must realize that there are certain combinations that would not be approved because there is too great an overlap between the courses required for each major. For example, students may not obtain concurrent degrees in two life sciences. Students who wish to obtain concurrent degrees may not double-count courses from one major to the next, but must have at least 30 different semester hours in each major.

Course Load. The normal course load is 15 to 16 semester hours. First-semester freshmen and entering transfer students are not permitted to register for more than 18 semester hours in the initial semester. Other students who wish to register for more than 18 hours must have a GPA of at least 3.00 and must file a petition in the Office of Undergraduate Programs, in FOUND 110, before registration. Any petition for an overload in excess of 21 hours must be presented to the Standards Committee of the college. No student should assume that his or her petition for overload will be granted.

SPECIAL CREDIT OPTIONS

Pass/Fail Grade Option. The pass/fail grade option is intended to broaden the education of Liberal Arts and Sciences undergraduates by encouraging them to take advanced courses outside their specialization. A mark of "P" contributes to the student's earned hours but does not affect the GPA. A failing grade is computed into the GPA.

Only CLAS students with at least 60 semester hours may take courses under the pass/fail option. The option may be used under the following conditions:

1. enrollment for pass/fail needs the approval of the instructor and the college;
2. enrollment under this option must be indicated during registration and may not be changed after the late registration period; and
3. a maximum of 12 hours taken for pass/fail may be counted toward graduation.

Students may not enroll under the pass/fail option in the following courses:

1. those taken to satisfy the second language or First-Year Composition requirements;
2. those in the student's major, minor, or certificate program;
3. those counted toward or required to supplement the major;
4. those counted as 499 Individualized Instruction;
5. those taken for honors credits; or
6. those counted toward satisfying the CLAS graduation requirements or the General Studies requirement.

Audit Grade Option. A student may choose to audit a course in which he or she attends regularly scheduled class

sessions but earns no credit. The student should obtain the instructor's approval before registering for the course. For more information, see "Grading System," page 82.

Note: This grade option may not be changed after the drop/add period.

Independent Learning. Study by Independent Learning is not a normal part of a degree program; special circumstances must exist for a degree-seeking student to take Independent Learning courses. Any enrollment in such courses must have the prior approval of the college.

ACADEMIC STANDARDS

The standards for GPA and the terms of probation, disqualification, reinstatement, and appeal are identical to those of the university as set forth under "Retention and Academic Standards," page 86, except that the disqualified student in CLAS is suspended for at least two regular semesters at the university. When students are placed on probation, one of three things can happen:

1. the student may raise his or her cumulative GPA to academic good standing (see "Academic Good Standing," page 86) by taking new classes and be removed from probation after the fall or spring semester;
2. the student may receive the required semester GPA, but not raise the cumulative GPA to academic good standing, in which case, the student may continue on probation, earning the required semester GPA, for as many semesters as it takes to raise the cumulative GPA to good standing; or
3. the student may fail to achieve the required semester GPA and be disqualified.

Students who leave the university for a semester or more while on probation are not automatically readmitted. Such students, as well as all disqualified students, should contact the Office of Undergraduate Programs in FOUND 110, regarding procedures and guidance for reinstatement and returning to good standing. By following recommendations and meeting established standards for summer school work or course work at other institutions, the possibility of successful reinstatement is enhanced. Academic discipline is one of the functions of the Office of Undergraduate Programs. All students having academic difficulties of any kind should contact this office. Also available in this office is information on policies and procedures of the college on academic honesty, student grievances with respect to grades, and various petitions regarding college standards and graduation requirements.

Academic honesty is expected of all students in all examinations, papers, academic transactions, and records. The possible sanctions include, but are not limited to, appropriate grade penalties, loss of registration privileges, disqualification, and dismissal.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

College of Liberal Arts and Sciences Graduate Degrees and Majors

Major	Degree	Concentration ¹	Administered By
Anthropology	MA	Archaeology, bioarchaeology, linguistics, museum studies, physical anthropology, or social-cultural anthropology	School of Human Evolution and Social Change
	PhD	Archaeology, physical anthropology, or social-cultural anthropology	School of Human Evolution and Social Change
Asian Languages and Civilizations—Chinese/Japanese	MA	—	Department of Languages and Literatures
Audiology	AuD	—	Department of Speech and Hearing Science
Biology	MS, PhD	Optional: ecology ¹	School of Life Sciences
Chemistry	MS, PhD	Analytical chemistry, biochemistry, geochemistry, inorganic chemistry, organic chemistry, physical chemistry, or solid-state chemistry	Department of Chemistry and Biochemistry
Communication	MA	—	Hugh Downs School of Human Communication
	PhD	Communicative development, intercultural communication, or organizational communication	Hugh Downs School of Human Communication
Communication Disorders	MS	—	Department of Speech and Hearing Science
Computational Biosciences	PSM	—	College of Liberal Arts and Sciences
Creative Writing ²	MFA	—	Creative Writing Committee
English	MA	Comparative literature, English linguistics, literature and language, or rhetoric and composition	Department of English
	PhD	Literature or rhetoric/composition and linguistics	Department of English
Family and Human Development	MS	Optional: family studies ¹	Department of Family and Human Development
Family Science	PhD	Optional: marriage and family therapy ¹	Department of Family and Human Development
French	MA	Comparative literature, linguistics, or literature	Department of Languages and Literatures
Geographic Information Systems	MAS	—	Department of Geography
Geography	MA, PhD	—	Department of Geography
Geological Sciences	MS, PhD	—	Department of Geological Sciences
German	MA	Comparative literature, language and culture, or literature	Department of Languages and Literatures
History	MA	Asian history, British history, European history, Latin American history, public history, U.S. history, or U.S. Western history	Department of History
	PhD	Asian history, British history, European history, Latin American history, or U.S. history	Department of History

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

² This program is administered by the Division of Graduate Studies.

³ Students may pursue this degree only in conjunction with the doctoral degree in the same unit, which admits students to only the doctoral degree program.

College of Liberal Arts and Sciences Graduate Degrees and Majors (continued)

Major	Degree	Concentration ¹	Administered By
Justice Studies	MS	—	School of Justice and Social Inquiry
	PhD	Optional: criminal and juvenile justice; dispute resolution; law, justice, and minority populations; law, policy, and evaluation; or women, law, and justice ¹	School of Justice and Social Inquiry
Kinesiology	MS	—	Department of Kinesiology
	PhD	Biomechanics, motor behavior/sport psychology, or physiology of exercise	Committee on Exercise Science
Liberal Studies	MLSt	—	College of Liberal Arts and Sciences
Materials Science ²	MS	—	Committee on the Science and Engineering of Materials
Mathematics	MA	—	Department of Mathematics and Statistics
	PhD	Optional: computational biosciences ¹	Department of Mathematics and Statistics
Microbiology	MS, PhD	—	School of Life Sciences
Molecular and Cellular Biology	MS	—	Interdisciplinary Committee on Molecular and Cellular Biology
	PhD	Optional: computational biosciences ¹	Interdisciplinary Committee on Molecular and Cellular Biology
Natural Science	MNS	Biology, microbiology, or plant biology	School of Life Sciences
		Chemistry	Department of Chemistry and Biochemistry
		Geological sciences	Department of Geological Sciences
		Mathematics	Department of Mathematics and Statistics
		Physics	Department of Physics and Astronomy
Philosophy	MA, PhD	—	Department of Philosophy
Physics	MS, PhD	—	Department of Physics and Astronomy
Plant Biology	MS, PhD	Optional: ecology or photosynthesis ¹	School of Life Sciences
Political Science	MA, PhD	American politics, comparative politics, international relations, or political theory	Department of Political Science
Psychology	MA ³	—	Department of Psychology
	PhD	Behavioral neuroscience, clinical psychology, cognitive/behavioral systems, developmental psychology, quantitative research methods, or social psychology	Department of Psychology
Religious Studies	MA, PhD	—	Department of Religious Studies
Science and Engineering of Materials ²	PhD	High-resolution nanostructure analysis or solid-state device materials design	Committee on the Science and Engineering of Materials
Sociology	MA, PhD	—	Department of Sociology
Spanish	MA	Comparative literature, language and culture, linguistics, or literature	Department of Languages and Literatures
	PhD	Cultural studies or literature	Department of Languages and Literatures

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

² This program is administered by the Division of Graduate Studies.

³ Students may pursue this degree only in conjunction with the doctoral degree in the same unit, which admits students to only the doctoral degree program.

COLLEGE OF LIBERAL ARTS AND SCIENCES

College of Liberal Arts and Sciences Graduate Degrees and Majors (continued)

Major	Degree	Concentration ¹	Administered By
Speech and Hearing Science	PhD	Developmental neurolinguistic disorders, neuroauditory processes, or neurogerontologic communication disorders	Department of Speech and Hearing Science
Statistics ²	MS	—	Committee on Statistics
Teaching English as a Second Language	MTESL	—	Department of English

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

² This program is administered by the Division of Graduate Studies.

³ Students may pursue this degree only in conjunction with the doctoral degree in the same unit, which admits students to only the doctoral degree program.

STUDENT RESPONSIBILITIES

Any student enrolling in courses offered by CLAS is expected to follow the rules and deadlines specified in this catalog and the current *Schedule of Classes*. Students are urged to meet with their departmental academic advisors before registration. Students with additional questions or problems are also urged to meet with advisors in the Office of Undergraduate Programs, in FOUND 110, regarding the academic rules of the college and the university.

SPECIAL PROGRAMS

Barrett Honors College. CLAS works closely with the Barrett Honors College, which affords qualified undergraduates opportunities for enhanced educational experiences. For a complete description of requirements and opportunities, see “The Barrett Honors College,” page 145.

CLASWorks. The college provides a comprehensive career management program for all CLAS majors: CLASWorks. This program includes a first-year seminar as well as an upper-division course in career management. Individualized advising sessions, career events, and a Web-based list of CLASWorks contacts are available. Students are encouraged to meet with the director of CLASWorks during their first semester at ASU to explore opportunities in full- and part-time employment, volunteerism, and internships. For more information, call 480/965-6506, or access the Web site at clas.asu.edu/students/clasworks.

Integrated Studies. An Integrated Studies major leading to the BA or BS degree provides students of outstanding ability in the humanities, natural sciences and mathematics, and social and behavioral sciences opportunities to pursue courses of study that cut across departmental boundaries and focus on specific topics or problem areas. Completion of 32 semester hours at ASU with a GPA of at least 3.25 and three letters of recommendation from ASU faculty members are required for admission. For more information about degree requirements, visit the Office of Undergraduate Programs in FOUND 110.

Learning Communities. These nine to 12 semester hour communities allow students to explore an important topic in depth, in mainly small classes, while earning a number of General Studies credits and completing their university

writing requirement. The CLAS Learning Communities offer students an opportunity to learn how to think about issues on multiple levels and apply skills across different domains. Course material and extracurricular activities are integrated to enhance the student’s intellectual development. Each Learning Community is limited to fewer than 100 students, enabling the student to develop a supportive network of peers on campus. For more information, including residence hall information, access the Web site at clas.asu.edu/students/learningcommunities.

Bachelor of Liberal Studies. The College of Liberal Arts and Sciences offers a 120-semester-hour undergraduate degree completion program in Liberal Studies to Arizona students who have previously earned 60 to 90 semester hours at one of the Arizona universities or community colleges and meet our eligibility requirements. This degree completion program is most suitable for working adults since courses will be offered online and via independent study. There will be registration and individualized instruction fees in addition to tuition. For more information on eligibility requirements, call the Office of Undergraduate Programs at 480/965-6506.

Washington Semester Program. Students have a variety of opportunities for practicum and internship experiences that enable them to meld classroom learning with practical application. Among the several individual departmental programs that provide internships for majors, the Department of Political Science is the ASU sponsor of the Washington Semester Program. The program provides students a one-semester opportunity to study in Washington, D.C., through any one of several programs sponsored by the American University. The program is available to outstanding juniors or seniors and requires careful planning with an academic advisor early in the student’s career. For more information, call the Department of Political Science at 480/965-6551.

Military Officer Training. The Departments of Aerospace Studies and Military Science offer programs leading to commissions in the armed forces, but they do not offer majors or minors. For more information, see the appropriate department descriptions in this catalog.

Certificate Programs and Areas of Emphasis

Certificates are available from numerous units in CLAS, and one collegewide Enriched College Degree Certificate is available to any major in the college as shown in the "CLAS Certificates" table, page 510. Areas of emphasis are also available in some of the same subjects (e.g., Latin American Studies).

Enriched College Degree. CLAS offers an Enriched College Degree Certificate, available to any student within the university.

The Enriched College Degree Certificate consists of a minimum of 15 semester hours with a minimum of "C" (2.00) grade credit. The certificate consists of

1. a theme requirement composed of a three-course sequence outside the student's major, characterized by an identifiable theme of intellectual relevance for students (courses used for the theme requirement cannot be from one's major, minor, or another certificate);
2. an approved upper-division bridge course selected to address the relationships among areas of inquiry and means of acquiring knowledge; and
3. an approved upper-division course in spoken English to provide a meaningful opportunity for substantive oral presentations.

For more information, visit the CLAS Office of Undergraduate Programs, in FOUND 110, or call 480/965-6506.

Asian Studies. Asian and East Asian Studies certificates are offered through the Center for Asian Studies. The certificates provide students with official transcript recognition of specialization in Asian Studies related to their major area of study.

The certificate curriculum includes 24 semester hours of course work:

1. 15 semester hours of upper-division area studies course work in at least three disciplines outside of languages and literature courses (such as anthropology, art, geography, history, political science, and religious studies); and
2. nine additional semester hours may be some combination of lower- and/or upper-division courses. Six hours may be satisfied with language and literature courses limited to 321 and above.

In addition, certificate students must demonstrate proficiency in an Asian language at the intermediate level. The language requirement can be satisfied by completing the 201 and 202 sequence, one year of study abroad at the intermediate level, or satisfactory placement on a proficiency exam. Asian languages include Chinese, Hindu/Urdu, Indonesian, Japanese, Korean, Lao, Thai, and Vietnamese. Students pursuing an East Asian Certificate must fulfill the language requirement in either Chinese, Japanese, or Korean, and the 15 hours of upper-division course work must be courses with significant focus on East Asia chosen in consultation with the Center for Asian Studies advisor.

A graduate certificate in Asian Studies is also available. For more information, see the *Graduate Catalog*.

BIS Concentrations. An Asian studies concentration is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

An Asian Studies concentration requires 23 to 25 semester hours of course work:

1. one year of an Asian language consisting of 10 semester hours of lower-division courses or six semester hours of upper-division courses;
2. 12 semester hours of upper-division area studies courses drawn from at least two disciplines outside of languages and literatures; and
3. three to six semester hours of lower- or upper-division approved area studies courses; three of these remaining hours may be satisfied with languages and literatures courses limited to 321 and above.

BIS students pursuing an Asian Studies concentration will be required to consult with the academic advisor of the Center for Asian Studies as well as the BIS advisor. Students are strongly encouraged, but not required, to continue Asian language study beyond the concentration requirement.

Civic Education. See "Certificate in Civic Education," page 629.

Classical Studies. Students admitted to undergraduate degree programs in any field are eligible for the Classical Studies certificate program. In addition to the course work and examinations required in the student's major, the student is responsible for fulfilling the following minimum requirements:

1. five semesters of ancient Greek (17 semester hours; GRK 301 and 302 may be repeated for credit) or Latin (19 semester hours) language and literature instruction;
2. two semesters (six semester hours), in courses related to classical studies (to be approved by coordinators of the certificate);
3. a thesis (three semester hours), a Barrett Honors College thesis (six semester hours) or two additional courses at or above the 300 level (six semester hours); and
4. a minimum grade of "C" (2.00) in each course leading to the certificate.

Students interested in the Classical Studies certificate program need to submit an application before being accepted into the program. For more information, call the program coordinators at 480/965-1110 or 727-6512.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

CLAS Certificates

Certificate Program	Administered By	Page
College of Liberal Arts and Sciences Enriched Certificate	CLAS	509
African and African American Studies Certificate	African and African American Studies Program	519
African and African Diaspora Studies, Graduate Certificate in ¹	African and African American Studies Program	—
American Indian Studies Certificate	American Indian Studies Program	523
Asian Pacific American Studies Certificate	Asian Pacific American Studies Program	524
Asian Studies Certificate ²	Center for Asian Studies	509
Asian Studies, Graduate Certificate in ¹	Center for Asian Studies	—
Atmospheric Sciences, Graduate Certificate in ¹	CLAS and Ira A. Fulton School of Engineering	—
Civic Education Certificate	Department of Political Science	629
Classical Studies Certificate	Department of Languages and Literatures	509
Early Intervention Certificate	Department of Family and Human Development and School of Social Work	511
East Asian Studies Certificate	Center for Asian Studies	509
Ethics Certificate	Department of Philosophy	511
Geographic Information Science Certificate	Department of Geography	511
Geographic Information Science, Interdisciplinary Certificate in ¹	CLAS and Division of Graduate Studies	—
Healthcare Organizations and Society, Certificate in	School of Life Sciences and the W. P. Carey School of Business	511
History and Philosophy of Science Certificate	School of Life Sciences	512
International Studies Certificate	Department of Political Science	630
Islamic Studies Certificate	Department of Religious Studies	512
Jewish Studies Certificate	Jewish Studies Committee	512
Latin American Studies Certificate ²	Latin American Studies Center	512
Linguistics, Graduate Certificate in ¹	Committee on Linguistics	—
Medieval and Renaissance Studies Certificate	Arizona Center for Medieval and Renaissance Studies (ACMRS)	513
Medieval Studies Certificate ¹	ACMRS	—
Museum Studies Certificate ¹	School of Human Evolution and Social Change	—
Renaissance Studies Certificate ¹	ACMRS	—
Russian and East European Studies Certificate ²	Russian and East European Studies Center	513
Scandinavian Studies Certificate	Department of Languages and Literatures	513
Scholarly Publishing Certificate ¹	Department of History	—
Southeast Asian Studies Certificate	Program for Southeast Asian Studies	514
Statistics, Certificate in ¹	Committee on Statistics and the Division of Graduate Studies	—
Symbolic Systems, Certificate in	Department of Philosophy	514
Translation Certificate	Department of Languages and Literatures	583
Women and Gender Studies Certificate	Women and Gender Studies Program	514
Writing Certificate	Department of English	538

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

² Emphases are also available in these programs.

BIS Concentration. Concentrations in (1) classical studies—Greek or (2) classical studies—Latin are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see “School of Interdisciplinary Studies,” page 139.

Early Intervention. The Early Intervention Certificate is cross-disciplinary and is certified by the Arizona Early Intervention Program in the Arizona State Department of Economic Security. Students interested in earning the certificate must make formal application to the director of the Early Intervention Training Program. Students must have completed 56 semester hours and have a cumulative GPA of at least 2.50. Students are required to complete the application form for the Early Intervention Certificate. The proposed certificate entails 17 semester hours of required course work. All 17 semester hours must be ASU credit.

Required Courses

CDE 337 Early Childhood Intervention.....	3
SWU 437 Infant Family Assessment and Observation <i>L/SB</i>	3
or CDE 437 Infant Family Assessment and Observation <i>L/SB</i> (3)	
SWU 446 Risk and Variation in Child Development.....	3
or CDE 444 Risk and Variation in Child Development (3)	
Choose from the following combinations.....	8
CDE 338 Child Development Practicum (3)	
FAS 484 Internship (5)	
— or —	
SWU 412 Field Instruction I (5)	
SWU 414 Field Instruction II (3)	

All students admitted by the program are advised by the director of the Early Intervention Training Program through completion of the certificate requirements. Advising includes identifying field placements for FAS 484 and SWU 412 and SWU 414. Completion of the certificate is verified by completion of all required courses with a grade of “C” (2.00) or higher in each course.

Ethics. This certificate is designed to give students a richer understanding of systematic philosophical thinking about ethics. Students with majors in business, nursing, journalism, and public administration, among others, may well find that training in ethics is beneficial for their career goals. The certificate program permits some flexibility about course selection, thereby facilitating the interests of many students. For more information, visit the Department of Philosophy in COOR 3309, or call 480/965-3394.

BIS Concentration. A concentration in ethics is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their

educational plans and defining their career goals. For more information, see “School of Interdisciplinary Studies,” page 139.

Geographic Information Science. The cross-disciplinary undergraduate certificate in Geographic Information Science (GIS) is designed for undergraduates wishing to pursue a GIS-related career. The certificate is awarded to students completing the following 19 semester hours with a grade of “C” (2.00) or higher.

Required Courses

CSE 100 Principles of Programming with C++ CS.....	3
GCU 495 Quantitative Methods in Geography CS.....	3
GPH 370 Geographic Information Technologies CS.....	3
GPH 373 Geographic Information Science I CS.....	4
GPH 473 Geographic Information Science II CS.....	3
Elective (choose from the courses below).....	3
ABS 485 GIS in Natural Resources (3)	
ABS 586 Remote Sensing in Environmental Resources (4)	
GCU 361 Urban Geography <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 CS (3)	
GPH 372 Air Photo Interpretation (3)	
GPH 471 Geographics: Interactive and Animated Cartography and Geovisualization CS (3)	
GPH 481 Environmental Geography (3)	
GPH 483 Geographic Information Analysis (3)	
GPH 484 Internship: GIS-Based (3)	
PLB 434 Landscape Ecological Analysis and Modeling (3)	

For more information, call the Department of Geography at 480/965-7533.

Healthcare Organizations and Society. The certificate program is designed to allow undergraduate students interested in healthcare and the healthcare industry to access a broad range of disciplinary approaches and issues relevant to the subject.

To complete the certificate, students must take 18 semester hours of course work. Before starting the program students should seek advice and information in the School of Life Sciences Student Services Office in the College of Liberal Arts and Sciences or Business Honors advising in the W. P. Carey School of Business.

The course work must conform to the following structure and must be drawn from the three areas listed below. Additional courses are permissible with the approval of an advisor. In addition, students must meet the following requirements:

1. complete 18 semester hours, 12 of which must be in the upper division;
2. earn a “C” or higher in all upper-division courses taken for the certificate; and
3. complete at least 12 of the semester hours for the certificate in residence at ASU.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

Overview of the U.S. Healthcare Industry. HSM 220 Health Care Organizations is required. HSM 498 PS: Health Economics is required for business students. HSM 561 Biostatistics may be taken by petition. No more than three courses in this area may be taken.

Ethical and Legal Issues in Healthcare. PHI 320 Bioethics is required. A second course is also required, PAF 460 Public Service Ethics or HSM 498 PS: Legal and Ethical Issues in Healthcare. No more than three courses in this area may be taken.

Anthropological, Historical, and Social Perspectives on Healthcare. One course is required. No more than two courses in this area may be taken, from among ASB 462 Medical Anthropology: Culture and Health, HPS 331 History of Medicine, and SOC 427 Sociology of Health and Illness.

For more information, visit the School of Life Sciences in LSC 206, or call 480/727-6277. Or visit Business Honors in the W. P. Carey School of Business in BA 150, or call 480/965-8710.

History and Philosophy of Science. The School of Life Sciences offers an undergraduate History and Philosophy of Science Certificate. The certificate program is designed to give students an understanding of both traditional 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 630.

Islamic Studies Certificate. Students admitted to undergraduate degree programs in any field are eligible for the Islamic Studies Certificate program. Students who complete all the requirements of their major, their college, and the certificate program receive the certificate plus transcript recognition of their particular emphasis. The certificate program is designed to prepare students for graduate programs in Religious Studies, Islamic studies, and area studies or for any academic discipline (such as professional programs in international law and business) that focuses on global Muslim societies. Students must complete a minimum total of 26 semester hours, chosen in consultation with the Islamic Studies program coordinator. A minimum grade of "C" (2.00) is required in each course. To earn the certificate, students must complete these requirements:

1. eight semester hours of Arabic, Indonesian, or another language approved by the program coordinator; students who are native speakers of these languages or who otherwise have equivalent knowledge substitute two additional courses approved by the program coordinator;
2. nine semester hours from REL 260 Introduction to Islam, REL 365 Islamic Civilization, and REL 366 Islam in the Modern World;
3. three semester hours taken from REL 394 (topics may vary) or REL 460 Studies in Islamic Religion (topics may vary); and
4. six semester hours drawn from an approved list of courses in Arabic, anthropology, French, geography, history, religious studies, Spanish or from other courses approved by the program coordinator.

Direct inquiries about the program to the Department of Religious Studies, ECA 377, or call 480/965-7145.

Jewish Studies. The Jewish studies program is designed with the following goals in mind:

1. to examine the history and culture of the Jews;
2. to provide a model for interdisciplinary teaching and research;
3. to generate and facilitate research on Judaica;
4. to provide the community with programs, courses, and research furthering the understanding of Judaica; and
5. to stand as an example of the university's commitment to a program of meaningful ethnic studies on a firm academic base.

The Certificate of Concentration in Jewish Studies may be combined with a major in any college. For information about the program, visit the Jewish Studies program office in the Department of Religious Studies, or access the Web site at asu.edu/clas/jewishstudies/certificateinfo.htm.

BIS Concentration. A concentration in Jewish studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

Latin American Studies. The Latin American Studies Certificate program is designed to give students an understanding of culture, economics, political structures, and the history of Latin American nations. The Departments of Economics, Geography, History, Languages and Literatures (Spanish and Portuguese), and Political Science; the School of Human Evolution and Social Change; and the W. P. Carey School of Business offer courses that combine to make up the interdisciplinary certificate. Students must complete 30 semester hours of upper-division courses from the above departments/colleges with a concentration in Latin America—15 semester hours in the major subject and 15 semester hours in other disciplines. The certificate

requires Spanish or Portuguese proficiency through the 313 level of conversation and composition. Only language courses above 313 in literature and civilization count toward a major or interdisciplinary areas of preparation. Spanish and Portuguese courses above 313 in grammar and phonology do not count toward the major requirements. The Latin American Studies Center offers the area of emphasis for students who do not wish to attain a high level of language proficiency.

For more information, visit the Latin American Studies Center in COOR 4450, or call 480/965-5127.

BIS Concentration. A concentration in Latin American studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

Medieval and Renaissance Studies. An undergraduate Certificate in Medieval and Renaissance Studies is offered by the Arizona Center for Medieval and Renaissance Studies (ACMRS). In addition to the course work and examinations required in a student's major field of interest, the following minimum requirements must be fulfilled to earn the certificate:

1. six to eight semester hours of classical Latin and six to eight semester hours of Latin (classical and/or medieval) or of a vernacular language of the period (e.g., Old English, Old Norse, Old French, Renaissance Italian);
2. six to eight semester hours of course work in medieval and renaissance studies outside the major discipline;
3. three semester hours of thesis on a topic concerning the Middle Ages or Renaissance. The thesis may be used to fulfill the Honors College thesis requirement for students enrolled in the Barrett Honors College; and
4. a minimum of a "C" (2.00) average in all course work leading to the certificate.

Students interested in the certificate program need to complete an application form before being accepted into the program. Applications are available by calling ACMRS at 480/965-5900 or visiting COOR 4429.

See the *Graduate Catalog* for information about the Certificate in Medieval Studies and the Certificate in Renaissance Studies, and "Arizona Center for Medieval and Renaissance Studies," page 44, for information about the center.

BIS Concentration. A concentration in medieval and Renaissance studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their

career goals. For more information, see "School of Interdisciplinary Studies," page 139.

Museum Studies. See the *Graduate Catalog* or contact the Department of Anthropology for more information.

Russian and East European Studies. Undergraduate students may complete an interdisciplinary certificate program in Russian and East European studies while pursuing a bachelor's degree in their chosen field. The requirements for the Russian and East European Studies Certificate comprise (1) three years (22 semester hours) of Russian or another Eurasian or East European language and (2) 30 upper-division semester hours in Russian, East European, and Eurasian area-related course work.

At least three disciplines must be represented in the area-related course work, and at least 12 semester hours must be outside the Department of Languages and Literatures (i.e., non-RUS and non-FLA courses). Fulfillment of these requirements is certified by the Russian and East European Studies Center and is recognized on the transcript by a bachelor's degree with "Major in [Discipline], and Certificate in Russian and East European Studies." The purpose of this undergraduate certificate program is to encourage students majoring in a chosen discipline to develop special competency in Russian or East European language and area studies. A student with a major in any department may pursue this certificate.

For more information, call 480/965-4188, or visit COOR 4465.

BIS Concentration. A concentration in Russian and East European studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

Scandinavian Studies. Students admitted to undergraduate degree programs in any field are eligible for the Scandinavian Studies Certificate program. In addition to the course work and examinations required in the student's major, the student is responsible for fulfilling the following minimum requirements (21 semester hours) before the certificate is issued:

1. six semester hours of Norwegian or Swedish at the 200 level or above;
2. three semester hours in SCA 250 Introduction to Scandinavian Culture;
3. nine semester hours of upper-division course work in Scandinavian Studies outside the student's major discipline;

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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4. a minimum of a "C" (2.00) average in all course work leading to the certificate; and
5. three semester hours in an independent study thesis on a topic concerning Scandinavian Studies. The thesis may be used to fulfill the Barrett Honors College thesis requirement for students enrolled in the Barrett Honors College.

Students who test out of the basic language courses would, with advising, take other approved courses to fulfill the minimum requirement of 21 semester hours.

For more information, call the Department of Languages and Literatures at 480/965-6281.

BIS Concentration. A concentration in Scandinavian studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

Scholarly Publishing. See the *Graduate Catalog* for information on this certificate program.

Southeast Asian Studies. A Certificate in Southeast Asian Studies is available to any undergraduate student. The certificate program offers two options: (1) an area studies specialization emphasizing courses in the social sciences and humanities and requiring one year of Indonesian, Thai, or Vietnamese and (2) a language specialization requiring a two-year sequence in a Southeast Asian language and a proportional number of area studies courses.

Students wishing to study a Southeast Asian language other than those offered on campus may transfer credits earned at the Southeast Asian Studies Summer Institute, a consortium for intensive language and area studies, or at other accredited programs. Qualified students may request placement testing on other national languages of the region, administered in accordance with the national American Council of Teachers in Foreign Languages (ACTFL) guidelines.

The ASU curriculum includes

1. language instruction in Indonesian, Thai, or Vietnamese;
2. ASB/GCU/HST/POS/REL 240 Introduction to Southeast Asia;
3. HST 391 Modern Southeast Asia;
4. electives in the social sciences and humanities on the history, geography, culture, politics, and religion of the region; and
5. a culminating capstone seminar in which the students share multidisciplinary approaches to the region and integrate knowledge of Southeast Asia with their respective disciplinary orientations.

Courses counting toward the Certificate in Southeast Asian Studies fulfill requirements for undergraduate majors and General Studies in the social and behavioral sciences,

humanities, literacy, and global and historical awareness areas. A two-year sequence in Southeast Asian language study meets the foreign language requirement for undergraduates in CLAS.

For more information, visit the Program for Southeast Asian Studies in COOR 6611 or call 480/965-4232.

BIS Concentrations. Concentrations in Southeast Asian studies (area studies option or language option) are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

Symbolic Systems. The Department of Philosophy offers a Certificate in Symbolic Systems. The certificate program takes an interdisciplinary approach to cognition, computation, and meaning. Course work is divided evenly between philosophy, psychology, and computer science in order to expose students to the subject matter from a conceptual, empirical, and practical point of view. The certificate may interest students with majors in any of the three disciplines on topics of common interest.

The certificate consists of 28 semester hours approved by an advisor in the Department of Philosophy and divided evenly between computer science and engineering, psychology, and philosophy as follows:

1. CSE 205, 210, and 240;
2. PSY 230 and 290 and either PSY 323, 324, or 437; and
3. either PHI 319, or 333, either PHI 315 or 317, and either PHI 312 or 314.

Students must satisfy the prerequisites for the listed courses. With written approval from the director of undergraduate studies in the Department of Philosophy, one substitution course from outside this list is allowed. All courses must be passed with a minimum grade of "C" (2.00).

For more information, visit the Department of Philosophy in COOR 3309, or call 480/965-3394.

Translation. See "Translation Certificate (Spanish/English)," page 583, for information about the Certificate in Translation.

Women and Gender Studies. Women and Gender Studies provides students with an intensive interdisciplinary liberal arts education that enables them to write well, think critically, and analyze problems effectively.

The certificate program is equivalent to an interdisciplinary minor, consisting of 18 credit hours, and is open to graduate as well as undergraduate students. Students pursuing a certificate in Women and Gender Studies must consult with the Women and Gender Studies advisor to select appropriate courses and fulfill requirements.

A Certificate of Concentration in Women and Gender Studies is awarded for the successful completion of WST 100 (or 300) and WST 377 or 378 and an additional 12

semester hours from the list of approved Women and Gender Studies courses.

Inquiries about the certificate program should be addressed to the Women and Gender Studies Program academic advisor in ECA 209, 480/965-2358, where the current list of approved courses is available.

GENERAL INFORMATION

Research Centers. To expand educational horizons and to enrich the curriculum, CLAS maintains the following research centers:

Arizona Center for Medieval and Renaissance Studies
 Center for Asian Studies
 Center for Biology and Society
 Center for Film and Media Research
 Center for Metabolic Biology
 Center for Meteorite Studies
 Center for Solid State Science
 Center for the Study of Early Events in Photosynthesis
 Center for the Study of Religion and Conflict
 Exercise and Sport Research Institute
 Hispanic Research Center
 Institute of Human Origins
 Joan and David Lincoln Center for Applied Ethics
 Latin American Studies Center
 Russian and East European Studies Center

CLAS also participates with the College of Education and the Ira A. Fulton School of Engineering in maintaining the Center for Research on Education in Science, Mathematics, Engineering, and Technology. See "Research Centers," page 39, for more information.

Courses. The faculty also offers the following LIA courses to familiarize students with available resources and services for research purposes.

For information on these courses, see the *Schedule of Classes*, visit the Office of Undergraduate Programs in FOUND 110, or call 480/965-6506.

LIBERAL ARTS AND SCIENCES (LIA)

M LIA 191 First-Year Seminar. (1-3)
selected semesters
 Fee.

M LIA 194 Special Topics. (1-4)
fall

Topics may include the following:

- Student Success Seminar. (1)

M LIA 294 Special Topics. (1-4)
fall

Topics may include the following:

- Introduction to Liberal Arts and Sciences. (1)

M LIA 394 Special Topics. (1-4)
fall and spring

Topics may include the following:

- Career Management for CLAS Majors. (1-3)
 Fee.

M LIA 484 CLAS Internship. (1-12)
fall, spring, summer

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

HUMANITIES (HUM)

As of fall 2005, the BA degree in Interdisciplinary Humanities was disestablished. A limited number of HUM courses are offered each semester. Access www.asu.edu/aad/catalogs/courses for the most current list of courses.

Department of Aerospace Studies

Air Force ROTC

www.asu.edu/clas/afrotc

480/965-3181

SS 352

Col. David W. Guthrie, Chair

Professor: Guthrie

Assistant Professors: Kwasnoski, Marks, Thomas

PURPOSE

The Department of Aerospace Studies curriculum consists of the general military course and history for freshmen and sophomores (AES 101, 102, 103, 104, 201, 202, 203, 204) and the professional officer course for juniors and seniors (AES 301, 302, 303, 304, 401, 402, 403, 404).

General Qualifications. Students entering the Air Force Reserve Officers' Training Corps (AFROTC) must meet the following requirements:

1. be a citizen of the United States (noncitizens may enroll but must obtain citizenship before commissioning);
2. be of sound physical condition; and
3. be at least 17 years of age for scholarship appointment or admittance to the Professional Officer Course (POC).

Additionally, scholarship recipients must be able to fulfill commissioning requirements by age 27. If designated for flying training, the student must be able to complete all commissioning requirements before age 29; persons in other categories must be able to complete all commissioning requirements before age 35.

FOUR-YEAR PROGRAM (GMC AND POC)

A formal application is not required for students entering the four-year program. A student may enter the program by simply registering for one of the general military course (GMC) classes at the same time and in the same manner as other courses. GMC students receive two semester hours for each AES 100- and 200-level class completed for a total of

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

eight semester hours. GMC students not on AFROTC scholarship incur no military obligation. Each candidate for commissioning must pass an Air Force aptitude test and a physical examination and be selected by a board of Air Force officers. If selected, the student then enrolls in the POC the last two years of the AFROTC curriculum. Students attend a four-week field training course at an Air Force base normally between the sophomore and junior years. Upon successful completion of the POC and the college requirements for a degree, the student is commissioned in the U.S. Air Force as a second lieutenant. The new officer then enters active duty or may be granted an educational delay to pursue graduate work.

TWO-YEAR PROGRAM (POC)

The basic requirement for entry into the two-year program is that the student have two academic years of college work remaining, either at the undergraduate or graduate level. Applicants seeking enrollment in the two-year program must pass an Air Force aptitude test and medical examination and be selected by a board of Air Force officers. After successfully completing a six-week field training course at an Air Force base, the applicant may enroll in the professional officer course (POC) in the AFROTC program. Upon completion of the POC and the college requirements for a degree, the student is commissioned.

Note: This program is subject to change without notice.

Qualifications. The following requirements must be met for admittance to the POC:

1. The four-year student must successfully complete the general military course and the four-week field training course.
2. The two-year applicant must complete a six-week field training course.
3. All students must pass the Air Force Officer Qualifying Test (AFOQT).
4. All students must pass the Air Force physical examination.
5. All students must maintain the minimum GPA required by the college.
6. All students must meet the physical fitness requirements.

Pay and Allowances. POC members in their junior and senior years receive \$350 and \$400 respectively per month for a maximum of 20 months of POC attendance. Students are also paid to attend field training. In addition, uniforms, housing, and meals are provided during field training at no cost to the student. Students are reimbursed for travel to and from field training.

Scholarships. AFROTC offers scholarships annually to outstanding young men and women on a nationwide competitive basis. Scholarships can cover college tuition for nonresident students and provide an allowance for books, fees, supplies and equipment, and a monthly tax-free allowance of \$250 to \$400 depending on the year. Scholarships are available on a four-, three-, or two-year basis. To qualify for a four- or three-year scholarship, a student must be a U.S. citizen and submit an application before December 1

of the senior year in high school. Interested students should consult their high school counselors or contact AFROTC at ASU for application forms to be submitted to

HQ AFROTC
MAXWELL AFB
AL 36112-6663

Applications can also be submitted online at www.afrotc.com.

Students enrolled in AFROTC at ASU are eligible for a limited number of three- or two-year scholarships. Those students interested must apply through the Department of Aerospace Studies. Consideration is given to academic grades, the score achieved on the AFOQT, and physical fitness. A board of officers considers an applicant's personality, character, and leadership potential.

AEROSPACE STUDIES (AES)

M AES 101 Air Force Today I. (2)

fall

Introduces U.S. Air Force and AFROTC. Topics include: the Air Force mission and organization, customs and courtesies, officer opportunities, officership, and professionalism.

M AES 102 Leadership Lab. (0)

fall

Emphasizes common Air Force customs and courtesies, drill and ceremonies, health and physical fitness through group participation. Corequisite: AES 101.

M AES 103 Air Force Today II. (2)

spring

Continuation of AES 101. Topics include: the Air Force mission and organization, customs and courtesies, officer opportunities, officership, and professionalism. Prerequisite: AES 101 or department approval.

M AES 104 Leadership Lab. (0)

spring

Continuation of AES 102 with more in-depth emphasis on learning the environment of an Air Force officer. Corequisite: AES 103.

M AES 201 The Evolution of USAF Air and Space Power I. (2)

fall

Further preparation of the AFROTC candidate. Topics include: Air Force heritage and leaders, communication skills, ethics, leadership, quality Air Force, and values. Prerequisite: AES 103 or department approval.

M AES 202 Leadership Lab. (0)

fall

Application of advanced drill and ceremonies, issuing commands, knowing flag etiquette, and developing, directing, and evaluating skills to lead others. Corequisite: AES 201.

M AES 203 The Evolution of USAF Air and Space Power II. (2)

spring

Continuation of AES 201. Topics include: the Air Force mission and organization, customs and courtesies, officer opportunities, officership, and professionalism. Prerequisite: AES 201 or department approval.

M AES 204 Leadership Lab. (0)

spring

Continuation of AES 202 with emphasis on preparation for field training. Corequisite: AES 203.

M AES 301 Air Force Leadership Studies I. (3)

fall

Study of communication skills, leadership and quality management fundamentals, leadership ethics, and professional knowledge required of an Air Force officer. Prerequisite: AES 203 or department approval. *General Studies: L*

AFRICAN AND AFRICAN AMERICAN STUDIES PROGRAM

M AES 302 Leadership Lab. (0)

fall

Advanced leadership experiences applying leadership and management principles to motivate and enhance the performance of other cadets. Corequisite: AES 301.

M AES 303 Air Force Leadership Studies II. (3)

spring

Continuation of AES 301. Topics include: communication skills, ethics, leadership, professional knowledge, and quality management required of an Air Force officer. Prerequisite: AES 203 or department approval.

General Studies: L

M AES 304 Leadership Lab. (0)

spring

Continuation of AES 302 with emphasis on planning the military activities of the cadet corps and applying advanced leadership methods. Corequisite: AES 303.

M AES 401 National Security Affairs. (3)

fall

Examines advanced ethics, Air Force doctrine, national security process, and regional studies. Special topics include: civilian control of the military, military justice, and officership. Prerequisite: AES 303 or department approval.

General Studies: L

M AES 402 Leadership Lab. (0)

fall

Advanced leadership experience demonstrating learned skills in planning and controlling the military activities of the corps. Corequisite: AES 401.

M AES 403 Preparation for Active Duty II. (3)

spring

Continuation of AES 401. Topics include: civilian control of the military, doctrine, ethics, military justice, the national security process, and officership. Prerequisite: AES 401 or department approval.

M AES 404 Leadership Lab. (0)

spring

Continuation of AES 402 with emphasis on preparation for transition from civilian to military life. Corequisite: AES 403.

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

African and African American Studies Program

www.asu.edu/clas/afamstu

480/965-4399

COWDN 224

Mary Margaret Fonow, Interim Director

CORE FACULTY

Professors: Boulin Johnson, Reyes
Associate Professor: Bontemps
Assistant Professors: Hinds, Robillard, Usman
Clinical Associate Professor: Cox
Visiting Assistant Professor: Gallab

AFFILIATED FACULTY

Art

Professors: Sweeney, Young
Associate Professor: Umberger

Asian Pacific American Studies

Assistant Professor: Rosa

Community Resources and Development

Associate Professor: Teye

English

Professors: Lester, Miller
Associate Professor: Fulton
Lecturer: Fuse

History

Associate Professors: Barnes, El Hamel
Assistant Professor: Whitaker

Human Communication

Professors: Jain, Martin
Associate Professors: Davey, Davis

Human Evolution and Social Change

Associate Professor: Winkelman

Journalism and Mass Communication

Associate Professor: Bramlett-Solomon

Justice and Social Inquiry

Professors: Jurik, Romero, Zatz
Assistant Professor: Quan

Languages and Literatures

Assistant Professors: Ali, McElroy

Music

Professors: Pilafian, Smith, Solís, Sunkett

Political Science

Professor: Iheduru
Associate Professor: Mitchell

Psychology in Education

Professor: Hood

Religious Studies

Associate Professors: Moore, Umar

Sociology

Professor: Cobas
Associate Professor: Keith
Instructor: Williams

Theatre and Film

Professor: Edwards

Women and Gender Studies

Professor: Rothschild
Associate Professor: Leong
Assistant Professor: Anderson

The African and African American Studies program offers an interdisciplinary examination of the many ways in which African and African-descended peoples have created robust lives for themselves and, in turn, contributed to the creation of the modern world. The program's mission

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

is advanced by its core undergraduate curriculum and certificate and minor programs that examine the culture, arts, history, politics, economics, and current status of African Americans, Africans and the African Diaspora everywhere, especially in the Caribbean, Central America, and South America. The curriculum combines a research-based understanding of the humanities, social and behavioral sciences, and the arts with practical applications (internships, community/civic engagement, and research projects) to prepare students for lifelong learning, advanced study in a variety of fields, and successful careers and productive public service in an increasingly diverse society, especially in Arizona.

AFRICAN AND AFRICAN AMERICAN STUDIES—BA

Course Requirements. The major in African and African American Studies (AAAS) requires 45 semester hours of course work. A minimum of 30 semester hours must be AFH, AFR, and AFS courses. The remaining course work must be in a related field approved by an AAAS advisor. All students in the major are required to take the following 15 semester hours of core courses:

AFH 300 Precolonial Africa	3
AFS 200 Introduction to African and African Diaspora Studies..	3
AFS 301 Race and Racism in Africa/African Diaspora	3
AFS 312 Contemporary African and African Diaspora Women ..	3
AFS 484 Field Experience/Internship	3
or AFS 498 Pro-Seminar (3)	

Regional Emphasis Area. In addition to the 15-semester-hour core curriculum, students in the AAAS program may choose a 15-semester-hour regional emphasis area in Africa, Caribbean and Afro-Latin America, or African America. The courses that satisfy the requirements for each regional emphasis area are grouped thematically (History; Governance and Politics; Family, Health, Gender, and Society; and Culture and Literature) to provide students a variety of choices to satisfy their academic interests.

Africa Emphasis Area Requirements. Students who opt for the Africa regional emphasis area must take:

AFH 335 Survey of African Literatures.....	3
or AFS 355 Democracy and Civil Society in Africa (3)	
AFS 340 The Making of Modern Africa	3
Related courses*	9
Total	15

* Six semester hours of Africa-related courses (i.e., 50 percent or more Africa content) at the 300 level and three semester hours of courses at the 400 level are required. At least nine of the 15 hours in this emphasis area must be completed at ASU.

Caribbean and Afro-Latin American Emphasis Area Requirements. Students who opt for the Caribbean and Afro-Latin America regional emphasis area must take:

AFH 318 African and African Diaspora Women Writers	3
or AFH 319 Black Experience in Latin America (3)	
AFS 345 The Making of the Caribbean Society	3

Related courses*	9
Total.....	15

* Six semester hours of Caribbean and Afro-Latin American-related courses (i.e., 50 percent or more Caribbean and Afro-Latin American content) at the 300 level and three semester hours of courses at the 400 level are required. At least nine of the 15 semester hours in this emphasis area must be completed at ASU.

African America Emphasis Area Requirements. Students who opt for the African America regional emphasis area must take:

AFH 318 African and African Diaspora Women Writers	3
or AFR 210 Introduction to African American Studies C(3)	
AFS 363 African American History to 1865 <i>SB, C, H</i>	3
or AFH 364 African American History Since 1865 <i>SB, C, H</i> (3)	
Related courses*	9
Total.....	15

* Six semester hours of African American-related courses (i.e., 50 percent or more African American content) at the 300 level and three semester hours of courses at the 400 level are required. At least nine of the 15 semester hours in this emphasis area must be completed at ASU.

Thematic Emphasis Area. Students in the African and African American Studies program may also opt for a 15-semester-hour thematic emphasis area by taking the following courses:

AFH 305 The Global History of the Trans-Atlantic Slave Trade .	3
or AFS 415 Black Political Thought and the Limits of Liberal Democracy (3)	
Related courses*	12
Total.....	15

* Twelve semester hours of courses chosen from at least three thematic areas listed below; or from other African and African American Studies-related courses (i.e., 50 percent or more thematic content) at the 300 and 400 levels are required. At least nine of the 15 semester hours in this emphasis area must be completed at ASU.

History

AFH 300 Precolonial Africa	3
AFH 305 The Global History of the Trans-Atlantic Slave Trade .	3
AFH 319 Black Experience in Latin America	3
AFH 465 Harlem Renaissance: A Cultural History: 1877–1945..	3
AFS 340 The Making of Modern Africa	3
AFS 345 The Making of the Caribbean Society	3
AFS 363 African American History to 1865 <i>SB, C, H</i>	3
AFS 364 African American History Since 1865 <i>SB, G, H</i>	3
AFS 366 African Archaeology: Precolonial Urban Culture <i>SB, C, H</i>	3
AFS 466 Peoples and Cultures of Africa <i>SB, G, H</i>	3

Governance and Politics

AFR 210 Introduction to African American Studies C.....	3
AFS 200 Introduction to African and African Diaspora Studies..	3
AFS 301 Race and Racism in Africa/African Diaspora	3
AFS 304 Islands of Globalization: Caribbean Political Economy	3
AFS 320 Africa: Politics, Environment, and Development	3

AFRICAN AND AFRICAN AMERICAN STUDIES PROGRAM

AFS	327 Human Rights in Africa	3
AFS	355 Democracy and Civil Society in Africa	3

Culture and Literature

AFH	303 African and African American Art	3
AFH	318 African and African Diaspora Women Writers	3
AFH	331 Studies in African American Women Writers of Pre-Harlem Renaissance	3
AFH	333 American Ethnic Literature <i>L/HU, C</i>	3
AFH	335 Survey of African Literatures	3
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	3
AFH	459 Studies in African American/Caribbean Literatures <i>L..</i>	3

Gender, Family, and Society

AFR	375 Race, Gender, and Sport <i>SB, C</i>	3
AFR	428 Critical Race Theory	3
AFR	460 Race, Gender, and Media <i>C</i>	3
AFS	312 Contemporary African and African Diaspora Women ..	3
AFS	360 Black Families in the Diaspora: U.S. and Caribbean....	3
AFS	370 Family, Ethnic, and Cultural Diversity <i>SB, C</i>	3

Of the remaining course work, 15 hours may be taken in related area courses (i.e., non-African and African American Studies programs prefixes with at least 50 percent African, Caribbean, and Afro-Latin American, or African American continent) in consultation with the AAAS advisor and/or director.

Students are expected to fulfill the college's language requirement in African languages or any of the languages spoken by the African Diaspora, such as Arabic, French, Portuguese, and Spanish.

CERTIFICATE IN AFRICAN AND AFRICAN AMERICAN STUDIES

Course Requirements. The certificate requires 24 semester hours. Fifteen core hours must be taken from the following courses:

AFH	353 African American Literature: Beginnings Through the Harlem Renaissance <i>L/HU, C</i>	3
	or AFH 354 African American Literature: Harlem Renaissance to the Present <i>L/HU, C</i> (3)	
AFR	210 Introduction to African American Studies <i>C</i>	3
AFR	429 African American Studies Theory and Methods	3
AFS	363 African American History to 1865 <i>SB, C, H</i>	3
AFS	364 African American History Since 1865 <i>SB, C, H</i>	3

In addition, one course from each of the three concentrations (i.e., social and behavioral sciences, humanities/arts, politics and society) must be taken. These courses are in addition to the required core courses. Courses should be selected in consultation with the major advisor.

MINOR IN AFRICAN AND AFRICAN AMERICAN STUDIES

Course Requirements. The minor requires 18 semester hours. All African and African American Studies minors must take the following six core hours:

AFH	300 Precolonial Africa	3
AFS	200 Introduction to African and African Diaspora Studies..	3
	Choose one of the following regional courses	3
AFH	319 Black Experience in Latin America (3)	

AFR	210 Introduction to African American Studies <i>C</i> (3)	
AFS	340 The Making of Modern Africa (3)	
AFS	355 Democracy and Civil Society in Africa (3)	
	Related courses*	9
	Total	18

* Nine semester hours are required, with one 300 or 400 level course from each of the following thematic areas: Culture and Literature; Politics and Governance; and Family, Gender, and Society. At least 50 percent of the course content (which may or may not be AFH or AFS) must deal with African peoples inside and outside the African continent. At least nine of the 15 semester hours in this certificate must be completed at ASU.

BIS CONCENTRATION

A concentration in African and African American studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

AFRICAN AND AFRICAN AMERICAN STUDIES HUMANITIES (AFH)

M AFH Note 1. Completion of the First-Year Composition requirement (ENG 101 and 102 [or 105] or ENG 107 and 108 with a grade of "C" [2.00] or higher) is a prerequisite for all English courses above the 100 level.

M AFH Note 2. A term paper or equivalent out-of-class written work is required in all upper-division (300- and 400-level) ENG courses.

M AFH Note 3. English majors and minors are expected to have completed ENG 200 before taking 400-level literature courses.

M AFH 202 Art of Africa, Oceania, and the Americas. (3) *spring*

History of art of Africa, Oceania, and the New World. Meets non-Western art history requirement. Lecture, discussion. Cross-listed as ARS 202. Credit is allowed for only AFH 202 or ARS 202.

General Studies: HU, G, H

M AFH 300 Precolonial Africa. (3)

fall

Surveys social, economic, political, cultural, and economic institutions and civilizations of Africa before European colonialism. Lecture, discussion, films.

M AFH 303 African and African American Art. (3)

fall, spring, summer

Anthropological perspective of African and African American visual art traditions from the past to 1970. Lecture, discussion, video and slide films.

M AFH 305 The Global History of the Trans-Atlantic Slave Trade. (3)

selected semesters

Origins, development, abolition, and impact of Atlantic slave trade as a global economic enterprise and great human tragedy; slavery experience. Lecture, discussion, films.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

M AFH 318 African and African Diaspora Women Writers. (3) *spring*

Intersection of race, class, gender, and ethnicity in black women's fiction from the United States, the Caribbean, and Africa. Lecture, discussion, films.

M AFH 319 Black Experience in Latin America. (3) *selected semesters*

Examines several aspects of the experience of Africans in the Latin America diaspora; comparisons with United States. Lecture, discussion, films. Prerequisite: sophomore standing.

M AFH 331 Studies in African American Women Writers of Pre-Harlem Renaissance. (3) *fall*

Focuses on novels, short stories, essays, speeches, and dramas that gave "voices" to African American woman in pre-Harlem Renaissance era. May be repeated for credit when topics vary. Lecture, discussion, films.

M AFH 333 American Ethnic Literature. (3) *once a year*

Examines America's multiethnic identity through works of literature that depict American ethnic, gender, and class sensibilities. Cross-listed as ENG 333. Credit is allowed for only AFH 333 or ENG 333. See AFH Notes 1, 2.

General Studies: L/HU, C

M AFH 335 Survey of African Literatures. (3) *selected semesters*

Intersection of colonialism, race, class, gender, nationalism, postcoloniality, social transformation, and ethnicity in African writers' fiction and literary production. Lecture, discussion, films.

M AFH 347 Jazz in America. (3) *fall, spring, summer*

Current practices employed by contemporary jazz musicians; the historical development of jazz techniques. Credit does not apply to major requirements for music degrees. Lecture, discussion. Cross-listed as MUS 347. Credit is allowed for only AFH 347 or MUS 347. Fee.

General Studies: HU, C

M AFH 353 African American Literature: Beginnings Through the Harlem Renaissance. (3) *fall*

Historical survey of African American literary traditions and cultural contexts from slavery through the 1930s. Cross-listed as ENG 353. Credit is allowed for only AFH 353 or ENG 353. See AFH Notes 1, 2.

General Studies: L/HU, C

M AFH 354 African American Literature: Harlem Renaissance to the Present. (3) *spring*

Historical survey of African American literary traditions and cultural contexts from the 1920s to the present. Cross-listed as ENG 354. Credit is allowed for only AFH 354 or ENG 354. See AFH Notes 1, 2.

General Studies: L/HU, C

M AFH 459 Studies in African American/Caribbean Literatures. (3) *selected semesters*

Studies in African American or Caribbean literatures according to genre, period, theory, or selected authors. May be repeated for credit when topics vary. Cross-listed as ENG 459. Credit is allowed for only AFH 459 or ENG 459. See AFH Notes 1, 2, 3. Topics may include the following:

- African American Short Story

General Studies: L

M AFH 465 Harlem Renaissance: A Cultural History: 1877–1945. (3) *spring*

Socio-political, historical contexts and worldwide ramifications of the cultural productions (theater, music, visual arts, and literature) of the Harlem Renaissance. Lecture, discussion, films.

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

AFRICAN AND AFRICAN AMERICAN STUDIES (AFR)

M AFR 191 First Year Seminar. (1–3) *selected semesters*

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

M AFR 210 Introduction to African American Studies. (3) *fall*

Examines the political, historical, and cultural origins of African American studies as an academic discipline. Lecture, discussion.
General Studies: C

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

M AFR 298 Honors Directed Study. (1–6) *selected semesters*

M AFR 317 Genes, Race, and Society. (3) *spring*

Examines history of biological and social constructions of "race" in western society. Lecture, discussion.
General Studies: SB, C, H

M AFR 375 Race, Gender, and Sport. (3) *fall and spring*

Interdisciplinary examination of the social concepts of race and gender and their economic impact on sports in America. Lecture, discussion. Prerequisite: ENG 102 (or its equivalent) or instructor approval.

General Studies: SB, C

M AFR 394 Special Topics. (1–4) *selected semesters*

M AFR 428 Critical Race Theory. (3) *spring*

Examines ways in which race has been historically utilized, constructed, and contested in American civil society. Lecture, discussion.

M AFR 429 African American Studies Theory and Methods. (3) *spring*

Examines social and behavioral science theories and methodological procedures pertaining to African Americans. Prerequisite: senior standing.

M AFR 460 Race, Gender, and Media. (3) *spring and summer*

Reading seminar designed to give a probing examination of the interface between AHANA Americans and the mass media in the United States. Lecture, discussion. Cross-listed as MCO 460. Credit is allowed for only AFR 460 or MCO 460.

General Studies: C

M AFR 484 Internship. (1–12) *selected semesters*

M AFR 490 Field Studies in the Diaspora. (3) *spring*

Introduces methods and principles of research applied to Black communities within and outside Arizona. Involves working with field officer and faculty. Lecture, field study. Prerequisite: senior standing. Pre- or corequisite: AFR 429.

M AFR 492 Honors Directed Study. (1–6) *selected semesters*

M AFR 493 Honors Thesis. (1–6) *selected semesters*

M AFR 494 Special Topics. (1–4) *selected semesters*

M AFR 497 Honors Colloquium. (1–6) *selected semesters*

M AFR 498 Pro-Seminar. (3) *spring*

Topic is selected by instructor in consultation with the student. Designed to integrate and develop research skills. Required for majors. Prerequisite: senior standing. Pre- or corequisite: AFR 429.

M AFR 499 Individualized Instruction. (1–3) *selected semesters*

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

AFRICAN AND AFRICAN AMERICAN STUDIES PROGRAM

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

AFRICAN AND AFRICAN AMERICAN STUDIES SOCIAL SCIENCE (AFS)

M AFS 200 Introduction to African and African Diaspora Studies. (3)

spring

Introduces the study of African and African-descended peoples; theory, themes, and perspectives. Lecture, discussion.

M AFS 202 Ethnic Relations in the United States. (3)

fall and spring

Processes of intercultural relations; systems approach to history of U.S. interethnic relations; psychocultural analysis of contemporary U.S. ethnic relations. Lecture, discussion. Cross-listed as ASB 202. Credit is allowed for only AFS 202 or ASB 202.

General Studies: SB, C, H

M AFS 210 Introduction to Ethnic Studies in the U.S. (3)

fall and spring

Covers diversity of experiences and relations among racial and ethnic groups in the United States. Lecture, discussion. Cross-listed as APA 210/CCS 210. Credit is allowed for only AFS 210 or APA 210 or CCS 210.

General Studies: C

M AFS 301 Race and Racism in Africa/African Diaspora. (3)

spring

Construction of race, racism, and race relations in Africa/African Diaspora; practices of agency to challenge ethnicity, racism, and racial oppression. Lecture, discussion, films.

M AFS 304 Islands of Globalization: Caribbean Political Economy. (3)

spring

Impact of globalization on the economic, political, and social condition of the islands and mainland countries of the Caribbean. Lecture, discussion, films.

M AFS 310 African/African American Psychology. (3)

fall and spring

Historical and contemporary overview of the development of African/Black psychology and African American frame of reference. Lecture, discussion.

M AFS 312 Contemporary African and African Diaspora Women. (3)

selected semesters

Explores recent literary, theoretical, and methodological themes concerning the study of African/African Diaspora women and the phenomena of modernization. Lecture, discussion, films.

M AFS 320 Africa: Politics, Environment, and Development. (3)

selected semesters

Uses African experience to understand the consequences of human environment relationships, wealth and power differentials, and individual and global citizenship. Lecture, discussion, films. Prerequisite: sophomore standing.

M AFS 327 Human Rights in Africa. (3)

selected semesters

Comparative study of human rights focusing on colonial and post-colonial Africa from historical and contemporary perspectives. Lecture, discussion, films. Prerequisite: junior standing.

M AFS 340 The Making of Modern Africa. (3)

spring

Events and processes leading to the colonization of Africa and subsequent changes in African societies under colonial rule and independence. Lecture, discussion, films. Prerequisite: ENG 102.

M AFS 345 The Making of the Caribbean Society. (3)

selected semesters

Historical socioeconomic and political factors and institutions creating the wider Caribbean from the 15th century to the present. Lecture, discussion, films.

M AFS 355 Democracy and Civil Society in Africa. (3)

selected semesters

Examines contending perspectives on the state and civil society and democratic struggles using sub-Saharan Africa and case study. Lecture, discussion, films. Prerequisite: junior standing.

M AFS 360 Black Families in the Diaspora: U.S. and Caribbean. (3)

fall

Comparative study of historical and current themes in the structure and internal dynamics of African Diaspora families. Lecture, discussion, films.

M AFS 363 African American History to 1865. (3)

once a year

The African American in American history, thought, and culture from slavery to 1865. Cross-listed as HST 333. Credit is allowed for only AFS 363 or HST 333.

General Studies: SB, C, H

M AFS 364 African American History Since 1865. (3)

once a year

The African American in American history, thought, and culture from 1865 to the present. Cross-listed as HST 334. Credit is allowed for only AFS 364 or HST 334.

General Studies: SB, C, H

M AFS 366 African Archaeology: Precolonial Urban Culture. (3)

fall and spring

Overview of African civilization from the last 10,000 years up to 1850 via archaeological, documentary, and oral data. Lecture, discussion. Cross-listed as ASB 366. Credit is allowed for only AFS 366 or ASB 366.

General Studies: SB, G, H

M AFS 370 Family, Ethnic, and Cultural Diversity. (3)

fall and spring

Integrative approach to understanding historical and current issues related to the structure and internal dynamics of diverse American families. Lecture, discussion. Cross-listed as FAS 370. Credit is allowed for only AFS 370 or FAS 370. Prerequisite: PGS 101 or SOC 101.

General Studies: SB, C

M AFS 415 Black Political Thought and the Limits of Liberal Democracy. (3)

selected semesters

Black political and social thought; conflict between liberal democratic ideals and structures of domination and exploration from African Diaspora perspectives. Lecture, discussion, films.

M AFS 466 Peoples and Cultures of Africa. (3)

fall and spring

Survey of African peoples and their cultures, external contact, and changes. Meets non-Western requirement. Lecture, discussion. Cross-listed as ASB 466. Credit is allowed for only AFS 466 or ASB 466.

General Studies: SB, G, H

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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

American Indian Studies Program

www.asu.edu/clas/americanindian

480/965-3634

AG 372

Eddie F. Brown, Director

Professor: Brown

Associate Professors: Lujan, Riding In

Assistant Professors: Miller, Vicenti Carpio

The American Indian Studies Program is an academic discipline that emphasizes the political and cultural experience of the various American Indian Nations and peoples of the United States. Course work focuses on the cultures, arts, history, and contemporary experiences of the various American Indian nations. The curriculum also concentrates on the practical application for professional career development, preparation for advanced degree programs, and preparation for service to Indian governments and reservations. It emphasizes scholarly expertise in selected fields of study and its practical application to community service.

AMERICAN INDIAN STUDIES—BS

Students pursuing a BS degree in American Indian Studies gain a broad knowledge of American Indian nations and peoples, with particular emphasis on Southwest American

Indian nations. The degree program offers courses that provide students with intellectual and practical knowledge pertaining to American Indian cultures, history, law, literature, language, art, and government.

Students are required to take 42 semester hours, including 24 hours of required courses and 18 hours in one of two areas of emphasis: (1) legal policy, community, and nation building; or (2) arts, languages, and cultures. Contact the program office for a current list of elective courses. Students must receive a minimum grade of "C" (2.00) in required and emphasis courses. The following courses are required for all students majoring in American Indian Studies:

AIS 180 Introduction to American Indian Studies C.....	3
AIS 280 American Indian Sovereignty and the Courts C	3
AIS 285 Federal Indian Policy	3
AIS 370 American Indian Languages and Cultures	3
AIS 380 Contemporary Issues of American Indian Nations	3
AIS 394 ST: Basic Statistical Analysis*	3
AIS 420 American Indian Studies Research Methods L.....	3
AIS 498 Pro-Seminar	3

* Until American Indian Studies is able to offer its own course in statistical research methods, students must take JUS 302, or a comparable course, in consultation with an advisor.

To assure the breadth and depth of their education, all American Indian Studies undergraduates must complete the requirements of the university General Studies program and the College of Liberal Arts and Sciences. For descriptive information on university requirements, see "General Studies," page 93, and "University Graduation Requirements," page 89. For descriptive information on College of Liberal Arts and Sciences requirements, see "College Graduation Requirements," page 503.



As part of the College of Liberal Arts and Sciences living-learning community concept, students learn scientific methods together during class and share the same residence hall.

Tim Tumble photo

MINOR IN AMERICAN INDIAN STUDIES

The minor in American Indian Studies is designed for students interested in developing an understanding of American Indian issues and analyzing issues through critical inquiry. Fifteen semester hours are required, including AIS 180, 380, and 385 and six elective semester hours from the two areas of emphasis. No pass/fail or credit/noncredit course work may be applied to the minor. A minimum of nine hours must be in resident credit at the Tempe campus. Students must receive a minimum grade of "C" (2.00) for all courses in the minor and meet all course eligibility requirements.

CERTIFICATE IN AMERICAN INDIAN STUDIES

The certificate program recognizes the need for training American Indian and non-Indian students for employment and leadership roles in American Indian government, in state/federal agencies, in education programs, and in urban and Indian community programs.

To this end, the American Indian Studies Certificate program seeks to address the myriad of contemporary social, political, and economic problems and issues impacting American Indian people.

The program provides students with

1. useful knowledge pertaining to American Indian sovereignty, government, law, history, economic development, and culture;
2. practical experience in the form of an off-campus internship working in an American Indian government, a community program, an educational entity, an urban program, or a state/federal agency; and
3. educational skills so that graduates can pursue jobs with an American Indian focus.

A certificate in American Indian Studies requires the completion of 21 semester hours. A minimum of 12 hours must be upper division, and a minimum grade of "C" (2.00) or higher is required except for the AIS Internship course, which requires a passing "Y" grade.

AIS 180 Introduction to American Indian Studies C	3
AIS 280 American Indian Sovereignty and the Courts C	3
AIS 380 Contemporary Issues of American Indian Nations	3
AIS 484 Internship	3
AIS 494 ST: Law, Policy, and American Indians	3
Emphasis courses*	6

* Select courses from the two areas of emphasis; contact the program office for a current list.

For more information, call the director of the American Indian Studies Program at 480/965-3634.

BIS CONCENTRATION

A concentration in American Indian studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their

educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

AMERICAN INDIAN STUDIES (AIS)

- M AIS 180 Introduction to American Indian Studies. (3)**
once a year
Introduction to the study of American Indian justice issues from an interdisciplinary perspective. Primary topics include sovereignty, law, and culture.
General Studies: C
 - M AIS 194 Special Topics. (1-4)**
fall and spring
 - M AIS 280 American Indian Sovereignty and the Courts. (3)**
fall
Examines the sovereign status of American Indians and legal relationships between the tribes and the U.S. government. Lecture, discussion.
General Studies: C
 - M AIS 285 Federal Indian Policy. (3)**
spring
Examines the sovereign status of American Indians and legal relationships between the tribes and the U.S. government. Lecture, discussion.
 - M AIS 294 Special Topics. (1-4)**
selected semesters
 - M AIS 370 American Indian Languages and Cultures. (3)**
fall
Emphasizes understanding of Indian language families and the relationship of oral traditions to culture. Prerequisite: AIS 180.
 - M AIS 380 Contemporary Issues of American Indian Nations. (3)**
spring
Survey of legal, socioeconomic, political, and educational state of contemporary reservation and urban Indians. Prerequisite: AIS 180.
 - M AIS 394 Special Topics. (1-4)**
fall and spring
Topics may include the following:
 - American Indian World Views and Philosophies. (3)
 - Basic Statistical Analysis. (3)
 - M AIS 420 American Indian Studies Research Methods. (3)**
fall
Survey of diverse research methods, including statistical, historical, interpretative, and narrative approaches. Prerequisite: AIS 180.
General Studies: L
 - M AIS 484 Internship. (1-12)**
selected semesters
Fee.
 - M AIS 494 Special Topics. (1-4)**
fall and spring
Topics may include the following:
 - Law, Policy, and American Indians. (3)
 - M AIS 498 Pro-Seminar. (1-7)**
selected semesters
 - M AIS 499 Individualized Instruction. (1-3)**
selected semesters
- Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

**Asian Pacific American Studies
Program**

asu.edu/clas/apas
480/965-9711
SS 100

Karen J. Leong, Director

CORE FACULTY

Associate Professors: Leong, Li, Nakagawa
Assistant Professor: Rosa
Assistant Director and Advisor: Kuo

AFFILIATED FACULTY

Community Resources and Development
Professor: Yoshioka

English

Assistant Professor: Sadowski-Smith
Lecturer: Fuse

Global Studies

Assistant Professor: Wang

Human Communication

Associate Professor: Martínez

Human Evolution and Social Change

Professor: Eder

Justice and Social Inquiry

Professors: Romero, Jurik
Assistant Professor: Quan

Languages and Literatures

Associate Professor: Choi

Nursing

Assistant Professor: Chia-Chen Chen

Social and Behavioral Sciences (West campus)

Assistant Professor: Guevarra

Social Work

Professor: Segal
Associate Professor: Steiner
Assistant Professor: Kang

Sociology

Associate Professor: Menjivar

Women and Gender Studies

Associate Professor: Leong

PURPOSE

Asian Pacific American Studies is an interdisciplinary undergraduate program that addresses the historical and contemporary experiences of Asian Americans and Pacific

Islanders, what they have contributed to our society, and the complexity of racial formations in the U.S.

The program is designed to help students of all ethnicities

1. to think critically, develop clear written arguments, and present their perspectives effectively;
2. to learn about Asian American and Pacific Islander experiences and communities in Arizona, nationally, and within a larger global context; and
3. to prepare students to participate in an increasingly diverse and global U.S. society.

The certificate program provides students with opportunities to think critically about interethnic cooperation and conflict in the formation of social institutions and communities. The program also encourages students to learn about local Asian American and Pacific Islander communities and organizations through research, courses, and community internships.

CERTIFICATE IN ASIAN PACIFIC AMERICAN STUDIES

Course Requirements. The certificate program requires 18 semester hours. Twelve core hours must be fulfilled by the following courses:

APA 200 Introduction to Asian Pacific American Studies <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 COM 263 and MCO 460.

Students must apply for the certificate program through the Asian Pacific American Studies Program office. For more information, call the program director at 480/965-9711.

BIS CONCENTRATION

A concentration in Asian Pacific American studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

ASIAN PACIFIC AMERICAN STUDIES (APA)

M APA 194 Special Topics. (1-4)
fall and spring

M APA 200 Introduction to Asian Pacific American Studies. (3)
fall and spring
Examines historical and contemporary issues facing Asian Americans and Pacific Islanders in the United States. Lecture, discussion.
General Studies: HU/SB, C

M APA 210 Introduction to Ethnic Studies in the U.S. (3)
fall and spring
 Covers diversity of experiences and relations among racial and ethnic groups in the United States. Lecture, discussion. Cross-listed as AFS 210/CCS 210. Credit is allowed for only AFS 210 or APA 210 or CCS 210.

General Studies: C

M APA 294 Special Topics. (1-4)

fall and spring

Open to all students. May be repeated for credit.

M APA 310 Asian Pacific American Arts and Cultures. (3)

fall and spring

Explores Asian Pacific American cultural expression in art, literature, film, theatre, dance, and music. Lecture, discussion.

General Studies: HU, C

M APA 315 Asian Pacific American Literature. (3)

fall

Explores the literary history, critical reception, and major theories in Asian Pacific American poetry, fiction, and prose. Lecture, discussion.

General Studies: HU, C

M APA 330 Asian Pacific American Genders and Sexualities. (3)

spring

Explores gender and sexuality issues as they relate to Asian Pacific American experiences, including interracial relationships, stereotypes, feminism, queer theory. Lecture, discussion.

General Studies: SB, C

M APA 340 Asian Pacific Americans and Media. (3)

fall

Analyzes social construction of Asian Pacific American media images and resistance to those images in various historical contexts. Lecture, discussion.

General Studies: HU, C

M APA 345 Asian Pacific Americans and Film. (3)

spring

Examines representations of Asian Pacific Americans in narrative, popular, experimental, and documentary film. Lecture, discussion.

General Studies: C, H

M APA 360 Asian Pacific American Experience. (3)

fall and spring

Historical and contemporary experiences of Asian Pacific American racial/ethnic groups in the United States. Lecture, discussion. Topics may include the following:

- Chinese American
- Filipina and Filipino American
- Japanese American
- Korean American
- Pacific Islander
- South Asian American
- Southeast Asian American

General Studies: HU/SB, C

M APA 394 Special Topics. (1-4)

fall and spring

Open to all students. May be repeated for credit. Topics may include the following:

- Asian Pacific American Immigration Issues
- Asian Pacific American Legal History
- Asian Pacific American Women Issues and Identities
- Asian Pacific Americans and Politics

M APA 450 Asian Pacific American Contemporary Issues. (3)

fall and spring

Focuses on issues shaping Asian Pacific American communities, including immigration, politics, education, health, family, gender, youth, interracial relations, and other contemporary topics. Lecture, discussion. Prerequisite: APA 200 or instructor approval.

General Studies: SB, C

M APA 484 Internship. (1-12)

fall and spring

Fee.

M APA 494 Special Topics. (1-4)

fall and spring

Open to all students. May be repeated for credit. Topics may include the following:

- Asian Pacific American Communities. (3)

- Asian Pacific American Leadership
- Voices and Visions: Asian Pacific American Women, Issues, and Identities

M APA 498 Pro-Seminar. (1-7)

fall and spring

M APA 499 Individualized Instruction. (1-3)

fall and spring

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

Department of Chemistry and Biochemistry

chemistry.asu.edu

480/965-3461

PS D102

Robert E. Blankenship, Chair

Regents' Professors: Angell, Buseck, Pettit

Professors: Allen, Blankenship, Fromme, Fuchs, Glick, Gould, Gust, Holloway, Kouvetakis, Lohr, A. Moore, T. Moore, Petuskey, Rose, Shock, Skibo, Steimle, Wang, Williams, Woodbury, Yarger

Associate Professors: Anbar, Bond-Robinson, Booksh, Francisco, Hayes, Richert, Wolf

Assistant Professors: Chaput, Chen, Ghirlanda, Hartnett, Häussermann, Herckes, Levitus, Matyushov, Seo, Wachter, Yan

Senior Lecturers: Bauer, Marks

Lecturers: Briggs, Lefler, Pruis

CHEMISTRY—BA

The BA degree in Chemistry consists of 46 semester hours. Required courses are as follows:

Choose between the course combinations below 8 or 9

CHM 113 General Chemistry I *SQ* (4)

CHM 115 General Chemistry with Qualitative Analysis *SQ* (5)

CHM 117 General Chemistry for Majors I *SQ** (4)

CHM 118 General Chemistry for Majors II *SQ** (4)

Choose between the course combinations below 8

CHM 333 Organic Chemistry for Majors I* (3)

CHM 334 Organic Chemistry for Majors II* (3)

CHM 337 Organic Chemistry Laboratory for Majors I* (1)

CHM 338 Organic Chemistry Laboratory for Majors II* (1)

— or —

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

CHM 233 General Organic Chemistry I (3)	
CHM 234 General Organic Chemistry II (3)	
CHM 237 General Organic Chemistry Laboratory I (1)	
CHM 238 General Organic Chemistry Laboratory II (1)	
CHM 325 Analytical Chemistry	3
CHM 326 Analytical Chemistry Laboratory	1
CHM 341 Elementary Physical Chemistry	3
CHM 343 Physical Chemistry Laboratory	1
CHM 453 Inorganic Chemistry	3
CHM electives	2
Minimum total	29 or 30

* CHM 117, 118, 333, 334, 337, and 338 are strongly recommended for qualified students.

Related courses must include the following:

MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
PHY 111 General Physics <i>SQ</i> ^{1,2}	3
PHY 112 General Physics <i>SQ</i> ^{1,2}	3
PHY 113 General Physics Laboratory <i>SQ</i> ^{1,2}	1
PHY 114 General Physics Laboratory <i>SQ</i> ^{1,2}	1
Total	16

¹ More advanced PHY courses may be taken in place of PHY 111, 112, 113, and 114.

² Both PHY 111 and 113 or PHY 112 and 114 must be taken to secure *SQ* credit.

The remaining courses to complete the major are determined by students in consultation with their advisors.

CHEMISTRY—BS

The program consists of 46 semester hours in chemistry and 20 hours of related courses outside the major. Required courses are as follows:

Choose between the course combinations below	8 or 9
CHM 113 General Chemistry I <i>SQ</i> (4)	
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i> (5)	
_____ or _____	
CHM 113 General Chemistry I <i>SQ</i> (4)	
CHM 116 General Chemistry II <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 333 Organic Chemistry for Majors I* (3)	
CHM 334 Organic Chemistry for Majors II* (3)	
CHM 337 Organic Chemistry Laboratory for Majors I* (1)	
CHM 338 Organic Chemistry Laboratory for Majors II* (1)	
_____ or _____	
CHM 233 General Organic Chemistry I (3)	
CHM 234 General Organic Chemistry II (3)	
CHM 237 General Organic Chemistry Laboratory I (1)	
CHM 238 General Organic Chemistry Laboratory II (1)	
Total	16 or 17

* CHM 117, 118, 333, 334, 337, and 338 are strongly recommended for qualified students.

Additional required chemistry courses are as follows:

CHM 240 Introduction to Physical Chemistry <i>CS</i> ¹	3
CHM 325 Analytical Chemistry	3

CHM 326 Analytical Chemistry Laboratory	1
CHM 327 Instrumental Analysis	3
CHM 328 Instrumental Analysis Laboratory	2
CHM 345 Physical Chemistry I	3
CHM 346 Physical Chemistry II	3
CHM 348 Physical Chemistry Laboratory I <i>L</i> ²	1
CHM 349 Physical Chemistry Laboratory II <i>L</i> ²	1
CHM 452 Inorganic Chemistry Laboratory <i>L</i> ²	1
CHM 453 Inorganic Chemistry	3
CHM 460 Biological Chemistry	3
Chemistry elective (choose from the courses below)	3
CHM 302 Environmental Chemistry (3)	
CHM 392 Introduction to Research Techniques (1-3)	
CHM 424 Separation Science (3)	
CHM 431 Qualitative Organic Analysis (3)	
CHM 471 Solid-State Chemistry (3)	
CHM 481 Geochemistry (3)	
CHM 485 Meteorites and Cosmochemistry (3)	
Total	30

¹ Completing MAT 274 and 342 satisfies CHM 240 requirement.
² CHM 348, 349, and 452 must all be taken to secure *L* credit.

Additional required related field courses are as follows:

MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
PHY 121 University Physics I: Mechanics <i>SQ</i> ¹	3
PHY 122 University Physics Laboratory I <i>SQ</i> ¹	1
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ²	3
PHY 132 University Physics Laboratory II <i>SQ</i> ²	1
Total	20

¹ Both PHY 121 and 122 must be taken to secure *SQ* credit.
² Both PHY 131 and 132 must be taken to secure *SQ* credit.

Transfer students are interviewed and advised of possible preparatory work. They must contact the department to arrange for the interview before registration. See "College Graduation Requirements," page 503.

CHEMISTRY—BS

Environmental Chemistry Concentration

The program consists of a minimum of 40 semester hours in chemistry or biochemistry and 26 hours of related courses. Required courses are as follows:

CHM 113 General Chemistry I <i>SQ</i>	4
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i>	5
Choose between the course combinations below	8
CHM 333 Organic Chemistry for Majors I* (3)	
CHM 334 Organic Chemistry for Majors II* (3)	
CHM 337 Organic Chemistry Laboratory for Majors I* (1)	
CHM 338 Organic Chemistry Laboratory for Majors II* (1)	
_____ or _____	
CHM 233 General Organic Chemistry I (3)	
CHM 234 General Organic Chemistry II (3)	
CHM 237 General Organic Chemistry Laboratory I (1)	
CHM 238 General Organic Chemistry Laboratory II (1)	
Total	17

* CHM 117, 118, 333, 334, 337, and 338 are strongly recommended for qualified students.

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Additional required chemistry and biochemistry courses are as follows:

CHM 240 Introduction to Physical Chemistry CS ¹	3
CHM 302 Environmental Chemistry	3
CHM 303 Environmental Chemistry Laboratory L*	2
CHM 327 Instrumental Analysis.....	3
CHM 328 Instrumental Analysis Laboratory.....	2
CHM 345 Physical Chemistry I.....	3
CHM 348 Physical Chemistry Laboratory I L*.....	1
CHM 460 Biological Chemistry	3
CHM 481 Geochemistry	3
Total	23

* CHM 303 or both CHM 349 and 452 must also be taken with CHM 348 to secure L credit.

Additional required related field courses are as follows:

GLG 321 Mineralogy	3
MAT 270 Calculus with Analytic Geometry I MA	4
MAT 271 Calculus with Analytic Geometry II MA	4
MAT 272 Calculus with Analytic Geometry III MA	4
PHY 121 University Physics I: Mechanics SQ ¹	3
PHY 122 University Physics Laboratory I SQ ¹	1
PHY 131 University Physics II: Electricity and Magnetism SQ ²	3
PHY 132 University Physics Laboratory II SQ ²	1
Related field elective (choose from the courses below).....	3-4
BIO 320 Fundamentals of Ecology (3)	
BIO 426 Limnology L (4)	
GLG 461 Geomicrobiology (3)	
Total	26-27

¹ Both PHY 121 and 122 must be taken to secure SQ credit.

² Both PHY 131 and 132 must be taken to secure SQ credit.

American Chemical Society Certification. A student who satisfactorily completes the BS in Chemistry program is certified by the Department of Chemistry and Biochemistry to the American Chemical Society (ACS) as having met the specific requirements for undergraduate professional training in chemistry. Graduates meeting ACS guidelines can receive a certificate to indicate this fact.

BIOCHEMISTRY—BA

The program consists of a minimum of 38 semester hours in chemistry and biochemistry and 18 semester hours of related courses. Required courses are as follows:

Choose between the course combinations below..... 8 or 9

CHM 113 General Chemistry I SQ (4)
CHM 115 General Chemistry with Qualitative Analysis SQ (5)

_____ or _____

CHM 113 General Chemistry I SQ (4)
CHM 116 General Chemistry II SQ (4)

_____ or _____

CHM 117 General Chemistry for Majors I SQ* (4)
CHM 118 General Chemistry for Majors II SQ* (4)

Choose between the course combinations below..... 8

CHM 333 Organic Chemistry for Majors I* (3)
CHM 334 Organic Chemistry for Majors II* (3)
CHM 337 Organic Chemistry Laboratory for Majors I* (1)
CHM 338 Organic Chemistry Laboratory for Majors II* (1)

_____ or _____

CHM 233 General Organic Chemistry I (3)
CHM 234 General Organic Chemistry II (3)
CHM 237 General Organic Chemistry Laboratory I (1)
CHM 238 General Organic Chemistry Laboratory II (1)

Total..... 16 or 17

* CHM 117, 118, 333, 334, 337, and 338 are strongly recommended for qualified students.

Additional required chemistry and biochemistry courses are as follows:

BCH 461 General Biochemistry	3
BCH 462 General Biochemistry	3
BCH 467 Analytical Biochemistry Laboratory L	3
CHM 302 Environmental Chemistry	3
or CHM 325 Analytical Chemistry (3)	
CHM 341 Elementary Physical Chemistry ¹	3
Chemistry electives (choose from the courses below).....	6
BCH 392 Introduction to Research Techniques (1-3)	
BCH 463 Biophysical Chemistry (3)	
BCH 464 Biophysical Chemistry Laboratory (2)	
BCH 465 Protein and Nucleic Acid Biochemistry (3)	
CHM 302 Environmental Chemistry (3)	
CHM 325 Analytical Chemistry (3)	
CHM 326 Analytical Chemistry Laboratory (1)	
CHM 327 Instrumental Analysis (3)	
CHM 328 Instrumental Analysis Laboratory (2)	
CHM 392 Introduction to Research Techniques (1-3)	
CHM 424 Separation Science (3)	
CHM 452 Inorganic Chemistry Laboratory L ² (1-2)	
CHM 453 Inorganic Chemistry (3)	
CHM 471 Solid-State Chemistry (3)	
CHM 481 Geochemistry (3)	
Total.....	21

¹ CHM 345 may be taken in place of CHM 341.

² Both CHM 348 and 349 must also be taken with CHM 452 to secure L credit.

Additional required related field courses are as follows:

Choose from the course combinations below..... 11 or 12

BIO 187 General Biology I SG (4)
BIO 188 General Biology II SQ (4)
BIO 340 General Genetics (4)

_____ or _____

BIO 187 General Biology I SG (4)
BIO 188 General Biology II SQ (4)
BIO 353 Cell Biology (3)

_____ or _____

MBB 245 Cellular and Molecular Biology SQ (4)
MBB 343 Genetic Engineering and Society L (4)
MBB 350 Applied Genetics (4)

Choose between the course combinations below..... 7

MAT 251 Calculus for Life Sciences MA¹ (3)
PHY 101 Introduction to Physics SQ² (4)

_____ or _____

MAT 210 Brief Calculus MA¹ (3)

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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PHY 101 Introduction to Physics <i>SQ</i> ² (4)	_____
Total	18 or 19

- ¹ MAT 270 may be taken in place of MAT 210 or 251.
² The combination of PHY 111, 112, 113, and 114 may be taken in place of PHY 101.

BIOCHEMISTRY—BS

The program consists of 36 semester hours in chemistry and biochemistry and 31 semester hours of related courses. Required courses are as follows:

Choose between the course combinations below	8 or 9
CHM 113 General Chemistry I <i>SQ</i> (4)	
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i> (5)	
_____ or _____	
CHM 113 General Chemistry I <i>SQ</i> (4)	
CHM 116 General Chemistry II <i>SQ</i> (4)	
_____ or _____	
CHM 117 General Chemistry for Majors I <i>SQ</i> * (4)	
CHM 118 General Chemistry for Majors II <i>SQ</i> * (4)	
Choose between the combinations of courses below	8
CHM 333 Organic Chemistry for Majors I* (3)	
CHM 334 Organic Chemistry for Majors II* (3)	
CHM 337 Organic Chemistry Laboratory for Majors I* (1)	
CHM 338 Organic Chemistry Laboratory for Majors II* (1)	
_____ or _____	
CHM 233 General Organic Chemistry I (3)	
CHM 234 General Organic Chemistry II (3)	
CHM 237 General Organic Chemistry Laboratory I (1)	
CHM 238 General Organic Chemistry Laboratory II (1)	
Total	16 or 17

* CHM 117, 118, 333, 334, 337, and 338 are strongly recommended for qualified students.

Additional required chemistry and biochemistry courses are as follows:

BCH 461 General Biochemistry	3
BCH 462 General Biochemistry	3
BCH 463 Biophysical Chemistry	3
BCH 464 Biophysical Chemistry Laboratory	2
BCH 467 Analytical Biochemistry Laboratory <i>L</i>	3
CHM 341 Elementary Physical Chemistry*	3
Chemistry elective (choose from the courses below)	3
BCH 392 Introduction to Research Techniques (1–3)	
BCH 465 Protein and Nucleic Acid Biochemistry (3)	
CHM 325 Analytical Chemistry (3)	
CHM 327 Instrumental Analysis (3)	
CHM 424 Separation Science (3)	
CHM 431 Qualitative Organic Analysis (3)	
CHM 453 Inorganic Chemistry (3)	
CHM 471 Solid-State Chemistry (3)	
CHM 481 Geochemistry (3)	
CHM 485 Meteorites and Cosmochemistry (3)	
Total	20

* CHM 345 may be taken in place of CHM 341.

Additional required related field courses are as follows:

BIO 187 General Biology I <i>SG</i>	4
BIO 188 General Biology II <i>SQ</i>	4
BIO 340 General Genetics	4

BIO 353 Cell Biology	3
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
PHY 111 General Physics <i>SQ</i> ¹	3
PHY 112 General Physics <i>SQ</i> ²	3
PHY 113 General Physics Laboratory <i>SQ</i> ¹	1
PHY 114 General Physics Laboratory <i>SQ</i> ²	1
Total	31

- ¹ Both PHY 111 and 113 must be taken to secure *SQ* credit.
² Both PHY 112 and 114 must be taken to secure *SQ* credit.

Additional biology courses selected from BIO 343, 351, 360, 441, 450, and 465 are strongly recommended.

Additional biochemistry and chemistry courses, including CHM 392 Introduction to Research Techniques, may be taken by students and should be chosen in consultation with an advisor.

BIOCHEMISTRY—BS

Medicinal Chemistry Concentration

The program consists of a minimum of 41 semester hours in chemistry or biochemistry and 26 hours of related courses. Required courses are as follows:

Choose between the course combinations below	8 or 9
CHM 113 General Chemistry I <i>SQ</i> (4)	
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i> (5)	
_____ or _____	
CHM 113 General Chemistry I <i>SQ</i> (4)	
CHM 116 General Chemistry II <i>SQ</i> (4)	
_____ or _____	
CHM 117 General Chemistry for Majors I <i>SQ</i> * (4)	
CHM 118 General Chemistry for Majors II <i>SQ</i> * (4)	
Choose between the combinations of courses below	8
CHM 333 Organic Chemistry for Majors I* (3)	
CHM 334 Organic Chemistry for Majors II* (3)	
CHM 337 Organic Chemistry Laboratory for Majors I* (1)	
CHM 338 Organic Chemistry Laboratory for Majors II* (1)	
_____ or _____	
CHM 233 General Organic Chemistry I (3)	
CHM 234 General Organic Chemistry II (3)	
CHM 237 General Organic Chemistry Laboratory I (1)	
CHM 238 General Organic Chemistry Laboratory II (1)	
Total	16 or 17

* CHM 117, 118, 333, 334, 337, and 338 are strongly recommended for qualified students.

Additional required chemistry and biochemistry courses are as follows:

BCH 461 General Biochemistry	3
BCH 462 General Biochemistry	3
BCH 463 Biophysical Chemistry	3
BCH 467 Analytical Biochemistry Laboratory <i>L</i>	3
CHM 341 Elementary Physical Chemistry	3
CHM 343 Physical Chemistry Laboratory	1
CHM 433 Advanced Organic Chemistry I	3
CHM 435 Medicinal Chemistry	3
Chemistry or biochemistry elective (choose from the courses below)	3
BCH 465 Protein and Nucleic Acid Biochemistry (3)	
CHM 434 Advanced Organic Chemistry II (3)	

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CHM 453 Inorganic Chemistry (3)	25
Total	

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> (4)	

Total	4
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Additional required related field courses are as follows:

BIO 353 Cell Biology	3
BIO 360 Animal Physiology ¹	3
MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
PHY 111 General Physics <i>SQ</i> ²	3
PHY 112 General Physics <i>SQ</i> ³	3
PHY 113 General Physics Laboratory <i>SQ</i> ²	1
PHY 114 General Physics Laboratory <i>SQ</i> ³	1
Total	22

- ¹ BIO 340 may be taken in place of BIO 360.
- ² Both PHY 111 and 113 must be taken to secure *SQ* credit.
- ³ Both PHY 112 and 114 must be taken to secure *SQ* credit.

MINOR IN CHEMISTRY

A minor in Chemistry is awarded to students who complete the following required courses:

CHM 113 General Chemistry I <i>SQ</i> ¹	4
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i>	5
CHM 325 Analytical Chemistry	3
CHM 326 Analytical Chemistry Laboratory	1
Choose between the course combinations below	8
BCH 361 Principles of Biochemistry (3)	
BCH 367 Elementary Biochemistry Laboratory (1)	
CHM 231 Elementary Organic Chemistry <i>SQ</i> ² (3)	
CHM 235 Elementary Organic Chemistry Laboratory <i>SQ</i> ² (1)	
_____ or _____	
CHM 233 General Organic Chemistry I (3)	
CHM 234 General Organic Chemistry II (3)	
CHM 237 General Organic Chemistry Laboratory I (1)	
CHM 238 General Organic Chemistry Laboratory II (1)	
Choose between the course combinations below	4 or 8
CHM 341 Elementary Physical Chemistry (3)	
CHM 343 Physical Chemistry Laboratory (1)	
_____ or _____	
CHM 345 Physical Chemistry I (3)	
CHM 346 Physical Chemistry II (3)	
CHM 348 Physical Chemistry Laboratory I (1)	
CHM 349 Physical Chemistry Laboratory II (1)	
Minimum total	25

- ¹ Equivalent courses may be taken in place of CHM 113, 115, or 116.
- ² Both CHM 231 and 235 must be taken to secure *SQ* credit.

MINOR IN BIOCHEMISTRY

A minor in Biochemistry is awarded to students who complete the following required courses:

BCH 461 General Biochemistry	3
BCH 462 General Biochemistry	3
Choose between the course combinations below	8 or 9
CHM 113 General Chemistry I <i>SQ</i> (4)	
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i> (5)	
_____ or _____	
CHM 113 General Chemistry I <i>SQ</i> (4)	
CHM 116 General Chemistry II <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 333 Organic Chemistry for Majors I ¹ (3)	
CHM 334 Organic Chemistry for Majors II ¹ (3)	
CHM 337 Organic Chemistry Laboratory for Majors I ¹ (1)	
CHM 338 Organic Chemistry Laboratory for Majors II ¹ (1)	
_____ or _____	
CHM 233 General Organic Chemistry I (3)	
CHM 234 General Organic Chemistry II (3)	
CHM 237 General Organic Chemistry Laboratory I (1)	
CHM 238 General Organic Chemistry Laboratory II (1)	
CHM 341 Elementary Physical Chemistry ²	3
Minimum total	24 or 25

- ¹ CHM 117, 118, 333, 334, 337, and 338 are strongly recommended for qualified students.
- ² CHM 345 may be taken in place of CHM 341.

BIS CONCENTRATION

A concentration in chemistry is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

SECONDARY EDUCATION—BAE

Chemistry. This degree is offered through the Initial Teacher Certification (ITC) program in the College of Education. Students pursuing a major in Secondary Education have an advisor in the College of Education and an advisor within the department of their academic specialization area.

See "College of Education," page 349, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

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Academic Specialization ITC Admission Requirements.

The following courses must be completed with a "C" (2.00) or higher before applying to the ITC program: CHM 113, 116, 233, and 237. The following courses may be in progress when applying to the ITC program but must be completed with a "C" (2.00) or higher before starting the program: CHM 234 and 238.

The academic specialization requires 46 semester hours. Required courses are as follows:

CHM 113 General Chemistry I <i>SQ</i>	4
CHM 116 General Chemistry II <i>SQ</i>	4
CHM 233 General Organic Chemistry I.....	3
CHM 234 General Organic Chemistry II.....	3
CHM 237 General Organic Chemistry Laboratory I.....	1
CHM 238 General Organic Chemistry Laboratory II.....	1
CHM 325 Analytical Chemistry.....	3
CHM 326 Analytical Chemistry Laboratory.....	1
CHM 341 Elementary Physical Chemistry.....	3-6
or CHM 345 Physical Chemistry I (3)	
and CHM 346 Physical Chemistry II (3)	
CHM 453 Inorganic Chemistry.....	3
Choose two of the courses below.....	6
BCH 361 Principles of Biochemistry (3)	
CHM 302 Environmental Chemistry (3)	
CHM 453 Inorganic Chemistry (3)	
Total.....	32-35

Additional required related field courses are as follows:

MAT 270 Calculus with Analytic Geometry I <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
SED 494 ST: Methods of Teaching Science.....	3

GRADUATE PROGRAMS

The faculty in the Department of Chemistry and Biochemistry offer programs leading to the degrees of Master of Natural Science, MS, and PhD. See the *Graduate Catalog* for requirements.

The department participates in the interdisciplinary program for the MS and PhD degrees in Molecular and Cellular Biology. For more information, visit the program office in LSE 411, or call 480/965-1768.

BIOCHEMISTRY (BCH)

M BCH 361 Principles of Biochemistry. (3)

fall, spring, summer

Structures, properties, and functions of proteins, enzymes, nucleic acids, carbohydrates, and lipids; the utilization and synthesis of these materials by living systems, and the relationship of these processes to energy production and utilization. Credit is allowed for only BCH 361 or 461. Prerequisite: CHM 231. Pre- or corequisite: CHM 234 or 334.

M BCH 367 Elementary Biochemistry Laboratory. (1)

fall, spring, summer

Qualitative/quantitative analyses of constituents of biological systems, enzyme activity measurements and metabolic studies. 1 hour conference, 3 hours lab. Pre- or corequisite: BCH 361 or instructor approval.

M BCH 392 Introduction to Research Techniques. (1-3)

fall, spring, summer

Instrumental methods and philosophy of research by actual participation in chemical research projects. May be repeated for total of 6 semester hours. Prerequisite: advisor and research supervisor approval.

M BCH 461 General Biochemistry. (3)

fall and spring

Structure, chemistry, and metabolism of biomolecules and their role in the biochemical processes of living organisms. Credit is allowed for only BCH 461 or 361. Prerequisite: CHM 234 or 334. Corequisite: CHM 341 or 346.

M BCH 462 General Biochemistry. (3)

fall and spring

Continuation of BCH 461. Prerequisite: BCH 461 or instructor approval.

M BCH 463 Biophysical Chemistry. (3)

spring

Principles of physical chemistry as applied to biological systems. Prerequisite: CHM 341 or 346.

M BCH 464 Biophysical Chemistry Laboratory. (2)

fall and spring

Introduces physical methods in modern biochemistry. Pre- or corequisite: BCH 463.

M BCH 465 Protein and Nucleic Acid Biochemistry. (3)

spring

Structure and function of proteins and nucleic acids, including protein folding, enzymology, proteomics, DNA/RNA structure, replication, transcription, and genomics. Prerequisite: BCH 462 or instructor approval.

M BCH 467 Analytical Biochemistry Laboratory. (3)

fall and spring

Quantitative analysis, separation and purification of biological molecules. Applies chemical and physical methods to the characterization of biological macromolecules. 1 conference, 1 hour lecture, 5 hours lab. Prerequisite: BCH 461. Corequisite: BCH 462. *General Studies: L*

M BCH 484 Internship. (3)

selected semesters

M BCH 494 Special Topics. (1-4)

selected semesters

Various topics.

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

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

CHEMISTRY (CHM)

For more CHM courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M CHM 101 Introductory Chemistry. (4)

fall, spring, summer

Elements of general chemistry. Adapted to the needs of students in nursing and kinesiology and those preparing for general chemistry. Recommended for General Studies credit. Normally followed by CHM 231. Cannot be used for major credit in chemical or biochemical sciences. Credit is allowed for only CHM 101 or 107. 3 hours lecture, 1 hour discussion, 2 hours lab. Fee. *General Studies: SQ*

DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

M CHM 107 Chemistry and Society. (4)

fall and spring

General chemical principles and concepts presented in context of social and technological issues, e.g., energy, pollution, global warming, and others. Recommended for General Studies credit. Cannot be used for major credit in chemical or biochemical sciences. Credit is allowed for only CHM 107 or 101. 3 hours lecture, 1 hour discussion, 2 hours lab. Fee.

General Studies: SQ, G

M CHM 113 General Chemistry I. (4)

fall, spring, summer

Principles of chemistry. Adapted to the needs of students in the physical, biological, and earth sciences. Credit is allowed for only CHM 113 or 117. 3 hours lecture, 1 hour discussion, 2 hours lab. Fee. Prerequisite: MAT 106 (or 3 semesters of high school algebra). 1 year of high school chemistry recommended.

General Studies: SQ

M CHM 114 General Chemistry for Engineers. (4)

fall and spring

Chemical principles with emphasis toward engineering. Students without high school chemistry or chemical engineering majors must enroll in the CHM 113, 116 sequence instead of CHM 114. 3 hours lecture, 1 hour discussion, 2 hours lab. Fee. Prerequisites: MAT 106 (or 3 semesters of high school algebra); 1 year of high school chemistry.

General Studies: SQ

M CHM 115 General Chemistry with Qualitative Analysis. (5)

fall, spring, summer

Continuation of CHM 113. Equilibrium theory, thermodynamics, kinetics, electrochemistry, nuclear chemistry, descriptive chemistry. Lab includes qualitative analysis. Credit is allowed for only CHM 115 or 116 or 118. 3 hours lecture, 2 hours discussion, 4 hours lab. Fee. Prerequisite: CHM 113 or 2 years of high school chemistry.

General Studies: SQ

M CHM 116 General Chemistry II. (4)

fall and spring

Continuation of CHM 113. Equilibrium theory, thermodynamics, kinetics, electrochemistry, nuclear chemistry, descriptive chemistry. Credit is allowed for only CHM 116 or 115 or 118. 3 hours lecture, 1 hour discussion, 2 hours lab. Fee. Prerequisite: CHM 113 or 2 years of high school chemistry.

General Studies: SQ

M CHM 117 General Chemistry for Majors I. (4)

fall

Atomic and molecular structure, properties and physical states of matter, chemical analysis, bonding, stoichiometry. Credit is allowed for only CHM 117 or 113. 3 hours lecture, 1 conference, 2 hours lab. Fee. Prerequisites: 3 years of high school mathematics; minimum of 1 year of high school physics. Prerequisite with a grade of "B" (3.00) or higher: minimum of 1 year of high school chemistry.

General Studies: SQ

M CHM 118 General Chemistry for Majors II. (4)

spring

Atomic and molecular structure, properties and physical states of matter, chemical analysis, bonding, stoichiometry. Credit is allowed for only CHM 118 or 115 or 116. 3 hours lecture, 1 conference, 2 hours lab. Fee. Prerequisite: CHM 117. Corequisite: MAT 270.

General Studies: SQ

M CHM 231 Elementary Organic Chemistry. (3)

fall, spring, summer

Surveys organic chemistry, with emphasis on the reactivity of basic functional groups. Credit is allowed for only CHM 231 or 233 or 333. Prerequisite with a grade of "B" (3.00) or higher: CHM 101 or 114 or 115 or 116 or 117 or 1 year of high school chemistry or instructor approval.

General Studies: SQ (if credit also earned in CHM 235)

M CHM 233 General Organic Chemistry I. (3)

fall, spring, summer

Chemistry of organic compounds. Credit is allowed for only CHM 233 or 231 or 333. Prerequisite: CHM 115 or 116 or 118.

M CHM 234 General Organic Chemistry II. (3)

fall and spring or summer

Continuation of CHM 233. Credit is allowed for only CHM 234 or 334. Prerequisite: CHM 233.

M CHM 235 Elementary Organic Chemistry Laboratory. (1)

fall, spring, summer

Organic chemistry experiments in synthesis, purification, analysis, and identification. Lab. Fee. Pre- or corequisite: CHM 231.

General Studies: SQ (if credit also earned in CHM 231)

M CHM 237 General Organic Chemistry Laboratory I. (1)

fall, spring, summer

Microscale organic chemical experiments in separation techniques, synthesis, analysis and identification, and relative reactivity. Credit is allowed for only CHM 237 or 337. 4 hours lab. Fee. Corequisite: CHM 233.

M CHM 238 General Organic Chemistry Laboratory II. (1)

fall and spring or summer

Continuation of CHM 237. Credit is allowed for only CHM 238 or 338. 4 hours lab. Fee. Prerequisite: CHM 237. Corequisite: CHM 234.

M CHM 240 Introduction to Physical Chemistry. (3)

spring

Introduces mathematical/computational methods in chemical kinetics, thermodynamics, quantum chemistry. Mathematical-based computer laboratory. 2 hours lecture, 4 hours lab. Fee. Prerequisite with a grade of "C" (2.00) or higher: MAT 272.

General Studies: CS

M CHM 302 Environmental Chemistry. (3)

spring

Explores major environmental issues, problems, and solutions from analytical and chemistry perspectives. Prerequisites: CHM 114 (or 115 or 116 or 118), 231 (or 233).

M CHM 303 Environmental Chemistry Laboratory. (2)

spring

Lab in environmental chemistry to complement CHM 302. First-hand experience with sampling methods, analytical techniques, and environmental lab methods. Lab. Fee. Prerequisite: CHM 231 or 233. Pre- or corequisite: CHM 302.

General Studies: L (if credit also earned in CHM 348)

M CHM 325 Analytical Chemistry. (3)

fall and summer

Principles and methods of chemical analysis. Prerequisite: CHM 115 or 116.

M CHM 326 Analytical Chemistry Laboratory. (1)

fall and summer

Experiments in chemical analysis. 4 hours lab. Fee. Corequisite: CHM 325.

M CHM 327 Instrumental Analysis. (3)

spring

Principles of instrumental methods in chemical analysis. Electroanalytical and optical techniques. Prerequisites: CHM 325, 326. Pre- or corequisite: CHM 346.

M CHM 328 Instrumental Analysis Laboratory. (2)

spring

Experiments in chemical analysis by electroanalytical and optical techniques. 6 hours lab. Fee. Corequisite: CHM 327.

M CHM 333 Organic Chemistry for Majors I. (3)

fall

Structures, reaction mechanisms and kinetics, and systematic syntheses of organic compounds. Credit is allowed for only CHM 333 or 231 or 233. Prerequisite: CHM 115 or 118. Corequisite: CHM 337.

M CHM 334 Organic Chemistry for Majors II. (3)

spring

Continuation of CHM 333. Credit is allowed for only CHM 334 or 234. Prerequisite: CHM 333. Corequisite: CHM 338.

M CHM 337 Organic Chemistry Laboratory for Majors I. (1)

fall

Emphasizes mechanisms, kinetics, and products of organic reactions. Credit is allowed for only CHM 337 or 237. 1 conference, 3 hours lab. Fee. Pre- or corequisite: CHM 333.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

M CHM 338 Organic Chemistry Laboratory for Majors II. (1)

spring

Continuation of CHM 337. Credit is allowed for only CHM 338 or 238. 1 conference, 3 hours lab. Fee. Prerequisite: CHM 337. Corequisite: CHM 334.

M CHM 341 Elementary Physical Chemistry. (3)

fall

Thermodynamics, equilibrium, states of matter, solutions, and chemical kinetics. For students in premedical, biological, and educational curricula. Prerequisites: CHM 115 (or 114 or 118 or 325), 231 (or 233); MAT 271; PHY 112.

M CHM 343 Physical Chemistry Laboratory. (1)

fall

Physical chemistry experiments. Credit is allowed for only CHM 343 or both CHM 348 and 349. 1 hour conference, 3 hours lab. Fee. Corequisite: CHM 341 or 345.

M CHM 345 Physical Chemistry I. (3)

fall

Introduces quantum chemistry with application to electronic structure and dynamics of atoms and molecules. Prerequisite: only CHM 240 or both MAT 272 and 274 (with grades of "C" (2.00) or higher).

M CHM 346 Physical Chemistry II. (3)

spring

Introduces equilibrium and statistical thermodynamics. Laws of thermodynamics, equations of state, multicomponent chemical and phase equilibria, and electrochemistry. Prerequisite: CHM 345. Corequisite: MAT 274.

M CHM 348 Physical Chemistry Laboratory I. (1)

fall

Laboratory experiments in spectroscopy and computational chemistry. Credit is allowed for both CHM 348 and 349 or only CHM 343. 4 hours lab. Fee. Pre- or corequisite: CHM 345.

General Studies: L (if credit also earned in only CHM 303 or both CHM 349 and 452)

M CHM 349 Physical Chemistry Laboratory II. (1)

spring

Laboratory experiments in thermodynamics, electrochemistry, and computational chemistry. Credit is allowed for both CHM 349 and 348 or only CHM 343. 4 hours lab. Fee. Pre- or corequisite: CHM 346.

General Studies: L (if credit also earned in CHM 348 and 452)

M CHM 392 Introduction to Research Techniques. (1–3)

fall, spring, summer

Instrumental methods and philosophy of research by actual participation in chemical research projects. May be repeated for a total of 6 semester hours. Prerequisite: approval of advisor and research supervisor.

M CHM 424 Separation Science. (3)

selected semesters

Basic theory and practical aspects of gas, liquid, ion-exchange, and gel-permeation chromatographies, and other important industrial and research techniques. 2 hours lecture, 4 hours lab. Fee. Prerequisite: CHM 234 or 334 or 346 or instructor approval.

M CHM 433 Advanced Organic Chemistry I. (3)

fall

Reaction mechanisms, reaction kinetics, linear free energy relationships, transition state theory, and Woodward-Hoffmann rules. Prerequisites: both CHM 234 (or 334) and 341 (or 346) or only instructor approval.

M CHM 434 Advanced Organic Chemistry II. (3)

spring

Continuation of CHM 433. Prerequisite: CHM 433 (or CHM 531) or instructor approval.

M CHM 435 Medicinal Chemistry. (3)

spring

Principles of medicinal and pharmaceutical chemistry. Drug design, synthesis, and mechanism of action. Prerequisites: a combination of BCH 361 (or 461) and BIO 353 and CHM 234 (or 334) or only instructor approval.

M CHM 452 Inorganic Chemistry Laboratory. (1–2)

spring

Preparation and characterization of typical inorganic substances, emphasizing methods and techniques. 1 conference, 5 hours lab. Fee. Prerequisite: instructor approval.

General Studies: L (if credit also earned in CHM 348 and 349)

M CHM 453 Inorganic Chemistry. (3)

fall

Principles and applications of inorganic chemistry. Prerequisite: CHM 341 or 346.

M CHM 460 Biological Chemistry. (3)

spring

Structure and function of macromolecules and their involvement in the processing of energy and information by living cells. Prerequisites: CHM 334, 346, 453.

M CHM 471 Solid-State Chemistry. (3)

fall

Crystal chemistry, thermodynamics and electrochemistry of solids, nonstoichiometric compounds, diffusion and solid-state reactions, crystal growth, and selected topics. Pre- or corequisite: CHM 346 or instructor approval.

M CHM 480 Methods of Teaching Chemistry. (3)

spring

Organization and presentation of appropriate content of chemistry; preparation of reagents, experiments, and demonstrations; organization of stock rooms and laboratories; experience in problem solving. Fee. Prerequisite: instructor approval.

M CHM 481 Geochemistry. (3)

spring

Origin and distribution of the chemical elements. Geochemical cycles operating in the earth's atmosphere, hydrosphere, and lithosphere. Cross-listed as GLG 481. Credit is allowed for only CHM 481 or GLG 481. Prerequisite: CHM 341 (or 346) or GLG 321.

M CHM 483 Astrobiology. (3)

fall and spring

Origin, early evolution, distribution, and future of life on Earth and elsewhere in the cosmos. May be repeated for credit. Lecture, discussion, video conferences, possible field trips. Cross-listed as AST 460/BIO 460/GLG 460/MIC 475. Credit is allowed for only AST 460 or BIO 460 or CHM 483 or GLG 460 or MIC 475. Prerequisite: instructor approval.

M CHM 484 Internship. (3)

selected semesters

M CHM 485 Meteorites and Cosmochemistry. (3)

selected semesters

Chemistry of meteorites and their relationship to the origin of the earth, solar system, and universe. Cross-listed as GLG 485. Credit is allowed for only CHM 485 or GLG 485. Prerequisite: CHM 341 or 346.

M CHM 494 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Chemistry of Global Climate Change. (3)

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

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

Department of Chicana and Chicano Studies

www.asu.edu/clas/chicana
 480/965-5091
 COOR 6633

Carlos Vélez-Ibáñez, Chair

Regents' Professor: Candelaria

Professors: Espinosa, Vélez-Ibáñez

Associate Professors: Bernardi, Escobar, Magaña

Assistant Professors: Danielson, García, Leaños, Szkupinski-Quiroga

Faculty Associate: Lacayo-Salas

The Department of Chicana and Chicano Studies (CCS) is an interdisciplinary degree program whose central mission is to increase the direct participation of Mexican Americans and Latinos in the human and capital development of American society. This mission is advanced by the department's core undergraduate curriculum and related programs that examine the culture, artistic achievements, history, and status of people of Mexican descent and other Latinas and Latinos living in the U.S. The curriculum combines a research-based understanding of the humanities, social sciences, and the arts with practical CCS applications (such as studio formats, internships, and community research projects) as preparation for successful careers and productive public service in diverse communities.

CHICANA AND CHICANO STUDIES—BA

The major in Chicana and Chicano Studies requires 45 semester hours of course work. A minimum of 30 semester hours must be in CCS, CSH, and CSS courses. The remaining course work must be in a related field and approved by an advisor. All CCS majors must take 15 semester hours in the following core courses:

CCS 101 Introduction to Chicana and Chicano Studies <i>C</i>	3
CCS 111 Introduction to Chicana and Chicano Culture <i>C</i>	3
CCS 498 Pro-Seminar	3
HST 331 Mexican American History to 1900 <i>SB, C, H</i>	3
HST 332 Mexican American History Since 1900 <i>SB, C, H</i>	3

Within the 45 semester hours, CCS majors must also take 18 semester hours in one of two concentrations—humanities/cultural studies or social sciences/policy—and 12 hours in the other concentration for a total of 45 semester hours.

Majors are expected to fulfill the college's language requirement in Spanish. Although the department advisor can make exceptions on a case-by-case basis, all majors must demonstrate proficiency in Spanish.

All Chicana and Chicano Studies majors must take an established minor or credential of at least 18 semester hours in another field.

CHICANA AND CHICANO STUDIES MINOR

The Chicana and Chicano Studies minor requires 18 semester hours of course work. All Chicana and Chicano Studies minors must take the following courses:

CCS 101 Introduction to Chicana and Chicano Studies <i>C</i>	3
or CCS 111 Introduction to Chicana and Chicano Culture <i>C</i> (3)	
HST 332 Mexican American History Since 1900 <i>SB, C, H</i>	3
Total.....	6

Students must also take at least three semester hours in both CCS concentrations: humanities/cultural studies and social sciences/policy.

Within the 18-semester-hour requirement, students must take a minimum of 12 semester hours in CCS, CSH, and CSS courses. Any courses taken in a related field must be approved by an advisor.

BIS CONCENTRATION

A concentration in Chicana and Chicano studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

SECONDARY EDUCATION—BAE

Chicana and Chicano Studies. Applications are not being accepted at this time.

CHICANA AND CHICANO STUDIES (CCS)

M CCS 101 Introduction to Chicana and Chicano Studies. (3)

fall
 Historical and contemporary issues in the Chicana and Chicano community; focus on economic, sociological, cultural, and political status of Chicanas and Chicanos in the U.S.

General Studies: C

M CCS 111 Introduction to Chicana and Chicano Culture. (3)

fall
 Interdisciplinary analysis of customs, values, belief systems, and cultural symbols; special attention is given to cultural continuity and change.

General Studies: C

M CCS 210 Introduction to Ethnic Studies in the U.S. (3)

fall and spring
 Covers diversity of experiences and relations among racial and ethnic groups in the United States. Lecture, discussion. Cross-listed as AFS 210/APA 210. Credit is allowed for only AFS 210 or APA 210 or CCS 210.

General Studies: C

L literacy and critical inquiry / *MA* mathematics / *CS* computer/statistics/quantitative applications / *HU* humanities and fine arts / *SB* social and behavioral sciences / *SG* natural science—general core courses / *SQ* natural science—quantitative / *C* cultural diversity in the United States / *G* global / *H* historical / See "General Studies," page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

M CCS 300 Chicana and Chicano Culture and Society. (3)

fall

Intensive analysis of how Mexican American writers, artists, film makers, entertainers, and academicians have interpreted aspects of the Chicana and Chicano experience.

General Studies: C

M CCS 446 Teaching Chicana and Chicano Studies in the Schools. (3)

selected semesters

Approaches/techniques for infusion of Chicana and Chicano Studies content into elementary and secondary curriculum; designed for teachers who work with Chicana and Chicano students.

M CCS 498 Pro-Seminar. (3)

once a year

Required courses for majors on topic selected by instructor; writing-intensive course related to the development of interdisciplinary research skills.

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

CHICANA AND CHICANO STUDIES HUMANITIES (CSH)

M CSH Note 1. With the exception of omnibus courses, all FMS courses have a teaching method of lecture, discussion, and screening.

M CSH Note 2. Completion of the First-Year Composition requirement (ENG 101 and 102 [or 105] or ENG 107 and 108 with a grade of "C" [2.00] or higher) is a prerequisite for all English courses above the 100 level.

M CSH Note 3. A term paper or equivalent out-of-class written work is required in all upper-division (300- and 400-level) ENG courses.

M CSH 210 Chicana and Chicano Poetry. (3)

fall

Writing seminar on Chicana and Chicano poetics and intensive creative writing workshop. Workshop, seminar.

M CSH 220 Chicana and Chicano Cultural Expression. (3)

once a year

Interrelation between economic, social, and political status and forms of artistic expression; i.e., music, dance, drama, literature, and graphic arts.

M CSH 270 Race and Ethnicity in American Cinema. (3)

fall and summer

Explores how Hollywood shapes perceptions of race and ethnicity in American society. Cross-listed as FMS 270. Credit is allowed for only CSH 270 or FMS 270. Fee. See CSH Note 1.

General Studies: HU, C

M CSH 310 Chicana and Chicano Folklore. (3)

once a year

Analyzes Chicana and Chicano folk beliefs, traditions, and practices.

General Studies: HU, C

M CSH 350 Mexican and Mexican American Artistic Production. (3)

once a year

Overview of Mexican and Mexican American artistic production from colonial times to present; emphasis on religious and folk art.

General Studies: HU, C, G

M CSH 351 Contemporary Chicana and Chicano Art. (3)

once a year

Intensive analysis of contemporary Chicana and Chicano art movement as appraised within the context of contemporary American art and the art of Mexico.

General Studies: HU, C

M CSH 363 Chicana and Chicano Literature. (3)

fall

Development of Chicana and Chicano literature; study of genres and themes; attention to literary antecedents. Cross-listed as ENG 363.

Credit is allowed for only CSH 363 or ENG 363. See CSH Notes 2, 3.

General Studies: L/HU, C

M CSH 484 Internship. (3)

selected semesters

M CSH 485 Chicana Writers. (3)

once a year

Critical reading of Mexican American women authors; emphasis on contemporary (post-1970) poetry, novels, short stories, and essays.

General Studies: HU, C

M CSH 498 Pro-Seminar. (3)

once a year

Required course for majors on topic selected by instructor; writing-intensive course related to the development of interdisciplinary research skills.

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

CHICANA AND CHICANO STUDIES SOCIAL SCIENCE (CSS)

M CSS 315 Chicano Family Structures and Perceptions. (3)

once a year

Traditional and changing family relationships; emphasis on gender and intergenerational relations and impact of modern society on traditional family values.

M CSS 330 Chicana and Chicano Politics and Policy. (3)

once a year

Historical/contemporary analysis of Chicana and Chicano political ideologies, attitudes, strategies, and movements; relations with governmental agencies; and public policy issues.

General Studies: C

M CSS 331 Policy Issues in Chicana and Chicano Urban Settings. (3)

spring

Historical, demographic, and sociological overview of the status of Chicanas and Chicanos in urban settings as well as the public policy relevance.

General Studies: C

M CSS 335 Latino Health Issues. (4)

spring and summer

Health issues among Chicanos and other U.S. Latinos; interplay among political economy, health, family, culture, and community. 3 hours lecture, 1 hour lab, field research. Prerequisite: instructor approval.

General Studies: SB, C

M CSS 336 Issues in Immigration and Migration. (3)

once a year

Historical/contemporary overview of Mexican immigration into and within the U.S.; factors affecting population movement, settlement patterns, and migrants' incorporation into society.

General Studies: C, H

M CSS 432 Issues in Chicana and Chicano Gender. (3)

once a year

Analyzes social construction of gender identities; emphasizes impact of American and Mexican cultural values on normative gender relations.

General Studies: C

M CSS 490 Field Studies in the Chicana and Chicano Community. (3)

once a year

Introduces principles and methods of qualitative research applied to the Chicana and Chicano community.

M CSS 498 Pro-Seminar. (3)

once a year

Required course for majors on topic selected by instructor; writing-intensive course related to the development of interdisciplinary research skills. Prerequisites: both CCS 101 and HST 331 (or 332), or only instructor approval.

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

Computational Biosciences

Professional Science Master's Degree

www.asu.edu/compbiosci

480/965-9845

PSA 216

Rosemary Renaut, Director

GRADUATE PROGRAMS

The Professional Science Master's (PSM) degree in Computational Biosciences is administered by an interdisciplinary committee. The faculty participating in this PSM degree program are drawn from departments that include Biology, Chemistry and Biochemistry, Computer Science Engineering, Health Management and Policy, Mathematics and Statistics, and Plant Biology.

For more information, contact the program office or refer to the *Graduate Catalog*.

COMPUTATIONAL BIOSCIENCES (CBS)

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

Economics

ECONOMICS—BS

The program of study for the BS degree is designed for students planning to seek employment upon completion of their undergraduate studies or for students intending to go on to graduate school or law school. It provides students with the analytical and quantitative skills employers and graduate schools expect of individuals holding an economics degree. Students interested in pursuing a PhD in economics are strongly encouraged to minor or major in mathematics as well.

Requirements for the College of Liberal Arts and Sciences BS in Economics consist of three parts: the university requirements for all students at ASU, see "University Graduation Requirements," page 89; the requirements of the College of Liberal Arts and Sciences, see "College Graduation Requirements," page 503; and the requirements of the Department of Economics.

The W. P. Carey School of Business also offers a BS degree in Economics. Faculty listings, course descriptions, and the major requirements in the W. P. Carey School of Business are listed under "Department of Economics," page 298.

Requirements of the Department of Economics. The program consists of at least 45 semester hours of course work distributed between economics and related fields as shown below. Only courses in which a student receives a grade of "C" (2.00) or higher may be used to meet these requirements. Students must meet all prerequisites and course requirements as listed in this catalog. These include

- A. calculus and statistics: MAT 210 and 211; or MAT 270, 271, and 272; or MAT 290 and 291; STP 226 or QBA 221;
- B. principles of economics: ECN 211 and 212;
- C. completion of 24 semester hours in economics courses and quantitative business analysis courses at the 300 level or above. At least four of these courses must be at the 400 level or above. These 24 hours must include
 1. economic theory: ECN 313 and 314;
 2. econometrics and statistics: ECN 410 or 425 or QBA 321 or STP 421;
 3. a capstone course or honors thesis: ECN 475 or 493;
 4. economics electives at the 300 level or above to fill out the remaining hours, including a maximum of three hours of ECN 484 Economics Internship and excluding ECN 475 and 493, which cannot be used to satisfy this requirement; and
- D. electives chosen from the Approved List of Related Field Courses to fill out the remaining semester hours.

Latin American Studies Certificate or Emphasis. Students majoring in Economics may elect to pursue a Latin American Studies Certificate or emphasis, combining courses from the major with selected outside courses of wholly Latin American content. See "Latin American Studies," page 512, for more information.

Certificate in International Business Studies. Students majoring in Economics may elect to pursue a Certificate in International Business Studies, combining courses from the major with selected international business courses. For more information see "Certificate in International Business Studies," page 304.

Certificate in Quality Analysis. Students majoring in Economics may elect to pursue a Certificate in Quality Analysis, combining courses from the major with selected quantitative business analysis courses. For more information, see "Certificate in Quality Analysis," page 294.

MINOR

Minor in General Economics. This minor (and BIS area of concentration) requires 18 semester hours of course work which includes ECN 211 and 212, and 12 hours of economics courses at the 300 level or above for which all prerequisites have been met. Only courses in which a student

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

receives a grade of "C" (2.00) or higher may be used to meet these requirements.

Minor in Economics for Students Planning a Career in Law. This minor requires 18 semester hours of course work that includes ECN 211, 212, 314, 450, 453, and one additional economics course at the 300 level or above for which all prerequisites have been met. Only courses in which a student receives a grade of "C" (2.00) or higher may be used to meet these requirements.

Honors Students

Students admitted to the Barrett Honors College may substitute ECN 213 Honors Macroeconomics for ECN 211 and 313, and ECN 214 Honors Microeconomics for ECN 212 and 314. These courses with grades of "C" (2.00) or higher satisfy the prerequisites and pre/corequisites for all upper-division economics courses.

BIS CONCENTRATIONS

Concentrations in (1) economics and (2) economics for students planning a career in law are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

SECONDARY EDUCATION—BAE

This degree is offered through the Initial Teacher Certification (ITC) program in the College of Education. Students pursuing a major in Secondary Education (Economics) have an advisor in the College of Education and an advisor within the Department of Economics.

See "College of Education," page 349, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

Academic Specialization ITC Admission Requirements. The following courses must be completed with a grade of "C" (2.00) or higher before applying to the ITC professional program:

ECN 211 Macroeconomic Principles <i>SB</i>	3
ECN 212 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 211 Macroeconomic Principles <i>SB</i>	3
ECN 212 Microeconomic Principles <i>SB</i>	3
ECN 313 Intermediate Macroeconomic Theory <i>SB</i>	3
ECN 314 Intermediate Microeconomic Theory <i>SB</i>	3
MAT 210 Brief Calculus <i>MA</i>	3
Choose one of the following courses	3
QBA 221 Statistical Analysis <i>CS</i> (3)	
STP 226 Elements of Statistics <i>CS</i> (3)	
Choose one of the following courses	3
ECN 410 Applied Business Forecasting (3)	
ECN 425 Introduction to Econometrics <i>CS</i> (3)	
QBA 321 Applied Quality Analysis I (3)	
Choose one of the following courses	3
ECN 475 Capstone in Economics <i>L</i> (3)	
ECN 493 Honors Thesis <i>L</i> (3)	
Upper-division economics electives	12
Related area course*	9
Total	45

* Choose courses in consultation with an economics advisor.

Teaching Methods

SED 480 Special Methods of Teaching Social Studies	3
Additional teaching methods course*	3
Total	6

* Choose courses in consultation with an education advisor.

Social Studies. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

GRADUATE PROGRAMS

The faculty in the Department of Economics offer programs leading to the MS and PhD degrees. See the *Graduate Catalog* for requirements.

For faculty and course descriptions, see "Department of Economics," page 298.

COURSES

For courses, see "Economics (ECN)," page 299.

Department of English

www.asu.edu/clas/english

480/965-3168

LL 542

Neal A. Lester, Chair

Regents' Professors: Candelaria, Carlson, Dubie, Ríos

Professors: Adams, Bjork, Boyer, Brack, Crowley, Goldberg, Helms, Hogue, Horan, Lehman, Lester, Major, Miller, A. Nilsen, D. Nilsen, Pritchard, Rhodes, Roen, Tobin, van Gelderen

Associate Professors: Baker, Bates, Bivona, Castle, Corse, Fulton, Gerson, M. Goggin, Lussier, McNally, Nelson, Perry, Privateer, Savard, Scarberry-Garcia, Schwalm, Tohe, Voaden, Webb

Assistant Professors: Bernick, Blasingame, Fox, P. Goggin, James, Lockard, Milun, Parchesky, Sadowski-Smith, Thompson

Senior Lecturers: Cook, Duerden, Dugan, Dwyer, Heenan, Norton, Sudol, Wheeler

Lecturers: Baldini, Binkley, Cutrara, Duttagupta, Ellis, Fuse, Newton, Sands

Service Professional: McNeil

Associate Instructional Professional: Glau

ENGLISH—BA

The faculty in the Department of English offer courses in comparative literature, creative writing, English as a second language, English education, English linguistics, film and media studies, literature and language, and rhetoric and composition. Undergraduate degrees include the BA degree in English, with a concentration in creative writing, linguistics, or literature, and a Secondary Education Bachelor of Arts in Education degree. The faculty also offer a Writing Certificate. Students should work with advisors to design an individual program of study that takes full advantage of the diversity within the department as well as interdisciplinary and multicultural contexts available in the college and university.

The BA degree in English with a concentration in creative writing consists of 45 semester hours. Application to the program requires a minimum cumulative GPA of 3.00. Students must also have completed 45 hours of course work. Required courses are as follows:

ENG 200 Critical Reading and Writing About Literature <i>L/HU</i>	3
ENG 210 Introduction to Creative Writing.....	3
ENG 221 Survey of English Literature <i>HU</i>	3
or ENG 222 Survey of English Literature <i>HU, H (3)</i>	

ENG 241 Literatures of the United States to 1860 <i>HU</i>	3
ENG 242 Literatures of the United States, 1860 to Present <i>HU</i> ...	3
ENG 310 Intermediate Creative Writing.....	3
ENG 411 Advanced Creative Writing.....	3
ENG 495 Literary Forms: Theory and Practice.....	3
ENG 498 PS: Directions in Creative Writing.....	3
ENG 498 Pro-Seminar.....	3
Total.....	30

Six additional hours must be chosen from a course list supplied by the departmental advisor.

The nine remaining hours needed to complete the 45 semester hours are electives chosen from the department's offerings at the 200 level and above. At least 18 of the 45 hours must be taken at the 300 or 400 level. At least 12 of these upper-division semester hours must be completed at the Tempe campus, including at least one ENG 310 or ENG 411 writing workshop in the student's chosen genre. A grade of "C" (2.00) or higher is required in all courses taken for the major. A 3.00 GPA in the major is required for graduation.

The BA degree in English with a concentration in linguistics consists of 42 semester hours. Required courses are as follows:

ENG 200 Critical Reading and Writing About Literature <i>L/HU</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 (3)</i>	
or ENG 241 Literatures of the United States to 1860 <i>HU (3)</i>	
or ENG 242 Literatures of the United States, 1860 to Present <i>HU (3)</i>	
ENG 312 English in Its Social Setting <i>L/HU/SB</i>	3
ENG 313 Phonology and Morphology <i>L</i>	3
ENG 314 Modern Grammar.....	3
ENG 413 History of the English Language <i>HU</i>	3
ENG 414 Studies in Linguistics (repeated for a total of nine semester hours).....	9

Twelve additional hours are electives, chosen in consultation with the student's advisor. These courses must be at the 200 level or above. At least one must be a three-semester-hour course in a modern language other than English at the 400 level or above. A grade of "C" (2.00) or higher is required in all courses taken for the major. *No course may be used to satisfy more than one requirement.*

The BA degree in English with a concentration in literature consists of 45 semester hours. Required courses are as follows:

ENG 200 Critical Reading and Writing About Literature <i>L/HU</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 to Present <i>HU</i>	3
ENG 421 Shakespeare <i>HU</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 93.

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Courses taken to fulfill the areas and periods listed below can be used to satisfy more than one of these requirements:

- Upper-division course in critical theory (3)
- Upper-division course in gender, American ethnic literatures, and/or postcolonial studies (3)
- Course in the history and/or structure of language (3)
- Upper-division course in literature before 1660, exclusive of ENG 303, 321, 355, 356, and 421 (3)
- Upper-division course in literature between 1660 and 1900 (3)
- Upper-division course in literature after 1900 (3)

Additional hours needed to complete the 45 hours are electives chosen from the department's offerings at the 200 level and above. At least 18 of the 45 hours must be taken at the 300 or 400 level. A grade of "C" (2.00) or higher is required in all courses taken for the major.

MINORS

The minor in English with a concentration in linguistics consists of 24 semester hours. Required courses are as follows:

ENG 200 Critical Reading and Writing About Literature <i>L/HU</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 to Present <i>HU</i> (3)	
ENG 312 English in Its Social Setting <i>L/HU/SB</i>	3
ENG 314 Modern Grammar.....	3
ENG 413 History of the English Language <i>HU</i>	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 <i>L/HU</i>	3
ENG 221 Survey of English Literature <i>HU</i>	3
or ENG 222 Survey of English Literature <i>HU, H</i> (3)	
ENG 241 Literatures of the United States to 1860 <i>HU</i>	3
or ENG 242 Literatures of the United States, 1860 to Present <i>HU</i> (3)	
ENG 321 Introduction to Shakespeare <i>L/HU</i>	3
or ENG 421 Shakespeare <i>HU</i> (3)	

Also required are two upper-division courses in literature (six hours) and two electives (six hours) chosen from among the department's offerings, with at least one course (three hours) at the 300 or 400 level. A grade of "C" (2.00) or higher is required in all courses taken for the minor.

BIS CONCENTRATIONS

Four concentrations in English (creative writing, linguistics concentration, literature concentration, and writing certificate) are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student

who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

WRITING CERTIFICATE

The Writing Certificate consists of 19 semester hours. Initial entry into the program requires a minimum GPA of 3.00 in ENG 101 and 102, 105, or 107 and 108. Students must also have completed at least 30 hours of course work and must have a minimum GPA of 3.00. Required courses are as follows:

ENG 216 Persuasive Writing on Public Issues <i>L</i>	3
or ENG 412 Creative Nonfiction (3)	
ENG 301 Writing for the Professions <i>L</i>	3
ENG 372 Document Production <i>L</i>	3
ENG 472 Rhetorical Studies <i>L</i>	3
ENG 484 Internship: Writing Certificate	3
ENG 498 PS: Writing Certificate Portfolio	1
Total.....	16

Also required is an additional writing course in English (three hours) or a writing or design course (three hours) selected from an approved list of courses from across campus. All students are required to submit a portfolio before receiving the certificate.

SECONDARY EDUCATION—BAE

This degree is offered through the Initial Teacher Certification (ITC) program in the College of Education. Students pursuing a major in Secondary Education with an academic specialization in English have an advisor in the College of Education and an advisor within the Department of English.

See "College of Education," page 349, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

Academic Specialization ITC Admission Requirements. The following courses must be completed with a grade of "C" (2.00) or higher before applying to the ITC professional program:

ENG 200 Critical Reading and Writing About Literature <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 *L* (3)
 or ENG 217 Writing Reflective Essays *L* (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 to Present <i>HU</i>	3
ENG 312 English in Its Social Setting <i>L/HU/SB</i>	3
or ENG 314 Modern Grammar (3)	
ENG 421 Shakespeare <i>HU</i>	3
or ENG 422 Studies in Shakespeare <i>HU</i> (3)	
ENG 471 Literature for Adolescents <i>HU</i>	3
An upper-division course in women's literature or American ethnic literature	3
Electives	3
Upper-division electives.....	6
Total	39

Teaching Methods

ENG 480 Methods of Teaching English: Composition <i>L</i>	3
ENG 482 Methods of Teaching English: Language <i>L</i>	3
Total	6

GRADUATE PROGRAMS

The faculty in the Department of English offer programs leading to the MA degree in English (with concentrations in comparative literature, English linguistics, literature and language, and rhetoric and composition), Master of Fine Arts degree in Creative Writing (options include fiction, nonfiction, and poetry), Master of Teaching English as a Second Language degree, and PhD degree in English with two concentrations, one in literature and one in rhetoric/ composition and linguistics. See the *Graduate Catalog* for requirements.

ENGLISH (ENG)

For more ENG courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M ENG Note 1. Completion of the First-Year Composition requirement (ENG 101 and 102 [or 105] or ENG 107 and 108 with a grade of "C" [2.00] or higher) is a prerequisite for all English courses above the 100 level.

M ENG Note 2. A term paper or equivalent out-of-class written work is required in all upper-division (300- and 400-level) ENG courses.

M ENG Note 3. English majors and minors are expected to have completed ENG 200 before taking 400-level literature courses.

M ENG 101 First-Year Composition. (3)

fall, spring, summer

Discovering, organizing, and developing ideas in relation to the writer's purpose, subject, and audience. Emphasizes modes of written discourse and effective use of rhetorical principles. Foreign students, see ENG 107. Prerequisite: see "University Testing Requirements," page 75, and "First-Year Composition Requirement," page 89.

M ENG 102 First-Year Composition. (3)

fall, spring, summer

Critical reading and writing; emphasis on strategies of academic discourse. Requires research paper. Foreign students, see ENG 108. Prerequisite with a grade of "C" (2.00) or higher: ENG 101.

M ENG 105 Advanced First-Year Composition. (3)

fall and spring

Concentrated composition course for students with superior writing skills; intensive reading; research papers; logical and rhetorical

effectiveness. Credit is allowed for only ENG 105 or First-Year Composition. Prerequisite: see "University Testing Requirements," page 75, and "First-Year Composition Requirement," page 89.

M ENG 107 English for Foreign Students. (3)

fall and spring

For students from non-English-speaking countries who have studied English in their native countries, but who require practice in the idioms of English. Intensive reading, writing, and discussion. Satisfies the graduation requirement of ENG 101.

M ENG 108 English for Foreign Students. (3)

fall and spring

For foreign students; critical reading and writing; strategies of academic discourse. Requires research paper. Satisfies graduation requirement of ENG 102. Prerequisite with a grade of "C" (2.00) or higher: ENG 107.

M ENG 114 English Grammar and Usage. (3)

fall and spring

Fundamentals of English grammar (word and phrase structure) and of English usage (punctuation, grammatical correctness).

M ENG 200 Critical Reading and Writing About Literature. (3)

fall and spring

Introduces the terminology, methods, and objectives of the study of literature, with practice in interpretation and evaluation. See ENG Note 1. Prerequisite: English major or minor.

General Studies: L/HU

M ENG 201 World Literature. (3)

fall

Classical and medieval periods. Selections from the great literature of the world in translation and lectures on the cultural background. See ENG Note 1.

General Studies: HU, G, H

M ENG 202 World Literature. (3)

spring

Renaissance and modern periods. Selections from the great literature of the world in translation and lectures on the cultural background. See ENG Note 1.

General Studies: HU, H

M ENG 204 Introduction to Contemporary Literature. (3)

once a year

Poetry, fiction, drama, and possibly other genres. See ENG Note 1.

General Studies: HU

M ENG 210 Introduction to Creative Writing. (3)

fall and spring

Beginning writing of poetry, fiction, drama, or mixed genre. Separate sections for each genre. Each genre may be taken once. See ENG Note 1.

M ENG 212 English Prose Style. (3)

selected semesters

Analysis and practice of writing in various classical and modern prose styles. See ENG Note 1. Prerequisite: preferably English major or both approval of advisor and instructor. Prerequisite with a grade of "B" (3.00) or higher: ENG 102 or 105.

General Studies: L

M ENG 213 Introduction to the Study of Language. (3)

fall and spring

Language as code; phonetics, phonology, morphology, and syntax; the lexicon; language acquisition; sociolinguistics. See ENG Note 1.

M ENG 215 Strategies of Academic Writing. (3)

fall and spring

Advanced course in techniques of analyzing and writing academic expository prose. Writing is research based. See ENG Note 1.

General Studies: L

L literacy and critical inquiry / *MA* mathematics / *CS* computer/statistics/ quantitative applications / *HU* humanities and fine arts / *SB* social and behavioral sciences / *SG* natural science—general core courses / *SQ* natural science—quantitative / *C* cultural diversity in the United States / *G* global / *H* historical / See "General Studies," page 93.

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M ENG 216 Persuasive Writing on Public Issues. (3)

fall and spring

Advanced course in techniques of analyzing and writing persuasive arguments addressing topics of current public interest. Papers are research based. See ENG Note 1.

General Studies: L

M ENG 217 Writing Reflective Essays. (3)

fall and spring

Critical examination of the influences discourse has on formation of identity; narrative analyses of self and culture. See ENG Note 1.

General Studies: L

M ENG 218 Writing About Literature. (3)

fall and spring

Advanced writing course requiring analytical and expository essays about fiction, poetry, and drama. For non-English majors. See ENG Note 1.

General Studies: L/HU

M ENG 221 Survey of English Literature. (3)

fall and spring

Medieval, Renaissance, and 18th-century literature. Emphasizes major writers and their works in their literary and historical contexts. See ENG Note 1.

General Studies: HU

M ENG 222 Survey of English Literature. (3)

fall and spring

Romantic, Victorian, and 20th-century literature. Emphasizes major writers and their works in their literary and historical contexts. See ENG Note 1.

General Studies: HU, H

M ENG 241 Literatures of the United States to 1860. (3)

fall and spring

Survey of literary movements and genres from colonization to the Civil War. See ENG Note 1.

General Studies: HU

M ENG 242 Literatures of the United States, 1860 to Present. (3)

fall and spring

Survey of literary movements and genres from the Civil War to the present. See ENG Note 1.

General Studies: HU

M ENG 245 Popular Culture Issues. (3)

fall and spring

Selected topics in various forms of popular culture related to written texts. May be repeated for credit when topics vary. See ENG Note 1.

General Studies: L

M ENG 301 Writing for the Professions. (3)

fall and spring

Advanced practice in writing and editing expository prose. Primarily for preprofessional majors. See ENG Notes 1, 2.

General Studies: L

M ENG 302 Business Writing. (3)

selected semesters

Advanced interdisciplinary writing course designed to improve the workplace writing competence of W. P. Carey School of Business professional and preprofessional students. Lecture, discussion, case studies, cooperative learning, interactive, Internet, student presentations. See ENG Notes 1, 2. Prerequisite: prebusiness or business major.

M ENG 303 Classical Backgrounds of English Literature. (3)

selected semesters

Readings of Greek and Latin literature in translation as they relate to literature in English. See ENG Notes 1, 2.

General Studies: HU

M ENG 307 Writing Science Fiction. (3)

selected semesters

Writing science fiction, primarily the short story. Lecture, workshop, online supplements. See ENG Notes 1, 2.

M ENG 310 Intermediate Creative Writing. (3)

fall and spring

Separate sections for fiction and poetry. May be taken once for poetry, once for fiction. Lecture, writing assignments, discussion, criticism. See ENG Notes 1, 2. Prerequisite: ENG 210 or instructor approval.

M ENG 312 English in Its Social Setting. (3)

fall and spring

Introduces the sociolinguistic study of the English language. See ENG Notes 1, 2.

General Studies: L/HU/SB

M ENG 313 Phonology and Morphology. (3)

spring

Introduces English morphology, phonology, etymology, and phonetic aspects of rhyme, alliteration, and other sound-based literary devices. See ENG Notes 1, 2.

General Studies: L

M ENG 314 Modern Grammar. (3)

fall and spring

Modern descriptive models of English grammar. See ENG Notes 1, 2.

M ENG 315 Medieval Literature in Translation. (3)

once a year

Medieval literature (insular and continental) in translation, from Beowulf to Malory (excluding Chaucer), emphasizing cultural and intellectual backgrounds. Lecture, discussion. See ENG Notes 1, 2.

M ENG 321 Introduction to Shakespeare. (3)

fall and spring

Shakespeare's major comedies, histories, and tragedies. See ENG Notes 1, 2.

General Studies: L/HU

M ENG 325 Restoration and the 18th Century. (3)

once a year

Writers and movements in nondramatic literature of the restoration and early 18th century. Lecture, discussion. See ENG Notes 1, 2.

M ENG 326 English Drama 1660–1800. (3)

once a year

English drama 1660–1800. See ENG Notes 1, 2.

General Studies: HU

M ENG 328 The Novel to Jane Austen. (3)

selected semesters

From origins of prose fiction through the 18th century. See ENG Notes 1, 2.

General Studies: HU, H

M ENG 329 19th-Century British Fiction. (3)

selected semesters

Includes such authors as Austen, Dickens, Eliot, and Conrad. See ENG Notes 1, 2.

General Studies: L/HU

M ENG 330 19th-Century British Poetry. (3)

selected semesters

Romantic and Victorian poets studied in context. Lecture, discussion. See ENG Notes 1, 2.

M ENG 331 American Drama. (3)

once a year

Major works in the development of American drama from its beginnings to the present. See ENG Notes 1, 2.

General Studies: L/HU

M ENG 333 American Ethnic Literature. (3)

once a year

Examines America's multiethnic identity through works of literature that depict American ethnic, gender, and class sensibilities. Cross-listed as AFH 333. Credit is allowed for only AFH 333 or ENG 333. See ENG Notes 1, 2.

General Studies: L/HU, C

M ENG 335 American Poetry. (3)

selected semesters

Themes and developments in American poetry. Lecture, discussion. See ENG Notes 1, 2.

M ENG 337 Major American Novels. (3)

once a year

Major American novels studied in their ethnically diverse literary, historical, and cultural contexts. See ENG Notes 1, 2.

General Studies: L/HU

M ENG 342 20th-Century British and Irish Literature. (3)

selected semesters

Major works in the development of literature since 1900, studied in their historical and cultural contexts. Lecture, discussion. See ENG Notes 1, 2.

General Studies: HU

M ENG 345 Selected Authors or Issues. (3–4)*selected semesters*

Different topics may be offered. Film topics with lab may carry 4 credits. May be repeated for credit when topics vary. See ENG Notes 1, 2.

M ENG 352 Short Story. (3)*fall and spring*

Development of the short story as a literary form; analysis of its technique from the work of representative authors. See ENG Notes 1, 2.

*General Studies: L/HU***M ENG 353 African American Literature: Beginnings Through the Harlem Renaissance. (3)***fall*

Historical survey of African American literary traditions and cultural contexts from slavery through the 1930s. Cross-listed as AFH 353. Credit is allowed for only AFH 353 or ENG 353. See ENG Notes 1, 2.

*General Studies: L/HU, C***M ENG 354 African American Literature: Harlem Renaissance to the Present. (3)***spring*

Historical survey of African American literary traditions and cultural contexts from the 1920s to the present. Cross-listed as AFH 354. Credit is allowed for only AFH 354 or ENG 354. See ENG Notes 1, 2.

*General Studies: L/HU, C***M ENG 355 European Dramatic Traditions. (3)***selected semesters*

Development of European drama since Aeschylus. See ENG Notes 1, 2.

*General Studies: L/HU***M ENG 356 The Bible as Literature. (3)***fall and spring*

Readings in the Jewish and Christian Scriptures in modern translation. See ENG Notes 1, 2.

*General Studies: HU***M ENG 359 American Indian Literatures. (3)***selected semesters*

Selected oral traditions and contemporary works by American Indian authors. See ENG Notes 1, 2.

*General Studies: L/HU, C***M ENG 360 Western American Literature. (3)***once a year*

Critical examination of ideas and traditions of the literature of the western United States, including the novel. See ENG Notes 1, 2.

*General Studies: L/HU***M ENG 363 Chicana and Chicano Literature. (3)***fall*

Development of Chicana and Chicano literature; study of genres and themes; attention to literary antecedents. Cross-listed as CSH 363.

Credit is allowed for only CSH 363 or ENG 363. See ENG Notes 1, 2.

*General Studies: L/HU, C***M ENG 364 Women and Literature. (3)***selected semesters*

Approaches to issues of gender and representation in literature by and about women. See ENG Notes 1, 2.

*General Studies: HU***M ENG 365 History of Film. (3–4)***selected semesters*

Development of motion pictures. 3 hours lecture, screenings. See ENG Notes 1, 2.

*General Studies: HU***M ENG 369 Science Fiction Studies. (3)***selected semesters*

Examines science fiction in cultural context. May be repeated for credit. Lecture, discussion, face-to-face, hybrid, or online. See ENG Notes 1, 2.

M ENG 372 Document Production. (3)*fall and spring*

Introduces document design and production. Practice in critique and in writing the content of publications. Lecture, discussion. See ENG Notes 1, 2. Prerequisite: instructor approval.

*General Studies: L***M ENG 374 Technical Editing. (3)***fall and spring*

Fundamentals of editing technical and professional materials. Role of editors in analyzing, revising, and polishing manuscripts. Successful writer-editor dialogues. See ENG Notes 1, 2.

M ENG 385 Career Development for English Majors. (3)*selected semesters*

Theoretical and practical aspects of career planning related to skills and interests developed in English studies. Lecture, discussion, workshop. See ENG Notes 1, 2.

*General Studies: L***M ENG 400 History of Literary Criticism. (3)***selected semesters*

Major critics and critical traditions in the Western world. See ENG Notes 1, 2, 3. Prerequisite: 6 hours in literature or instructor approval.

*General Studies: L/HU, H***M ENG 401 Topics in Critical Theory. (3)***selected semesters*

Major critical schools of recent decades—postcolonialist, psychoanalytic, deconstructionist, feminist, new historicist. May be repeated for credit when topics vary. Lecture, discussion. See ENG Notes 1, 2, 3. Prerequisite: 6 hours in literature or instructor approval.

M ENG 409 Advanced Screenwriting. (3)*selected semesters*

Applies the principles taught in a complete feature-length screenplay. See ENG Notes 1, 2. Prerequisite: instructor approval.

M ENG 411 Advanced Creative Writing. (3)*fall and spring*

Poetry, fiction, and drama for experienced writers, emphasizing individual style. Each genre may be taken once. See ENG Notes 1, 2. Prerequisite: ENG 310 or instructor approval.

M ENG 412 Creative Nonfiction. (3)*selected semesters*

Lectures, discussion, and criticism concerning techniques of writing creative nonfiction for publication. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 411 or instructor approval.

M ENG 413 History of the English Language. (3)*once a year*

Development of English from the earliest times to the modern period. See ENG Notes 1, 2. Prerequisite: junior standing or instructor approval.

*General Studies: HU***M ENG 414 Studies in Linguistics. (3)***fall and spring*

Relationship of linguistics to literature, gender, power, and other social issues. May be repeated for credit. See ENG Notes 1, 2. Prerequisite: ENG 213 or 312 or 314 or 413 or instructor approval.

M ENG 415 Topics in Medieval Literature and Culture. (3)*selected semesters*

Interdisciplinary approach to medieval literature, emphasizing cultural and historical context. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 221 or instructor approval.

*General Studies: HU***M ENG 416 Chaucer in Middle English. (3)***once a year*

Yearly alternate between Chaucer's *The Canterbury Tales* and *Troilus and Criseyde*. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 221 or instructor approval.

*General Studies: HU***M ENG 418 Renaissance Literature. (3)***once a year*

Selected topics, authors, contexts, and themes in Renaissance literature. See ENG Notes 1, 2, 3. Prerequisite: ENG 221 or instructor approval.

General Studies: L/HU

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

M ENG 419 English Literature in the Early 17th Century. (3)

once a year

Topics, authors, and themes in English literature, 1603–1660. See ENG Notes 1, 2, 3. Prerequisite: ENG 221 or instructor approval.
General Studies: HU

M ENG 421 Shakespeare. (3)

fall and spring

A selection of Shakespeare's works in different genres. See ENG Notes 1, 2, 3. Prerequisite: ENG 221 or instructor approval.
General Studies: HU

M ENG 422 Studies in Shakespeare. (3)

once a year

Topics for close examination in selected dramatic and/or nondramatic works. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 421 or instructor approval.
General Studies: HU

M ENG 423 Renaissance Drama. (3)

spring

Topics, authors, and themes in the drama of the Tudor and early Stuart periods. See ENG Notes 1, 2, 3. Prerequisite: ENG 221 or instructor approval.

General Studies: L/HU

M ENG 424 Milton. (3)

once a year

Selected prose and poetry, emphasizing *Paradise Lost*, *Paradise Regained*, and *Samson Agonistes*. See ENG Notes 1, 2, 3. Prerequisite: ENG 221 or instructor approval.

General Studies: HU

M ENG 425 Studies in Romanticism. (3)

fall

Romanticism in continental, British, and American literature and culture. May be repeated for credit when topics vary. Lecture, discussion. See ENG Notes 1, 2, 3. Prerequisite: ENG 222 or 241 or instructor approval.

General Studies: HU

M ENG 427 Studies in 16th-Century Literature and Culture. (3)

selected semesters

Literary, social, and cultural issues of the period studied in an interdisciplinary format. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 221 or 222 or instructor approval.

General Studies: HU

M ENG 429 Studies in European Literature and Culture. (3)

selected semesters

Literary, cultural, and historical issues. May be repeated for credit when topics vary. Lecture, discussion. See ENG Notes 1, 2, 3. Topics may include the following:

- Feminist Political Writing in Contemporary Europe. (3)
Examines the discourse of gender-politics in Central Eastern Europe before and after Soviet hegemony. Cross-listed as FLA 461. Credit is allowed for only ENG 429 or FLA 461.
- Literature and Film in 20th-Century Eastern Europe. (3)
Evaluates literary texts and films as a massive propaganda machine of the totalitarian state. Cross-listed as FLA 476. Credit is allowed for only ENG 429 or FLA 476.
- Literature and Politics in Pre- and Post-Communist Europe. (3)
Interdisciplinary examination of the cultures of Eastern Europe from WWI to the present. Cross-listed as FLA 472. Credit is allowed for only ENG 429 or FLA 472.
- Politics of Drama in 20th-Century Europe. (3)
Interdisciplinary examination of European drama before and after WWII. Cross-listed as FLA 464. Credit is allowed for only ENG 429 or FLA 464.

M ENG 430 Studies in Victorian Literature and Culture. (3)

once a year

Literary, social, and cultural issues of the period studied in an interdisciplinary format. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 222 or instructor approval.
General Studies: L/HU

M ENG 434 Studies in the Literature and Culture of the Americas. (3)

selected semesters

Literature and culture of North America, South America, and the Caribbean. May be repeated for credit when topics vary. Lecture,

discussion. See ENG Notes 1, 2, 3. Prerequisite: ENG 241 or 242 or instructor approval.

General Studies: HU, C

M ENG 436 Studies in Anglophone Literature and Culture. (3)

selected semesters

Literary, social, and cultural issues of English-speaking former colonial territories. May be repeated for credit when topics vary. Lecture, discussion. See ENG Notes 1, 2, 3. Prerequisite: ENG 222 or 242 or instructor approval.

M ENG 440 Studies in American Literature and Culture. (3)

once a year

Various genres in their literary, political, theoretical, and historical contexts. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 241 or 242 or instructor approval.
General Studies: HU

M ENG 442 Studies in 20th-Century British and Irish Literature and Culture. (3)

once a year

Major literary genres (novel, poetry, and drama) in their cultural and historical contexts. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 222 or instructor approval.

M ENG 444 Studies in American Romanticism. (3)

once a year

Fiction, poetry, and essays of such 19th-century authors as Hawthorne, Emerson, Melville, Thoreau, Fuller, Whitman, and Dickinson. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 241 or instructor approval.

General Studies: HU

M ENG 445 Studies in American Realism. (3)

once a year

Writers and influences that shaped the development of literary realism. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 242 or instructor approval.

General Studies: L/HU

M ENG 448 Studies in Irish Literature and Culture. (3)

selected semesters

Themes and problems pertaining to Irish literature, film, and social and cultural history. May be repeated for credit when topics vary. Lecture, discussion. See ENG Notes 1, 2, 3. Prerequisite: ENG 222 or instructor approval.

General Studies: HU

M ENG 452 Studies in the Novel. (3)

selected semesters

May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 221 or 222 or 241 or 242 or instructor approval.

General Studies: HU

M ENG 453 Studies in the American Novel. (3)

fall and spring

Poetics and politics of the novel, 18th through 21st centuries. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 241 or 242 or instructor approval.

General Studies: HU

M ENG 457 Studies in American Poetry. (3)

selected semesters

May be repeated for credit when topics vary. See ENG Notes 1, 2, 3. Prerequisite: ENG 241 or 242 or instructor approval.

General Studies: HU

M ENG 459 Studies in African American/Caribbean Literatures. (3)

selected semesters

Studies in African American or Caribbean literatures according to genre, period, theory, or selected authors. May be repeated for credit when topics vary. Cross-listed as AFH 459. Credit is allowed for only AFH 459 or ENG 459. See ENG Notes 1, 2, 3. Topics may include the following:

- African American Short Story

General Studies: L

M ENG 461 Studies in Women and Literature. (3)

selected semesters

Advanced topics in literature by or about women. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3.

General Studies: HU

M ENG 464 Studies in Drama. (3)*selected semesters*

Selected topics in the history and theory of the genre. See ENG Notes 1, 2, 3. Prerequisite: ENG 221 or 222 or 241 or 242 or instructor approval.

*General Studies: L/HU***M ENG 465 Studies in Film. (3–4)***selected semesters*

Advanced topics in cinema. May be repeated for credit when topics vary. Lecture, viewing, discussion. See ENG Notes 1, 2.

M ENG 469 Science and Literature. (3)*selected semesters*

Historical and theoretical links between science and literature, from Francis Bacon to the present, examined in cultural context. May be repeated for credit when topics vary. Lecture, discussion. See ENG Notes 1, 2, 3.

*General Studies: L/HU***M ENG 470 Symbols and Archetypes in Children's Literature. (3)***fall*

Various critical approaches and recurring themes studied in relation to classical and contemporary children's literature. Lecture, discussion, reading. See ENG Notes 1, 2, 3.

*General Studies: L/HU***M ENG 471 Literature for Adolescents. (3)***fall and spring*

Prose and poetry that meet the interests and capabilities of junior high and high school students. Stresses recent literature. Requires passing grade of at least "C" (2.00) before students are permitted to student teach in English. See ENG Notes 1, 2, 3.

*General Studies: HU***M ENG 472 Rhetorical Studies. (3)***fall and spring*

Developments in theory and practice of major rhetorical inquiries. Seminar, workshop. See ENG Notes 1, 2. Prerequisite: junior standing.

*General Studies: L***M ENG 476 Studies in Folklore. (3)***selected semesters*

Surveys the history, genres, and dynamics of folklore, with emphasis on oral traditions. May be repeated for credit when topics vary. See ENG Notes 1, 2, 3.

*General Studies: HU***M ENG 478 Studies in Modernism. (3)***selected semesters*

Cultural, historical, and literary problems in American and European modernism. Lecture, discussion. See ENG Notes 1, 2, 3. Prerequisite: ENG 222 or instructor approval.

*General Studies: HU***M ENG 479 Studies in Postmodernism. (3)***selected semesters*

Literary, social, and cultural issues. May be repeated for credit when topics vary. Lecture, discussion. See ENG Notes 1, 2, 3. Prerequisite: ENG 222 or 242 or instructor approval.

M ENG 480 Methods of Teaching English: Composition. (3)*fall or spring and summer*

Methods of instruction, organization, and presentation of appropriate content in the teaching of composition and other writing skills. See ENG Notes 1, 2.

*General Studies: L***M ENG 482 Methods of Teaching English: Language. (3)***fall or spring and summer*

Methods of instruction, organization, and presentation of appropriate content in language and usage for junior and senior high schools. Lecture, discussion, lab. See ENG Notes 1, 2.

*General Studies: L***M ENG 484 Internship. (1–12)***fall and spring*

Selected from the following areas. May be repeated for credit. See ENG Notes 1, 2. Topics may include the following:

- General. (1–12)
- Service Learning. (3)
Fee.
- Writing Certificate. (3)

M ENG 493 Honors Thesis. (1–6)*selected semesters**General Studies: L***M ENG 495 Literary Forms: Theory and Practice. (3)***selected semesters*

Types, history, analysis of traditional forms and contemporary adaptations. Separate sections for poetry, fiction. Each genre may be taken once. See ENG Notes 1, 2. Prerequisite: ENG 411 in same genre or instructor approval.

M ENG 498 Pro-Seminar. (1–7)*fall and spring*

Selected from the following areas. May be repeated for credit when topics vary. See ENG Notes 1, 2. Topics may include the following:

- Directions in Creative Writing. (3)
- Introduction to Graduate Studies. (1)
- Issues in Creative Writing. (3)
- Writing Certificate Portfolio. (1)

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

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

LINGUISTICS (LIN)

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

WRITING ACROSS THE CURRICULUM (WAC)

For more WAC courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M WAC 101 Introduction to Academic Writing. (3)*fall and spring*

Combines classroom and supplemental instruction to teach academic genres of writing, including definition, summary, and analysis.

M WAC 107 Introduction to Academic Writing for International Students. (3)*fall and spring*

For students from non-English-speaking countries. Combines classroom and supplemental instruction with intensive reading, writing, and discussion.

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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

Department of Family and Human Development

www.asu.edu/clas/fhd
 480/965-6978
 COWDN 106

Richard A. Fabes, Chair

Professors: Christopher, Fabes, Griffin, Ladd, Martin, Roosa

Associate Professors: Dumka, Hanish, Madden-Derdich, Neff, Updegraff

Assistant Professors: Gager, Simpkins, Spinrad, Umaña-Taylor, Valiente

Senior Lecturers: Bodman, Weigand

FAMILY AND HUMAN DEVELOPMENT—BS

For the BS degree in Family and Human Development at the Tempe campus, students must pursue the concentration in family studies/child development. The mathematics proficiency must be met by completing MAT 142 or higher.

Family Studies/Child Development

The concentration in family studies/child development consists of the following core courses:

CDE 232 Human Development <i>SB</i>	3
CDE 338 Child Development Practicum.....	3
CDE 430 Infant/Toddler Development in the Family <i>SB</i>	3
FAS 331 Marriage and Family Relationships <i>SB</i>	3
FAS 361 Introduction to Family/Child Research Methods <i>L</i>	3
FAS 370 Family, Ethnic, and Cultural Diversity <i>SB, C</i>	3
FAS 431 Parent-Adolescent Relationships <i>SB</i>	3
FAS 435 Advanced Marriage and Family Relationships <i>L/SB</i>	3
FAS 484 Internship.....	3
or FAS 390 Supervised Research Experience (3)	
FAS 498 Pro-Seminar.....	3
Total.....	30

In addition, 12 semester hours of unrestricted electives must be taken from the following:

CDE 337 Early Childhood Intervention.....	3
CDE 437 Infant Family Assessment and Observation <i>L/SB</i>	3
CDE 444 Risk and Variation in Child Development.....	3
CDE 498 Pro-Seminar.....	3
or FAS 498 Pro-Seminar (3)	
FAS 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 440 Fundamentals of Marriage and Family Therapy.....	3
FAS 484 Internship.....	1-3
FAS 499 Individualized Instruction.....	3
or CDE 499 Individualized Instruction (3)	

One statistics course is required; students may choose from courses such as PSY 230 Introduction to Statistics or EDP 454 Statistical Data Analysis in Education.

FAMILY AND HUMAN DEVELOPMENT MINOR

The minor in Family and Human Development consists of 18 semester hours in which students specialize in family studies/child development.

At least 12 of the 18 semester hours must be in upper-division courses.

Students take the following courses:

CDE 232 Human Development <i>SB</i>	3
FAS 331 Marriage and Family Relationships <i>SB</i>	3
FAS 440 Fundamentals of Marriage and Family Therapy.....	3
Total.....	9

Three courses (or nine semester hours) must be selected from the following and at least one course must be a CDE course:

CDE 337 Early Childhood Intervention.....	3
CDE 430 Infant/Toddler Development in the Family <i>SB</i>	3
CDE 444 Risk and Variation in Child Development.....	3
CDE 498 Pro-Seminar.....	3
or FAS 498 Pro-Seminar (3)	
FAS 370 Family, Ethnic, and Cultural Diversity <i>SB, C</i>	3
FAS 431 Parent-Adolescent Relationships <i>SB</i>	3

BIS CONCENTRATION

A concentration in family studies/child development is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

SECONDARY EDUCATION—BAE

Family and Human Development. Applications are not being accepted at this time.

GRADUATE PROGRAMS

The faculty in the Department of Family and Human Development offer programs leading to the MS and PhD degrees. See the *Graduate Catalog* for requirements.

CHILD DEVELOPMENT (CDE)

M CDE 232 Human Development. (3)

fall, spring, summer

Lifespan development from conception through adulthood, with emphasis on family influences. Recognizes individuality within the universal pattern of development.

General Studies: SB

M CDE 337 Early Childhood Intervention. (3)

fall and spring

Explores how child development theory affects practice with children and families, emphasizing development of young children and early intervention. Cross listed as SWU 337. Credit is allowed for only CDE 337 or SWU 337. Prerequisite: CDE 232 or SWU 301 (or their equivalents).

M CDE 338 Child Development Practicum. (2–4)

fall, spring, summer session 1

Supervised practicum in the Child Development Lab preparing students for work in child care centers and agencies serving young children and families. May be repeated for credit. Lab. Prerequisite: CDE 232.

M CDE 430 Infant/Toddler Development in the Family. (3)

fall and spring

Examines the development of infants/toddlers, the socialization processes of families, and the interactions of these processes. Prerequisite: CDE 232 (or its equivalent).

General Studies: SB

M CDE 437 Infant Family Assessment and Observation. (3)

fall

Examines strategies for implementing developmental assessments and observations of young children and their families. Cross-listed as SWU 437. Credit is allowed for only CDE 437 or SWU 437.

Prerequisite: CDE 232 or SWU 301 (or their equivalents).

General Studies: L/SB

M CDE 444 Risk and Variation in Child Development. (3)

fall and spring

Impact that constitutional and environmental risk factors have on young children and their families. Cross-listed as SWU 446. Credit is allowed for only CDE 444 or SWU 446. Prerequisite: CDE 232 or SWU 301 (or their equivalents).

M CDE 498 Pro-Seminar. (1–7)

fall and spring

M CDE 499 Individualized Instruction. (3)

fall and spring

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

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

FAMILY STUDIES (FAS)

For more FAS courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M FAS 301 Introduction to Parenting. (3)

fall and spring

Integrated approach to understanding parenting and parent-child interactions. Television course. Prerequisites: PGS 101; SOC 101 (or its equivalent).

M FAS 330 Personal Growth in Human Relationships. (3)

fall and spring

Personal development and behavior as related to competency in interpersonal relationships within the family. Processes of family interaction. Prerequisites: PGS 101; SOC 101 (or its equivalent).

General Studies: SB

M FAS 331 Marriage and Family Relationships. (3)

fall and spring

Issues, challenges, and opportunities relating to present-day marriage and family living. Factors influencing interrelations within the family. Prerequisite: a course in psychology or sociology.

General Studies: SB

M FAS 332 Human Sexuality. (3)

fall and spring

Relationship of sexuality to family life and to major societal issues. Emphasizes developing healthy, positive, and responsive ways of integrating sexual and other aspects of human living. Prerequisite: PGS 101.

General Studies: SB

M FAS 361 Introduction to Family/Child Research Methods. (3)

fall and spring

Examines basic methods applied to family/child research, critiques current research literature, and applies methods in current topics. Prerequisites: CDE 232; FAS 331.

General Studies: L

M FAS 370 Family, Ethnic, and Cultural Diversity. (3)

fall and spring

Integrative approach to understanding historical and current issues related to the structure and internal dynamics of diverse American families. Lecture, discussion. Cross-listed as AFS 370. Credit is allowed for only AFS 370 or FAS 370. Prerequisite: PGS 101 or SOC 101.

General Studies: SB, C

M FAS 390 Supervised Research Experience. (1–3)

fall, spring, summer

Practical, firsthand experience within current faculty research projects in family studies or child development. "Y" grade only; may be repeated for total of 6 hours. Prerequisites: FAS 361; 3.00 GPA in major; approval of supervising faculty member before registration.

M FAS 431 Parent-Adolescent Relationships. (3)

fall

Dynamics of the relationships between parents and adolescents. Developmental characteristics of adolescence and the corresponding adult stage. Prerequisites: CDE 232; FAS 331.

General Studies: SB

M FAS 435 Advanced Marriage and Family Relationships. (3)

fall and spring

Recent research, issues, and trends relating to marriage and family interaction. Influence of family composition, physical environment, family patterns, and values on family dynamics. Prerequisites: FAS 331, 361.

General Studies: L/SB

M FAS 440 Fundamentals of Marriage and Family Therapy. (3)

fall and spring

Introduces the fundamental orientations of marriage and family therapy. Prerequisite: CDE 232 or PGS 101 or SOC 101.

M FAS 484 Internship. (1–12)

fall and spring

M FAS 498 Pro-Seminar. (1–7)

fall and spring

M FAS 499 Individualized Instruction. (3)

fall, spring, summer

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

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

Film and Media Studies

480/965-6747

LL 641

Students interested in the BA in Film in the College of Liberal Arts and Sciences (CLAS) complete a concentration in film and media studies, and students accepted into the BA in Film in the Katherine K. Herberger College of Fine Arts complete a concentration in film and media production. The concentrations include core courses and electives in the areas of critical studies and film production.

The faculty in the CLAS include a range of nationally and internationally recognized film and media scholars, several of whom received their terminal degrees from the

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

nations's top film and media programs. Their expertise is reflected in a cutting-edge curriculum based on rigorous theoretical, historical, and critical models of film analysis as well as proficiency with newer technologies such as DVDs, Internet, video games, and Web sites.

Program Requirements (45 semester hours)

Core Requirements (24 semester hours). To provide students pursuing the BA in Film with a concentration in film and media studies with basic visual literacy and technical understanding, they take the following core courses:

FMS 100 Introduction to Film	3
FMS 110 New Media and New Worlds L	3
FMS 200 Film History HU	3
FMS 270 Race and Ethnicity in American Cinema C	3
FMS 490 Capstone Seminar HU, G	3
THE 201 Film: The Creative Process I	3
THE 400 Focus on Film	3
THP 261 Introduction to Screenwriting	3
Total	24

Film and Media Studies students select one area of emphasis (21 semester hours composed of 12 hours in one area of emphasis and three hours in each of the remaining areas). See an academic advisor for course lists within the following areas of emphasis:

- digital and interactive media
- media literacy and technology
- national and global media
- social identities in the media.

For more information, call the College of Liberal Arts and Sciences Film and Media Studies office at 480/965-6747 or the Office of Undergraduate Programs in CLAS at 480/965-6506.

Students interested in the BA in Film with a concentration in film and media production take core courses and electives in that area. For more information, visit the Katherine K. Herberger College of Fine Arts, GHALL 132, or call 480/965-5337.

FILM AND MEDIA STUDIES (FMS)

M FMS Note 1. With the exception of omnibus courses, all FMS courses have a teaching method of lecture, discussion, and screening.

ENG Note 2. With the exception of FMS 490, all FMS courses numbered 300 and higher have a prerequisite of ENG 102 (or 105 or 108) and FMS 100 with a grade of "C" or higher.

M FMS 100 Introduction to Film. (3)

fall and spring

Introduces the narrative structure, visual style, and cultural elements of film. Fee. See FMS Note 1.

M FMS 110 New Media and New Worlds. (3)

fall and spring

Explores the cultural effects of new media technologies. Fee. See FMS Note 1.

General Studies: L

M FMS 200 Film History. (3)

spring

Introduces the technological, aesthetic, social, and economic aspects of international film history. Fee. See FMS Note 1.

General Studies: HU

M FMS 270 Race and Ethnicity in American Cinema. (3)

fall and summer

Explores how Hollywood shapes perceptions of race and ethnicity in American society. Cross-listed as CSH 270. Credit is allowed for only FMS 270 or CSH 270. Fee. See FMS Note 1.

General Studies: HU, C

M FMS 294 Special Topics. (1-4)

selected semesters

M FMS 300 Media and Cultural Studies. (3)

once a year

The history of media and its cultural impact. Fee. See FMS Notes 1, 2.

General Studies: HU

M FMS 340 Contemporary American Film and Popular Culture. (3)

fall

Analyzes American films, television programs, and music as popular cultural documents. Fee. See FMS Notes 1, 2.

General Studies: HU

M FMS 350 Virtual Reality in Film and Media. (3)

fall

Analyzes virtual reality in films, media, and fiction. Fee. See FMS Notes 1, 2.

M FMS 351 Digital, Cyberspace, and Information Cultures. (3)

selected semesters

Analyzes modern cultural and digital technologies. Fee. See FMS Notes 1, 2.

General Studies: L

M FMS 394 Special Topics. (1-4)

selected semesters

M FMS 440 Los Angeles: Movies and Culture. (3)

selected semesters

Explores film treatment of the historical culture of Los Angeles. Cross-listed as HUM 440. Credit is allowed for only FMS 440 or HUM 440. Fee. See FMS Notes 1, 2.

General Studies: HU, C

M FMS 441 Global Cinema. (3)

selected semesters

Examines how film represents three important dimensions of globalization: its relationship to national culture, terrorism, and immigration. Fee. See FMS Notes 1, 2.

General Studies: HU, G

M FMS 450 Technology, Culture, and Media. (3)

spring

Studies the socio-political relationships among technology, culture, and media. Fee. See FMS Notes 1, 2.

General Studies: L/HU

M FMS 460 Masculinity and Film. (3)

spring

Examines the representation of masculinity and the male body in film. Fee. See FMS Notes 1, 2.

General Studies: HU

M FMS 461 Film Theory and Criticism. (3)

selected semesters

Examines the major positions and issues in film theory from an historical perspective. Fee. See FMS Notes 1, 2.

General Studies: HU

M FMS 480 Globalization, Technology, and Culture. (3)

selected semesters

Studies the socio-political relationship between media and the evolution of globalization. Fee. See FMS Notes 1, 2.

General Studies: HU, G

M FMS 484 Internship. (1-12)

selected semesters

See FMS Notes 1, 2.

M FMS 490 Capstone Seminar. (3)

once a year

Capstone seminar. See FMS Note 1. Prerequisites: major in Film and Media Studies; senior standing.

General Studies: HU

M FMS 494 Special Topics. (1-4)

selected semesters

Topics may include the following:

- Film Theory and Criticism. (3)

spring

Examines the major positions and issues in film theory from an historical perspective. See FMS Notes 1, 2.

- Masculinity and Film. (3)

spring

Examines the representation of masculinity and the male body in film. See FMS Notes 1, 2.

M FMS 498 Pro-Seminar. (1-7)

selected semesters

Topics may include the following:

- Capstone Seminar. (3)

once a year

See FMS Note 1.

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

Department of Geography

geography.asu.edu

480/965-7533

SCOB 330

Richard Aspinnall, Chair

Professors: Arreola, Aspinnall, Balling, Brazel, Cervený, Dorn, Gober, Ó hUallacháin, Pasqualetti, Zehnder

Associate Professors: Ellis, Fall, Kuby, McHugh, Wentz

Assistant Professors: Edsall, Keys, Larson, Li, Lukinbeal, Myint, Schmeekle, Torrens

Lecturers: Larson-Keagy, Shaeffer

Geography is a discipline that integrates the physical and human dimensions of the world in the study of places, people, and environments. The mission of the Department of Geography is the creation, dissemination, and application of geographic knowledge and scholarship in a liberal arts and sciences tradition.

Undergraduate students may choose to pursue a BA degree in Geography, BS degree in Geography, BAE degree in Secondary Education, or minor in Geography. A grade of "C" (2.00) or higher is necessary in all required Department of Geography courses. Both BA and BS degrees in Geography consist of a minimum of 45 semester hours. A minor consists of a minimum of 18 semester hours.

GEOGRAPHY—BA

A student choosing a BA degree in Geography may be interested in a liberal arts and sciences focus on the breadth of the field. A BA degree may also focus on a geographic region. In either case, the student crafts an individualized program of study in consultation with an advisor.

The BA degree consists of courses in core geographic knowledge (10–11 semester hours), core geographic skills (12 semester hours), a regional course (three semester hours), and electives (12 semester hours), for a minimum of 37 semester hours in geography. At least 18 semester hours

in geography must be in upper-division courses. The remaining hours are made up of electives from geography courses or related fields of study, chosen in consultation with an advisor.

Core Geographic Knowledge

GCU 102 Introduction to Human Geography <i>SB</i>	3
GCU 121 World Geography* <i>SB, G</i>	4
GPH 111 Introduction to Physical Geography <i>SQ</i>	4
or GPH 411 Physical Geography (3)	
Total	10–11

* Completion of three semester hours of transfer course work can also be used to fulfill this requirement.

Core Geographic Skills

GCU 495 Quantitative Methods in Geography <i>CS</i>	3
GCU 496 Geographic Research Methods <i>L</i>	3
GPH 371 Introduction to Cartography and Georepresentation <i>CS</i>	3
GPH 491 Geographic Field Methods.....	3
Total	12

Geographic Region

Choose one of the courses below, in consultation with an advisor..... 3

GCU 322 Geography of U.S. and Canada <i>SB, C</i> (3)	3
GCU 323 Geography of Latin America <i>SB, G</i> (3)	3
GCU 325 Geography of Europe <i>SB, G</i> (3)	3
GCU 326 Geography of Asia <i>SB, G</i> (3)	3
GCU 327 Geography of Africa <i>SB, G</i> (3)	3
GCU 328 Geography of Middle East and North Africa <i>SB, G</i> (3)	3
GCU 332 Geography of Australia and Oceania <i>SB, G</i> (3)	3
GCU 344 Geography of Hispanic Americans <i>SB, C</i> (3)	3
GCU 421 Geography of Arizona and Southwestern United States <i>SB, C</i> (3)	3
GCU 423 Geography of South America <i>SB, G</i> (3)	3
GCU 424 Geography of Mexico and Middle America <i>SB, G</i> (3)	3
GCU 425 Geography of the Mexican American Borderland <i>L/SB, G</i> (3)	3
GCU 426 Geography of Russia and Surroundings <i>SB, G</i> (3)	3
GCU 433 Geography of Southeast Asia (3)	3
GPH 433 Alpine and Arctic Environments <i>G</i> (3)	3

A student can design, in consultation with an advisor, a general BA degree in Geography. In addition, there are three cooperative programs whereby a student receives a BA degree in Geography and an emphasis in Asian Studies, Southeast Asian Studies, or Latin American Studies.

Asian and Southeast Asian Certificates. Students majoring in Geography may elect to pursue an Asian or Southeast Asian certificate. For more information, see "Asian Studies," page 509, and "Southeast Asian Studies," page 514.

Latin American Studies Emphasis. Students majoring in Geography may elect to pursue a Latin American studies concentration combining courses from the major with

L literacy and critical inquiry / *MA* mathematics / *CS* computer/statistics/ quantitative applications / *HU* humanities and fine arts / *SB* social and behavioral sciences / *SG* natural science—general core courses / *SQ* natural science—quantitative / *C* cultural diversity in the United States / *G* global / *H* historical / See "General Studies," page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

selected outside courses of wholly Latin American content. At least 30 upper-division semester hours of the program must be in Latin American content courses, including 15 hours in geography (or in courses approved by the Department of Geography advisor) and 15 in other disciplines. A reading knowledge of either Spanish or Portuguese is required and a reading knowledge of the other language is suggested. The program must be approved by the Latin American Studies Center. See "Latin American Studies," page 512, for more information.

GEOGRAPHY—BS

The BS degree consists of courses in core geographic knowledge (10–11 semester hours), core geographic skills (12 semester hours) and a geographic techniques course (from three to four semester hours), and electives (12 semester hours)—for a minimum of 37 semester hours in geography. At least 18 semester hours in geography must be in upper-division courses. The remaining hours are made up of electives from geography courses or related fields of study, chosen in consultation with an advisor.

Core Geographic Knowledge

GCU 102 Introduction to Human Geography <i>SB</i>	3
GCU 121 World Geography* <i>SB, G</i>	4
GPH 111 Introduction to Physical Geography <i>SQ</i>	4
or GPH 411 Physical Geography (3)	
Total	10–11

* Completion of three semester hours of transfer course work can also be used to fulfill this requirement.

Core Geographic Skills

GCU 495 Quantitative Methods in Geography <i>CS</i>	3
GCU 496 Geographic Research Methods <i>L</i>	3
GPH 371 Introduction to Cartography and Georepresentation <i>CS</i>	3
GPH 491 Geographic Field Methods.....	3
Total	12

Core Geographic Techniques

Choose one of the courses below, in consultation with an advisor.....	3–4
GPH 372 Air Photo Interpretation (3)	
GPH 373 Geographic Information Science I <i>CS</i> (4)	
GPH 471 Geographics: Interactive and Animated Cartography and Geovisualization <i>CS</i> (3)	

The remaining four courses (12 semester hours) of geography electives and nine hours of geography or related fields of study vary among the options available for a BS degree in Geography. There are two specific departmental concentrations: meteorology-climatology and urban studies. In addition, a student can design, in consultation with an advisor, an individualized BS degree emphasizing other areas within the major.

Meteorology-Climatology Concentration. See an undergraduate advisor in the Department of Geography for the latest National Weather Service certification requirements. The required courses for the meteorology-climatology concentration include a minimum of 40 semester hours in geography plus course work in mathematics and physics:

Core Courses

GCU 102 Introduction to Human Geography <i>SB</i>	3
GCU 121 World Geography* <i>SB, G</i>	4
GCU 495 Quantitative Methods in Geography <i>CS</i>	3
GCU 496 Geographic Research Methods <i>L</i>	3
GPH 111 Introduction to Physical Geography <i>SQ</i>	4
or GPH 411 Physical Geography (3)	
GPH 370 Geographic Information Technologies <i>CS</i>	3
GPH 371 Introduction to Cartography and Georepresentation <i>CS</i>	3
GPH 491 Geographic Field Methods.....	3
Total	25–26

* Completion of three semester hours of transfer course work can also be used to fulfill this requirement.

Required Meteorology Courses

GPH 213 Introduction to Climatology <i>SG*</i>	3
GPH 215 Introduction to Climatology Laboratory <i>SG*</i>	1
GPH 409 Synoptic Meteorology I.....	4
GPH 410 Synoptic Meteorology II.....	4
GPH 412 Physical Climatology.....	3
or GPH 413 Meteorological Instruments and Measurement (3)	
or GPH 414 Climate Change <i>G</i> (3)	
Total	15

* Both GPH 213 and 215 must be taken to secure SG credit.

Mathematics and Physics-Related Courses

MAT 270 Calculus with Analytic Geometry I <i>MA</i>	4
MAT 271 Calculus with Analytic Geometry II <i>MA</i>	4
MAT 272 Calculus with Analytic Geometry III <i>MA</i>	4
PHY 121 University Physics I: Mechanics <i>SQ</i> ¹	3
PHY 122 University Physics Laboratory I <i>SQ</i> ¹	1
PHY 131 University Physics II: Electricity and Magnetism <i>SQ</i> ²	3
PHY 132 University Physics Laboratory II <i>SQ</i> ²	1
Total	20

¹ Both PHY 121 and 122 must be taken to secure SQ credit.

² Both PHY 131 and 132 must be taken to secure SQ credit.

Urban Studies Concentration. The required courses for the urban studies concentration are as follows:

Core Courses

GCU 102 Introduction to Human Geography <i>SB</i>	3
GCU 121 World Geography* <i>SB, G</i>	4
GCU 495 Quantitative Methods in Geography <i>CS</i>	3
GCU 496 Geographic Research Methods <i>L</i>	3
GPH 111 Introduction to Physical Geography <i>SQ</i>	4
or GPH 411 Physical Geography (3)	
GPH 371 Introduction to Cartography and Georepresentation <i>CS</i>	3
GPH 373 Geographic Information Science I <i>CS</i>	4
GPH 491 Geographic Field Methods.....	3
Total	26–27

* Completion of three semester hours of transfer course work can also be used to fulfill this requirement.

Required Urban Studies Courses

GCU 361 Urban Geography <i>SB</i>	3
GCU 484 Human Geography Internship.....	3
or GPH 484 Internship (3)	

or one upper-division course outside the department in a related field of study chosen in consultation with an advisor (3)

Choose one of the courses below 3

GCU 351 Population Geography *SB, G* (3)

GCU 357 Social Geography *SB* (3)

GCU 364 Energy in the Global Arena *SB, G* (3)

GCU 441 Economic Geography *SB* (3)

GCU 442 Geographical Analysis of Transportation *SB* (3)

One upper-division GCU or GPH course chosen in consultation with an advisor (3)

Choose two of the courses below 6

GCU 359 Cities of the World I *SB, G, H* (3)

GCU 360 Cities of the World II *SB, G* (3)

GCU 444 Geographic Studies in Urban Transportation *SB* (3)

GCU 494 ST: Geography of Phoenix (3)

Urban studies total 15

MINOR IN GEOGRAPHY

A minor in Geography is awarded to students who complete a minimum of 18 hours in geography. A grade of "C" (2.00) or higher is required for all courses taken for the minor.

The following lower-division courses are required:

GCU 102 Introduction to Human Geography *SB* 3

GPH 111 Introduction to Physical Geography *SQ* 4
or GPH 411 Physical Geography (3)

Total 6-7

The remaining courses are selected in conjunction with an advisor. At least one course should be a geographic skill, these include: Geographic Information Technologies (GPH 370), Introduction to Cartography and Georepresentation (GPH 371), Air Photo Interpretation (GPH 372), Geographic Information Science I (GPH 373), or Geographic Field Methods (GPH 491). At least four courses should be upper-division courses in geography.

UNDERGRADUATE CERTIFICATE IN GEOGRAPHIC INFORMATION SCIENCE

This cross-disciplinary certificate is designed for undergraduates wishing to pursue a GIS-related career. The certificate is awarded to students completing the following 19 semester hours with a grade of "C" or higher.

Required courses

CSE 100 Principles of Programming with C++ *CS* 3
or CSE 110 Principles of Programming with Java *CS* (3)

GCU 495 Quantitative Methods in Geography *CS* 3

GPH 370 Geographic Information Technologies *CS* 3

GPH 373 Geographic Information Science I *CS* 4

GPH 473 Geographic Information Science II *CS* 3

Elective Courses

Choose one of the courses below 3

ABS 485 GIS in Natural Resources (3)

ABS 586 Remote Sensing in Environmental Resources (4)

CSE 181 Applied Problem Solving with Visual BASIC *CS* (3)

GCU 361 Urban Geography *SB* (3)

GCU 441 Economic Geography *SB* (3)

GCU 442 Geographical Analysis of Transportation *SB* (3)

GCU 484 Human Geography Internship (3)

GPH 371 Introduction to Cartography and Georepresentation *CS* (3)

GPH 372 Air Photo Interpretation (3)

GPH 471 Geographics: Interactive and Animated Cartography and Geovisualization *CS* (3)

GPH 481 Environmental Geography (3)

GPH 483 Geographic Information Analysis (3)

GPH 484 Internship: GIS based (3)

PLB 434 Landscape Ecological Analysis and Modeling (3)

Total 19

BIS CONCENTRATIONS

Five concentrations in Geography (geography, environmental geography, geographical information science, geography for business, and international geography) are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Two double concentrations are also available: the global family (in conjunction with family resources and human development) and environmental science (in conjunction with plant biology). Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

SECONDARY EDUCATION—BAE

This degree is offered through the Initial Teacher Certification (ITC) program in the College of Education. Students pursuing a major in Secondary Education (Geography) have an advisor in the College of Education and an advisor within the Department of Geography.

See "College of Education," page 349, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

Academic Specialization ITC Admission Requirements. At least three required courses in the academic specialization must be completed with a grade of "C" (2.00) or higher before applying to the ITC professional program.

Geography. The major teaching field consists of 30 semester hours and six hours in teaching methods. A grade of "C" (2.00) or higher is required in all academic specialization courses. Required major courses are as follows:

GCU 102 Introduction to Human Geography *SB* 3

GCU 121 World Geography *SB, G* 4

GCU 141 Introduction to Economic Geography *SB, G* 3
or GCU 322 Geography of U.S. and Canada *SB, C* (3)
or GCU 351 Population Geography *SB, G* (3)
or GCU 361 Urban Geography *SB* (3)

GPH 111 Introduction to Physical Geography *SQ* 4

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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GPH 210 Society and Environment <i>G</i>	3
or GPH 211 Landform Processes <i>L</i> (3)	
or GPH 212 Introduction to Meteorology <i>SQ</i> ¹ (3)	
and GPH 214 Introduction to Meteorology Lab <i>SQ</i> ¹ (1)	
or GPH 314 Global Change <i>HU, G</i> (3)	
Electives ²	12–13
Minimum total	30

¹ Both GPH 212 and 214 must be taken to secure SQ credit.

² Electives must be upper-division geography courses chosen in conjunction with an advisor to reach the 30-semester-hour major requirement.

Teaching Methods

GCU 414 Teaching Geography Standards	3
SED 480 Special Methods of Teaching Social Studies	3
or GCU 494 ST: Geography Methods	–
Total	6

CULTURAL GEOGRAPHY (GCU)

For more GCU courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M GCU 102 Introduction to Human Geography. (3)

fall, spring, summer

Systematic study of human use of the earth. Spatial organization of economic, social, political, and perceptual environments. Fee.
General Studies: SB

M GCU 121 World Geography. (4)

fall, spring, summer

Description and analysis of areal variations in social, economic, and political phenomena in major world regions.
General Studies: SB, G

M GCU 141 Introduction to Economic Geography. (3)

fall

Production, distribution, and consumption of various types of commodities of the world and relationships to the activities of humans.
General Studies: SB, G

M GCU 200 Orientation to Geography. (1)

fall

Basic introduction to the Department of Geography faculty, undergraduate graduation requirements, and possible jobs and skills in geography. Cross-listed as GPH 200. Credit is allowed for only GCU 200 or GPH 200.

M GCU 240 Introduction to Southeast Asia. (3)

fall and spring

Interdisciplinary introduction to the cultures, religions, political systems, geography, and history of Southeast Asia. Cross-listed as ASB 240/HST 240/POS 240/REL 240. Credit is allowed for only ASB 240 or GCU 240 or HST 240 or POS 240 or REL 240.
General Studies: HU/SB, G

M GCU 253 Introduction to Cultural and Historical Geography. (3)

selected semesters

Cultural patterns, including such phenomena as language, religion, and various aspects of material culture. Origins and diffusion and division of the world into cultural areas.
General Studies: SB, G

M GCU 294 Special Topics. (4)

once a year

Topics include global awareness.

M GCU 322 Geography of U.S. and Canada. (3)

fall

Spatial distribution of relevant physical, economic, and cultural phenomena in the United States and Canada.
General Studies: SB, C

M GCU 323 Geography of Latin America. (3)

fall and spring

Spatial distribution of relevant physical, economic, and cultural phenomena in South, Middle, and Caribbean America.
General Studies: SB, G

M GCU 325 Geography of Europe. (3)

spring

Broad and systematic overview of Europe, emphasizing physical, economic, and cultural phenomena.
General Studies: SB, G

M GCU 326 Geography of Asia. (3)

once a year

Spatial distribution of relevant physical, economic, and cultural phenomena in Asia, excluding the former Soviet Union.
General Studies: SB, G

M GCU 327 Geography of Africa. (3)

selected semesters

Spatial distribution of relevant physical, economic, and cultural phenomena in Africa.
General Studies: SB, G

M GCU 328 Geography of Middle East and North Africa. (3)

selected semesters

Spatial distribution of relevant physical, economic, and cultural phenomena in the Middle East and North Africa. Prerequisite: GCU 121 or instructor approval.
General Studies: SB, G

M GCU 332 Geography of Australia and Oceania. (3)

selected semesters

Spatial distribution of relevant physical, economic, and cultural phenomena in Australia, New Zealand, and Pacific Islands.
General Studies: SB, G

M GCU 344 Geography of Hispanic Americans. (3)

fall

Examines the homelands, migrations, settlements, landscapes, roles, and selected cultural traditions of Hispanic Americans.
General Studies: SB, C

M GCU 350 The Geography of World Crises. (3)

fall and spring

Contemporary world crises viewed from a perspective of geographic concepts and techniques.
General Studies: SB, G

M GCU 351 Population Geography. (3)

fall

Demographic patterns; spatial, temporal, and structural investigation of the relationship of demographic variables to cultural, economic, and environmental factors.
General Studies: SB, G

M GCU 352 Political Geography. (3)

selected semesters

Relationship between the sociophysical environment and the state.
General Studies: SB, G

M GCU 357 Social Geography. (3)

once a year

Environmental perception of individuals and groups. Stresses the spatial aspect of social and physical environments.
General Studies: SB

M GCU 359 Cities of the World I. (3)

fall

Historical evolution of urban patterns and structures in the Middle East, India, Southeast Asia, China, Japan, and Europe.
General Studies: SB, G, H

M GCU 360 Cities of the World II. (3)

spring

Historical evolution of urban patterns and structures in Latin America, North America, Sub-Saharan Africa, and Australasia.
General Studies: SB, G

M GCU 361 Urban Geography. (3)

fall and spring

External spatial relations of cities, internal city structure, and spatial aspects of urban problems in various parts of the world, particularly in the United States. Fee.
General Studies: SB

M GCU 364 Energy in the Global Arena. (3)*spring*

Production, transportation, and consumption of energy, emphasizing the electric power industry and its environmental problems.

*General Studies: SB, G***M GCU 394 Special Topics. (1–4)***fall and spring***M GCU 414 Teaching Geography Standards. (3)***fall and summer*

Introduces Arizona Geography Standards for K–12 educators, emphasizing exciting curricula and illustrated with best practices by master teachers. Internet.

M GCU 421 Geography of Arizona and Southwestern United States. (3)*fall*

Geography of the Southwest with an emphasis on Arizona. Divided into physical geography, history, people, and economy.

*General Studies: SB, C***M GCU 423 Geography of South America. (3)***selected semesters*

Prerequisite: GCU 323 or instructor approval.

*General Studies: SB, G***M GCU 424 Geography of Mexico and Middle America. (3)***selected semesters*

Central America and Mexico. Prerequisite: GCU 323 or instructor approval.

*General Studies: SB, G***M GCU 425 Geography of the Mexican American Borderland. (3)***spring*

Geography of a binational and bicultural region. Examines settlement, boundary issues, ethnic subregions, population change, industrial development, and urban growth. Field trips. Fee.

*General Studies: L/SB, G***M GCU 426 Geography of Russia and Surroundings. (3)***selected semesters*

Examines the geography of Russia and other post-Soviet states. Prerequisite: GCU 121 or instructor approval.

*General Studies: SB, G***M GCU 432 Geography of China. (3)***selected semesters*

Examines the physical, economic, cultural, social, demographic, agricultural, political, historical, and environmental aspects of the geography of China. Lecture, discussion. Prerequisite: GCU 326 or instructor approval.

*General Studies: SB, G***M GCU 433 Geography of Southeast Asia. (3)***selected semesters*

Examines the biophysical and social features of Southeast Asian nations and peoples. Prerequisite: GCU 326 or instructor approval.

M GCU 441 Economic Geography. (3)*once a year*

Spatial distribution of primary, secondary, and tertiary economic and production activities. Prerequisite: GCU 141 or instructor approval.

*General Studies: SB***M GCU 442 Geographical Analysis of Transportation. (3)***selected semesters*

Networks, modes, economics, and flows at the urban, national, and international scales. Fee. Prerequisite: GCU 141 or 441.

*General Studies: SB***M GCU 444 Geographic Studies in Urban Transportation. (3)***selected semesters*

Current urban transportation issues in metropolitan Phoenix. Lecture, team project. Fee. Prerequisite: GCU 361.

*General Studies: SB***M GCU 453 Recreational Geography. (3)***selected semesters*

Examines problems surrounding the organization and use of space for recreation. Introduces geographic field survey methods of data collection and analysis. Possible Saturday field trips.

M GCU 455 Historical Geography of U.S. and Canada. (3)*selected semesters*

Geographical perspective on the evolution of the United States and Canada from pre-Columbian times to early 20th century.

*General Studies: SB, H***M GCU 474 Public Land Policy. (3)***selected semesters*

Geographic aspects of federal public lands, policy, management, and issues. Emphasizes western wilderness and resource development problems.

*General Studies: SB***M GCU 484 Human Geography Internship. (3)***fall and spring***M GCU 494 Special Topics. (1–4)***once a year*

Topics may include the following:

- Geography in the K–12 Classroom. (3)
- Geography Methods. (3)
- Geography of Phoenix. (3)

M GCU 495 Quantitative Methods in Geography. (3)*fall and spring*

Statistical techniques applied to the analysis of spatial distributions and relationships. Introduces models and theory in geography. Fee. Prerequisite: MAT 119.

*General Studies: CS***M GCU 496 Geographic Research Methods. (3)***fall and spring*

Scientific techniques used in geographic research. Fee. Prerequisites: GCU 495; GPH 371, 491.

*General Studies: L***Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.**Graduate-Level Courses.** For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.**PHYSICAL GEOGRAPHY (GPH)****M GPH 111 Introduction to Physical Geography. (4)***fall, spring, summer*

Spatial and functional relationships among climates, landforms, soils, water, and plants. Credit is allowed for only GPH 111 or 411. 3 hours lecture, 3 hours lab, field trips. Fee.

*General Studies: SQ***M GPH 200 Orientation to Geography. (1)***fall*

Basic introduction to the Department of Geography faculty, undergraduate graduation requirements, and possible jobs and skills in geography. Cross-listed as GCU 200. Credit is allowed for only GCU 200 or GPH 200.

M GPH 210 Society and Environment. (3)*fall and spring*

Examines the interaction between social processes, key environmental issues, and nature's role as a resource at global and regional scales.

*General Studies: G***M GPH 211 Landform Processes. (3)***once a year*

Geographic characteristics of landforms and earth-surface processes, emphasizing erosion, transportation, deposition, and implications for human management of the environment. Fee. Prerequisites: ENG 101 (or 105); GPH 111.

General Studies: L

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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M GPH 212 Introduction to Meteorology. (3)

fall

Fundamentals of weather and climate, including basic atmospheric processes and elements. Students whose curricula require a laboratory course must also register for GPH 214. Prerequisite: GPH 111 or instructor approval.

General Studies: SG (if credit also earned in GPH 214)

M GPH 213 Introduction to Climatology. (3)

spring

Fundamentals of meteorological/climatological analysis, including terminology and symbology. Recommended for meteorology/climatology program students. Prerequisite: instructor approval.

General Studies: SG (if credit also earned in GPH 215)

M GPH 214 Introduction to Meteorology Laboratory. (1)

fall

Introduces basic meteorological/climatological data and measurements. Suggested concurrent enrollment in GPH 212. 3 hours lab.

General Studies: SQ (if credit also earned in GPH 212)

M GPH 215 Introduction to Climatology Laboratory. (1)

spring

Fundamentals of meteorological/climatological map analysis and interpretation. Recommended for meteorology/climatology program students. May be taken concurrently with GPH 213. Prerequisite: instructor approval.

General Studies: SG (if credit also earned in GPH 213)

M GPH 271 Maps and Map Reading. (3)

selected semesters

Map types, uses, limitations, and evolution. Communication via paper and digital medium. Navigation, interpretation, projections, sources, symbols, classification, case, handling.

M GPH 314 Global Change. (3)

fall and spring

Response of Earth's natural systems (atmosphere, hydrosphere, lithosphere, biosphere) to past environmental change, and effects of potential future changes.

General Studies: HU, G

M GPH 370 Geographic Information Technologies. (3)

fall and spring

Introduces modern geographic information technologies, including cartography, GIS, remote sensing, global positioning systems, and statistical analyses. Lecture, lab. Fee.

General Studies: CS

M GPH 371 Introduction to Cartography and Georepresentation. (3)

fall and spring

Study and creation of maps. Fundamental mapping principles (projection, scale, generalization, symbolization) and computer-based cartographic production. Lecture, lab. Fee. Prerequisite: GPH 111.

General Studies: CS

M GPH 372 Air Photo Interpretation. (3)

once a year

Subset, remote sensing, includes photography, films, aerial geometry, image components, stereoscopy, photogrammetry, ground truthing; interpret physical, cultural, economic, intelligence information. Prerequisite: GPH 211 or a course in Cultural Geography (GCU) or instructor approval.

M GPH 373 Geographic Information Science I. (4)

fall and spring

History and basic aspects of GIS, including map and data file structure, conversions, and synthesis with a computerized environment. Fee. Prerequisite: GPH 370.

General Studies: CS

M GPH 381 Geography of Natural Resources. (3)

once a year

Nature and distribution of natural resources and the problems and principles associated with their use.

General Studies: G

M GPH 394 Special Topics. (1–4)

fall and spring

M GPH 401 Topics in Physical Geography. (1–3)

selected semesters

Open to students qualified to pursue independent studies. Possible field trips. Prerequisite: instructor approval.

M GPH 402 Service Learning. (3)

fall and spring

K–12 tutoring and mentoring internship related to academic course work in physical geography. Requires weekly reflective reading and writing. May be repeated for credit. Internship. Fee. Pre- or corequisite: GPH 111.

General Studies: C

M GPH 405 Energy and Environment. (3)

spring

Sources, regulatory and technical controls, distribution, and consequences of the supply and human use of energy. Fee. Prerequisite: a course in physical or life sciences or instructor approval.

M GPH 409 Synoptic Meteorology I. (4)

selected semesters

Diagnostic techniques and synoptic forecasting. Includes techniques of weather analysis, map interpretation, and satellite and radar analysis. Prerequisites: MAT 270; PHY 131, 132.

M GPH 410 Synoptic Meteorology II. (4)

selected semesters

Diagnostic techniques and synoptic forecasting. Includes techniques of weather analysis, map interpretation, and satellite and radar analysis. Prerequisite: GPH 409.

M GPH 411 Physical Geography. (3)

selected semesters

Introduces physiography and the physical elements of the environment. Credit is allowed for only GPH 411 or 111. Field trips.

M GPH 412 Physical Climatology. (3)

once a year

Physical processes in the earth-atmosphere system on regional and global scales; concepts and analysis of energy, momentum, and mass balances. Prerequisites: both GPH 212 and 213 or only instructor approval.

M GPH 413 Meteorological Instruments and Measurement. (3)

once a year

Design and operation of ground-based and aerological weather measurement systems. Collection, reduction, storage, retrieval, and analysis of data. Field trips. Prerequisites: both GPH 212 and 213 or only instructor approval.

M GPH 414 Climate Change. (3)

once a year

Survey of three climate research areas: paleoclimatology, theories (e.g., greenhouse warming), numerical modeling. Prerequisite: GPH 212 or instructor approval.

General Studies: G

M GPH 418 Landforms of the Western United States. (3)

selected semesters

Studies landforms and geomorphic processes in the western United States, including lecture, topographical maps, aerial photographs, satellite imagery, and field trips. Lecture, critical inquiry, laboratory, field work. Fee. Prerequisites: GPH 211 (or its equivalent); a General Studies L course.

General Studies: L

M GPH 422 Plant Geography. (3)

once a year

Plant communities of the world and their interpretation, emphasizing North American plant associations. Cross-listed as PLB 422. Credit is allowed for only GPH 422 or PLB 422. Prerequisites: preferably both PLB 200 and 201 or only BIO 187 or only GPH 111.

M GPH 433 Alpine and Arctic Environments. (3)

selected semesters

Regional study of advantages and limitations of the natural environment upon present and future problems involving resource distribution, human activities, and regional and interregional adjustments. Field trips. Prerequisite: GPH 111 or instructor approval.

General Studies: G

M GPH 471 Geographics: Interactive and Animated Cartography and Geovisualization. (3)

selected semesters

Advanced cartography, stressing influence and application of the computer on geographic representation. Emphasizes creation of maps for the Internet. Lecture, lab. Fee. Prerequisite: GPH 371 or instructor approval.

General Studies: CS

M GPH 473 Geographic Information Science II. (3)

fall

GIS as a basis for microcomputer spatial analysis and synthesis. Includes digitizing, database organization, spatial retrieval, and graphics. Lecture, lab. Fee. Prerequisites: GPH 373 (or instructor approval); CSE 100.

General Studies: CS

M GPH 474 Dynamic Meteorology I. (3)

selected semesters

Large-scale atmospheric motion, kinematics, Newton's laws, wind equation, baroclinics, vorticity, and the midlatitude depression.

Prerequisites: GPH 213, 215; MAT 271; PHY 131, 132.

M GPH 475 Dynamic Meteorology II. (3)

selected semesters

Topics in climate dynamics. General circulation, numerical modeling, teleconnection phenomena, and surface-atmosphere interaction.

Prerequisite: GPH 474 or instructor approval.

M GPH 481 Environmental Geography. (3)

selected semesters

Problems of environmental quality, including uses of spatial analysis, research design, and field work in urban and rural systems. Field trips.

Prerequisite: instructor approval.

M GPH 483 Geographic Information Analysis. (3)

selected semesters

Basics of spatial data analysis. Topics include point pattern analysis, spatial autocorrelation, spatial regression, and kriging. Lecture, lab.

Fee. Prerequisites: both one 200-level or above course in geography or biology or plant biology or geology or planning and one basic statistics course (GCU 495).

M GPH 484 Internship. (1-12)

selected semesters

Topics may include the following:

- GIS-Based. (3)
- Physical Geography Internship. (3)

Assist in teaching sixth-grade students a simplified version of GPH 111 using hands-on activities.

M GPH 491 Geographic Field Methods. (3)

once a year

Field techniques, including use of aerial photos, large-scale maps, and fractional code system of mapping; urban and rural field analysis to be done off campus. Fee. Prerequisites: GCU 102, 121; GPH 111.

M GPH 494 Special Topics. (1-4)

selected semesters

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

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

Department of Geological Sciences

geology.asu.edu

480/965-5081

PS F686

James A. Tyburczy, Chair

Regents' Professors: Buseck, Christensen, Greeley

Professors: Burt, Farmer, Fink, Hervig, Holloway, Knauth, Peacock, Reynolds, Sarewitz, Shock, Stump, Tyburczy, S. Williams

Associate Professors: Anbar, Arrowsmith, Garnero, Sharp

Assistant Professors: Clarke, Fouch, Hartnett, McNamara, Semken

Associate Research Professor: L. Williams

Lecturer: Johnson

GEOLOGICAL SCIENCES—BS

The BS degree in Geological Sciences requires 39 semester hours, including the following core courses or their equivalents:

GLG 101 Introduction to Geology I (Physical) SQ, ¹ G	3
GLG 102 Introduction to Geology II (Historical) SG, ² H	3
GLG 103 Introduction to Geology I—Laboratory SQ ¹	1
GLG 104 Introduction to Geology II—Laboratory SG ²	1
GLG 310 Structural Geology	3
GLG 321 Mineralogy	3
GLG 400 Geology Colloquium	1
GLG 424 Petrology	3
GLG 435 Sedimentology	3
GLG 451 Field Geology I L	3
GLG 452 Field Geology II L	3
Total	27

¹ Both GLG 101 and 103 must be taken to secure SQ credit.

² Both GLG 102 and 104 must be taken to secure SG credit.

In addition, two of the following four branch courses must be taken:

GLG 418 Geophysics	3
GLG 430 Paleontology	3
GLG 470 Hydrogeology	3
GLG 481 Geochemistry	3

To complete the total required hours, other upper-division courses in geological sciences (excluding GLG 300 and 304) or courses in related fields listed as approved by the

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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department may be taken. See "College Graduation Requirements," page 503.

Supporting courses required in related fields include the following:

CHM 113	General Chemistry I	SQ	4
CHM 116	General Chemistry II	SQ	4
MAT 270	Calculus with Analytic Geometry I	MA	4
MAT 271	Calculus with Analytic Geometry II	MA	4
MAT 272	Calculus with Analytic Geometry III	MA	4
	or MAT 274 Elementary Differential Equations	MA (3)	
PHY 121	University Physics I: Mechanics	SQ ¹	3
PHY 122	University Physics Laboratory I	SQ ¹	1
PHY 131	University Physics II: Electricity and Magnetism	SQ ²	3
PHY 132	University Physics Laboratory II	SQ ²	1
Total			28

¹ Both PHY 121 and 122 must be taken to secure SQ credit.

² Both PHY 131 and 132 must be taken to secure SQ credit.

MAT 290 Calculus I and MAT 291 Calculus II may be substituted for MAT 270, 271, and 272.

MINOR IN GEOLOGICAL SCIENCES

A minor in Geological Sciences is awarded to students who complete a minimum of 21 hours of geological science courses. Required courses are as follows:

GLG 101	Introduction to Geology I (Physical)	SQ, ¹ G	3
GLG 102	Introduction to Geology II (Historical)	SG, ² H	3
GLG 103	Introduction to Geology I—Laboratory	SQ ¹	1
GLG 104	Introduction to Geology II—Laboratory	SG ²	1
GLG 310	Structural Geology		3
GLG 321	Mineralogy		3
GLG 400	Geology Colloquium		1
Total			15

¹ Both GLG 101 and 103 must be taken to secure SQ credit.

² Both GLG 102 and 104 must be taken to secure SG credit.

The remaining six semester hours may be chosen among other upper-division geological sciences courses, except GLG 300 and 400, after consultation with a departmental advisor.

BIS CONCENTRATION

A concentration in geological sciences is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

GRADUATE PROGRAMS

The faculty in the Department of Geological Sciences offer programs leading to the degrees of Master of Natural Science, MS, and PhD. See the *Graduate Catalog* for requirements.

GEOLOGICAL SCIENCES (GLG)

For more GLG courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M GLG 101 Introduction to Geology I (Physical). (3)

fall, spring, summer

Basic principles of geology, geochemistry, and geophysics. Rocks, minerals, weathering, earthquakes, mountain building, volcanoes, water, and glaciers. Possible weekend field trips.

General Studies: SQ (if credit also earned in GLG 103), G

M GLG 102 Introduction to Geology II (Historical). (3)

spring

Basic principles of applied geology and the use of these principles in the interpretation of geologic history. Possible weekend field trips.

Fee. Prerequisite: GLG 101.

General Studies: SG (if credit also earned in GLG 104), H

M GLG 103 Introduction to Geology I—Laboratory. (1)

fall, spring, summer

3 hours lab, some field trips. Fee. Corequisite: GLG 101.

General Studies: SQ (if credit also earned in GLG 101)

M GLG 104 Introduction to Geology II—Laboratory. (1)

spring

Laboratory techniques involving map interpretation, cross sections, and fossils. 3 hours lab, possible field trips. Prerequisite: GLG 103 (or its equivalent). Corequisite: GLG 102.

General Studies: SG (if credit also earned in GLG 102)

M GLG 105 Introduction to Planetary Science. (4)

spring

Solar system objects and their geologic evolution, surfaces, interiors, and atmospheres; weekly laboratory for data analysis and experiments. Lecture, lab, weekend field trip.

General Studies: SG

M GLG 110 Geologic Disasters and the Environment. (3)

fall

Geological studies as they apply to interactions between humans and earth. Includes geological processes and hazards, resources, and global change.

General Studies: SG (if credit also earned in GLG 111), G

M GLG 111 Geologic Disasters Laboratory. (1)

fall

Basic geological processes and concepts. Emphasizes geology-related environmental problems. Case histories, field studies, lab. Corequisite: GLG 110.

General Studies: SG (if credit also earned in GLG 110)

M GLG 294 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Geology of the Planets

Fee.

M GLG 300 Geology of Arizona. (3)

once a year

Basic and historical geology, fossils, mining, energy resources, environmental problems, landscape development, and meteorites, cast in examples from Arizona. Majors who have taken GLG 101 for credit may not enroll.

M GLG 304 Geology of the Grand Canyon. (2)

selected semesters

Reviews the discovery, history, origin, and geology of the Grand Canyon of the Colorado River in Arizona. Requires 6-day field trip down the river (first 6 days after commencement in May) at student's expense. Requires field research and term paper on trip.

M GLG 310 Structural Geology. (3)

fall

Geologic structures and the mechanical processes involved in their formation. 2 hours lecture, 3 hours lab. Possible field trips. Fee.

Prerequisites: GLG 101; MAT 270 (or 290).

M GLG 321 Mineralogy. (3)

spring

Crystal chemistry, crystallography, mineral identification, origin and occurrence of minerals, systematic mineralogy. 2 hours lecture, 3 hours lab, possible field trips. Prerequisites: CHM 113; MAT 270 (or 290). Pre- or corequisite: CHM 116.

DEPARTMENT OF GEOLOGICAL SCIENCES

M GLG 325 Oceanography. (3)

fall

Introduces marine geology, chemistry, and physical and biological oceanography. Methods of oceanic exploration, environmental and social aspects of oceans. Cross-listed as BIO 325. Credit is allowed for only GLG 325 or BIO 325. Prerequisite: BIO 101 or GLG 101 or instructor approval.

M GLG 362 Geomorphology. (3)

selected semesters

Land forms and processes that create and modify them. Laboratory and field study of physiographic features. 2 hours lecture, 3 hours lab, possible weekend field trips. Prerequisite: GLG 101. Pre- or corequisite: GLG 310.

M GLG 400 Geology Colloquium. (1)

fall and spring

Presentation of recent research by faculty and guests. Requires written assignments. 1 semester hour required for Geological Sciences majors; may be repeated for a total of 2 semester hours. Prerequisite: 2 courses in the department or instructor approval.

M GLG 402 Service Learning. (3)

fall and spring

K-12 tutoring and mentoring internship related to academic course work in geological sciences. Requires weekly reflective reading and writing. May be repeated for credit. Internship. Fee. Pre- or corequisites: GLG 101, 103.

General Studies: C

M GLG 404 Fundamentals of Planetary Geology. (3)

fall

Surveys planetary topics, including impacts, tectonics, and volcanism on planetary objects, and use of spacecraft data, including geological mapping. Lectures, problem sets, weekend field trip. Fee. Prerequisite: Geology major or degree or instructor approval.

M GLG 405 Geology of the Moon. (3)

selected semesters

Current theories of the origin and evolution of the moon through photogeological analyses and consideration of geochemical and geophysical constraints. Possible field trips to examine Arizona geology. Fee. Prerequisite: GLG 105 or instructor approval.

M GLG 406 Geology of Mars. (3)

selected semesters

Geological evolution of Mars through analyses of spacecraft data, theoretical modeling, and study of terrestrial analogs; emphasizes current work. Possible field trips to examine Arizona geology. Fee. Prerequisite: GLG 105 or instructor approval.

M GLG 410 Computers in Geology. (3)

fall

Geological computer skills, including data processing, visualization, presentation, numerical analysis, software and hardware applications. 2 hours lecture, 3 hours lab. Prerequisites: both GLG 101 and an upper-division course in geology or only instructor approval.

General Studies: CS

M GLG 412 Geotectonics. (3)

selected semesters

Earthquakes, earth's interior, formation of oceanic and continental crust, and plate tectonics. Emphasizes current work. Prerequisite: GLG 310.

M GLG 416 Field Geophysics. (3)

spring

Methods of applied geophysical exploration; seismic refraction, gravity, electrical resistivity, geomagnetics. Includes survey planning, data acquisition, processing, analysis, and interpretation. Lecture, field exercises. Prerequisite: a course in geology or instructor approval.

M GLG 418 Geophysics. (3)

fall

Solid earth geophysics; geomagnetism, gravity, seismology, heat flow. Emphasizes crust and upper mantle. Prerequisites: a combination of GLG 310 and MAT 272 and PHY 131 or only instructor approval.

M GLG 419 Geodynamics. (3)

selected semesters

Emphasizes application of continuum principles to geological problems, including lithospheric stresses, heat transfer, fluid mechanics, and rock rheology. Prerequisite: PHY 131.

M GLG 420 Volcanology. (3)

once a year

Distribution of past and present volcanism, types of volcanic activity, mechanism of eruption, form and structure of volcanoes, and geochemistry of volcanic activity. Possible weekend field trips. Fee. Prerequisite: GLG 424.

M GLG 424 Petrology. (3)

fall

Origin of igneous and metamorphic rocks. Optical mineralogy, hand specimen identification, and thin-section analysis. 2 hours lecture, 3 hours lab, possible weekend field trips. Fee. Prerequisite: GLG 321.

M GLG 430 Paleontology. (3)

fall

Introduces concepts and analytical techniques in biogeology, paleobiology, paleoecology, and paleoenvironmental reconstruction from the fossil record. 2 hours lecture, 3 hours lab. Fee. Prerequisites: both GLG 102 and MAT 270 (or 290) or only instructor approval.

M GLG 435 Sedimentology. (3)

spring

Origin, transport, deposition, and diagenesis of sediments and sedimentary rocks. Physical analysis, hand specimen examination, and interpretation of rocks and sediments. 2 hours lecture, 3 hours lab, possible weekend field trips. Fee. Prerequisites: GLG 102, 321.

M GLG 441 Ore Deposits. (3)

selected semesters

Origin, occurrence, structure, and mineralogy of ore deposits. Possible weekend field trips. Fee. Prerequisite: GLG 424 or instructor approval.

M GLG 451 Field Geology I. (3)

spring

Geological mapping techniques using topographic maps and aerial photos. Intensive field-based instruction. Lab. Fee. Prerequisite: GLG 310. Pre- or corequisite: GLG 321.

General Studies: L

M GLG 452 Field Geology II. (3)

summer

Continuation of GLG 451. Lab. Fee. Prerequisites: GLG 321, 451.

General Studies: L

M GLG 455 Advanced Field Geology. (3-4)

once a year

Geologic mapping in igneous, sedimentary, and metamorphic terrains of the Basin and Range province of Arizona. May be repeated for credit. Weekend field trips. Fee. Prerequisite: instructor approval.

M GLG 456 Cordilleran Regional Geology. (3)

selected semesters

Systematic coverage through space and time of the geological development of western North America, emphasizing the western United States. Fee. Prerequisite: senior major or graduate student in Geological Sciences or instructor approval.

M GLG 460 Astrobiology. (3)

fall and spring

Origin, early evolution, distribution, and future of life on Earth and elsewhere in the cosmos. May be repeated for credit. Lecture, discussion, video conferences, possible field trips. Cross-listed as AST 460/BIO 460/CHM 483/MIC 475. Credit is allowed for only AST 460 or BIO 460 or CHM 483 or GLG 460 or MIC 475. Prerequisite: instructor approval.

M GLG 461 Geomicrobiology. (3)

spring

Past and present interactions among microbial life, geological materials, and biogeochemical cycles involving carbon, sulfur, phosphate, nitrogen, and minerals. Cross-listed as MIC 461. Credit is allowed for only GLG 461 or MIC 461. Prerequisites: introductory courses in chemistry and microbiology (or geological sciences); instructor approval.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

M GLG 470 Hydrogeology. (3)

spring
Geology of groundwater occurrence, aquifer and well hydraulics, water chemistry and quality, contaminant transport, remediation. Emphasizes quantitative methods. Prerequisites: GLG 101 (or 103); MAT 270; PHY 121.

M GLG 481 Geochemistry. (3)

spring
Origin and distribution of the chemical elements. Geochemical cycles operating in the earth's atmosphere, hydrosphere, and lithosphere. Cross-listed as CHM 481. Credit is allowed for only CHM 481 or GLG 481. Prerequisite: CHM 341 (or 346) or GLG 321.

M GLG 484 Internship. (1-4)

selected semesters

M GLG 485 Meteorites and Cosmochemistry. (3)

selected semesters
Chemistry of meteorites and their relationship to the origin of the earth, solar system, and universe. Cross-listed as CHM 485. Credit is allowed for only CHM 485 or GLG 485. Prerequisite: CHM 341 or 346.

M GLG 490 Topics in Geology. (1-3)

fall, spring, summer
Special topics in a range of fields in geology. May be repeated for credit. Fee. Prerequisite: instructor approval.

M GLG 495 Undergraduate Thesis. (3)

fall, spring, summer
Guided research culminating in the completion and presentation of an undergraduate thesis based on supervised research. Independent study. Prerequisite: GLG 499 (3 hours); formal conference with instructor; instructor and department chair approval.

M GLG 499 Individualized Instruction. (1-3)

selected semesters

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

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



The Student Services Building

Tim Trumble photo

School of Global Studies

www.asu.edu/clas/globalstudies

480/727-8286

COOR 5634

David Jacobson, Director

CORE FACULTY

Professors: Abbott, Hechter, Jacobson, Thomas, Webster, West

Associate Professors: Cruz-Torres, Henn, Taylor, Warner

Assistant Professors: Duncan, McElwee, Peskin, Wang

Visiting Assistant Professor: Schneider

GLOBAL STUDIES—BA

The BA in Global Studies requires 45 semester hours in global studies and track courses. At least 18 hours must be in the upper division.

Required courses are as follows:

SGS 101 Thinking Globally: The Individual and Authority	3
SGS 102 Thinking Globally: Technology and Nature in World Settings.....	3
SGS 103 Contemporary Global Trends <i>SB, G</i>	3
SGS 394 ST: Professional Development (career courses).....	6
SGS 394 ST: Research Methods	3
SGS 484 Study Abroad/Internship	6
SGS 494 ST: Capstone	6
Total.....	30

Students must select a track from the following options: Asian studies, governance, Latin American studies, migration, Russian and East European studies, Southeast Asian studies, and urban systems and natural resources*

Program total..... 45

* At least nine semester hours must be in the upper division, and a three-semester-hour statistics course is encouraged.

All School of Global Studies students must obtain a cumulative GPA of 2.50 or higher with a minimum grade of "C" in all global studies and track courses. Students who enter as freshmen are required to enroll in two sequential learning community courses (SGS 101, 102, and 103).

SCHOOL OF GLOBAL STUDIES (SGS)

M SGS 101 Thinking Globally: The Individual and Authority. (3)

fall
Examines the changing notions of the individual and authority over history. Lecture, discussion.

M SGS 102 Thinking Globally: Technology and Nature in World Settings. (3)

fall
Examines changing interactions between humans and nature, geographic systems, global demography, and environment. Lecture, discussion.

M SGS 103 Contemporary Global Trends. (3)*spring*

Gives a grounding in patterns of international politics and global social change. Lecture, discussion.

General Studies: SB, G

M SGS 194 Special Topics. (1–4)*selected semesters***M SGS 294 Special Topics. (1–4)***selected semesters***M SGS 394 Special Topics. (1–4)***selected semesters*

Topics may include the following:

- Professional Development
- Research Methods

M SGS 484 Internship. (1–12)*selected semesters*

Topics may include the following:

- Study Abroad/Internship

M SGS 494 Special Topics. (1–4)*selected semesters*

Topics may include the following:

- Capstone

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

Department of History

www.asu.edu/clas/history

480/965-5778

COOR 4595

Noel J. Stowe, Chair

CORE FACULTY

Regents' Professor: Iverson

Snell Family Dean's Distinguished Professor of History: Longley

Distinguished Foundation Professor of History: Fixico

Professors: Adelson, Batalden, Burg, Davis, Fuchs, Gratton, Green, Lavrin, MacKinnon, Rosales, Samuelson, Simpson, Stowe, Tillman, Warnicke

Associate Professors: Barnes, El Hamel, Gray, Gullett, Harzig, Hirt, Powers, Rush, Smith, Stoner, Thompson, Thornton, VanderMeer, Warren-Findley, Wright

Assistant Professors: Holian, Kaplan, Koopmans, Manchester, Miller, Pitti, Plotkin, Whitaker, Wilson, Wood

Senior Instructional Professional: Luey

AFFILIATED FACULTY

Art

Associate Professor: Brown

Chicana and Chicano Studies

Associate Professor: Escobar

Global Studies

Associate Professor: Taylor

Women and Gender Studies

Professor: Rothschild

Associate Professor: Leong

HISTORY—BA

The BA degree in History consists of 30 semester hours in history and 15 hours in closely related fields, as approved by an undergraduate advisor in consultation with the student. At least 18 hours in history courses and nine hours in related fields must be in upper-division course work, with at least 12 of the upper-division HST hours taken in residence at the Tempe campus. HST 300 Historical Inquiry and HST 498 PS: History Pro-Seminar are required for all degree candidates. (Honors students may substitute HST 493 Honors Thesis for HST 498.)

Students majoring in history are required to complete HST 300 in the beginning of their junior year and before enrolling in 400-level history courses. HST 300 and HST 498 must be taken on the Tempe campus.

Students are required to complete course work in two different areas of concentration. One concentration must be defined geographically: Asia, Europe, Latin America, or the United States. The second concentration may be thematic or geographic. Students completing a thematic concentration must complete two courses outside the field of their geographic concentration. At least two history courses in either concentration must include topics outside the United States and Europe. Students must complete at least one course in the HST 302–307 "Studies in History" sequence.

The major includes the following:

1. one concentration of 18 hours (12 hours HST and six hours related field);
2. one concentration of 15 hours (12 hours HST and three hours related field);
3. HST 300, three hours (may be within a concentration);
4. HST 498, three hours (may be within a concentration);
5. elective related field courses, six hours;
6. two HST courses with content outside Europe and the United States (may be within a concentration);
7. two HST courses in thematic concentration outside the geographic concentration; and
8. at least one course in the HST 302–307 "Studies in History" sequence as part of one concentration.

A minimum grade of "C" (2.00) is required for all course work in the major and related fields. A minimum GPA of 2.25 in the 30 hours of history course work is required.

Asian Studies Certificate. Students majoring in History may elect to pursue an Asian Studies Certificate, combining courses from the major with selected outside courses of wholly Asian content. See "Asian Studies," page 509, for more information.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

Jewish Studies Certificate. Students majoring in History may elect to pursue the Jewish Studies Certificate, combining courses from the major with selected outside courses of wholly Jewish content. See “Jewish Studies,” page 512, for more information.

Latin American Studies Certificate. Students majoring in History may elect to pursue a Latin American Studies Certificate, combining courses from the major with selected outside courses of wholly Latin American content. See “Latin American Studies,” page 512, for more information.

Medieval and Renaissance Studies Certificate. Students majoring in History may elect to pursue the Medieval and Renaissance Studies Certificate by successfully completing the requirements. See “Medieval and Renaissance Studies,” page 513, for more information.

Russian and East European Studies Certificate. Students majoring in History may elect to pursue the Russian and East European Studies Certificate, combining courses from the major with selected outside courses of wholly Russian and East European content. See “Russian and East European Studies,” page 513, for more information.

Southeast Asian Studies Certificate. Students majoring in History may elect to pursue the Southeast Asian Studies Certificate, combining courses from the major with selected outside courses of wholly Southeast Asian content. See “Southeast Asian Studies,” page 514, for more information.

Women and Gender Studies Certificate. Students majoring in History may elect to pursue a Women and Gender Studies Certificate by successfully completing the requirements. See “Women and Gender Studies,” page 514, for more information.

MINOR IN HISTORY

The History minor consists of 18 semester hours of course work, at least 12 hours of which are in upper-division course work. Students earning a minor in history must complete one 12-hour HST concentration (geographic or thematic), HST 300, and 498. The Department of History requires a grade of at least “C” (2.00) in all courses in the minor. A minimum of six upper-division hours in the minor must be taken in residence at the Tempe campus.

BIS CONCENTRATION

A concentration in history is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see “School of Interdisciplinary Studies,” page 139.

SECONDARY EDUCATION—BAE

This degree is offered through the Initial Teacher Certification (ITC) program in the College of Education. Students pursuing a major in Secondary Education with an academic

specialization in history have an advisor in the College of Education and an advisor within the Department of History.

See “College of Education,” page 349, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

Academic Specialization ITC Admission Requirements.

At least four required courses in the academic specialization must be completed with a grade of “C” (2.00) or higher before applying to the ITC professional program. A minimum GPA of 2.75 in history courses is required for admission to the ITC program and for graduation.

History. The major teaching field consists of 45 semester hours, of which at least 30 must be in history courses. At least 18 must be in upper-division courses. Six hours of teaching methods courses are also required. A minimum grade of “C” (2.00) is required in all academic specialization courses. Required major courses are as follows:

HST 101 Global History Since 1500 <i>HU, G, H</i>	3
HST 109 The United States to 1865 <i>HU, SB, H</i>	3
HST 110 The United States Since 1865 <i>SB, H</i>	3
HST 300 Historical Inquiry <i>L/HU/SB, H</i>	3
HST 498 PS: History Pro-Seminar <i>L</i>	3
U.S. history courses	9
HST electives* (non-U.S. history courses)	6
Related areas*	15
Total	45

* Choose courses in consultation with a department advisor.

Teaching Methods

HST 480 Methods of Teaching History: Classroom Resources ...	3
HST 481 Methods of Teaching History: Community Resources .	3
Total	6

Students must complete HST 300 before enrolling in HST 480, 481, and 498. A minimum GPA of 2.75 in history courses is required for admission to the ITC program and for graduation. HST 480 and 481 may not be counted as part of the 45-hour requirement for the academic specialization.

Social Studies. An academic specialization in social studies is also available. Students pursuing a major in Secondary Education have an advisor in the College of Education and an advisor within the department of their academic specialization area.

See “College of Education,” page 349, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

GRADUATE PROGRAMS

The faculty in the Department of History offer programs leading to the MA and PhD degrees. A Scholarly Publishing Certificate is also available. See the *Graduate Catalog* for requirements.

HISTORY (HST)

M HST 101 Global History Since 1500. (3)*fall and spring*

Survey of Africa, the Americas, and Eurasia; changes in communication, communities, demography, economics, environment, politics, religion, technology, warfare, and women. Lecture, CD-ROM, electronic forum, discussion.

*General Studies: HU, G, H***M HST 102 Western Civilization. (3)***fall and spring*

Origins and development of Western societies and institutions from the ancient world through the Middle Ages.

*General Studies: SB, H***M HST 103 Western Civilization. (3)***fall and spring*

Origins and development of Western societies and institutions from Black Death through the Renaissance and Reformation to the Enlightenment.

*General Studies: HU/SB, H***M HST 104 Western Civilization. (3)***fall and spring*

Origins and development of Western societies and institutions from the French Revolution to the present.

*General Studies: HU/SB, G, H***M HST 105 Slavic Civilization. (3)***fall, spring, summer*

Development of Slavic cultures and societies from medieval Byzantium to the present; introduction to modern Eurasia. Lecture, discussion, electronic forum.

*General Studies: HU/SB, H***M HST 106 Asian Civilizations. (3)***once a year*

Civilizations of China, Japan, and India from antiquity to the 17th century.

*General Studies: HU/SB, G, H***M HST 107 Asian Civilizations. (3)***once a year*

Civilizations of China, Japan, India, and Southeast Asia from the 17th century to the present.

*General Studies: SB, G, H***M HST 108 Introduction to Japan. (3)***fall*

Historical survey of the people, culture, politics, and economy of Japan, supplemented by audiovisual presentations. Intended for nonmajors.

*General Studies: SB, G, H***M HST 109 The United States to 1865. (3)***fall and spring*

Growth of the Republic from the colonial period through the Civil War.

*General Studies: HU/SB, H***M HST 110 The United States Since 1865. (3)***fall and spring*

Growth of the Republic from the Civil War to the present.

*General Studies: SB, H***M HST 200 Historical Themes. (3)***once a year*

General introduction to selected themes in history. May be repeated for credit when topics vary.

*General Studies: SB, H***M HST 201 Historical Themes in Asia. (3)***once a year*

General introduction to selected themes in Asian history. May be repeated for credit when topics vary.

*General Studies: SB, H***M HST 202 Historical Themes in Europe. (3)***once a year*

General introduction to selected themes in European history. May be repeated for credit when topics vary.

*General Studies: HU/SB, H***M HST 203 Historical Themes in Latin America. (3)***once a year*

General introduction to selected themes in Latin American history. May be repeated for credit when topics vary.

*General Studies: SB, H***M HST 204 Historical Themes in the United States. (3)***once a year*

General introduction to selected themes in United States history. May be repeated for credit when topics vary.

*General Studies: SB, H***M HST 205 Historical Themes in Africa. (3)***fall and spring*

General introduction to selected themes in African history. May be repeated for credit when topics vary.

M HST 210 American Social History. (3)*once a year*

American society from the colonial period to the present. Ethnicity, race, age, and sex as factors in historical experience. Prerequisite: ENG 101 or 105.

*General Studies: L/SB, H***M HST 211 American Jewish History. (3)***selected semesters*

Chronological analysis of Jews and Judaism in American history and letters.

*General Studies: SB, H***M HST 240 Introduction to Southeast Asia. (3)***fall and spring*

Interdisciplinary introduction to the cultures, religions, political systems, geography, and history of Southeast Asia. Cross-listed as ASB 240/GCU 240/POS 240/REL 240. Credit is allowed for only ASB 240 or GCU 240 or HST 240 or POS 240 or REL 240.

*General Studies: HU/SB, G***M HST 294 ST: Selected Topics in History. (3)***selected semesters*

Full description of topics for any semester is available in the Department of History office. May be repeated for credit.

M HST 300 Historical Inquiry. (3)*fall and spring*

Historical methods and critical inquiry related to particular events and processes. Topics vary. Required course for majors. Prerequisite for HST 498. Lecture, discussion, seminar. Prerequisites: ENG 102; History major; junior standing.

*General Studies: L/HU/SB, H***M HST 302 Studies in History. (3)***once a year*

Specialized topics in history. Explores countries, cultures, and issues in history, and their interpretation in historical scholarship. May be repeated for credit when topics vary.

*General Studies: HU/SB, H***M HST 303 Studies in Asian History. (3)***once a year*

Specialized topics in Asian history. Explores countries, cultures, and issues in history, and their interpretation in historical scholarship. May be repeated for credit when topics vary.

*General Studies: SB, H***M HST 304 Studies in European History. (3)***once a year*

Specialized topics in European history. Explores countries, cultures, and issues in history, and their interpretation in historical scholarship. May be repeated for credit when topics vary.

*General Studies: SB, H***M HST 305 Studies in Latin American History. (3)***once a year*

Specialized topics in Latin American history. Explores countries, cultures, and issues in history, and their interpretation in historical scholarship. May be repeated for credit when topics vary.

General Studies: HU/SB, H

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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M HST 306 Studies in United States History. (3)

once a year

Specialized topics in United States history. Explores regions, cultures, and issues in history, and their interpretation in historical scholarship. May be repeated for credit when topics vary.

General Studies: HU/SB, H

M HST 307 Studies in African History. (3)

fall and spring

Specialized topics in African history. Explores countries, cultures, and issues in history, and their interpretation in historical scholarship. May be repeated for credit when topics vary.

M HST 309 Exploration and Empire. (3)

once a year

Survey of European discovery, exploration, and imperialism in the early modern and modern periods.

General Studies: L/HU, H

M HST 310 Film as History. (3)

once a year

Survey of moving image media as recorder, object, and writer of history.

General Studies: HU

M HST 313 American Cultural History to 1865. (3)

fall and spring

Culture, including ideas, ideals, the arts, and social and economic standards, from the nation's colonial and early national periods.

General Studies: SB, H

M HST 314 American Cultural History Since 1865. (3)

fall and spring

Culture, including ideas, ideals, the arts, and social and economic standards, from the age of industrialism to modern U.S.

General Studies: HU/SB, H

M HST 315 Political History of the United States. (3)

once a year

American political history since independence, focusing post-1865. Evaluates major trends in issues, presidential leadership, elections, and state politics. Lecture, discussion.

General Studies: SB, H

M HST 316 20th-Century U.S. Foreign Relations. (3)

once a year

U.S. relations with foreign powers from the late 19th century to the present.

General Studies: SB, G, H

M HST 319 U.S. Urban History to 1850. (3)

once a year

History of the city in American life from the colonial period to the mid-19th century.

General Studies: SB, H

M HST 320 U.S. Urban History Since 1850. (3)

once a year

History of the city in American life from the mid-19th century to the present.

General Studies: SB, H

M HST 321 Constitutional History of the United States to 1865. (3)

fall

Origin and development of the American constitutional system from colonial period through the Civil War.

General Studies: SB, H

M HST 322 Constitutional History of the United States Since 1865. (3)

spring

Development of the U.S. constitutional system from Reconstruction to the present.

General Studies: SB, H

M HST 325 Immigration and Ethnicity in the United States. (3)

fall and spring

Origins, historical development, and future of a multiethnic society, 1492 to 2050. Prerequisite: HST 109 or 110.

General Studies: SB, C, H

M HST 327 Women in U.S. History, 1600–1880. (3)

fall and spring

Examines American women of diverse racial, religious, and ethnic groups and classes; focuses on changing definitions of women's roles.

General Studies: HU/SB, C, H

M HST 328 Women in U.S. History, 1880–1980. (3)

fall and spring

Examines American women of diverse racial, religious, and ethnic groups and classes; focuses on changing definitions of women's roles.

General Studies: SB, C, H

M HST 329 Women in 20th-Century U.S. West. (3)

once a year

Examines how women of various cultures have contended for and shaped the U.S. West, including the West of imagination. Lecture, discussion.

General Studies: C, H

M HST 330 Mexican Women in the United States: Conquests and Migrations. (3)

once a year

Overview of Chicana history from Mesoamerican origins to the present, focusing on Mexican women in the western U.S. Lecture, discussion.

General Studies: L/SB, C, H

M HST 331 Mexican American History to 1900. (3)

once a year

Mexican American history from pre-Hispanic origins to frontier journeys north through 19th-century life in the U.S. Southwest.

General Studies: SB, C, H

M HST 332 Mexican American History Since 1900. (3)

once a year

Traces the formation of Mexican American communities across the rural and urban U.S. and examines 20th-century immigration from Mexico.

General Studies: SB, C, H

M HST 333 African American History to 1865. (3)

once a year

The African American in American history, thought, and culture from slavery to 1865. Cross-listed as AFS 363. Credit is allowed for only AFS 363 or HST 333.

General Studies: SB, C, H

M HST 334 African American History Since 1865. (3)

once a year

The African American in American history, thought, and culture from 1865 to the present. Cross-listed as AFS 364. Credit is allowed for only AFS 364 or HST 334.

General Studies: SB, C, H

M HST 337 American Indian History to 1900. (3)

fall and spring

Cultural, economic, political, and social continuity and change of American Indian communities to 1900.

General Studies: SB, C, H

M HST 338 American Indian History Since 1900. (3)

fall and spring

Cultural, economic, political, and social continuity and change of American Indian communities from 1900 to the present.

General Studies: SB, C, H

M HST 341 The U.S. West in the 19th Century. (3)

once a year

Social, political, and economic development of the trans-Mississippi West, beginning with the Louisiana Purchase and ending in 1900.

General Studies: SB, H

M HST 342 The U.S. West in the 20th Century. (3)

fall and spring

Role of the western states in U.S. history since 1890 emphasizing politics, the environment, industry and labor, and ethnic minorities.

General Studies: SB, H

M HST 343 The American Southwest. (3)

once a year

Development of the region from 1848 to the present.

General Studies: L/SB, H

M HST 344 Arizona. (3)

fall and spring

Emergence of the state from early times to the present.

General Studies: SB, H

M HST 347 Ancient Greece. (3)

fall

History and civilization of the Greek world from 650 BCE to the death of Alexander the Great.

General Studies: SB, H

M HST 348 Rome. (3)

spring

History and civilization of Rome from the beginning of the Republic to the end of the Empire.

General Studies: SB, H

M HST 349 The Early Middle Ages. (3)

fall

Political, socioeconomic, and cultural developments of Western Europe from the 5th through 10th centuries.

General Studies: HU/SB, H

M HST 350 The Later Middle Ages. (3)

spring

Political, socioeconomic, and cultural developments of Western Europe from the 11th through 15th centuries.

General Studies: HU/SB, H

M HST 351 Renaissance Europe. (3)

fall

Culture of the Renaissance in Italy and Northern Europe from the 14th to the early 16th centuries.

General Studies: L/HU/SB, H

M HST 352 Europe's Reformations. (3)

spring

Causes and implications of the major Protestant, Catholic, and Radical religious reformations in 16th- and 17th-century Europe.

General Studies: L/HU/SB, H

M HST 353 The Old Regime in Europe. (3)

fall

Society and culture of Europe during the 17th and 18th centuries.

General Studies: SB, H

M HST 354 Revolutionary Europe. (3)

spring

Political, social, economic, and intellectual currents in Europe from the French through the Russian Revolutions.

General Studies: SB, H

M HST 355 Total War and the Crisis of Modernity. (3)

fall

Forces of change and instability in early 20th-century Europe.

General Studies: SB, G, H

M HST 356 Europe Since 1945. (3)

selected semesters

Europe in its world setting since World War II, emphasizing major political and social issues from 1945 to the present.

General Studies: SB, G, H

M HST 358 Jewish History from the Bible to 1492. (3)

fall

Continuity and change in political, legal, economic, and sociocultural history of the Jews from biblical through medieval times. Lecture, discussion.

General Studies: SB, H

M HST 359 Jewish History from 1492 to 1948. (3)

spring

Jewish history from early modern through modern times, highlighting emancipation, enlightenment, and Jewish responses to modernity. Lecture, discussion.

General Studies: SB, G, H

M HST 361 Witchcraft and Heresy in Europe. (3)

selected semesters

Background, origins, and development of the Inquisition; persecution of women and marginal groups. Cross-listed as REL 374. Credit is allowed for only HST 361 or REL 374. Prerequisite: upper-division standing or instructor approval.

General Studies: L/HU, H

M HST 362 Sex and Society in Classical and Medieval Europe. (3)

fall

Family life, sex roles, and marriage, and their relationship to political, economic, and religious change in classical and medieval Europe.

Lecture, discussion. Prerequisite: upper-division standing or instructor approval.

General Studies: SB, H

M HST 363 Sex and Society in Early Modern Europe. (3)

spring

Family life, sex roles, and marriage and their relationship to political, economic, and religious change in early modern Europe. Lecture, discussion. Prerequisite: upper-division standing or instructor approval.

General Studies: HU/SB, H

M HST 364 Sex and Society in Modern Europe. (3)

selected semesters

Family life, sex roles, and marriage, and their relationship to political, economic, and social changes in modern Europe. Lecture, discussion. Prerequisite: upper-division standing or instructor approval.

General Studies: L/SB, H

M HST 365 Women in Europe. (3)

once a year

European women's diverse religious, ethnic, national, and economic roles in society, culture, and politics, 1750 to the present.

General Studies: L/HU/SB, H

M HST 366 England to 1689. (3)

once a year

Political, economic, and social development of the English people to the late 17th century.

General Studies: SB, H

M HST 367 Modern Britain. (3)

once a year

Political, economic, and social development in Britain from 17th century to the present.

General Studies: SB, H

M HST 368 Culture and Imagination in European History. (3)

once a year

Topics in European cultural and intellectual history. May be repeated for credit.

General Studies: HU, H

M HST 370 Eastern Europe in Transition. (3)

once a year

Democratization, privatization, and identity transformations since the fall of communism in contemporary Eastern Europe and the former Soviet Union. Lecture, discussion.

General Studies: SB, G, H

M HST 372 The Modern Middle East. (3)

selected semesters

Impact of the West and modernization upon Middle Eastern governments, religion, and society in the 19th and 20th centuries.

General Studies: SB, G, H

M HST 375 Colonial Latin America. (3)

fall and spring

Ancient civilization, exploration and conquerors, and colonial institutions.

General Studies: SB, H

M HST 376 Modern Latin America. (3)

fall and spring

Nationalistic development of the independent republics since 1821.

General Studies: SB, H

M HST 377 Women in Colonial Latin America. (3)

fall

History of women in colonial Latin America, cross-examining class, race, and gender relations in depth. Lecture, discussion.

General Studies: H

M HST 378 Latin American Women: The National Period. (3)

spring

Surveys the history of women, gender relations, and state policies in a broad continental setting, from independence to the present. Lecture, media, discussion.

General Studies: SB, G, H

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

M HST 379 Rebellion and Revolution in South America. (3)

fall and spring

Political, economic, and social development of Spanish-speaking nations in South America.

General Studies: SB, H

M HST 380 Cultural History of Latin America. (3)

selected semesters

Main currents of thought, the outstanding thinkers, and their impact on 19th- and 20th-century Latin America. Cultural and institutional basis of Latin American life.

General Studies: SB, H

M HST 383 China. (3)

fall

Political, economic, social, and cultural history of the Chinese people from early times to the 17th century.

General Studies: SB, H

M HST 384 China. (3)

spring

Political, economic, social, and cultural history of the Chinese people from the 17th century to the present.

General Studies: SB, G, H

M HST 385 Chinese Science and Medicine. (3)

selected semesters

Explores developments of Chinese traditions dealing with the natural world, science, and medicine. Lecture, discussion. Cross-listed as HPS 325. Credit is allowed for only HPS 325 or HST 385.

General Studies: HU, G, H

M HST 386 Interpreting China's Classics. (3)

selected semesters

Study of selected Confucian and/or Taoist classics and ways they have been read in both Asian and Western scholarship. Cross-listed as HUM 312. Credit is allowed for only HST 386 or HUM 312.

General Studies: L/HU, H

M HST 387 Japan. (3)

once a year

Political, economic, social, and cultural history of the Japanese people from early times to the 17th century.

General Studies: L/SB, H

M HST 388 Japan. (3)

once a year

Political, economic, social, and cultural history of the Japanese people from the 17th century to the present.

General Studies: SB, G, H

M HST 389 Japanese Society and Values: Premodern. (3)

selected semesters

Effects of economic and social transitions on personal and social values as reflected in the dramatizations of contemporary events.

M HST 391 Modern Southeast Asia. (3)

spring

Vietnam, Laos, Cambodia, Thailand, Burma, Malaysia, Singapore, Brunei, Indonesia, and Philippines since 1750: imperialism, revolution, and independence. Lecture, discussion.

General Studies: SB, G, H

M HST 394 ST: Selected Topics in History. (3)

fall and spring

Full description of topics for any semester is available in the Department of History office. May be repeated for credit.

M HST 405 Colonial American History to 1763. (3)

once a year

Political, economic, social, and cultural history of the colonial era. Concentrates on English colonies, with some consideration of Spanish, French, and other colonial regions in North America.

General Studies: SB, H

M HST 406 The American Revolution, 1763–1789. (3)

once a year

Causes, course, and consequences of the American Revolution culminating in the ratification of the Constitution.

General Studies: SB, H

M HST 407 The Early U.S. Republic, 1789–1850. (3)

once a year

Political, social, economic, and cultural development of the United States from the Revolution to 1850.

General Studies: L/SB, H

M HST 408 Civil War and Reconstruction. (3)

once a year

Explores the causes, conduct, and consequences of the American Civil War, concentrating on the years 1848 to 1877.

General Studies: L/SB, H

M HST 409 The Emergence of the Modern United States, 1877 to 1918. (3)

once a year

Triumph of modern political, social, and economic structures and values, 1877–1918; role of region, religion, race, and ethnicity.

General Studies: SB, H

M HST 410 The Modern United States, 1918 to 1945. (3)

once a year

1920s boom and the crash, the Depression and the New Deal response. The Second World War at home and abroad.

General Studies: SB, H

M HST 411 The Postwar United States, 1945 to 1973. (3)

once a year

Cold War, prosperity, reform, and immense social and political change in the U.S.

General Studies: SB, H

M HST 412 The Contemporary United States, 1973 to the Present. (3)

once a year

End of the Cold War, political crises, and cultural transformations in the U.S.

General Studies: SB, H

M HST 414 The Modern U.S. Economy. (3)

selected semesters

Origins of 19th-century slavery and industrialization; 20th-century crisis and regulation: political economy of an advanced capitalist democracy. Prerequisite: ECN 211 (or 212) or HST 109 (or 110).

General Studies: SB, H

M HST 415 Unequal Sisters: Women and Political and Cultural Change. (3)

once a year

Examines race, ethnic, and class differences among women, focusing on the political and cultural experiences of women in the U.S.

General Studies: L/SB, C, H

M HST 417 Topics in Mexican American History. (3)

once a year

Focuses on specific topics in Mexican American history, including immigration, civil rights, the Chicano Movement, union activism, and regional and generational differences.

General Studies: SB, C, H

M HST 423 The Tudor Monarchy. (3)

once a year

Political, cultural, and social foundations of 16th-century England.

General Studies: SB, H

M HST 424 The Stuart Transformation of England. (3)

once a year

Political, social, economic, and cultural developments in 17th-century England.

General Studies: SB, H

M HST 426 The British Empire. (3)

once a year

British imperialism and colonialism in Africa, the Americas, Asia, and the South Pacific. Prerequisite: upper-division standing or instructor approval.

General Studies: SB, H

M HST 427 The French Revolution and the Napoleonic Era. (3)

once a year

Conditions in Pre-Revolutionary and Revolutionary France; organization of France under Napoleon and impact of French changes upon Europe.

General Studies: SB, H

M HST 428 Modern France. (3)

selected semesters

Social, political, economic, and cultural transformations of French society, 1815–present. Impact of industrialization, war, and revolution on people's lives. Prerequisite: upper-division standing or instructor approval.

General Studies: SB, G, H

M HST 429 Modern Germany. (3)*once a year*

Germany since 1871.

*General Studies: SB, G, H***M HST 430 Hitler: Man and Legend. (3)***once a year*

Biographical approach to the German Third Reich emphasizing nature of Nazi regime, sociocultural issues, World War II, and historiography.

*General Studies: SB, H***M HST 431 Eastern Europe and the Balkans Before 1914. (3)***selected semesters*

Empire and nation in Eastern Europe and the Balkans before World War I, emphasizing Hapsburg and Ottoman lands.

*General Studies: SB, H***M HST 432 Eastern Europe and the Balkans in the 20th Century. (3)***selected semesters*

Politics and culture in Eastern Europe and the Balkans from World War I to the present.

*General Studies: SB, G, H***M HST 435 The Russian Empire. (3)***fall*

Development of Russian imperial institutions and civil society from the 17th to the early 20th centuries. Lecture, discussion.

*General Studies: SB, H***M HST 436 The Soviet Experiment. (3)***spring*

Communist revolutionaries' rule of Russia, focusing on utopian culture, Stalinist terror, heroism in war, and the breakup of the former USSR.

*General Studies: SB, G, H***M HST 437 Spain Through the Golden Age. (3)***selected semesters*

Cultural, economic, political, and social development of Spain from antiquity to the late 17th century.

*General Studies: HU/SB, H***M HST 438 Modern Spain. (3)***selected semesters*

Cultural, economic, political, and social development of modern Spain.

*General Studies: HU/SB, G, H***M HST 443 The United States and Latin America. (3)***once a year*

Latin American struggle for diplomatic recognition, attempts at political union, participation in international organizations since 1810, and relations between the United States and Latin America.

*General Studies: SB, G, H***M HST 445 20th-Century Cuba. (3)***once a year*

History of Cuba from colonial era to formation of the early republic; political, economic, social development in late 20th century. Lecture, discussion.

*General Studies: SB, G, H***M HST 446 Colonial Mexico. (3)***once a year*

Political, economic, social, and cultural developments from pre-Columbian times to 1810.

*General Studies: SB, H***M HST 447 Modern Mexico. (3)***once a year*

Political, economic, social, and cultural developments from 1810 to the present.

*General Studies: SB, H***M HST 451 Chinese Cultural History. (3)***selected semesters*

China's classics in translation studied both for their intrinsic ideas and for the origins of Chinese thought.

*General Studies: HU/SB, H***M HST 452 Chinese Cultural History. (3)***selected semesters*

Evolution of Confucian thought, its synthesis with Taoism and Buddhism, and modern reactions against, and uses of, Confucian traditions.

*General Studies: SB, G, H***M HST 453 The People's Republic of China. (3)***selected semesters*

Analyzes major political, social, economic, and intellectual trends in China since the founding of the People's Republic in 1949.

*General Studies: SB, G, H***M HST 455 The United States and Japan. (3)***fall*

Cultural, political, and economic relations in the 19th and 20th centuries. Emphasizes post-World War II period.

*General Studies: SB, G, H***M HST 456 The Vietnam War. (3)***once a year*

Intersection of American and Asian histories in Vietnam, viewed from as many sides as possible.

*General Studies: SB, G, H***M HST 480 Methods of Teaching History: Classroom Resources. (3)***fall*

Methods in instruction, organization, and presentation of the subject matter of history and closely allied fields. Prerequisites: HST 300; ITC admission. Pre- or corequisites: SED 403, 598.

M HST 481 Methods of Teaching History: Community Resources. (3)*spring*

Identify community-based resources for teaching history, work with resources, and learn how to integrate them into the secondary classroom. Lecture, lab. Prerequisite: HST 480.

M HST 484 Internship. (1–6)*selected semesters***M HST 492 Honors Directed Study. (1–6)***selected semesters***M HST 493 Honors Thesis. (3)***selected semesters**General Studies: L***M HST 494 Special Topics. (1–4)***selected semesters***M HST 498 History Pro-Seminar. (3)***fall and spring*

Required course for majors on topic selected by instructor; writing-intensive course related to the development of research skills and writing tools used by historians. May not be repeated without department approval. Prerequisites: HST 300; History major; senior standing.

*General Studies: L***M HST 499 Individualized Instruction. (1–3)***selected semesters***Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.**Graduate-Level Courses.** For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.**SCHOLARLY PUBLISHING (PUB)****Graduate-Level Courses.** For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

Hugh Downs School of Human Communication

asu.edu/clas/communication
480/965-5095
STAUF A412

H. L. "Bud" Goodall Jr., Director

Professors: Alberts, Broome, Canary, Carlson, Corman, Goodall, Guerrero, Jain, Lederman, Martin, McPhee, Mongeau, Nakayama

Associate Professors: Corey, Davey, Davis, De la Garza, Floyd, Martinez, Trethewey

Assistant Professors: Brouwer, McDonald, Park-Fuller, Tracy

Instructional Professional: Olson

PURPOSE

The Hugh Downs School of Human Communication exists to advance the understanding of message-related human behavior for the purpose of improving communicative interactions. Teaching, research, and service are directed to the continued development of knowledge and application of principles of communication. Employers have ranked interpersonal, analytical, teamwork, computer, and verbal communication skills as the top five skills desired for new hires. The curriculum is designed so that majors are proficient in each of these areas upon graduation. Courses are not offered in broadcasting or journalism.

GENERAL INFORMATION

A minimum cumulative GPA of 2.50 is required for enrollment in all upper-division courses and COM 207. A minimum cumulative GPA of 2.25 is required for enrollment in COM 110, 241, 250, and 263. An exception to the GPA requirement exists only when newly admitted students enroll in COM 110, 241, 250, or 263.

DEGREE REQUIREMENTS

BA and BS Degrees

Students may choose to complete either a Bachelor of Arts or Bachelor of Science degree in Communication. The BA degree requires a minimum of 30 semester hours and 15 hours of related area courses. The BS degree requires a minimum of 30 semester hours, including a General Studies CS (statistics) course; COM 404 or 407; COM 408; and one pair of the following courses:

COM 110 Elements of Interpersonal Communication <i>SB</i>	3
or COM 310 Relational Communication (3)	
COM 410 Interpersonal Communication Theory and Research <i>SB</i>	3
Total	6

—— or ——	
COM 250 Introduction to Organizational Communication <i>SB</i>	3
COM 450 Theory and Research in Organizational Communication <i>SB</i>	3
Total.....	6

—— or ——	
COM 241 Introduction to Oral Interpretation <i>L/HU</i>	3
COM 441 Performance Studies <i>HU</i>	3
Total.....	6

—— or ——	
COM 321 Rhetorical Theory and Research <i>L/HU, H</i>	3
or COM 323 Communication Approaches to Popular Culture <i>C</i> (3)	
COM 421 Rhetoric of Social Issues <i>HU</i>	3
Total.....	6

—— or ——	
COM 263 Elements of Intercultural Communication <i>SB, C, G</i>	3
COM 463 Intercultural Communication Theory and Research <i>SB, G</i>	3
Total.....	6

Both degree options require students to take three core courses (COM 207, 225, and 308) plus 21 semester hours, 18 of which must be upper-division course work.

To assure the breadth and depth of their education, all Communication undergraduates must complete the requirements of the university General Studies, the College of Liberal Arts and Sciences, and the Hugh Downs School of Human Communication. For descriptive information on university requirements, refer to "General Studies," page 93, and "University Graduation Requirements," page 89. See "College Graduation Requirements," page 503.

Students should consult the school for current information concerning College of Liberal Arts and Sciences and Hugh Downs School of Human Communication requirements.

Communication Internships

Internships (COM 484) consist of supervised field experiences and are available to undergraduate students with a minimum ASU GPA of 2.50. Students must also complete COM 207, 225, and 308 with a grade of "C" (2.00) or higher and 56 semester hours of credit to be eligible for an internship. An application for internship must be completed in the semester before the intended term for an internship. Contact the school for specific deadline dates. Internships must receive prior approval from the internship programs coordinator *before* student registration for the course. Internships may be taken for up to six semester hours.

MINOR IN COMMUNICATION

The minor in Communication consists of 15 semester hours of courses, including COM 100 plus COM 225 or 259, and nine additional semester hours, at least six of which must be in the upper division. Nine of the total 15 semester hours must be Tempe campus resident credits, including six semester hours of upper-division credit. No pass/fail, "Y" credit, or credit/no-credit courses are allowed. Communication courses required for one's major may not also count for the minor. All prerequisite and GPA

requirements must be met. The “C” (2.00) minimum requirement must be met for each class.

BIS CONCENTRATION

A concentration in communication is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see “School of Interdisciplinary Studies,” page 139.

GRADUATE PROGRAMS

In addition to offering an MA degree program, the Hugh Downs School of Human Communication also offers an interdisciplinary PhD degree program in Communication. See the *Graduate Catalog* for the requirements and areas of concentration.

HUGH DOWNS SCHOOL OF HUMAN COMMUNICATION (COM)

For more COM courses, see the “Course Prefixes” table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M COM 100 Introduction to Human Communication. (3)
fall, spring, summer

Topics-oriented introduction to basic theories, dimensions, and concepts of human communicative interaction and behavior.
General Studies: SB

M COM 110 Elements of Interpersonal Communication. (3)
fall, spring, summer

Demonstration and practice of communicative techniques in establishing and maintaining interpersonal relationships. Prerequisite: 2.25 GPA.
General Studies: SB

M COM 207 Introduction to Communication Inquiry. (3)
fall, spring, summer

Bases of inquiry into human communication, including introduction to notions of theory, philosophy, problems, and approaches to the study of communication. Prerequisites: COM 100; minimum cumulative 2.50 GPA.

M COM 222 Argumentation. (3)
fall and spring

Philosophical and theoretical foundations of argumentation, including a comparison of models of advocacy and evidence. Prerequisite: ENG 101 or 105.
General Studies: L

M COM 225 Public Speaking. (3)
fall, spring, summer

Verbal and nonverbal communication in platform speaking. Discussion and practice in vocal and physical delivery and in purposeful organization and development of public communication. Prerequisite: ENG 101 or 105.
General Studies: L

M COM 230 Small Group Communication. (3)
fall, spring, summer

Principles and processes of small group communication, attitudes, and skills for effective participation and leadership in small groups, small group problem solving, and decision making.
General Studies: SB

M COM 241 Introduction to Oral Interpretation. (3)
fall, spring, summer

Communication of literary materials through the mode of performance. Verbal and nonverbal behavior, interface of interpreter with literature

and audience, and rhetorical and dramatic analysis of literary modes. Prerequisites: ENG 101 (or 105); 2.25 GPA.
General Studies: L/HU

M COM 250 Introduction to Organizational Communication. (3)
fall, spring, summer

Introduces the study of communication in organizations, including identification of variables, roles, and patterns influencing communication in organizations. Prerequisite: 2.25 GPA.
General Studies: SB

M COM 259 Communication in Business and the Professions. (3)
fall, spring, summer

Interpersonal, group, and public communication in business and professional organizations. Not open to freshmen and not available for credit toward the major.

M COM 263 Elements of Intercultural Communication. (3)
fall, spring, summer

Basic concepts, principles, and skills for improving communication between persons from different minority, racial, ethnic, and cultural backgrounds. Lecture, discussion. Prerequisite: 2.25 GPA.
General Studies: SB, C, G

M COM 271 Voice Improvement. (3)
selected semesters

Intensive personal and group experience to improve normal vocal usage, including articulation and pronunciation.

M COM 281 Communication Activities. (1–3)

fall, spring, summer
Nongraded participation in forensics or interpretation cocurricular activities. Maximum 3 semester hours each semester. Prerequisite: instructor approval.

M COM 294 Special Topics. (1–4)
fall, spring, summer

Topics may include the following:
• Beyond Words. (3)

M COM 300 CIS: Communication in Interdisciplinary Studies. (3)
fall, spring, summer

Examines and analyzes communication in the context of other academic disciplines. May be repeated for credit. Open to BIS majors only. Prerequisites: both COM 100 and 225 or only COM 259; minimum cumulative GPA of 2.00.

M COM 301 Introductory Theories and Principles of Communication: Communication in Relationships, Organizations, and Public Contexts. (3–9)
once a year

Integrated introduction to the theories and principles of communication in public, interpersonal, and organizational contexts. Lecture, discussion, online component.

M COM 308 Advanced Research Methods in Communication. (3)
fall, spring, summer

Advanced communication research methods, including quantitative, qualitative, and critical approaches. Prerequisite: minimum cumulative 2.50 GPA. Prerequisites with a grade of “C” (2.00) or higher: COM 207; MAT 142 (or higher-level MAT course).
General Studies: L

M COM 310 Relational Communication. (3)
fall and spring

Explores communication issues in the development of personal relationships. Current topics concerning communication in friendship, romantic, and work relationships. Prerequisites: COM 100; minimum cumulative 2.50 GPA.

M COM 312 Communication, Conflict, and Negotiation. (3)
fall and spring

Theories and strategies of communication relevant to the management of conflicts and the conduct of negotiations. Prerequisites: COM 100; minimum cumulative 2.50 GPA.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 93.

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M COM 316 Gender and Communication. (3)

fall, spring, summer

Introduces gender-related communication. Examines verbal, nonverbal, and paralinguistic differences and similarities within social, psychological, and historic perspectives. Prerequisite: minimum cumulative 2.50 GPA.

General Studies: SB, C

M COM 317 Nonverbal Communication. (3)

fall, spring, summer

Study of communication using space, time, movement, facial expression, touch, appearance, smell, environment, objects, voice, and gender/cultural variables. Not open to students with credit for COM 294 ST: Beyond Words. Prerequisite: minimum cumulative 2.50 GPA.

M COM 319 Persuasion and Social Influence. (3)

fall and spring

Variables that influence and modify attitudes and behaviors of message senders and receivers, including analysis of theories, research, and current problems. Prerequisites: COM 207 (or its equivalent); minimum cumulative 2.50 GPA. Prerequisite for nonmajors: POS 401 or PSY 230 or QBA 221 or SOC 390 or STP 226.

General Studies: SB

M COM 320 Communication and Consumerism. (3)

once a year

Critical evaluation of messages designed for public consumption. Perceiving, evaluating, and responding to political, social, and commercial communication. Prerequisite: minimum cumulative 2.50 GPA.

General Studies: SB

M COM 321 Rhetorical Theory and Research. (3)

fall and spring

Historical development of rhetorical theory and research in communication, from classical antiquity to the present. Prerequisites: COM 100; minimum cumulative 2.50 GPA.

General Studies: L/HU, H

M COM 323 Communication Approaches to Popular Culture. (3)

fall, spring, summer

Critical analysis of popular culture within social and political contexts; emphasizes multicultural influences and representations in everyday life. Lecture, discussion. Prerequisites: COM 100; minimum cumulative 2.50 GPA.

General Studies: C

M COM 325 Advanced Public Speaking. (3)

fall and spring

Social and pragmatic aspects of public speaking as a communicative system; strategies of rhetorical theory and the presentation of forms of public communication. Prerequisites: COM 225; minimum cumulative 2.50 GPA.

General Studies: L

M COM 326 Court Room Oratory. (3)

fall in even years

Increases knowledge and appreciation of the role of communication in the development of legal and public policies.

M COM 341 Social Contexts for Performance. (3)

selected semesters

Adaptation and performance of literature for the community outside the university. Research into the practical uses of performed literature. Prerequisite: minimum cumulative 2.50 GPA.

M COM 344 Performance of Oral Traditions. (3)

selected semesters

Cultural beliefs and values studied through ethnographic research and performance of personal narratives, folklore, myths, legends, and other oral traditions. Lecture, fieldwork, research paper. Prerequisite: minimum cumulative 2.50 GPA.

General Studies: HU, C

M COM 371 Language, Culture, and Communication. (3)

fall and spring

Cultural influences of language on communication, including social functions of language, bilingualism, biculturalism, and bidialectism. Lecture, discussion. Prerequisites: COM 263; minimum cumulative 2.50 GPA.

General Studies: SB, C, G

M COM 382 Classroom Apprenticeship. (1–3)

fall, spring, summer

Nongraded credit for students extending their experience with a content area by assisting with classroom supervision in other COM courses (maximum 3 semester hours each semester). Prerequisites: 2.50 cumulative GPA; written instructor approval.

M COM 394 Special Topics. (1–4)

fall, spring, summer

Prerequisite: minimum cumulative 2.50 GPA.

M COM 400 CIP: Communication in Professions. (3)

fall, spring, summer

Specialized study of communication processes in professional and organizational settings. Open to BIS majors only. May be repeated for credit. Lecture, discussion. Prerequisites: both COM 100 and 225 or only COM 259; minimum cumulative GPA of 2.00.

General Studies: HU, C

M COM 404 Research Apprenticeship. (3)

fall and spring

Direct research experience on faculty projects. Student/faculty match based on interests. Lecture, apprenticeship. Prerequisites: COM 308 (or instructor approval); minimum cumulative 2.50 GPA; application required.

M COM 407 Advanced Critical Methods in Communication. (3)

fall, spring, summer

Examines critical approaches relevant to communication, including textuality, social theory, cultural studies, and ethnography. Lecture, discussion. Prerequisites: COM 308; minimum cumulative 2.50 GPA.

M COM 408 Quantitative Research Methods in Communication. (3)

(3)

fall and spring

Advanced designs, measurement techniques, and methods of data analysis of communication research. Prerequisites: COM 308 and a course in generic statistics (EDP 454 or POS 401 or PSY 230 or QBA 221 or SOC 390 or STP 226); minimum cumulative 2.50 GPA.

M COM 410 Interpersonal Communication Theory and Research. (3)

(3)

fall, spring, summer

Survey and analysis of major research topics, paradigms, and theories dealing with message exchanges between and among social peers. Prerequisites: COM 110 (or 310), 308; minimum cumulative 2.50 GPA.

General Studies: SB

M COM 411 Communication in the Family. (3)

once a year

Broad overview of communication issues found in marriage and family life, focusing on current topics concerning communication in the family. Prerequisites: COM 110 (or 310), 207; minimum cumulative 2.50 GPA.

General Studies: SB

M COM 414 Crisis Communication. (3)

selected semesters

Role of communication in crisis development and intervention.

Prerequisite: minimum cumulative 2.50 GPA.

M COM 421 Rhetoric of Social Issues. (3)

fall and spring

Critical rhetorical study of significant speakers and speeches on social issues of the past and present. Prerequisites: COM 308, 321 (or 323).

General Studies: HU

M COM 426 Political Communication. (3)

fall

Theories and criticism of political communication, including campaigns, mass persuasion, propaganda, and speeches. Emphasis on rhetorical approaches. Prerequisite: minimum cumulative 2.50 GPA.

General Studies: SB

M COM 430 Leadership in Group Communication. (3)

selected semesters

Theory and process of leadership in group communication, emphasizing philosophical foundations, contemporary research, and applications to group situations. Prerequisites: COM 230; minimum cumulative 2.50 GPA.

M COM 441 Performance Studies. (3)

fall, spring, summer

Theory, practice, and criticism of texts in performance. Emphasis on the interaction between performer, text, audience, and context.

Prerequisites: COM 241, 308; minimum cumulative 2.50 GPA.

General Studies: HU

M COM 442 Identity, Performance, and Human Communication. (3)

selected semesters

Explores communication dimensions of self and others as performance. Examines topics that include gender, race, sexuality, age, and ethnicity through performance. Lecture, workshops.

Prerequisites: COM 225 (or 241); minimum cumulative 2.50 GPA.

M COM 445 Narrative Performance. (3)

selected semesters

Theory and practice of performing narrative texts (e.g., prose fiction, oral histories, diaries, essays, letters). Includes scripting, directing, and the rhetorical analysis of storytelling. Prerequisites: COM 241; minimum cumulative 2.50 GPA.

General Studies: HU

M COM 446 Performance of Literature Written by Women. (3)

selected semesters

Explores, through performance and critical writing, literature written by women. Prerequisite: minimum cumulative 2.50 GPA.

General Studies: HU, C

M COM 450 Theory and Research in Organizational Communication. (3)

fall, spring, summer

Critical review and analysis of the dominant theories of organizational communication and their corollary research strategies. Prerequisites: COM 250, 308; minimum cumulative 2.50 GPA.

General Studies: SB

M COM 453 Communication Training and Development. (3)

once a year

Examines the procedures and types of communication training and development in business, industry, and government. Prerequisites: COM 250; minimum cumulative 2.50 GPA.

M COM 463 Intercultural Communication Theory and Research. (3)

fall, spring, summer

Surveys and analyzes major theories and research dealing with communication between people of different cultural backgrounds, primarily in international settings. Lecture, discussion, small group work. Prerequisites: COM 263, 308; minimum cumulative 2.50 GPA.

General Studies: SB, G

M COM 465 Intercultural Communication Workshop. (3)

selected semesters

Experientially based study of communication between members of different cultures designed to help improve intercultural communication skills. Prerequisites: minimum cumulative 2.50 GPA; instructor approval.

M COM 484 Communication Internship. (1–6)

fall, spring, summer

Prerequisites: COM 225, 308; minimum cumulative 2.50 GPA; application required. Pre- or corequisite: COM 410 or 421 or 441 or 450 or 463.

M COM 494 Special Topics. (1–3)

fall, spring, summer

Topics may include the following:

- Special Events Management

Prerequisite: minimum cumulative 2.50 GPA.

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

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

School of Human Evolution and Social Change

www.asu.edu/clas/shesc

480/965-6213

ANTH 233

Sander van der Leeuw, Director
Ben A. Nelson, Associate Director

Regents' Professor: Clark

Professors: Barton, Bolin, Brandt, Brewis, Buikstra, Carr, Chance, Eder, Falconer, Hackett, Hegmon, Hudak, Johanson, Kimbel, Kintigh, Marean, Martin, Nash, B. Nelson, M. Nelson, Perrings, Redman, Smith, Spielmann, Stark, van der Leeuw, Williams

Associate Professors: Abbott, Baker, Boone, Haenn, Harlan, Jonsson, Reed, Stone, Tsuda, Welsh, Winkelman

Assistant Professors: Anderies, Isaac, Janssen, Knudson, Schwartz, Spencer, Stojanowski

Associate Research Professors: Simon, Sugiyama

The School of Human Evolution and Social Change offers the BA degree in Anthropology.

ANTHROPOLOGY—BA

Course Requirements. The Anthropology major consists of a minimum of 39 or 40 semester hours in anthropology and a minimum of three semester hours in statistics. At least 18 of the semester hours must be in upper-division courses (300–400 level). No ASU course is automatically classified as being either related or unrelated. Course requirements for the major are distributed as follows:

Required Introductory Courses

ASB 102 Introduction to Cultural and Social Anthropology <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 93.

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Elective

Anthropology 2-3

Related Fields

Statistics 3

Total 42-43

Consultation with the undergraduate advisor and a faculty mentor in the School of Human Evolution and Social Change is recommended each semester. The anthropology undergraduate advising office is located in ANTH 166.

Course work in anthropology completed at other institutions is evaluated by the undergraduate advisor. The College of Liberal Arts and Sciences requires that transfer students complete at least 12 semester hours of upper-division course work at ASU in the department/school of their major in order to be eligible for graduation.

In addition to a cumulative GPA of 2.00 or higher, all anthropology students must obtain a minimum grade of "C" (2.00) in all upper- and lower-division anthropology courses and all related fields.

Each student's Declaration of Graduation and Degree Audit Report, or Program of Study, must be reviewed and approved by the anthropology undergraduate advisor.

Introductory, Distribution, and Related Fields Requirements

Consult with a School of Human Evolution and Social Change undergraduate advisor for semester course description booklets and semester schedules, which indicate the regular and omnibus courses being offered. No courses may be used to fulfill more than one Anthropology major or minor requirement.

Required Introductory Courses

- ASB 102 Introduction to Cultural and Social Anthropology *SB, G* 3
- ASB 222 Buried Cities and Lost Tribes: Our Human Heritage *HU/SB, G, H* 3
- or ASB 223 Buried Civilizations of the Americas *HU/SB, G, H* (3)
- ASM 104 Bones, Stones, and Human Evolution *SB/SG* 4

Distribution Requirements

Upper-Division Linguistics

- One course chosen from the following list* 3
- ASB 480 Introduction to Linguistics *SB* (3)
- ASB 481 Language and Culture *SB* (3)
- ASB 483 Sociolinguistics and the Ethnography of Communication *SB* (3)

Sociocultural

- Two courses chosen from the following list* 6
- ASB 202 Ethnic Relations in the United States *SB, C, H* (3)
- ASB 211 Women in Other Cultures *HU/SB, G* (3)
- ASB 311 Principles of Social Anthropology *SB* (3)
- ASB 314 Comparative Religion (3)
- ASB 319 The North American Indian (3)
- ASB 321 Indians of the Southwest *L/SB, C, H* (3)
- ASB 322 Peoples of Mesoamerica *SB, G* (3)
- ASB 323 Indians of Latin America *SB, G* (3)
- ASB 324 Peoples of the Pacific *G* (3)
- ASB 325 Peoples of Southeast Asia *G* (3)
- ASB 350 Anthropology and Art (3)
- ASB 351 Psychological Anthropology *SB* (3)
- ASB 353 Death and Dying in Cross-Cultural Perspective *HU/SB, G* (4)

- ASB 412 History of Anthropology *L/SB* (3)
- ASB 416 Economic Anthropology *L/SB* (3)
- ASB 417 Political Anthropology (3)
- ASB 485 U.S.-Mexico Border in Comparative Perspective (3)

Archaeology

- Two courses chosen from the following list* 6
- ASB 231 Archaeological Field Methods *SG* (4)
- ASB 326 Human Impacts on Ancient Environments *SB, H* (3)
- ASB 330 Principles of Archaeology *SB* (3)
- ASB 335 Prehistory of the Southwest *SB, C, H* (3)
- ASB 337 Pre-Hispanic Civilization of Middle America *HU/SB, G, H* (3)
- ASB 338 Archaeology of North America *SB, H* (3)
- ASB 361 Pleistocene Archaeology *H* (3)
- ASB 362 The Neolithic Revolution and Its Consequences *H* (3)
- ASM 338 Anthropological Field Session (2-8)
- ASM 365 Laboratory Methods in Archaeology (4)
- ASM 435 Archaeological Pollen Analysis (3)
- ASM 472 Archaeological Ceramics (3)

Physical Anthropology

- Two courses chosen from the following list* 6
- ASM 246 Human Origins (3)
- ASM 301 Peopling of the World *SB* (3)
- ASM 341 Human Osteology (4)
- ASM 342 Human Biological Variation *SG* (4)
- ASM 343 Primatology (3)
- ASM 344 Fossil Hominids *H* (4)
- ASM 345 Disease and Human Evolution (3)
- ASM 348 Social Issues in Human Genetics *SB* (3)
- ASM 452 Dental Anthropology *SG* (4)
- ASM 454 Comparative Primate Anatomy (4)
- ASM 455 Primate Behavior Laboratory *L* (3)

Geographic Area Courses

Archaeology or Physical Anthropology

- One course chosen from the following list* 3
- ASB 335 Prehistory of the Southwest *SB, C, H* (3)
- ASB 337 Pre-Hispanic Civilization of Middle America *HU/SB, G, H* (3)
- ASB 338 Archaeology of North America *SB, H* (3)
- ASB 361 Pleistocene Archaeology *H* (3)
- ASB 362 The Neolithic Revolution and Its Consequences *H* (3)
- ASM 301 Peopling of the World *SB* (3)

Ethnographic

- One course chosen from the following list* 3
- ASB 319 The North American Indian (3)
- ASB 321 Indians of the Southwest *L/SB, C, H* (3)
- ASB 322 Peoples of Mesoamerica *SB, G* (3)
- ASB 323 Indians of Latin America *SB, G* (3)
- ASB 324 Peoples of the Pacific *G* (3)
- ASB 325 Peoples of Southeast Asia *G* (3)
- ASB 485 U.S.-Mexico Border in Comparative Perspective (3)

Anthropology Elective

Any anthropology course 2-3

Related Fields

One lower- or upper-division statistics course 3

Total 42-43

* Consult with a School of Human Evolution and Social Change undergraduate advisor for courses not listed that may fulfill distribution requirements.

MINOR IN ANTHROPOLOGY

The Anthropology minor requires a minimum of 18 semester hours. Two of the introductory courses—from ASB 102, ASM 104, and ASB 222 or 223—are required. However, the particular introductory courses selected may limit the anthropology courses available in the upper division. Twelve semester hours must be upper division and represent at least two of the three subfields of anthropology. The three subfields are:

1. sociocultural anthropology (with linguistics);
2. archaeology; and
3. physical anthropology.

The courses chosen to represent two of the three subfields must be drawn from the “Distribution Requirements,” page 567, of those two subfields. A minimum grade of “C” (2.00) is required for all courses taken for the minor in Anthropology.

The minor in Anthropology provides students with a great deal of flexibility in selecting courses. The program has been designed to allow students to focus on areas within the discipline which articulate well with their major. All students interested in the Anthropology minor are encouraged to discuss the options available with a School of Human Evolution and Social Change undergraduate advisor.

BIS CONCENTRATION

For students pursuing the Bachelor of Interdisciplinary Studies (BIS) degree, a concentration in anthropology requires 24 or 25 semester hours. All three of the introductory courses—ASB 102, ASM 104, and ASB 222 or 223—are required. Fifteen semester hours must be upper division and represent two of the three subfields:

1. sociocultural anthropology (with linguistics);
2. archaeology; and
3. physical anthropology.

The courses chosen to represent the two subfields must be drawn from the “Distribution Requirements,” page 567. A minimum grade of “C” (2.00) is required for all courses taken for the minor in Anthropology for BIS students.

CERTIFICATES

Latin American Studies Certificate or Emphasis. Students majoring in Anthropology may elect to pursue a Latin American Studies Certificate or emphasis, combining courses from the major with selected outside courses of wholly Latin American content. For more information, see “Latin American Studies,” page 512.

Certificate in Museum Studies. See the *Graduate Catalog* or contact the School of Human Evolution and Social Change for more information.

GRADUATE PROGRAM

The faculty in the School of Human Evolution and Social Change offer programs leading to the MA and PhD degrees. See the *Graduate Catalog* for requirements.

SECONDARY EDUCATION—BAE

This degree is offered through the Initial Teacher Certification program in the College of Education. Students pursuing a major in Secondary Education have an advisor in the College of Education and an advisor within the department of their academic specialization area.

See “College of Education,” page 349, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching. For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

For more information, call the Office of Student Services in the College of Education at 480/965-5555.

ANTHROPOLOGY (SOCIAL AND BEHAVIORAL) (ASB)

For more ASB courses, see the “Course Prefixes” table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M ASB 102 Introduction to Cultural and Social Anthropology. (3)
fall and spring

Principles of cultural and social anthropology, with illustrative materials from a variety of cultures. The nature of culture. Social, political, and economic systems; religion, aesthetics, and language.

General Studies: SB, G

M ASB 202 Ethnic Relations in the United States. (3)

fall and spring

Processes of intercultural relations; systems approach to history of U.S. interethnic relations; psychocultural analysis of contemporary U.S. ethnic relations. Lecture, discussion. Cross-listed as AFS 202. Credit is allowed for only AFS 202 or ASB 202.

General Studies: SB, C, H

M ASB 210 Sex, Marriage, and Evolution. (3)

selected semesters

Examines the sexual nature and behavior of humans from both a biological and an anthropological point of view.

M ASB 211 Women in Other Cultures. (3)

selected semesters

Cross-cultural analysis of the economic, social, political, and religious factors that affect women’s status in traditional and modern societies.

General Studies: HU/SB, G

M ASB 222 Buried Cities and Lost Tribes: Our Human Heritage. (3)

spring

Archaeology through its most important discoveries: human origins, Pompeii, King Tut, the Holy Land, Southwest Indians, and methods of field archaeology.

General Studies: HU/SB, G, H

M ASB 223 Buried Civilizations of the Americas. (3)

fall and spring

Archaeology through examination of several ancient civilizations of Meso-, South, and North America.

General Studies: HU/SB, G, H

M ASB 231 Archaeological Field Methods. (4)

spring

Excavation of archaeological sites and recording and interpretation of data. Includes local field experience. 2 hours lecture, 8 hours lab.

Prerequisite: instructor approval.

General Studies: SG

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 93.

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M ASB 240 Introduction to Southeast Asia. (3)

fall and spring

Interdisciplinary introduction to the cultures, religions, political systems, geography, and history of Southeast Asia. Cross-listed as GCU 240/HST 240/POS 240/REL 240. Credit is allowed for only ASB 240 or GCU 240 or HST 240 or POS 240 or REL 240.

General Studies: HU/SB, G

M ASB 252 Anthropology of Sports. (3)

fall and spring

Cross-cultural examination of symbolic and social dimensions of sports past and present.

General Studies: SB, G

M ASB 302 Ethnographic Field Study in Mexico. (3)

summer

Fieldwork study of cultural adaptation, Mexican culture, United States-Mexican cultural conflict, ethnographic research methods, and local culture. Lecture, discussion, field research. Pre- or corequisite: SPA 101 (or its equivalent).

General Studies: L/SB, G

M ASB 311 Principles of Social Anthropology. (3)

spring

Comparative analysis of domestic groups and economic and political organizations in primitive and peasant societies.

General Studies: SB

M ASB 314 Comparative Religion. (3)

fall and spring

Origins, elements, forms, and symbolism of religion; a comparative survey of religious beliefs and ceremonies; the place of religion in the total culture. Prerequisite: ASB 102 or instructor approval.

M ASB 319 The North American Indian. (3)

once a year

Archaeology, ethnology, and linguistic relationship of the Indians of North America. Does not include Middle America. Prerequisite: ASB 102 or instructor approval.

M ASB 320 Indians of Arizona. (3)

selected semesters

Traditional cultures and the development and nature of contemporary political, economic, and educational conditions among Arizona Indians.

M ASB 321 Indians of the Southwest. (3)

spring

Cultures of the contemporary Indians of the southwestern United States and their historic antecedents. Prerequisite: ASB 102 or instructor approval.

General Studies: L/SB, C, H

M ASB 322 Peoples of Mesoamerica. (3)

once a year

Indigenous, mestizo, and national cultures, rural and urban peoples. Lecture, discussion, video. Prerequisite: ASB 102 or instructor approval.

General Studies: SB, G

M ASB 323 Indians of Latin America. (3)

fall

Indigenous cultures of the Amazon, the Andean region, Central America, and southern Mexico. Lecture, discussion. Prerequisite: ASB 102 or instructor approval.

General Studies: SB, G

M ASB 324 Peoples of the Pacific. (3)

selected semesters

Peoples and cultures of Oceania focusing particularly on societies of Melanesia, Micronesia, and Polynesia. Prerequisite: ASB 102 or instructor approval.

General Studies: G

M ASB 325 Peoples of Southeast Asia. (3)

fall

Cultural-ecological perspective on the peoples of mainland and insular Southeast Asia. Subsistence modes, social organization, and the impact of modernization. Prerequisite: ASB 102 or instructor approval.

General Studies: G

M ASB 326 Human Impacts on Ancient Environments. (3)

spring

World survey of successful and unsuccessful ancient societies and their impacts on the environment.

General Studies: SB, H

M ASB 327 Action Anthropology. (3)

fall

Explores contemporary issues and problem solving in Cuna, Micronesia, Mayan, and U.S. Latino communities, through applied anthropology and community initiatives.

M ASB 330 Principles of Archaeology. (3)

fall and spring

Methods and theories for reconstructing and explaining the lifeways of prehistoric peoples. Prerequisite: 3 hours in archaeology.

General Studies: SB

M ASB 335 Prehistory of the Southwest. (3)

fall and spring

Anthropological understandings of major cultural processes and events in the prehistory of the American Southwest using evidence from archaeology.

General Studies: SB, C, H

M ASB 337 Pre-Hispanic Civilization of Middle America. (3)

spring

Preconquest cultures and civilizations of Mexico. The Aztecs, Mayas, and their predecessors.

General Studies: HU/SB, G, H

M ASB 338 Archaeology of North America. (3)

selected semesters

Origin, spread, and development of the prehistoric Indians of North America up to the historic tribes. Does not include the Southwest. Prerequisite: ASB 222 or 223.

General Studies: SB, H

M ASB 350 Anthropology and Art. (3)

once a year

Art forms of people in relationship to their social and cultural setting. Prerequisite: ASB 102 or instructor approval.

M ASB 351 Psychological Anthropology. (3)

spring

Approaches to the interrelations between the personality system and the sociocultural environment. Prerequisite: ASB 102 or instructor approval.

General Studies: SB

M ASB 353 Death and Dying in Cross-Cultural Perspective. (4)

fall

Humanistic and scientific study of aging, sickness, dying, death, funerals, and grief and their philosophy and ecology in non-Western and Western cultures. 3 hours lecture, 1 hour discussion.

General Studies: HU/SB, G

M ASB 355 Shamanism, Healing, and Consciousness. (3)

spring

World views, practices, and roles of shamans and traditional and contemporary healers; explanatory biopsychological models of consciousness.

General Studies: HU/SB

M ASB 361 Pleistocene Archaeology. (3)

fall

Biosocial evolution in the Pleistocene, emphasizing technological achievements and the relationship between technology and environment in western Europe, sub-Saharan Africa. Prerequisite: ASB 222 or 223.

General Studies: H

M ASB 362 The Neolithic Revolution and Its Consequences. (3)

spring

Surveys models for the appearance of food production in the Old World, and its consequences for emergent social complexity. Prerequisite: ASB 222 or 223.

General Studies: H

M ASB 366 African Archaeology: Precolonial Urban Culture. (3)

fall and spring

Overview of African civilization from the last 10,000 years up to 1850 via archaeological, documentary, and oral data. Lecture, discussion.

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Cross-listed as AFS 366. Credit is allowed for only AFS 366 or ASB 366.

General Studies: SB, G, H

M ASB 368 Prehistoric and Historic Hunter-Gatherers. (3)
spring

Studies known hunting and gathering societies with the goal of developing approaches to understanding past hunting and gathering societies. Lecture, discussion. Prerequisite: ASB 102 or 222.

M ASB 400 Cultural Factors in International Business. (3)
spring

Anthropological perspectives on international business relations; applied principles of cross-cultural communication and management; regional approaches to culture and business.

General Studies: G

M ASB 402 Visual Anthropology. (3)

fall

Explores visual anthropology as a method for social documentation, and as a way to interpret cultural ways of seeing. Brings together anthropology, fine art, and art history students to exchange ideas about how we create, interpret, and communicate visual meanings. Lecture, discussion, critique.

M ASB 412 History of Anthropology. (3)

fall

Historical treatment of the development of the culture concept and its expression in the chief theoretical trends in anthropology between 1860 and 1950. Prerequisite: ASB 102 or instructor approval.

General Studies: L/SB

M ASB 416 Economic Anthropology. (3)

fall

Economic behavior and the economy in preindustrial societies; description and classification of exchange systems; relations between production, exchange systems, and other societal subsystems. Prerequisite: ASB 102 or instructor approval.

General Studies: L/SB

M ASB 417 Political Anthropology. (3)

selected semesters

Comparative examination of the forms and processes of political organization and activity in primitive, peasant, and complex societies. Prerequisite: ASB 102 or instructor approval.

M ASB 462 Medical Anthropology: Culture and Health. (3)

fall

Role of culture in health, illness, and curing; health status, provider relations, and indigenous healing practices in United States ethnic groups. Lecture, discussion.

General Studies: C

M ASB 466 Peoples and Cultures of Africa. (3)

fall and spring

Survey of African peoples and their cultures, external contact, and changes. Meets non-Western requirement. Lecture, discussion. Cross-listed as AFS 466. Credit is allowed for only AFS 466 or ASB 466.

General Studies: SB, G, H

M ASB 471 Introduction to Museums. (3)

fall

History, philosophy, and current status of museums. Explores collecting, preservation, exhibition, education, and research activities in different types of museums. Prerequisites: both ASB 102 and ASM 104 or only instructor approval.

General Studies: L

M ASB 480 Introduction to Linguistics. (3)

fall and spring

Descriptive and historical linguistics. Survey of theories of human language, emphasizing synchronic linguistics.

General Studies: SB

M ASB 481 Language and Culture. (3)

spring

Applies linguistic theories and findings to nonlinguistic aspects of culture; language change; psycholinguistics. Prerequisite: ASB 102 or instructor approval.

General Studies: SB

M ASB 483 Sociolinguistics and the Ethnography of Communication. (3)

selected semesters

Relationships between linguistic and social categories; functional analysis of language use, maintenance, and diversity; interaction between verbal and nonverbal communication. Prerequisites: both ASB 480 and ENG 213 (or FLA 400) or only instructor approval.

General Studies: SB

M ASB 485 U.S.-Mexico Border in Comparative Perspective. (3)
spring in odd years

Explores the multicultural and social dimensions of communities along the U.S.-Mexico border, emphasizing social organization, migration, culture, and frontier ideology. Prerequisite: 6 hours in anthropology or instructor approval.

M ASB 489 Doing Research in Anthropology. (3)

fall and spring

Research process learned through critical evaluation of literature, hands-on analysis and interpretation of data, and scientific writing. Rotating topics. May be repeated for credit. Seminar, lab. Prerequisite: instructor approval.

General Studies: SB

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

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

ANTHROPOLOGY (SCIENCE AND MATHEMATICS) (ASM)

M ASM 104 Bones, Stones, and Human Evolution. (4)

fall and spring

Physical anthropology and archaeology. Evidence and processes of human evolution and of culture change. Primates. Fossil hominids and their tools. Race, variation, and heredity. Environment and human biology. Prehistoric culture and society. Lecture, lab. Fee.

General Studies: SB/SG

M ASM 241 Biology of Race. (3)

fall and spring

Human variation and its interpretation in an evolutionary context.

M ASM 246 Human Origins. (3)

fall

History of discoveries and changing interpretations of human evolution. Earliest ancestors to emergence of modern humans. Humanity's place in nature.

M ASM 248 Bioarchaeology of Cannibalism, Violence, and Social Pathology. (3)

spring

Worldwide review of claims of severely abnormal behavior in prehistory based on perimortem bone taphonomy, analogues, and comparative cases. Lecture, class demonstrations.

M ASM 301 Peopling of the World. (3)

fall

Reviews all evidence for human dispersal during the last 100,000 years, origins of language, cultures, races, and beginnings of modern humans. Prerequisite: ASM 104.

General Studies: SB

M ASM 338 Anthropological Field Session. (2-8)

spring

Anthropological field techniques, analysis of data, and preparation of field reports. May be repeated for credit. Prerequisite: instructor approval.

M ASM 341 Human Osteology. (4)

fall

Osteology, human paleontology, and osteometry. Description and analysis of archaeological and contemporary human populations. 3

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

hours lecture, 3 hours lab. Prerequisite: ASM 104 or instructor approval.

M ASM 342 Human Biological Variation. (4)

spring
Evolutionary interpretations of biological variation in living human populations, with emphasis on anthropological genetics and adaptation. Nutrition and disease and their relation to genetics and behavior. 3 hours lecture, 3 hours lab. Prerequisites: both ASM 104 and MAT 106 (or its equivalent) or only instructor approval.

M ASM 343 Primatology. (3)

fall
Evolution and adaptations of nonhuman primates, emphasizing social behavior. Includes material from fossil evidence and field and laboratory studies in behavior and biology. Prerequisite: ASM 104 or instructor approval.

M ASM 344 Fossil Hominids. (4)

once a year
The fossil evidence for human evolution, emphasizing the concepts and methods for reconstructing the past. 3 hours lecture, 2 hours lab. Prerequisite: ASM 104 or instructor approval.

M ASM 345 Disease and Human Evolution. (3)

fall
Interaction of people and pathogens from prehistoric times to the present, with emphasis on disease as an agent of genetic selection. Prerequisite: ASM 104 or instructor approval.

M ASM 348 Social Issues in Human Genetics. (3)

spring
Moral and social implications of developments in genetic science, particularly as they affect reproduction, medicine, and evolution.

M ASM 365 Laboratory Methods in Archaeology. (4)

selected semesters
Techniques of artifact analysis. Basic archaeological research techniques; methods of report writing. May be repeated for credit for total of 8 hours. Prerequisite: instructor approval.

M ASM 435 Archaeological Pollen Analysis. (3)

selected semesters
Theory, methodology, and practice of pollen analytic techniques. Compares uses in botany, geology, and archaeology. 2 hours lecture, 3 hours lab, possible field trips. Prerequisite: instructor approval.

M ASM 448 Geoarchaeology. (3)

fall and spring
Geologic context relevant to archaeological research. Topics include sediments, deposition environments, soils, anthropogenic and biogenic deposits, and quaternary chronology. Lecture, discussion, field experiences. Prerequisites: ASB 222 (or 223) or GLG 101 (or 103) or GPH 111; instructor approval.

M ASM 450 Bioarchaeology. (3)

spring
Surveys archaeological and physical anthropological methods and theories for evaluating skeletal and burial remains to reconstruct biocultural adaptation and lifeways. Prerequisite: ASM 104 or instructor approval.

M ASM 452 Dental Anthropology. (4)

fall
Human and primate dental morphology, growth, evolution, and genetics. Within- and between-group variation. Dental pathology and behavioral-cultural-dietary factors. 3 hours lecture, 3 hours lab. Prerequisite: instructor approval.

M ASM 454 Comparative Primate Anatomy. (4)

spring
Functional anatomy of the cranial, dental, and locomotor apparatus of primates, including humans, emphasizing the relation of morphology to behavior and environment. 3 hours lecture, 3 hours lab, dissections, demonstrations. Prerequisite: instructor approval.

M ASM 455 Primate Behavior Laboratory. (3)

selected semesters
Instruction and practice in methods of observation and analysis of primate behavior. Discussion of the relationship between class work on captive animals and field techniques for studying free-ranging

groups. Directed readings, 6 hours lab. Prerequisites: ASM 343; instructor approval.

M ASM 456 Infectious Disease and Human Evolution. (3)

once a year
Study of infectious disease and humanity, using evidence from anthropology, history, medicine, and ancient skeletons. Prerequisite: ASM 345.

M ASM 465 Quantification and Analysis for Anthropologists. (3)

spring
Statistical, quantitative, and geometric strategies for envisioning and exploring archaeological, physical anthropological, bioarchaeological, and sociocultural data. Univariate and multivariate methods. Prerequisites: introductory statistical course; instructor approval.

M ASM 472 Archaeological Ceramics. (3)

selected semesters
Analysis and identification of pottery wares, types, and varieties. Systems for ceramic classification and cultural interpretation. 2 hours lecture, 3 hours lab. Prerequisite: instructor approval.

Omnibus Courses.

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

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

School of Justice and Social Inquiry

www.asu.edu/class/justice

480/965-7682

WILSON 331

Doris Marie Provine, Director

Regents' Professor: Allheide

Professors: Cavender, Haynes, Johnson, Junk, Lauderdale, Provine, Romero, Schneider, Zatz

Associate Professor: Adelman

Assistant Professors: Gonzales, Haglund, Hanson, Kupchik, Lopez, Millun, Monahan, Quan

MISSION

Students pursuing the BS degree in Justice Studies and an interdisciplinary classroom experience emphasizing ideas from the social sciences, philosophy, and legal studies. The degree is designed for students interested in studying issues of justice and those desiring justice-related careers, including law. Students develop an understanding of the aspirations for justice in comparative and global terms, and analyze often controversial issues through critical inquiry and social science investigation. The faculty focus on theories of justice and injustice in three principal areas:

1. cultural transformation and justice;
2. economic justice; and
3. social justice, law, and policy.

Courses are designed to provide students with a comprehensive understanding of the substantive issues within each of these three areas and of the interrelationship and continuity among them. Students accordingly may learn about conflict and its negotiation; crime and violence; adolescents and delinquency; punishment and alternatives to punishment; globalization and inequality; and differential institutional and socioeconomic treatment of populations based on gender and sexuality, race and ethnicity, social class, and nationality.

The heart of any university program is its faculty. The School of Justice and Social Inquiry boasts a faculty with strong scholarly credentials. Faculty members include national, international, and local award recipients in research, teaching, and public service. Faculty members are committed to challenging students to develop their own understandings of justice; to analyze critically; and to propose possible solutions to a wide variety of contemporary issues concerning just distribution of resources, fair treatment for individuals and groups in local communities, the nation, and the world.

While completing the Justice Studies curriculum, students encounter opportunities to develop transferable skills, including critical thinking, oral and written discourse, computer literacy, and problem solving. Faculty encourage students to practice justice through various experiential approaches, including volunteer work, service learning, and internships. Students actively engage in their education via discussion, cooperative learning, field trips, and case-based classroom formats.

PROFESSIONAL STATUS

Upon admission to the university, Justice Studies students are classified as preprofessional. Justice Studies students must earn professional status before enrolling in 400-level JUS resident credit courses.

Justice Studies students achieve professional status by

1. earning a minimum of 56 semester hours;
2. earning a minimum cumulative GPA of 2.50 (calculated on a minimum of nine semester hours earned at ASU);
3. completing the university General Studies mathematics requirement (MA);
4. completing the school's computer science requirement (CS computer course);
5. completing the school's communication requirement; and
6. completing the following classes with a minimum 2.50 GPA and a minimum grade of "C" in each of the following courses.

Choose between the course combinations below 6 or 3

- ENG 101 First-Year Composition (3)
- ENG 102 First-Year Composition (3)

— or —

ENG 105 Advanced First-Year Composition (3)

JUS 105 Introduction to Justice Studies SB 3
or JUS 305 Principles of Justice Studies SB (3)

JUS 301 Research in Justice Studies SB 3

JUS 302 Basic Statistical Analysis in Justice Studies CS 3

JUS 303 Justice Theory 3
School's writing competence requirement L 3

The student must achieve professional status by the time the 87th semester hour is earned or else the student is disallowed from taking courses offered by the school. A student who transfers 58 or more semester hours must achieve professional status upon completion of 30 ASU semester hours.

ADVISING

Students admitted as preprofessional are advised by one of the school's academic advisors. All students are encouraged to seek advising to formulate an appropriate educational plan.

Upon admission to the university, every undergraduate in the program receives the *Undergraduate Advisement Guide* and an evaluation of any transfer work. For more information, call the school at 480/965-7682.

JUSTICE STUDIES—BS

The curriculum for the BS degree in Justice Studies provides interdisciplinary social science courses relevant to law and justice for students working in the justice field, students anticipating justice-related careers (including the legal profession), and interested non-Justice Studies students.

MINOR IN JUSTICE STUDIES

The minor in Justice Studies is designed for students interested in developing an understanding of meanings of justice and injustice and analyzing often controversial issues through critical inquiry and social science investigation.

Eighteen hours of graded classroom JUS course work are required, including JUS 105 or 305 and JUS 303. No pass/fail or credit/noncredit course work may be applied to the minor. A minimum of nine semester hours must be resident credit at Tempe campus, and at least 12 hours must be upper-division credit. Students must receive a minimum grade of "C" (2.00) for all courses in the minor and meet all course eligibility requirements, including prerequisites.

BIS CONCENTRATION

A concentration in Justice Studies is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

DEGREE REQUIREMENTS

The faculty in the School of Justice and Social Inquiry award a BS degree upon the successful completion of a curriculum consisting of a minimum of 120 semester hours, including the university General Studies requirement,

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

college graduation requirements, justice requirements, and electives. Additionally, the student must

1. earn professional status;
2. earn a minimum of 45 semester hours of upper-division credits;
3. complete the school’s minimum residency requirement of 24 semester hours (see the *Undergraduate Advisement Guide*);
4. earn a grade of “C” (2.00) or higher in all justice studies courses taken at ASU that apply to the justice studies component of the curriculum (i.e., nonelectives); and
5. meet the university’s residency and scholarship requirements.

GENERAL STUDIES REQUIREMENTS

To assure the breadth and depth of their education, all Justice Studies undergraduates must complete the university General Studies requirement and additional fundamental requirements prescribed by the College of Liberal Arts and Sciences and the School of Justice and Social Inquiry. For descriptive information on these requirements, see “General Studies,” page 93, and “College Graduation Requirements,” page 503. Note that all three General Studies awareness areas are required. Consult “General Studies Requirements” in the *Schedule of Classes* for an approved list of courses. The school implements the ASU continuous enrollment policy for First-Year Composition and the university mathematics (MA) requirement.

MAJOR REQUIREMENTS

The required justice studies component consists of 60 semester hours, of which 15 must be taken in a supplemental focus approved by the school. The following courses are required for all degree candidates. Equivalent courses may be substituted when appropriate.

JUS 105 Introduction to Justice Studies <i>SB</i>	3
or JUS 305 Principles of Justice Studies <i>SB</i> (3)	
JUS 301 Research in Justice Studies <i>SB</i>	3
JUS 302 Basic Statistical Analysis in Justice Studies <i>CS</i>	3
JUS 303 Justice Theory	3
Total	12

Through advising, a group of Justice and Social Inquiry courses may be recommended to ensure a comprehensive exposure appropriate to the student’s interests.

Electives. The faculty encourage students to utilize the unique opportunities afforded by the university to pursue personal and educational interests, whether in the form of a broad sampling of other disciplines or the deeper probing of a single field. Specifically, the faculty suggest that students take a minimum of one course in American government, behavioral psychology, and sociology.

Transfer of Community College Credits. Credits transferred from accredited community colleges are accepted as lower-division credits up to a maximum of 64 semester hours. The acceptance of credits is determined by the director of Undergraduate Admissions, and the utilization of

credits toward degree requirements is determined by the faculty of the School of Justice and Social Inquiry.

GRADUATE PROGRAMS

The faculty in the School of Justice and Social Inquiry offer the following: an MS degree in Justice Studies, a concurrent MS in JSI/MA in Anthropology, and an Interdisciplinary PhD program in Justice Studies. For more information, see the *Graduate Catalog*, or access the Web site at www.asu.edu/clas/justice.

JUSTICE STUDIES (JUS)

M JUS Note 1. For Justice Studies students to take a nonrequired 300-level JUS course, they must have at least a “C” (2.00) in each of the required JUS courses—JUS 105 (or 305), 301, 302, and 303—and a minimum 2.50 GPA for these four classes. For non-Justice Studies students to take a 300-level JUS course, they must have a minimum of 56 earned semester hours (junior standing) and a minimum cumulative 2.00 GPA. Non-Justice Studies students may take JUS 301, 302, and 303 with school approval.

M JUS Note 2. For non-Justice Studies students to take a 400-level JUS course, they must have a minimum of 56 earned semester hours (junior standing) and a minimum cumulative 2.50 GPA. Justice Studies students must earn professional status before taking 400-level JUS resident credit courses. Justice Studies courses at the 300 and 400 level are unavailable to non-Justice Studies students during preregistration.

M JUS 105 Introduction to Justice Studies. (3)
fall, spring, summer

Introductory overview to the study of justice from a social science perspective. Primary topics include justice theories and justice research. Credit is allowed for only JUS 105 or 305. Appropriate for freshmen and sophomores. Lecture, discussion.
General Studies: SB

M JUS 200 Topics in Concepts and Issues of Justice. (3)
once a year

Uses critical thinking skills to analyze and comprehend controversial social issues (e.g., abortion, affirmative action, capital punishment, the flat tax, and immigration). May be repeated for credit when topics vary. Lecture, discussion.
General Studies: SB

M JUS 294 Special Topics. (1–4)

fall, spring, summer
Topics chosen from various fields of justice studies.

M JUS 301 Research in Justice Studies. (3)

fall, spring, summer
Focuses on developing and evaluating research designs, data collection, and the relationship between validity and reliability. Stresses methods for conducting research. Prerequisite: Justice Studies student.
General Studies: SB

M JUS 302 Basic Statistical Analysis in Justice Studies. (3)

fall, spring, summer
Introduces the fundamentals and application of descriptive and inferential statistics, with emphasis on the justice area. Prerequisite: intermediate algebra or higher.
General Studies: CS

M JUS 303 Justice Theory. (3)

fall, spring, summer
Examines classic and contemporary philosophies and theories of justice, including legal, social, and criminal justice. See JUS Note 1.

M JUS 305 Principles of Justice Studies. (3)

fall, spring, summer
Introductory overview to the study of justice from a social science perspective. Primary topics include justice theories and justice research. Credit is allowed for only JUS 305 or 105. Appropriate for juniors and seniors. Lecture, discussion. See JUS Note 1.
General Studies: SB

SCHOOL OF JUSTICE AND SOCIAL INQUIRY

M JUS 306 Police and Society. (3)

once a year

Focuses on community policing; critical inquiry of administrative decision making; perspectives on police-citizen violence; street practices; urban policing. Lecture, discussion. See JUS Note 1.

M JUS 308 Courts and Society. (3)

once a year

History and development of courts. Relationship between dispute resolution mechanisms and cultural/social structure/processes in which they are embedded. Lecture, discussion, cooperative learning, case analysis. See JUS Note 1.

M JUS 310 Corrections and Justice. (3)

once a year

Examines the United States prison condition; types of offenders; issues, including drugs, gangs, drunk driving, racial discrimination, and "intermediate" punishments. Lecture, discussion. See JUS Note 1.

M JUS 311 Crime, Prevention, and Control. (3)

once a year

Examines prevention and control of crime by a review of contemporary theories, justice agency procedures, and social policies. Lecture, discussion. See JUS Note 1.

M JUS 320 Community and Social Justice. (3)

once a year

Discusses and analyzes definitions of community; impact of environment on behavior; promises of community organization for local empowerment. Lecture, discussion. See JUS Note 1.

General Studies: SB, C

M JUS 321 Wealth Distribution and Poverty. (3)

once a year

Examines wealth and income distribution in the United States and analyzes ideological and political forces producing an increasingly unequal society. Lecture, discussion. See JUS Note 1.

General Studies: SB, C

M JUS 329 Domestic Violence. (3)

once a year

Legal, historical, theoretical, and treatment aspects of domestic violence, including child abuse, woman battering, incest, and marital rape. Lecture, discussion. See JUS Note 1.

General Studies: SB

M JUS 335 Organized Crime. (3)

once a year

Nature of organized crime and its illegal activities, theories of containment, and efforts by justice agencies to counter its dominance in society. Lecture, discussion. See JUS Note 1.

M JUS 345 White Collar Crime. (3)

once a year

Basic white collar concepts and categories; causes and effects; mechanisms and contexts of operation; social and criminological responses. Lecture, discussion. See JUS Note 1.

M JUS 350 Immigration and Justice. (3)

fall, spring, summer

Examines immigration policy, history of immigration, refugee issues, labor force participation, gender, family, children, social networks, and transnationalism. Lecture, discussion. See JUS Note 1.

General Studies: SB, C

M JUS 360 Law and Social Control. (3)

once a year

Resolution of social issues through the application of law as an agent of social control. Nature, sanctions, and limits of law. Categories of law and schools of jurisprudence. Lecture, discussion. See JUS Note 1.

General Studies: SB

M JUS 375 Justice and the Mass Media. (3)

once a year

Surveys the impact of mass media and popular culture on social justice, including criminal justice. Lecture, discussion. See JUS Note 1.

General Studies: SB

M JUS 385 Justice and Everyday Life. (3)

once a year

Justice and injustice in everyday life and how small things can become legal issues. Role of language and interaction in social order. Lecture, group work. See JUS Note 1.

General Studies: SB

M JUS 394 Special Topics. (1–3)

once a year

Topics chosen from various fields of justice studies. Lecture, discussion. See JUS Note 1.

M JUS 404 Imperatives of Proof. (3)

once a year

Issues of evidence, rules of proof, establishing fact and identity in the justice system. Lecture, case analysis, cooperative learning, discussion. See JUS Note 2.

General Studies: L

M JUS 405 Economic Justice. (3)

fall and spring

Addresses economic issues and justice implications, including the interplay among economic conditions, race-ethnicity, class, and gender worldwide. Lecture, discussion. See JUS Note 2.

General Studies: L/SB, G

M JUS 410 Punishment: Logic and Approach. (3)

once a year

Analyzes forms of punishment, how and why they have changed. Areas include philosophy, history, and social structure of punishment. Lecture, discussion. See JUS Note 2.

M JUS 415 Gender and International Development. (3)

once a year

Examines the ways in which international development is gendered as well as women's rights as human rights in both national and international arenas. Lecture, seminar. See JUS Note 2.

General Studies: L, G

M JUS 420 Women, Work, and Justice. (3)

once a year

Examines gender inequality in the workplace, including the nature of women's work, theoretical issues, and models for promoting gender justice at work. Lecture, discussion. See JUS Note 2.

General Studies: SB, C

M JUS 422 Women, Law, and Social Control. (3)

once a year

Examines social, economic, and legal factors that are relevant to mechanisms of social control of women, including formal legal control and informal control through violence. See JUS Note 2.

M JUS 425 Race, Gender, and Crime. (3)

once a year

Critically examines major theories, research findings, policies, and controversies concerning race, ethnicity, gender, and crime. Lecture, discussion, cooperative learning. See JUS Note 2.

General Studies: L/SB, C

M JUS 430 Social Protest, Conflict, and Change. (3)

fall, spring, summer

Analyzes historical and contemporary protest movements advocating equality based on race, gender, and sexual orientation. Lecture, discussion. See JUS Note 2.

General Studies: L/SB, C

M JUS 440 Administration and Justice. (3)

once a year

Diversity issues; procedural justice and service delivery; relationships between state and economic forces, including processes of regulation; state administrative apparatuses. Lecture, case analysis, cooperative learning, discussion. See JUS Note 2.

General Studies: L

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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M JUS 444 Environment and Justice. (3)

fall
Explores issues of environment and justice. Topics include justice and environmental racism, future generations, nonhuman life, global/non-Western societies. Lecture, discussion. See JUS Note 2.
General Studies: L, C

M JUS 450 Alternatives to Incarceration. (3)

once a year
Investigates various alternatives to incarceration; advantages/disadvantages; major issues, including net widening, cost effectiveness, risk assessment, community crime prevention. Lecture, research. See JUS Note 2.
General Studies: L

M JUS 460 Feminism and Justice. (3)

once a year
Explores feminist thought and critiques traditional political theories. Examines issues of racism, sexuality, and the law. Lecture, discussion. See JUS Note 2.
General Studies: C

M JUS 463 Discretionary Justice. (3)

once a year
Use/abuse, key issues/manifestations of discretion in legal system and other societal institutions. Theoretical/empirical linkages between discretion and discrimination, based on race, ethnicity, and gender. Lecture, discussion. See JUS Note 2.
General Studies: SB

M JUS 465 Death Penalty in the United States. (3)

fall, spring, summer
Focuses on capital punishment in the United States; explores negotiation of law, politics, morality, public policy, and culture. Lecture, discussion, case study. See JUS Note 2.
General Studies: L

M JUS 469 Political Deviance and the Law. (3)

once a year
Examines the controversies created by political and deviant behavior, including a critical view of law as an agent of social control. Lecture, discussion. See JUS Note 2.
General Studies: L/SB, C

M JUS 470 Alternative Dispute Resolution. (3)

once a year
Critical examination of the tenets of alternative dispute resolution movement; exposure to the programs of ADR, including community and court based. Lecture, cooperative learning, field research. See JUS Note 2.
General Studies: L/SB, C

M JUS 474 Legislation of Morality. (3)

once a year
Addresses historical and contemporary issues related to social justice movements, law, and morality in a pluralistic society. Issues include AIDS, burial rights, homosexuality, poverty, prostitution, and racial discrimination. See JUS Note 2.
General Studies: L/SB, C

M JUS 477 Youth and Justice. (3)

once a year
Critical examination of youth-related justice issues, including economic justice, violence against youth, delinquency, and the juvenile justice system. Lecture, group work, film. See JUS Note 2.
General Studies: L/SB

M JUS 479 Law and Disputing. (3)

fall and spring
Critical analysis of the controversies created by disputes, law, and other forms of social control. Lecture, discussion. See JUS Note 2.
General Studies: L/SB

M JUS 484 Internship. (3-6)

fall, spring, summer
Assignments in a justice-related placement designed to further the integration of theory and practice. Internships are arranged through consultation of students with placements. Students must consult with the school for appropriate application and registration procedures. May be repeated for credit for a total of 12 semester hours, of which a maximum of 6 are applied to the major. Fee. See JUS Note 2.
Prerequisites: major status; Justice Studies student.

M JUS 494 Special Topics. (1-3)

once a year
Topics chosen from various fields of justice studies. Lecture, discussion. See JUS Note 2.

M JUS 498 Pro-Seminar. (1-3)

fall, spring, summer
Small group study and research for advanced students. May be repeated for credit for a total of 9 hours, of which a maximum of 3 are applied to the major. See JUS Note 2. Prerequisites: major status; minimum cumulative 2.75 GPA; minimum GPA in JUS courses of 3.00; instructor approval.

M JUS 499 Individualized Instruction. (1-3)

fall, spring, summer
Original study or investigation in the advanced student's field of interest under the supervision of a faculty member. May be repeated for credit for a total of 6 hours, all applicable to the major. Readings, conferences, tutorials. Prerequisites: major status; minimum cumulative 2.75 GPA; minimum GPA in JUS courses of 3.00; instructor approval.

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

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

Department of Kinesiology

www.asu.edu/clas/kines
480/965-3875
PEBW 218

Lawrence Mandarin, Chair

Regents' Professor: Daniel Landers

Professors: Mandarin, Matt, Stelmach

Associate Professors: Hinrichs, Ringenbach, Santello, Willis

Assistant Professors: Dounskaia, Kulinna

Senior Lecturer: Donna Landers

Lecturers: Broman, Cataldo, Fay, Heinrichs

KINESIOLOGY—BS

The BS degree in Kinesiology consists of 38 semester hours, including 14 semester hours of required KIN core courses (KIN 110 may be repeated for credit). The remaining 24 semester hours of KIN and other courses are prescribed by the specific emphasis the student selects.

Each KIN core course has specific prerequisite courses that must be taken before taking the respective core course. These prerequisite courses include the following:

BIO 201 Human Anatomy and Physiology I <i>SG</i>	4
BIO 202 Human Anatomy and Physiology II	4
CHM 101 Introductory Chemistry <i>SQ</i>	4
MAT 210 Brief Calculus <i>MA</i>	3
or MAT 251 Calculus for Life Sciences <i>MA</i> (3)	

DEPARTMENT OF KINESIOLOGY

or a higher level mathematics course

PGS 101 Introduction to Psychology <i>SB</i>	3
PHY 111 General Physics <i>SQ*</i>	3
Total	21

* Both PHY 111 and 113 must be taken to secure SQ credit.

The required KIN core courses are as follows:

KIN 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
Total	14

All prerequisite and KIN courses must be completed with a minimum grade of "C" (2.00). The requirements for the specific emphases are described below.

Majors must elect either the kinesiology or human physiology emphasis.

Emphases

Each emphasis requires 24 semester hours.

Kinesiology Emphasis. For the student interested in more applied aspects of exercise and sport performance, e.g., strength and conditioning, sports medicine, sport skill acquisition, exercise physiology, biomechanical techniques in exercise and sport, and sport psychology. This emphasis consists of 24 semester hours, 15 semester hours of which must be upper-division courses. Part A and B as listed below must be completed.

Part A

Choose from among the courses below*

KIN 100 Introduction to Health and Wellness <i>SB</i> (3)	
KIN 110 Research Analysis Laboratory (1-2)	
KIN 191 First-Year Seminar (1-3)	
KIN 283 Prevention and Care of Athletic Injuries (3)	
KIN 294 ST: Research Methods I (3)	
KIN 334 Functional Anatomy and Kinesiology (3)	
KIN 348 Psychological Skills for Optimal Performance <i>SB</i> (3)	
KIN 370 Advanced First Aid (3)	

* Students may also take KIN upper-division courses from the human physiology emphasis that are exclusive to that emphasis.

Part B

Choose from among the courses below*

KIN 412 Biomechanics of the Skeletal System (3)	
KIN 413 Qualitative Analysis in Sport Biomechanics (3)	
KIN 441 Physiology of Women in Sport <i>L</i> (3)	
KIN 442 Fuel Metabolism (3)	
KIN 444 Metabolic Adaptations to Exercise Training (3)	
KIN 445 Exercise Physiology for Children and Adolescents (3)	
KIN 448 Applied Sport Psychology <i>L</i> (3)	
KIN 450 Biopsychosocial Perspectives on Physical Activity and Health (3)	
KIN 460 Theory of Strength Training <i>L</i> (3)	
KIN 484 Internship (1)	
KIN 485 Advanced Techniques of Athletic Training (3)	
KIN 492 Honors Directed Study: Research (1-6)	
KIN 493 Honors Thesis (1-6)	
KIN 494 ST: Environmental Exercise Physiology (3)	
KIN 494 ST: Interpretation of Exercise Electrocardiogram (3)	

KIN 494 ST: Interpretation of Exercise Performance (3)	
KIN 498 Pro-Seminar: Kinesiology and the Future (1)	
KIN 499 Individualized Instruction (1-3)	

* Other KIN courses may be substituted with advisor approval.

Human Physiology Emphasis. For the student interested in prehealth professions and those interested in biomechanical, physiological, motor control, and/or psychological mechanisms underlying human movement performance.

Students interested in pursuing postbaccalaureate training in one of several possible professions in the health care industry (e.g., physical therapy, recreational therapy, occupational therapy, physician's assistant, medicine, dentistry, podiatry, or chiropractic) will have additional course work in the sciences to complete (see department for list). This emphasis consists of 24 semester hours, 15 semester hours of which must be upper-division courses. Part A and B as listed below must be completed.

Part A

Choose from among the courses below*

BCH 361 Principles of Biochemistry (3)	
BIO 340 General Genetics (4)	
BIO 353 Cell Biology (3)	
BIO 360 Animal Physiology (3)	
CHM 231 Elementary Organic Chemistry <i>SQ</i> (3) or CHM 233 General Organic Chemistry I (3)	
KIN 110 Research Analysis Laboratory (3)	
KIN 191 First-Year Seminar (1-3)	
KIN 334 Functional Anatomy and Kinesiology (3)	
KIN 370 Advanced First Aid (3)	
MBB 245 Cellular and Molecular Biology <i>SQ</i> (4)	

* Students may also take other upper-division courses from: BCH, BIO, BME, CHM, HPS, MBB, PGS, PHY, or PSY.

Part B

Choose from among the courses below*

KIN 412 Biomechanics of the Skeletal System (3)	
KIN 414 Electromyographic Kinesiology <i>L</i> (3)	
KIN 421 Human Motor Control <i>L</i> (3)	
KIN 422 Motor Control in Special Populations <i>L</i> (3)	
KIN 423 Motor Control and Aging <i>L</i> (3)	
KIN 440 Exercise Biochemistry (3)	
KIN 442 Fuel Metabolism (3)	
KIN 443 Exercise Endocrinology <i>L</i> (3)	
KIN 445 Exercise Physiology for Children and Adolescents (3)	
KIN 450 Biopsychosocial Perspectives on Physical Activity and Health (3)	
KIN 452 Exercise Psychology <i>SB</i> (3)	
KIN 484 Internship (1-9)	
KIN 492 Honors Directed Study: Research (1-9)	
KIN 493 Honors Thesis (1-9)	
KIN 494 ST: Interpretation of Exercise Electrocardiogram (3)	
KIN 494 ST: Muscle Physiology (3)	
KIN 494 ST: Neurophysiological Bases of Movement (3)	
KIN 494 ST: Research Methods (3)	
KIN 494 ST: Voluntary and Reflex Control of Movement (3)	
KIN 498 Pro-Seminar: Kinesiology and the Future (1)	

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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KIN 499 Individualized Instruction (1–9)

* Other KIN courses may be substituted with advisor approval.

MINOR IN KINESIOLOGY

The minor in Kinesiology consists of the core sequence as follows, plus all prerequisite courses:

KIN 110 Research Analysis Laboratory	1
KIN 200 Introduction to Kinesiology	2
Choose from among the courses below	9
KIN 335 Biomechanics (3)	
KIN 340 Physiology of Exercise (3)	
KIN 345 Motor and Developmental Learning (3)	
KIN 352 Psychosocial Aspects of Physical Activity <i>SB, C</i> (3)	
KIN upper-division electives*	9
Total	21

* Excluding KIN 305, 310, 484, 492, 493, 498, and 499.

BIS CONCENTRATION

A concentration in kinesiology is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see "School of Interdisciplinary Studies," page 139.

GRADUATE PROGRAMS

The faculty in the Department of Kinesiology offer a program leading to the MS degree in Kinesiology. The department also participates with the Division of Graduate Studies in the program leading to the PhD degree in Exercise Science. See the *Graduate Catalog* for requirements.

HEALTH SCIENCE (HES)

For more HES courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M HES 100 Introduction to Health and Wellness. (3)

fall and spring

Current concepts in health, exercise, and wellness. Emphasis placed on personal health, theories, attitudes, beliefs, and behaviors. Cross-listed as EXW 100/KIN 100. Credit is allowed for only EXW 100 or HES 100 or KIN 100.

General Studies: SB

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

KINESIOLOGY (KIN)

M KIN Note 1. A \$5.00 towel and locker fee is required each semester by students using towel and locker facilities for physical education classes and intramural activities.

M KIN Note 2. Physical education activity classes (KIN 105, 205, 305, 310) may not be taken for audit. Excessive absences and/or tardiness are considered disruptive behavior.

M KIN 100 Introduction to Health and Wellness. (3)

fall and spring

Current concepts in health, exercise, and wellness. Emphasis placed on personal health, theories, attitudes, beliefs, and behaviors. Cross-listed as EXW 100/HES 100. Credit is allowed only for EXW 100 or HES 100 or KIN 100.

General Studies: SB

M KIN 105 Physical Education Activity. (1)

fall, spring, summer

Beginning instruction in a wide variety of sports such as aerobics, aquatics, racquet sports, physical conditioning, and golf. 3 hours per week. "Y" grade only. May be repeated for credit. See KIN Notes 1, 2.

- Aerobics
Fee.
- Archery
Fee.
- Fencing
Fee.
- Golf
Fee.
- Rock Climbing
Fee.

M KIN 110 Research Analysis Laboratory. (1–2)

fall, spring, summer

Introduces basic research areas in the discipline of kinesiology. Topics may include the following: developmental learning, exercise physiology, exercise psychology, exercise testing, metabolic physiology, motor control, motor learning, research journals and societies, research methods, research writing. May be repeated for credit. Fee. See KIN Note 1. Prerequisite: Kinesiology major.

M KIN 191 First-Year Seminar. (1–3)

fall and spring

M KIN 200 Introduction to Kinesiology. (2)

fall, spring, summer

Introduces the disciplines and professions associated with kinesiology, including an overview of historical and philosophical foundations.

M KIN 205 Physical Education Activity. (1)

fall, spring, summer

Intermediate levels. Continuation of KIN 105. 3 hours per week. May be repeated for credit. See KIN Notes 1, 2.

- Aerobics
Fee.
- Archery
Fee.
- Golf
Fee.
- Rock Climbing
Fee.

M KIN 283 Prevention and Care of Athletic Injuries. (3)

selected semesters

Taping, injury recognition, emergency care, and observation procedures in athletic training. Prerequisites: BIO 201, 202.

M KIN 290 Sports Officiating. (3)

selected semesters

Rules and mechanics of officiating used in football, basketball, and volleyball.

M KIN 292 Sports Officiating. (3)

selected semesters

Rules and mechanics of officiating used in softball (slow and fast pitch), baseball, and track and field.

M KIN 305 Physical Education Activity. (1)

fall, spring, summer

Advanced levels. Continuation of KIN 205. 3 hours per week. May be repeated for credit. See KIN Notes 1, 2.

- Golf
Fee.

Prerequisite: instructor approval.

M KIN 310 Collegiate Sports. (1)

fall and spring

Participation in men's or women's intercollegiate competition. May be repeated for 4 hours, 1 per year. "Y/E" grade.

M KIN 334 Functional Anatomy and Kinesiology. (3)

spring

Muscles, bones, joints, and nerves and how they produce movement. Emphasizes muscle origins, insertions, actions, and innervations. Lecture, lab. Prerequisite: BIO 201.

M KIN 335 Biomechanics. (3)

fall, spring, summer

Basic anatomical and mechanical principles applied to human movement. Emphasizes kinematic and kinetic concepts. Lecture, recitation, lab. Fee. Prerequisites with a grade of "C" or higher: BIO 201, 202; MAT 210 (or higher); PHY 111.

M KIN 340 Physiology of Exercise. (3)

fall, spring, summer

Physiological mechanisms of acute responses and chronic adaptations to exercise. Lecture, recitation, lab. Fee. Prerequisites: BIO 201, 202; CHM 101.

M KIN 345 Motor and Developmental Learning. (3)

fall, spring, summer

Principles of motor skill acquisition across the life span, focusing on the learner and the learning environment. Lecture, recitation, lab. Fee. Prerequisites: BIO 201; PGS 101.

M KIN 348 Psychological Skills for Optimal Performance. (3)

fall and spring

Applies psychological techniques and their use to improve effectiveness and performance in sport and related areas. *General Studies: SB*

M KIN 352 Psychosocial Aspects of Physical Activity. (3)

fall, spring, summer

Interrelationships between physical activity and psychosocial variables, including socialization, cultural values, aggression, and motivation. Includes the psychological benefits of physical activity and exercise adherence. Lecture, recitation. Prerequisite: PGS 101. *General Studies: SB, C*

M KIN 370 Advanced First Aid. (3)

selected semesters

Assessment, management, treatment of wounds, injuries, shock, poisoning, burns, sudden illness, emergency rescue, and cardiopulmonary resuscitation. Lecture, lab. Fee.

M KIN 412 Biomechanics of the Skeletal System. (3)

selected semesters

Biomechanics of tissues, structures, and major joints of the musculoskeletal system. Discussion of injury mechanisms. Lecture, discussion, some labs. Prerequisite: KIN 335 or instructor approval.

M KIN 413 Qualitative Analysis in Sport Biomechanics. (3)

selected semesters

Develops systematic approach for detecting and correcting errors in human performance using anatomical and mechanical principles. Lecture, lab. Prerequisite: KIN 335.

M KIN 414 Electromyographic Kinesiology. (3)

selected semesters

Muscular contributions to human movement, muscle mechanics, electrophysiological basis, and practical application of electromyography. Lecture, discussion. Fee. Prerequisites: KIN 335, 340; instructor approval. *General Studies: L*

M KIN 421 Human Motor Control. (3)

selected semesters

Focuses on understanding how the human central nervous system controls, regulates, and learns movements. Prerequisite: KIN 345 or instructor approval. *General Studies: L*

M KIN 422 Motor Control in Special Populations. (3)

selected semesters

Discusses principles of motor control theories and related practical applications for certain special developmental populations. Lecture, discussion. Cross-listed as PSY 422. Credit is allowed for only KIN 422 or PSY 422. Prerequisite: KIN 345. *General Studies: L*

M KIN 423 Motor Control and Aging. (3)

selected semesters

Functional and behavioral changes to the motor control system as humans age, how specifically it impacts motor control and learning. Prerequisite: KIN 345 or instructor approval. *General Studies: L*

M KIN 440 Exercise Biochemistry. (3)

selected semesters

Study of bioenergetics and metabolism of cellular (skeletal muscle, heart, and liver) organelles and proteins during exercise. Prerequisite: KIN 340.

M KIN 441 Physiology of Women in Sport. (3)

selected semesters

Physiological aspects of women engaging in physical activity. Emphasizes factors affecting performance and health throughout life. Prerequisite: KIN 340. *General Studies: L*

M KIN 442 Fuel Metabolism. (3)

selected semesters

Discusses current research concerning the metabolism of carbohydrate, fat, and protein during exercise. Credit is allowed for only KIN 442 or 536. Prerequisite: KIN 340 or instructor approval.

M KIN 443 Exercise Endocrinology. (3)

selected semesters

Discusses current research and theory concerning hormonal changes during exercise. Lecture, discussion. Prerequisite: KIN 340 or instructor approval. *General Studies: L*

M KIN 444 Metabolic Adaptations to Exercise Training. (3)

selected semesters

Examines physiologic adaptations to exercise training as they relate to metabolism and tissue functions. Prerequisite: KIN 340.

M KIN 445 Exercise Physiology for Children and Adolescents. (3)

selected semesters

Understanding the influence of physical growth and maturation on the development of the functional capacities of the exercising child. Credit is allowed for only KIN 445 or 535. Lecture, discussion. Prerequisite: KIN 340 or 530 or instructor approval.

M KIN 448 Applied Sport Psychology. (3)

selected semesters

Psychological theories and techniques applied to a sport to enhance the performance and personal growth of athletes and coaches. Lecture, discussion. Prerequisite: KIN 352 (or its equivalent). *General Studies: L*

M KIN 450 Biopsychosocial Perspectives on Physical Activity and Health. (3)

selected semesters

Uses a biopsychosocial perspective to examine the interrelationships on physical activity and health (physical and mental). Prerequisite: KIN 352.

M KIN 452 Exercise Psychology. (3)

selected semesters

Contemporary research and theory as related to human behavior and health in an exercise setting. Prerequisite: KIN 352. *General Studies: SB*

M KIN 460 Theory of Strength Training. (3)

selected semesters

Research and theories on developing muscular strength; programs for developing muscular strength. Lecture, discussion. Prerequisites: KIN 335, 340. *General Studies: L*

M KIN 484 Internship. (1-12)

selected semesters

M KIN 485 Advanced Techniques of Athletic Training. (3)

selected semesters

Advanced course in athletic training designed for students seeking NATA certification. Emphasizes therapeutic modalities and

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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rehabilitation procedures. Prerequisites: KIN 283, 370; CPR certification.

M KIN 492 Honors Directed Study: Research. (1–6)
selected semesters

M KIN 493 Honors Thesis. (1–6)
selected semesters

M KIN 494 Special Topics. (1–4)
selected semesters

Topics may include the following:

- Administration of Athletics. (3)
- Environmental Exercise Physiology. (3)
- Interpretation of Exercise Performance. (3)
- Motivation in Exercise and Sport. (3)
- Muscle Physiology. (3)
- Physiological Bases for Exercise and Sport. (3)
- Research and Teaching in Physical Education. (3)
- Research Methods. (3)
- Sport and Social Issues. (3)
- Voluntary and Reflex Control of Movement. (3)

M KIN 498 Pro-Seminar. (1–7)
selected semesters

Topics may include the following:

- Kinesiology and the Future. (1)

M KIN 499 Individualized Instruction. (1–3)
selected semesters

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

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

**Department of Languages
and Literatures**

www.asu.edu/clas/dll
480/965-6281
LL 440

Robert Joe Cutter, Chair

Regents' Professors: Foster, Keller

Professors: Alexander, Baldini, Chambers, Croft, Cutter, Carlos Garcia-Fernández, Horwath, B. Lafford, Losse, M. Sanchez, Sipka, Sorensen, Volek, West, Wetsel, T. Wong

Associate Professors: Acereda, Candela, Canovas, Choi, Colina, Carmen Garcia-Fernández, Hernández-G., Orlich, Ossipov, Reiman, A. Sanchez, Suwarno, Tompkins, Urioste-Azcorra, Vitullo

Assistant Professors: Ali, Cashman, Cruse, Duncan, George, Gilfillan, Ginsburg, Gruzinska, Haberman, McElroy, Newhard, Owen, Siegel-Valdes

Senior Lecturers: Foard, Hendrickson

Lecturers: Deal, Devitt, Lage, Le, Mango, Martinez, Melucci, Oh, Pang, Petersen, Poudrier, Shimomura, Siriprakob, Stiftel, Walton-Ramirez, E. Wong, Zhang

Associate Research Professional: P. Lafford

Assistant Director Academic Services: Glessner-Calkins

Distinguished Scholars: Martinez Assad, Sefchovich

BACHELOR OF ARTS DEGREE

The faculty in the Department of Languages and Literatures offer majors in Asian Languages (Chinese/Japanese), French, German, Italian, Russian, and Spanish. Each major consists of 45 semester hours, of which 30 must be in one language and 15 in a second language or in closely related fields to be approved by the advisor in consultation with the student. Of the 30 hours required for the major, a minimum of 24 hours must be taken at the 300 or 400 level and must include at least nine hours at the 400 level. For French and Spanish, all courses counting for the major must be taken at the upper-division (300 and 400) level. Specific required courses for each major area are shown in this section and in a brochure available in the department. See "College Graduation Requirements," page 503. Consult the Languages and Literatures Web site at asu.edu/languages for assessment requirements.

MAJORS

Asian Languages (Chinese/Japanese)—BA

Students majoring in Asian Languages (Chinese/Japanese) may select a course of study that focuses on either language. The major requires 45 semester hours.

Chinese. At least nine semester hours must be at the 400 level. In addition to the courses shown below, the student must meet with an advisor and choose at least 15 semester hours of courses. Choices include six semester hours of JPN prefix courses such as Japanese language and calligraphy, Japanese Literature in Translation (FLA 421), KOR prefix courses such as Korean language and/or Korean culture, three semester hours of approved course work that provides an overview of Chinese history, or six semester hours from appropriate courses in art, humanities, social and behavioral sciences, and business.

Recommended

Two 200-level CHI courses..... 6

Required

CHI 313 Third-Year Chinese I <i>G</i>	3
CHI 314 Third-Year Chinese II <i>G</i>	3
CHI 321 Chinese Literature <i>HU</i>	3
CHI 322 Chinese Literature <i>HU, G</i>	3
or FLA 420 Foreign Literature in Translation <i>HU, G</i> (3)	
CHI 413 Introduction to Classical Chinese <i>HU</i>	3
CHI 414 Introduction to Classical Chinese <i>HU</i>	3
Total.....	18

Electives

Choose six semester hours from the courses below.....	6
CHI 309 Chinese Conversation (2)	
CHI 310 Chinese Conversation (2)	
CHI 311 Chinese Conversation (2)	
CHI 312 Chinese Conversation (2)	
CHI 494 Special Topics (1–4)	

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CHI 499 Individualized Instruction (1-3)	6
Total	6

Japanese. At least nine semester hours must be taken from FLA 421, and JPN 321 and 414. No more than eight semester hours may be selected from JPN 309, 310, 311, and 312.

Recommended

Two 200-level JPN courses	6
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Required

FLA 421 Japanese Literature in Translation <i>L/HU, G</i>	3
JPN 313 Third-Year Japanese I <i>G</i>	3
JPN 314 Third-Year Japanese II <i>G</i>	3
JPN 321 Japanese Literature <i>L/HU, G</i>	3
JPN 414 Introduction to Classical Japanese	3
Total	15

Electives

Choose nine semester hours from the courses below

JPN 309 Intermediate Japanese Conversation (2)	2
JPN 310 Intermediate Japanese Conversation (2)	2
JPN 311 Japanese Conversation and Composition <i>G</i> (3)	3
JPN 312 Japanese Conversation and Composition <i>G</i> (3)	3
JPN 321 Japanese Literature <i>L/HU, G</i> (3)	3
JPN 394 Special Topics (1-4)	1-4
JPN 435 Advanced Readings (3)	3
JPN 485 Problems of Translation (3)	3
JPN 494 Special Topics (1-4)	1-4
JPN 499 Individualized Instruction (1-3)	1-3
Total	9

In addition to these courses, the student must meet with an advisor and choose at least 15 semester hours of courses, including six semester hours of CHI prefix courses such as Chinese language and calligraphy, Chinese literature in translation (CHI 321 and 322 and FLA 420) or KOR prefix courses such as Korean language and/or Korean culture. At least three semester hours must be in an approved course that provides an overview of Japanese history. The remaining six hours may consist of appropriate courses in art, humanities, literature, public programs, social and behavioral sciences, business, etc.

French—BA

Required

FRE 311 French Conversation <i>G</i>	3
FRE 312 French Composition <i>G</i>	3
FRE 321 French Literature <i>L/HU, H</i>	3
FRE 322 French Literature <i>L/HU</i>	3
Total	12

Select 18 semester hours from the following list, including at least 12 semester hours from the 400 level:

FRE 315 French Phonetics	3
FRE 319 Business French <i>G</i>	3
FRE 325 Introduction to French Film	3
FRE 394 Special Topics	1-3
FRE 411 Advanced Spoken French <i>G</i>	3
FRE 412 Advanced Written French <i>G</i>	3
FRE 415 French Civilization I <i>HU</i>	3
FRE 416 French Civilization II <i>HU, G</i>	3
FRE 421 Structure of French	3
FRE 422 Applied French Linguistics	3
FRE 423 French Syntax	3

FRE 432 Gay Identities in Modern French Literature	3
FRE 441 French Literature of the 17th Century <i>HU</i>	3
FRE 442 French Literature of the 17th Century <i>HU, H</i>	3
FRE 445 French Literature of the 18th Century <i>L/HU</i>	3
FRE 451 French Poetry of the 19th Century	3
FRE 452 French Novel of the 19th Century <i>HU</i>	3
FRE 453 Theater of the 19th Century <i>L/HU</i>	3
FRE 461 Modern Narrative <i>HU</i>	3
FRE 462 Modern Poetry <i>HU</i>	3
FRE 471 The Literature of Francophone Africa and the Caribbean <i>L/HU</i>	3
FRE 472 Franco-Canadian Civilization	3
FRE 480 Translation Theory and Practice	3
FRE 485 Literary Translation	3
FRE 494 Special Topics	1-4
FRE 499 Individualized Instruction	1-3

In addition to the courses, the student must meet with an advisor and choose at least 15 semester hours of related courses from appropriate social and behavioral sciences, humanities, business courses, and other language courses.

German—BA

Required

Two 200-level GER courses	6
GER 311 German Conversation <i>G</i>	3
or GER 312 German Conversation <i>G</i> (3)	
GER 313 German Composition <i>G</i>	3
GER 411 Advanced Grammar and Conversation <i>G</i>	3
GER 412 Advanced Grammar and Composition <i>G</i>	3
GER 421 German Literature <i>HU</i>	3
GER 422 German Literature <i>L/HU</i>	3
Choose six semester hours from the courses below	6
GER 319 Business Correspondence and Communication <i>G</i> (3)	3
GER 394 Special Topics (1-4)	1-4
GER 415 German Civilization <i>HU, G, H</i> (3)	3
GER 416 German Civilization <i>HU, G, H</i> (3)	3
GER 494 Special Topics (1-4)	1-4
Total	30

In addition to these courses, the student must meet with an advisor and choose at least 15 semester hours of related courses from appropriate social and behavioral sciences, humanities, business courses, and other language courses.

Italian—BA

Required

Two 200-level ITA courses	6
ITA 311 Italian Composition and Conversation <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:

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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ITA 314	Advanced Italian <i>G</i>	3
ITA 315	Italian for Business	3
ITA 394	Special Topics	1-4
ITA 415	Italian Civilization <i>HU, G</i>	3
ITA 420	Italian Cinema	3
ITA 425	Italian American Culture <i>L</i>	3
ITA 430	Italian Literature of the Middle Ages <i>HU</i>	3
ITA 441	Dante: <i>Divina Commedia L/HU</i>	3
ITA 443	Italian Literature of the Renaissance <i>HU, H</i>	3
ITA 446	Italian Literature of the 18th and 19th Centuries <i>HU</i> ...	3
ITA 449	20th-Century Italian Literature <i>HU, G</i>	3
ITA 494	Special Topics	1-4
ITA 499	Individualized Instruction	1-3

In addition to the courses shown above, the student must meet with an advisor and choose at least 15 semester hours of related courses from appropriate social and behavioral sciences, humanities, business courses, and other language courses.

Russian—BA

Required

RUS 211	Basic Russian Conversation <i>G</i>	3
RUS 212	Basic Russian Conversation <i>G</i>	3
RUS 311	Russian Composition and Conversation <i>G</i>	3
RUS 312	Russian Composition and Conversation <i>G</i>	3
RUS 411	Advanced Composition and Conversation I <i>G</i>	3
	or RUS 412 Advanced Composition and Conversation II <i>G</i> (3)	
RUS 498	PS: Senior Seminar*	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 <i>SB</i>	3

In addition to the 30 semester hours of course work required for the major, students majoring in Russian must take 15 additional semester hours from a list of approved courses in related fields, at least six semester hours of which must be taken at the upper-division level. Related fields courses should be chosen in consultation with an advisor. Russian majors are encouraged to take related Slavic/East European language courses in the annual summer Critical Languages Institute (CLI). CLI courses may be applied toward the related field requirements.

Spanish—BA

Required

SPA 313	Spanish Conversation and Composition <i>G</i>	3
	or SPA 315 Spanish Conversation and Composition for Bilinguals (3)	
SPA 314	Spanish Conversation and Composition <i>G</i>	3
	or SPA 316 Spanish Conversation and Composition for Bilinguals (3)	
SPA 325	Introduction to Hispanic Literature <i>HU</i>	3
SPA 412	Advanced Conversation and Composition <i>G</i>	3
SPA 425	Spanish Literature <i>HU</i>	3
Choose two courses below	6
	SPA 426 Spanish Literature <i>HU</i> (3)	
	SPA 427 Spanish American Literature <i>L</i> (3)	
	SPA 428 Spanish American Literature <i>L, G</i> (3)	
Choose one course below	3
	SPA 471 Civilization of the Spanish Southwest <i>HU</i> (3)	
	SPA 472 Spanish American Civilization <i>HU, G, H</i> (3)	
	SPA 473 Spanish Civilization <i>HU/SB, G</i> (3)	
Total	24

Electives

Two upper-division (300-400-level) SPA courses	6
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Related Fields

POR 101	Elementary Portuguese	5
POR 201	Intermediate Portuguese <i>G</i>	5

In addition to these courses, the student must meet with an advisor and choose at least six semester hours of courses from appropriate social and behavioral sciences, humanities, business, and other romance language courses.

SPA 311 and 312 are not counted toward the major or minor in Spanish.

MINORS

Each minor in Asian Languages (Chinese/Japanese), German, Italian, and Russian consists of 18 semester hours, of which 12 semester hours must be in the upper division. The Spanish and French minors require 18 upper-division semester hours. In addition, specific required courses for each area follow and are in a brochure in the department. Course substitutions are allowed for heritage and advanced speakers of the language.

Chinese

Required

Two CHI 200-level courses	6
CHI 313	Third-Year Chinese I <i>G</i>	3
CHI 314	Third-Year Chinese II <i>G</i>	3

Consult with the departmental advisor for an additional six hours of Chinese course credit.

DEPARTMENT OF LANGUAGES AND LITERATURES

French

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
or FRE 322 French Literature <i>L/HU</i> (3)	

Nine hours of upper-division French courses with at least three hours from the 400 level are also required.

German

Required

Two GER 200-level courses	6
GER 311 German Conversation <i>G</i>	3
or GER 312 German Conversation <i>G</i> (3)	
GER 313 German Composition <i>G</i>	3
One 400-level GER course	3
Upper-division GER course	3

Italian

Required

ITA 201 Intermediate Italian <i>G</i>	3
ITA 202 Intermediate Italian <i>G</i>	3
ITA 311 Italian Composition and Conversation <i>G</i>	3
or ITA 312 Italian Composition and Conversation <i>G</i> (3)	
or ITA 315 Italian for Business (3)	
ITA 325 Introduction to Italian Literature <i>HU</i>	3
One 300 or 400-level ITA course	3
One 400-level ITA course	3

Japanese

Required

Two 200-level JPN courses	6
JPN 313 Third-Year Japanese I <i>G</i>	3
JPN 314 Third-Year Japanese II <i>G</i>	3

Consult with the departmental advisor for an additional six semester hours of 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 509.

Asian Studies Certificate. Foreign language students majoring in Asian Languages (Chinese/Japanese) may elect to pursue an Asian Studies Certificate combining courses from the major with selected outside courses of predominantly Asian content.

Classical Studies. Any undergraduate major can earn a certificate in classical studies.

Latin American Studies Certificate. Foreign language students majoring in Spanish may elect to pursue a Latin American Studies Certificate combining courses from the major with selected outside courses of wholly Latin American content.

Russian and East European Studies Certificate. Any undergraduate major can earn a Russian and East European Studies Certificate by successfully completing one of the options mentioned in the section on "Russian and East European Studies," page 513.

Scandinavian Studies Certificate. Any undergraduate major can earn a Scandinavian Studies Certificate.

Southeast Asian Studies Certificate. To earn a Southeast Asian Studies Certificate, a student must complete a minimum of 40 semester hours of course work related to Southeast Asia, including two years (20 semester hours) of a Southeast Asian language.

Translation Certificate (Spanish/English). The Translation Certificate program is designed to provide the advanced training required for professional translation in both public and private sectors, preparation for the rigorous examinations required by national and international agencies, and training as an ancillary skill for professional fields, such as international business, public health and medicine, and law, in accordance with guidelines recommended by the American Translators' Association. The certificate is a nondegree program consisting of 15 semester hours of course work and two hours of in-service practicum primarily into the receptor language of English from the source language of Spanish. It may be taken simultaneously with course work leading to an undergraduate degree, as a related area sequence, or as the sole program of study for members of the community who meet the admission requirements of the certificate program and are enrolled in the university. A complete brochure is available at the Department of Languages and Literatures in LL 440.

L literacy and critical inquiry / *MA* mathematics / *CS* computer/statistics/quantitative applications / *HU* humanities and fine arts / *SB* social and behavioral sciences / *SG* natural science—general core courses / *SQ* natural science—quantitative / *C* cultural diversity in the United States / *G* global / *H* historical / See "General Studies," page 93.

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Admission Requirements. Since entrance to professional translation is through work, cultural experience, and examination, the entrance requirements to this certificate program are (1) a written proficiency examination in the source and the receptor languages at the level of completion of an advanced composition course in Spanish (SPA 412) and English (ENG 301), and (2) an academic year at a university in both a Spanish-speaking country and an English-speaking country, extensive work experience using Spanish and English, or demonstrated bilingual writing competence in English and Spanish.

Certificate Requirements. The certificate program consists of the following requirements:

Prerequisites

FLA 400 Linguistics SB	3
or SPA 400 Introduction to Spanish Linguistics (3) or equivalent	

Required

FLA 401 Translation Theory and Practice	3
SPA 412 Advanced Conversation and Composition G	3

In-Service Practicum

FLA 484 Internship	2
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Also required are nine hours of applied translation electives in specialized areas chosen from the following courses:

FLA 481 Technical and Scientific Translation	3
FLA 482 Business and Financial Translation	3
FLA 483 Medical and Legal Translation	3
FLA 485 Problems of Literary Translation	3

BIS CONCENTRATIONS

Students seeking to focus on a language as one of their concentration areas for the Bachelor of Interdisciplinary Studies degree may choose from Chinese, French, German, Italian, Japanese, Russian, Spanish, and translation (Spanish/English). They may also choose from any of the approved certificate programs. The requirements for the Bachelor of Interdisciplinary Studies (BIS) concentrations are the same as for the minor in that language. See "Minors," page 582, for specific course requirements. For more information, see "School of Interdisciplinary Studies," page 139.

SECONDARY EDUCATION—BAE

This degree is offered through the Initial Teacher Certification (ITC) program in the College of Education. Students pursuing a major in Secondary Education (French, German, Japanese or Spanish) have an advisor in the College of Education and an advisor within the Department of Languages and Literatures.

See "College of Education," page 349, for information on admission eligibility requirements, admission deadlines, field experiences, and student teaching.

In addition to the College of Education requirements, students must also meet the following before applying to the ITC program:

1. attain a GPA of 3.00 or higher in required specialization courses;

2. submit two one-page writing samples (one in English, one in the target language);
3. interview with the language liaison in the target language; and
4. complete courses in French, German, Japanese, or Spanish target area as listed below.

French. FRE 311, FRE 312, and an additional upper-division FRE course; or for native speakers a minimum of six hours appropriate upper-division French course work.

German. GER 201, GER 202, and one additional upper-division GER course; or for native speakers a minimum of six hours appropriate upper-division German course work.

Japanese. JPN 201, 202, and JPN 313; or for native speakers a minimum of six hours appropriate upper-division Japanese course work (JPN 321, JPN 400-level courses).

Spanish. SPA 313 and 314 or SPA 315 and 316; or for native speakers a minimum of six hours appropriate upper-division Spanish course work (SPA 325, SPA 412, or other SPA 400-level courses).

For more information, or to schedule an appointment with an advisor, call the Office of Student Services in the College of Education at 480/965-5555.

French, German, Japanese, and Spanish. Each of the major teaching fields in French, German, Japanese, and Spanish consists of 45 semester hours, of which 30 must be in one language and 15 in a second language or in closely related fields to be approved by the department advisor in consultation with the student. Of the 30 hours required for the academic specialization, a minimum of 24 hours must be taken at the 300 or 400 level and must include at least nine hours at the 400 level. Specific required courses for each major area are listed in curriculum check sheets of the individual language areas available in the department or in the College of Education. FLA 479 Introduction to Teaching Foreign Languages and FLA 480 Methods of Teaching Foreign Languages are required courses.

GRADUATE PROGRAMS

The faculty in the Department of Languages and Literatures offer programs leading to the MA degree in French, German, and Spanish and the PhD degree in Spanish. See the *Graduate Catalog* for requirements.

FOREIGN LANGUAGE REQUIREMENT

All BA degrees in the College of Liberal Arts and Sciences require knowledge of one foreign language equivalent to the completion of two years of study at the college level. This normally includes a sequence of courses numbered 101 and 102 and 201 and 202 or 107 and 207. However, important exceptions exist in Greek, Latin, Portuguese, and Romanian.

Greek. To satisfy the foreign language requirement, students must take GRK 301 and 302.

Latin. Students must take LAT 201 before entering LAT 202 or must have completed at least three years of high school Latin before entering LAT 202 to satisfy the College of Liberal Arts and Sciences foreign language requirement.

Portuguese. To satisfy the foreign language requirement, students must take POR 314 or a higher numbered POR course.

Romanian. To satisfy the foreign language requirement, students must complete ROM 314.

FOREIGN LANGUAGE PLACEMENT

Students who transfer from other postsecondary institutions with foreign language credits below the 202 level are placed in a course at the level directly above the work completed.

Students who have completed their secondary education at a school in which the language of instruction was not English are considered to have satisfied the foreign language requirement. Certification of this status is made at the time of admission to ASU. Questions should be addressed to the International Admissions program within Undergraduate Admissions. For more information, call 480/965-2688, or visit the Web site at www.asu.edu/admissions.

The foreign language requirement can be met in languages not taught at ASU either by transferring credit from another institution or by passing a proficiency examination. When possible, the Department of Languages and Literatures recommends to the college an appropriate source for such examinations and proctors them. Grading is done by the institution that provides the examination, and the student pays any costs incurred. The examination can be used only to demonstrate proficiency; it does not produce semester hours of credit.

Students desiring placement above the 101-level course in French, German, or Spanish should take the placement exam for that language in the Computer Language Laboratory in LL 65, or online at www.asu.edu/languages.

Students who wish to continue studying languages for which high school credits have been earned are also encouraged to take the placement exam. Students should be guided by the following principles of equivalency: (1) one unit (one academic year) of high school-level study is considered, for placement purposes only, to equal one semester of study of the same language at the university level. Thus, students with one year of high school study would enroll in the second semester course (102); students with two years of high school study, in the third semester course (201), and so on. (2) Students who feel that their high school language preparation was inadequate may choose to place themselves in a lower level, but not lower than 111 with two or three years of high school study and 201 with four years of high school study.

Students with prior knowledge of a language may meet the college foreign language requirement in any one of the following ways:

1. by satisfactory results in a nonrepeatable college-approved proficiency examination;
2. by achieving a grade of at least "C" (2.00) in the last course of the required sequence; or
3. by achieving a grade of at least "C" (2.00) in a course taught in the language for which the last course of the required sequence is a prerequisite.

Students are expected to follow the progressive sequence of 100, 200, 300, or 400 level. Once a grade of "C" (2.00) or higher is earned in a 300-level class in a language, students may not earn lower-division credit in that language. Moreover, once a grade of "C" (2.00) or higher is earned in a 200-level language course, students may not earn credit in any 100-level course in that language.

First-year foreign language courses taught by the Department of Languages and Literatures are not open to students who have spent one or more years in a country where that language is the predominant language. Individual language areas may have different policies. Students with questions about this policy should check with the appropriate language coordinator in the department.

If transfer students are uncertain about course equivalencies, they should contact the Department of Languages and Literatures.

LANGUAGE LABORATORY REQUIREMENT

All students enrolled in 101, 102, 201, and 202 language courses are expected to spend a minimum of one hour per week in the language laboratory or in other assigned audio-lingual tape exercises in addition to the regular class periods.

FOREIGN LANGUAGES (FLA)

M FLA Note 1. Completion of the First-Year Composition requirement (ENG 101 and 102 [or 105] or ENG 107 and 108 with a grade of "C" [2.00] or higher) is a prerequisite for all English courses above the 100 level.

M FLA Note 2. A term paper or equivalent out-of-class written work is required in all upper-division (300- and 400-level) ENG courses.

M FLA Note 3. English majors and minors are expected to have completed ENG 200 before taking 400-level literature courses.

M FLA 150 Introduction to East Asian Culture. (3)

spring

Introduces the cultures of China, Japan, and Korea.

General Studies: HU, G

M FLA 323 Survey of Literature of the Soviet Era in Translation. (3)

fall and spring

Surveys main literary movements, prominent authors, most significant works of prose, poetry, and drama of the Soviet period, 1917-1991.

General Studies: L/HU, G

M FLA 385 Career Development for Language Majors. (3)

selected semesters

Theoretical and practical aspects of career planning and development; research focus on language-related careers. Lecture, discussion, Internet-based workshop. Prerequisites: either ENG 101 and 102 or ENG 107 and 108.

M FLA 394 Special Topics. (1-4)

selected semesters

Topics may include the following:

- Introduction to Teaching Foreign Languages

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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M FLA 400 Linguistics. (3)

spring

Introduces the analysis of language and its use in social contexts. Topics: morphology, phonology, pragmatics, semantics, syntax, and variation. Prerequisites: junior standing; instructor approval.

General Studies: SB

M FLA 401 Translation Theory and Practice. (3)

selected semesters

Translation theories and professional practices and ethics; bibliography, computer technology, and sample texts for natural and social sciences and humanities. Prerequisite: 4th-year composition or instructor approval in respective language area.

M FLA 415 Bilingualism and Languages in Contact. (3)

fall

Analyzes linguistic aspects of bilingualism, e.g., pidgins and creoles, code-switching, and other contact phenomena; simultaneous/sequential bilingual language acquisition. Prerequisite: FLA 400 (or its equivalent) or instructor approval.

M FLA 420 Foreign Literature in Translation. (3)

fall and spring

Not for language majors (except in Asian languages and Russian); open to language majors as a related-area course. Graduate students by permission. Topics may include the following:

- Brazilian
- Chinese
- French
- German
- Greek
- Italian
- Latin
- Portuguese
- Russian
- Soviet
- Spanish
- Spanish American

General Studies: HU, G

M FLA 421 Japanese Literature in Translation. (3)

fall and spring

Readings selected by theme or genre or period from various works of Japanese literature in English translation. May be repeated when topics vary. Graduate students by permission. Prerequisite: a General Studies L course.

General Studies: L/HU, G

M FLA 461 Feminist Political Writing in Contemporary Europe. (3)

selected semesters

Examines the discourse of gender-politics in Central Eastern Europe before and after Soviet hegemony. Cross-listed as ENG 429. Credit is allowed for only ENG 429 or FLA 461. See FLA Notes 1, 2, 3.

M FLA 464 Politics of Drama in 20th-Century Europe. (3)

selected semesters

Interdisciplinary examination of European drama before and after WWII. Cross-listed as ENG 429. Credit is allowed for only ENG 429 or FLA 464. See FLA Notes 1, 2, 3.

M FLA 472 Literature and Politics in Pre- and Post-Communist Europe. (3)

selected semesters

Interdisciplinary examination of the cultures of Eastern Europe from WWI to the present. Cross-listed as ENG 429. Credit is allowed for only ENG 429 or FLA 472. See FLA Notes 1, 2, 3.

M FLA 476 Literature and Film in 20th-Century Eastern Europe. (3)

selected semesters

Evaluates literary texts and films as a massive propaganda machine of the totalitarian state. Cross-listed as ENG 429. Credit is allowed for only ENG 429 or FLA 476. See FLA Notes 1, 2, 3.

M FLA 479 Introduction to Teaching Foreign Languages. (3)

fall

Introduces teaching methodologies, language learning, and current best practice in teaching foreign languages in U.S. middle and high schools. Lecture, discussion, reading, micro-teaching practice.

Prerequisite: admission to ITC program in College of Education or instructor approval.

M FLA 480 Methods of Teaching Foreign Languages. (3)

fall

Teaching foreign languages and literatures at secondary and college levels. Does not meet the Liberal Arts and Sciences General Studies requirement for humanities and fine arts. Required for admission to SED 478. Prerequisite: 12 hours of upper-division courses in 1 foreign language.

M FLA 481 Technical and Scientific Translation. (3)

selected semesters

Resources, practices, strategies, and lexicon for translation of professional texts in subjects such as engineering, architecture, agriculture, computer technology, electronics, and physical and biological sciences. Prerequisite: FLA 401.

M FLA 482 Business and Financial Translation. (3)

selected semesters

Resources, practices, strategies, and lexicon for translation of professional texts in subjects such as economics, finance, insurance, management, marketing, accounting, advertising, and real estate. Prerequisite: FLA 401.

M FLA 483 Medical and Legal Translation. (3)

selected semesters

Resources and strategies for translation of professional texts in subjects such as medicine, nursing, public health, criminal justice, and international law. May be repeated for a total of 6 semester hours. Prerequisite: FLA 401.

M FLA 484 Internship. (1–12)

selected semesters

M FLA 485 Problems of Literary Translation. (3)

selected semesters

Theory and practice with emphasis on application through individual translation projects. May be repeated for a total of 6 semester hours. Prerequisite: FLA 401 or instructor approval in the respective language area.

M FLA 494 Special Topics. (1–4)

selected semesters

Various topics.

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

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

ARABIC (ARB)

M ARB 101 Elementary Arabic. (4)

fall and summer

Reading, writing, speaking, and understanding basic Arabic. 4 hours lecture, 1 hour lab. Fee.

M ARB 102 Elementary Arabic. (4)

spring and summer

Reading, writing, speaking, and understanding basic Arabic. 4 hours lecture, 1 hour lab. Fee. Prerequisite: ARB 101 (or its equivalent).

M ARB 201 Intermediate Arabic. (4)

fall

Review of Arabic grammar with emphasis on the development of the skills of listening comprehension, reading, speaking, and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: ARB 102 (or its equivalent).

General Studies: G

M ARB 202 Intermediate Arabic. (4)

spring

Review of Arabic grammar with emphasis on the development of the skills of listening comprehension, reading, speaking, and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: ARB 201 (or its equivalent).

General Studies: G

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

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SERBO-CROATIAN (BCS)

- M BCS 101 Elementary Serbo-Croatian. (4)**
fall and summer
Structural grammar, basic vocabulary; introduction and reinforcement of aural/oral, reading, and writing skills. 4 hours lecture, 1 hour lab. Lecture, lab, group activities.
- M BCS 102 Elementary Serbo-Croatian. (4)**
spring and summer
See BCS 101. Lecture, lab, group activities. Prerequisite: BCS 101 (or its equivalent).
- M BCS 201 Intermediate Serbo-Croatian. (4)**
fall and summer
Systematic review of grammar. Development of vocabulary through reading and writing. Drill in aural/oral skills. 4 hours lecture, 1 hour lab. Lecture, lab, group activities. Prerequisite: BCS 102 (or its equivalent).
- M BCS 202 Intermediate Serbo-Croatian. (4)**
spring and summer
See BCS 201. Lecture, lab, group activities. Prerequisite: BCS 201 (or its equivalent).
- M BCS 298 Serbo-Croatian Practicum. (2)**
summer
On-site summer practicum in Yugoslavia following intensive summer Serbo-Croatian language study in the ASU Critical Languages Institute. Lecture, lab, group activities. Prerequisite: BCS 102 (or its equivalent).
- M BCS 495 Serbo-Croatian for Heritage Speakers. (1-6)**
selected semesters
Generates professional proficiency by developing communicative and written competency in standard literary Serbo-Croatian. Lecture, lab, tutorial. Prerequisite: instructor approval.
- Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

CHINESE (CHI)

- M CHI 101 First-Year Chinese I. (5)**
fall and spring
Pronunciation, grammar, elementary conversation, and development of basic reading and writing skills. Standard dialect. 5 class hours. Fee.
- M CHI 102 First-Year Chinese II. (5)**
fall and spring
See CHI 101. Fee. Prerequisite: CHI 101 (or its equivalent).
- M CHI 201 Second-Year Chinese I. (5)**
fall and spring
Systematic review of grammar. Development of vocabulary through reading and writing. Drill in aural/oral skills. 5 class hours. Fee. Prerequisite: CHI 102 (or its equivalent).
General Studies: G
- M CHI 202 Second-Year Chinese II. (5)**
spring
See CHI 201. Fee. Prerequisite: CHI 201 (or its equivalent).
General Studies: G
- M CHI 205 Chinese Calligraphy. (1)**
fall and spring
Introduces styles and techniques of Chinese writing. Requires no knowledge of Chinese or Japanese.
- M CHI 309 Chinese Conversation. (2)**
fall
Aural/oral drills using contemporary stories, articles, and essays. For students with lower-level proficiency. Prerequisite: CHI 202.
- M CHI 310 Chinese Conversation. (2)**
spring
See CHI 309. Prerequisite: CHI 202.
- M CHI 311 Chinese Conversation. (2)**
fall
Intensive aural/oral practice in modern Chinese. For students who have lived in China or a Chinese-speaking environment. Discussion, drill. Prerequisite: CHI 202.
- M CHI 312 Chinese Conversation. (2)**
spring
See CHI 311. Discussion, drill. Prerequisite: CHI 202.

- M CHI 313 Third-Year Chinese I. (3)**
fall
Expansion of proficiency in listening comprehension, speaking, reading, and writing. Lecture, 3 hours discussion, drill. Prerequisite: CHI 202 (or its equivalent).
General Studies: G
- M CHI 314 Third-Year Chinese II. (3)**
spring
Continuation of CHI 313. Prerequisite: CHI 313 (or its equivalent).
General Studies: G
- M CHI 321 Chinese Literature. (3)**
fall
Masterworks of the tradition from the 6th century BCE through the 13th century. Readings, lectures, and examinations are in English.
General Studies: HU
- M CHI 322 Chinese Literature. (3)**
spring
Masterpieces from the later tradition and its transition to modern times. Readings, lectures, and examinations are in English.
General Studies: HU, G
- M CHI 345 Chinese Film and Civilization. (3)**
once a year
Screening and discussion of recent films from China, Taiwan, and Hong Kong in the context of modern Chinese civilization. Lecture, discussion, screening.
- M CHI 413 Introduction to Classical Chinese. (3)**
fall
Reading in various genres of pre-20th century literature (wen-yen), with analysis of the structure of the classical writings. Prerequisite: CHI 314 or instructor approval.
General Studies: HU
- M CHI 414 Introduction to Classical Chinese. (3)**
spring
Continuation of CHI 413. Prerequisite: CHI 413.
General Studies: HU
- M CHI 494 Special Topics. (1-4)**
selected semesters
- M CHI 499 Individualized Instruction. (1-3)**
selected semesters
- Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.
- Graduate-Level Courses.** For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access www.asu.edu/aad/catalogs on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

FRENCH (FRE)

- M FRE 101 Elementary French. (4)**
fall, spring, summer
Intensive aural/oral drill in class and laboratory; basic grammar supplemented by simple prose readings. Credit is allowed for only FRE 101 or 111. 4 hours lecture, 1 hour lab. Fee.
- M FRE 102 Elementary French. (4)**
fall, spring, summer
See FRE 101. Credit is allowed for only FRE 102 or 111. Fee. Prerequisite: FRE 101 (or its equivalent).
- M FRE 107 French for International Professions. (8)**
fall
Accelerated alternative to FRE 101 and 102 or FRE 111. Functional approach. Emphasizes communicative competence for international professions. Credit is allowed for only FRE 107 or 111. Fee.
- M FRE 111 Fundamentals of French. (4)**
fall and spring
Primarily for students with two years of high school French who need review to enter second year study. Credit is allowed for only FRE 111 or 101 or 102 or 107. 4 hours lecture, 1 hour lab. Fee.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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M FRE 201 Intermediate French I. (4)

fall, spring, summer

Grammar review, with emphasis on development of skills of speaking, reading, writing, and listening comprehension. 4 hours lecture; 1 hour lab. Fee. Prerequisite: FRE 102 or 111 (or its equivalent).

General Studies: G

M FRE 202 Intermediate French II. (4)

fall, spring, summer

Continuation of grammar review with emphasis on development of skills in speaking, reading, writing, and listening comprehension. 4 hours lecture, 1 hour lab. Fee. Prerequisite: FRE 201 (or its equivalent).

General Studies: G

M FRE 205 Readings in French Literature. (3)

fall, spring, summer

Designed to teach reading with facility and comprehension.

Vocabulary building and textual analysis of literary genres are major elements. Prerequisite: FRE 202 (or its equivalent).

General Studies: G

M FRE 207 French for Business. (4)

spring

Alternative to FRE 202. Functional approach. Emphasizes communicative competence for international professions. Not open to students with credit in FRE 202. Fee. Prerequisite: FRE 107 or instructor approval.

General Studies: G

M FRE 311 French Conversation. (3)

fall and spring

Further practice in speaking French, emphasizing current usage and promoting facility in the expression of ideas. Prerequisite: 8 hours of 200-level French (or its equivalent).

General Studies: G

M FRE 312 French Composition. (3)

fall and spring

Further practice in writing French, emphasizing current usage and promoting facility in the expression of ideas. Prerequisite: 8 hours of 200-level French (or its equivalent).

General Studies: G

M FRE 315 French Phonetics. (3)

fall

Practice and theory of French pronunciation. Emphasizes standard French, although an overview of regional varieties is offered. Lecture, lab. Prerequisite: FRE 311 (or its equivalent).

M FRE 319 Business French. (3)

spring

Introduces the structure, vocabulary, and practices of the French business world. Prerequisite: FRE 312 or instructor approval.

General Studies: G

M FRE 321 French Literature. (3)

fall and spring

Representative masterpieces and significant movements of French literature of the Middle Ages through the 18th century. Prerequisites: FRE 205, 312 (or their equivalents).

General Studies: L/HU, H

M FRE 322 French Literature. (3)

fall and spring

Literature of the 19th and 20th centuries. Prerequisites: FRE 205, 312 (or their equivalents).

General Studies: L/HU

M FRE 325 Introduction to French Film. (3)

spring

Studies French artistic contribution from 1895 to present, with emphasis on recent films starting with the New Wave. Short lecture before film, discussion after. Prerequisite for French majors: FRE 202.

M FRE 394 Special Topics. (1–4)

selected semesters

M FRE 411 Advanced Spoken French. (3)

fall and spring

Improvement of spoken French. Prerequisites: FRE 311 and 6 hours of 300-level French (or their equivalents).

General Studies: G

M FRE 412 Advanced Written French. (3)

fall and spring

Improvement of composition skills. Prerequisites: FRE 312 and 6 hours of 300-level French (or their equivalents).

General Studies: G

M FRE 415 French Civilization I. (3)

spring

Political, intellectual, social, economic, and artistic development of France from its origins to the end of the 17th century. Prerequisite: 6 hours of upper-division French.

General Studies: HU

M FRE 416 French Civilization II. (3)

spring

Political, intellectual, social, economic, and artistic development of France from the 18th century to present. Prerequisite: 6 hours of upper-division French.

General Studies: HU, G

M FRE 421 Structure of French. (3)

fall

Phonology, morphology, syntax, semantics, and varieties of French. Prerequisites: both FRE 311 and 312 or only instructor approval.

M FRE 422 Applied French Linguistics. (3)

spring

Applies linguistic theory and second language acquisition theory to teaching of French. Prerequisite: ASB 480 or ENG 213 or FLA 400.

M FRE 423 French Syntax. (3)

spring

Analyzes French syntactic structure by contemporary theoretical models. Prerequisite: ASB 480 or ENG 213 or FLA 400.

M FRE 432 Gay Identities in Modern French Literature. (3)

spring

Examines the representation of homosexuals as well as the emergence of homosexuality as a theme in modern French literature. Lecture, discussion. Prerequisites: both FRE 322 and 6 hours of 300-level French or only instructor approval.

M FRE 441 French Literature of the 17th Century. (3)

fall

From 1600 to 1660. Prerequisites: both FRE 321 and 6 hours of 300-level French or only instructor approval.

General Studies: HU

M FRE 442 French Literature of the 17th Century. (3)

spring

From 1660 to 1700. Prerequisites: both FRE 321 and 6 hours of 300-level French or only instructor approval.

General Studies: HU, H

M FRE 445 French Literature of the 18th Century. (3)

selected semesters

Contributions of the philosophers and the development of the novel and drama. Prerequisites: both FRE 321 and 6 hours of 300-level French or only instructor approval.

General Studies: L/HU

M FRE 451 French Poetry of the 19th Century. (3)

spring

From Romanticism to Parnassian poetry to Symbolism. Prerequisites: both FRE 322 and 6 hours of 300-level French or only instructor approval.

M FRE 452 French Novel of the 19th Century. (3)

fall

From Constant, Hugo, Balzac, Stendhal, and Sand to Flaubert and Zola, with emphasis on major literary movements. Prerequisites: both FRE 322 and 6 hours of 300-level French or only instructor approval.

General Studies: HU

M FRE 453 Theater of the 19th Century. (3)

spring

From Romantic drama to the Symbolist Theater. Representative plays of Hugo, Musset, Vigny, Dumas, Becque, Rostand, Feydeau, and Mirbeau. Prerequisites: both FRE 322 and 6 hours of 300-level French or only instructor approval.

General Studies: L/HU

DEPARTMENT OF LANGUAGES AND LITERATURES

M FRE 461 Modern Narrative. (3)

fall

Representative authors from Gide to the new Nouveau Roman. Prerequisites: both FRE 322 and 6 hours of 300-level French or only instructor approval.

General Studies: HU

M FRE 462 Modern Poetry. (3)

spring

Representative authors from Mallarmé to Bonnefoy. Lecture, discussion. Prerequisites: both FRE 322 and 6 hours of 300-level French or only instructor approval.

General Studies: HU

M FRE 471 The Literature of Francophone Africa and the Caribbean. (3)

fall

Selected prose, poetry, and drama of black authors from Africa and the Caribbean. Prerequisites: both FRE 322 and 6 hours of 300-level French or only instructor approval.

General Studies: L/HU

M FRE 472 Franco-Canadian Civilization. (3)

spring

Study of the civilization of Quebec in particular through its history, language, literature, music, and customs. Prerequisite: 9 hours of 300-level French or instructor approval.

M FRE 480 Translation Theory and Practice. (3)

spring

Theoretical and practical approaches to the fundamentals of meaning-based translation. Lecture, seminar. Prerequisite: FRE 412 or instructor approval.

M FRE 485 Literary Translation. (3)

spring

Theory and practice of literary translation with emphasis on application through individual translation project. Prerequisite: FRE 480.

M FRE 494 Special Topics. (1–4)

selected semesters

M FRE 499 Individualized Instruction. (1–3)

selected semesters

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

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

GERMAN (GER)

M GER 101 Elementary German. (4)

fall, spring, summer

Reading, writing, speaking, and understanding of basic German, with emphasis on pronunciation and grammar. Credit is allowed for only GER 101 or 111. 4 hours lecture, 1 hour lab. Fee.

M GER 102 Elementary German. (4)

fall, spring, summer

See GER 101. Credit is allowed for only GER 102 or 111. Fee. Prerequisite: GER 101 (or its equivalent).

M GER 111 Fundamentals of German. (4)

fall and spring

Primarily for students with two years of high school German who need review to enter second-year study. Credit is allowed for only GER 111 or both GER 101 and 102. 4 hours lecture, 1 hour lab. Fee.

M GER 201 Intermediate German. (4)

fall, spring, summer

Intensive review of grammar, with emphasis on the development of the skills of speaking, listening comprehension, reading, and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: GER 102 or 111 (or its equivalent).

General Studies: G

M GER 202 Intermediate German. (4)

fall, spring, summer

See GER 201. Fee. Prerequisite: GER 201 (or its equivalent).

General Studies: G

M GER 311 German Conversation. (3)

fall

Expansion of idiom through oral practice dealing with contemporary articles, essays, and stories. 3 semester hours limit for majors. Prerequisite: GER 202 (or its equivalent).

General Studies: G

M GER 312 German Conversation. (3)

spring

See GER 311. Prerequisite: GER 202 (or its equivalent).

General Studies: G

M GER 313 German Composition. (3)

spring

Intensive practice in writing, emphasizing style and grammar.

Prerequisite: GER 202 (or its equivalent).

General Studies: G

M GER 319 Business Correspondence and Communication. (3)

selected semesters

Organization and presentation of clear, effective business communications; vocabulary applicable to modern business usage. Prerequisite: GER 313 or instructor approval.

General Studies: G

M GER 394 Special Topics. (1–4)

selected semesters

M GER 411 Advanced Grammar and Conversation. (3)

fall

Improvement of diction and idiom through intensive oral review.

Prerequisite: GER 311 or 312 (or its equivalent).

General Studies: G

M GER 412 Advanced Grammar and Composition. (3)

spring

Improvement of writing ability. Prerequisite: GER 313 (or its equivalent).

General Studies: G

M GER 415 German Civilization. (3)

spring

Aspects of political, social, and cultural life of the German-speaking world from the beginning through 1600. Prerequisite: a 300-level course in German or instructor approval.

General Studies: HU, G, H

M GER 416 German Civilization. (3)

fall

From 1600 through 1945. Prerequisite: a 300-level course in German or instructor approval.

General Studies: HU, G, H

M GER 421 German Literature. (3)

fall

From the beginning to Classicism. Prerequisite: 6 hours of 300-level German.

General Studies: HU

M GER 422 German Literature. (3)

spring

From Romanticism to the present. Prerequisite: 6 hours of 300-level German.

General Studies: L/HU

M GER 453 German Literary Masterpieces on Film. (3)

fall, spring, summer

Film and literature in their correlation to each other and to cultural, political, and social trends in German-speaking countries. Special arrangements for graduate students and those without a knowledge of German. Lecture, discussion.

General Studies: HU, G

M GER 494 Special Topics. (1–4)

selected semesters

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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

ANCIENT GREEK (GRK)

M GRK 101 Elementary Ancient Greek. (4)

fall

Ancient Greek grammar and vocabulary with an emphasis on developing reading skills. For beginning students only.

M GRK 201 Intermediate Ancient Greek. (4)

spring

Continuation of GRK 101. Ancient Greek syntax and grammar. Prerequisite: GRK 101.

M GRK 301 Ancient Greek Literature I. (3)

fall

Readings in ancient Greek prose; advanced grammar. May be repeated for credit. Prerequisite: GRK 201.

General Studies: HU

M GRK 302 Ancient Greek Literature II. (3)

spring

Continuation of GRK 301. Readings in ancient Greek poetry. Prerequisite: GRK 301.

General Studies: HU

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

HEBREW (HEB)

M HEB 101 Elementary Modern Hebrew. (4)

fall

Reading, writing, speaking, and understanding of basic modern Hebrew, with emphasis on pronunciation and grammar. 4 hours lecture, 1 hour lab. Fee.

M HEB 102 Elementary Modern Hebrew. (4)

spring

Reading, writing, speaking, and understanding of basic modern Hebrew, with emphasis on pronunciation and grammar. 4 hours lecture, 1 hour lab. Fee. Prerequisite: HEB 101 (or its equivalent).

M HEB 201 Intermediate Modern Hebrew. (4)

fall

Intensive review of grammar, with emphasis on the development of the skills of speaking, listening comprehension, reading, and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: HEB 102 (or its equivalent).

General Studies: G

M HEB 202 Intermediate Modern Hebrew. (4)

spring

Intensive review of grammar, with emphasis on the development of the skills of speaking, listening comprehension, reading, and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: HEB 201 (or its equivalent).

General Studies: G

M HEB 313 Advanced Modern Hebrew. (4)

fall

Continued development of ability to communicate orally and in writing. Reading of selected literary works. Prerequisite: HEB 202 (or its equivalent).

M HEB 314 Advanced Modern Hebrew. (4)

spring

Continued development of ability to communicate orally and in writing. Reading of selected literary works. Prerequisite: HEB 313 (or its equivalent).

M HEB 375 Contemporary Culture of Israel. (3)

fall and spring

Intense study of aspects of historical, social, political, and cultural modern life in Israel. Beginning of Zionism to present day. Lecture, discussion.

General Studies: HU, G

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

INDONESIAN (IDN)

M IDN 101 Elementary Indonesian I. (5)

fall

Basic communication, reading, and writing skills. Intensive oral/aural classroom drill supplemented by prose reading. 4 hours lecture, 1 hour lab. Fee.

M IDN 102 Elementary Indonesian II. (5)

spring

Basic communication, reading, and writing skills. Intensive oral/aural classroom drill supplemented by prose reading. 4 hours lecture, 1 hour lab. Fee. Prerequisite: IDN 101 (or its equivalent).

M IDN 201 Intermediate Indonesian I. (5)

fall

Systematic review of grammar. Continued development of communication skills with increased emphasis on reading and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: IDN 102 (or its equivalent).

General Studies: G

M IDN 202 Intermediate Indonesian II. (5)

spring

Systematic review of grammar. Continued development of communication skills with increased emphasis on reading and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: IDN 201 (or its equivalent).

General Studies: G

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

ITALIAN (ITA)

M ITA 101 Elementary Italian. (5)

fall, spring, summer

Aural/oral drill in class and laboratory. Basic grammar supplemented by simple prose readings. 5 hours lecture, 1 hour lab. Fee.

M ITA 102 Elementary Italian. (5)

fall, spring, summer

Aural/oral drill in class and laboratory. Basic grammar supplemented by simple prose readings. 5 hours lecture, 1 hour lab. Fee. Prerequisite: ITA 101 (or its equivalent).

M ITA 201 Intermediate Italian. (3)

fall, spring, summer

Systematic review of grammar. Development of vocabulary through reading, listening, speaking, and writing. 3 hours lecture, 1 hour lab. Fee. Prerequisite: ITA 102 (or its equivalent).

General Studies: G

M ITA 202 Intermediate Italian. (3)

fall, spring, summer

Systematic review of grammar. Development of vocabulary through reading, listening, speaking, and writing. 3 hours lecture, 1 hour lab. Fee. Prerequisite: ITA 201 (or its equivalent).

General Studies: G

M ITA 311 Italian Composition and Conversation. (3)

fall and spring

Development of writing ability and oral expression. Prerequisite: ITA 202 (or its equivalent).

General Studies: G

M ITA 312 Italian Composition and Conversation. (3)

fall and spring

See ITA 311. Prerequisite: ITA 202 (or its equivalent).

General Studies: G

M ITA 314 Advanced Italian. (3)

selected semesters

Advanced grammar and composition with readings of selected literary works. Prerequisite: ITA 202 or instructor approval.

General Studies: G

M ITA 315 Italian for Business. (3)

fall

Conversation and composition course in Italian; focuses on business, culture, and communication in Italy. Readings, discussion, research, lab (computer and audio-video), Blackboard support. Prerequisite: ITA 202 or instructor approval.

M ITA 325 Introduction to Italian Literature. (3)

fall

Italian literature through the interpretation of representative works in drama, poetry, and novel. Prerequisite: ITA 202 or instructor approval.

General Studies: HU

M ITA 394 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Commercial Italian. (3)

DEPARTMENT OF LANGUAGES AND LITERATURES

M ITA 415 Italian Civilization. (3)

selected semesters

General survey of history, literature, art, and music, emphasizing Italy's cultural contribution to Western civilization. Prerequisites: ITA 311, 312 (or 314).

General Studies: HU, G

M ITA 420 Italian Cinema. (3)

fall

Major trends of Italian cinema from the post-war period to the present.

M ITA 425 Italian American Culture. (3)

selected semesters

Analyzes representations of Italian American history and culture in several media, including literature, film, and television. Lecture, discussion.

General Studies: L

M ITA 430 Italian Literature of the Middle Ages. (3)

selected semesters

Emphasizes "Stil Novo," Dante's minor works, Petrarch, and Boccaccio. Prerequisite: ITA 325 or instructor approval.

General Studies: HU

M ITA 441 Dante: *Divina Commedia*. (3)

selected semesters

Critical reading of the three *Cantiche* (*Inferno*, *Purgatorio*, and *Paradiso*). Prerequisite: ITA 325.

General Studies: L/HU

M ITA 443 Italian Literature of the Renaissance. (3)

selected semesters

Emphasizes Lorenzo de' Medici, Poliziano Castiglione, Machiavelli, Ariosto, and Tasso. Prerequisite: ITA 325 or instructor approval.

General Studies: HU, H

M ITA 446 Italian Literature of the 18th and 19th Centuries. (3)

selected semesters

Goldoni, Parini, Alfieri, the poetry of Foscolo and Leopardi, and the sociohistorical novels of Foscolo, Manzoni, and Verga. Prerequisite: ITA 325 or instructor approval.

General Studies: HU

M ITA 449 20th-Century Italian Literature. (3)

selected semesters

Major works, figures, and movements of contemporary Italian literature. Prerequisite: ITA 325.

General Studies: HU, G

M ITA 494 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Italian/American Culture. (3)

M ITA 499 Individualized Instruction. (1–3)

selected semesters

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

JAPANESE (JPN)

M JPN 101 First-Year Japanese I. (5)

fall and spring

Communication skills and basic skills in grammar, reading, and writing, including hiragana, katakana, and about 75 kanji. 5 hours per week. Fee.

M JPN 102 First-Year Japanese II. (5)

fall and spring

Continuation of JPN 101. Additional 99 kanji. Continued development of communication skills in speaking, listening, reading, writing, and culture. Fee. Prerequisite: JPN 101 (or its equivalent).

M JPN 201 Second-Year Japanese I. (5)

fall and spring

Continued development of communication skills. Increased emphasis on reading and writing. Review of fundamentals of structure to increase abilities in composition and translation. 5 hours per week. Fee. Prerequisite: JPN 102 (or its equivalent).

General Studies: G

M JPN 202 Second-Year Japanese II. (5)

fall and spring

Continuation of JPN 201. Fee. Prerequisite: JPN 201 (or its equivalent).

General Studies: G

M JPN 206 Calligraphy. (1)

selected semesters

Introduces the practice of calligraphy in Japan, with emphasis on the derivation of Japanese kana syllabaries from Chinese characters. Prerequisite: CHI 205 or JPN 101.

M JPN 309 Intermediate Japanese Conversation. (2)

fall

Practice in current usage in expression of ideas. Recommended especially for those who have not had the opportunity to practice Japanese in Japan. Prerequisite: JPN 202.

M JPN 310 Intermediate Japanese Conversation. (2)

spring

Continuation of JPN 309. Prerequisite: JPN 309.

M JPN 311 Japanese Conversation and Composition. (3)

fall

Intensive aural/oral practice leading toward conversational fluency. Practice in writing Japanese, emphasizing current usage. Prerequisite: JPN 202.

General Studies: G

M JPN 312 Japanese Conversation and Composition. (3)

spring

See JPN 311. Prerequisite: JPN 202.

General Studies: G

M JPN 313 Third-Year Japanese I. (3)

fall

Continued development of basic skills with greater emphasis on reading. JPN 313 and 314 must be taken in sequence. Prerequisite: JPN 202 (or its equivalent).

General Studies: G

M JPN 314 Third-Year Japanese II. (3)

spring

Continued development of basic skills with continued emphasis on reading. JPN 313 and 314 must be taken in sequence. Prerequisite: JPN 313 or instructor approval.

General Studies: G

M JPN 321 Japanese Literature. (3)

selected semesters

Readings in modern literature, changing yearly. May be repeated for credit. Prerequisite: preferably JPN 314 (or 313) or instructor approval.

General Studies: L/HU, G

M JPN 394 Special Topics. (1–4)

selected semesters

M JPN 414 Introduction to Classical Japanese. (3)

spring

Readings from various genres of pre-20th-century literature, with analysis of the structure of the classical language. Prerequisite: JPN 313 or instructor approval.

M JPN 435 Advanced Readings. (3)

selected semesters

Readings in history, art, religious studies, economics, or other fields. Lecture, discussion. Prerequisite: JPN 314 (or its equivalent).

M JPN 485 Problems of Translation. (3)

selected semesters

Theories and practice of translation: strategies for handling a variety of Japanese texts. Lecture, discussion. Prerequisite: JPN 314 (or its equivalent).

M JPN 494 Special Topics. (1–4)

selected semesters

M JPN 499 Individualized Instruction. (1–3)

selected semesters

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

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

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

KOREAN (KOR)

M KOR 101 First-Year Korean I. (5)

fall

Pronunciation, grammar, elementary conversation, and development of basic reading and writing skills, including Han'gul. Lecture, recitation.

M KOR 102 First-Year Korean II. (5)

spring

Continuation of KOR 101. Lecture, recitation. Prerequisite: KOR 101 (or its equivalent).

M KOR 201 Second-Year Korean I. (5)

fall

Continual development of communication skills. Increased emphasis on reading and writing, vocabulary building, and review of fundamentals. Lecture, recitation. Prerequisite: KOR 102 (or its equivalent).

General Studies: G

M KOR 202 Second-Year Korean II. (5)

spring

Continuation of KOR 201. Lecture, recitation. Prerequisite: KOR 201 (or its equivalent).

General Studies: G

M KOR 250 Korean Culture and Society. (3)

fall

Survey of Korean culture and society, covering history, religious traditions, gender, and popular culture. Lecture, discussion.

General Studies: HU, G

M KOR 313 Third-Year Korean I. (3)

fall

Continued development of ability to communicate orally and in writing. Exposure to a variety of Korean written styles. Reading, writing, discussion. Prerequisite: KOR 202 (or its equivalent).

M KOR 314 Third-Year Korean II. (3)

spring

Continuation of KOR 313. Reading, writing, discussion. Prerequisite: KOR 313 (or its equivalent).

M KOR 347 Korean Film and Literature. (3)

spring

Introduces aspects of Korean history, culture, and society through Korean film and literature. Lecture, discussion.

General Studies: HU

M KOR 350 Women of Korea. (3)

spring

Examines the changing role and status of women in modern Korea in relation to political and cultural changes. Lecture, discussion.

General Studies: H

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

LATIN (LAT)

M LAT 101 Elementary Latin. (4)

fall and spring

Basic Latin grammar with an emphasis on developing reading skills. For beginning students only.

M LAT 102 Elementary Latin. (4)

fall and spring

Continuation of LAT 101. Prerequisite: LAT 101 (or its equivalent).

M LAT 201 Intermediate Latin I. (4)

fall and spring

Final semester of grammar. Prerequisite: LAT 102 or instructor approval.

General Studies: HU

M LAT 202 Intermediate Latin II. (4)

fall and spring

Beginning reading of Latin authors. Prerequisite: LAT 201 (or its equivalent) or instructor approval.

General Studies: HU

M LAT 421 Roman Literature. (3)

fall

Readings in the Latin masterpieces. Authors read change each year in accordance with needs of the class. May be repeated for credit.

Prerequisite: LAT 202 or instructor approval.

General Studies: HU

M LAT 422 Roman Literature. (3)

spring

See LAT 421. Prerequisite: LAT 202 or instructor approval.

General Studies: HU

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

MACEDONIAN (MAK)

M MAK 101 Elementary Macedonian. (4)

summer

Structural grammar, basic vocabulary; introduction and reinforcement of aural/oral, reading, and writing skills. 4 hours lecture, 1 hour lab. Lecture, lab, group activities.

M MAK 102 Elementary Macedonian. (4)

summer

See MAK 101. Lecture, lab, group activities. Prerequisite: MAK 101 (or its equivalent).

M MAK 201 Intermediate Macedonian. (4)

summer

Systematic review of grammar. Development of vocabulary through reading and writing. Drill in aural/oral skills. 4 hours lecture, 1 hour lab. Lecture, lab, group activities. Prerequisite: MAK 102 (or its equivalent).

M MAK 202 Intermediate Macedonian. (4)

summer

See MAK 201. Lecture, lab, group activities. Prerequisite: MAK 201 (or its equivalent).

M MAK 298 Macedonian Practicum. (2)

summer

On-site summer practicum in Macedonia following intensive summer Macedonian language study in the ASU Critical Languages Institute. Lecture, lab, group activities. Prerequisite: MAK 102 (or its equivalent).

M MAK 311 Macedonian Composition and Conversation. (1-8)

once a year

Advanced communicative proficiency and writing development. Intended for students enrolled in "ASU Study Abroad University of Ss. Kiril and Metodij," Tutorial. Prerequisite: MAK 202 (or its equivalent).

M MAK 312 Macedonian Composition and Conversation. (1-8)

once a year

Advanced communicative proficiency and writing development. Intended for students enrolled in "ASU Study Abroad University of Ss. Kiril and Metodij," Tutorial. Prerequisite: MAK 202 (or its equivalent).

M MAK 411 Advanced Macedonian Composition and Conversation. (1-8)

once a year

Improves self-expression in oral and written skills, emphasizing vocabulary building and use of newspapers and other materials published in Macedonia. Tutorial. Prerequisite: MAK 312 (or its equivalent).

M MAK 412 Advanced Macedonian Composition and Conversation. (1-8)

once a year

Improves self-expression in oral and written skills, emphasizing vocabulary building and use of newspapers and other materials published in Macedonia. Tutorial. Prerequisite: MAK 411 (or its equivalent).

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

NORWEGIAN (NOR)

M NOR 101 Elementary Norwegian. (4)

fall

Reading, writing, speaking, and understanding of basic Norwegian. 4 hours lecture, 1 hour lab. Fee.

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M NOR 102 Elementary Norwegian. (4)

spring

Reading, writing, speaking, and understanding of basic Norwegian. 4 hours lecture, 1 hour lab. Fee. Prerequisite: NOR 101 (or its equivalent).

M NOR 201 Intermediate Norwegian. (4)

fall

Reviews Norwegian grammar with emphasis on the development of the skills of speaking, listening comprehension, reading, and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: NOR 102 (or its equivalent).

M NOR 202 Intermediate Norwegian. (4)

spring

Reviews Norwegian grammar with emphasis on the development of the skills of speaking, listening comprehension, reading, and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: NOR 201 (or its equivalent).

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

PORTUGUESE (POR)

M POR 101 Elementary Portuguese. (5)

fall and spring

Basic grammar with intensive drills in class and laboratory directed toward conversational fluency. 5 hours lecture, 1 hour lab. Fee. Prerequisite: 1 year of Spanish or French or Italian or instructor approval.

M POR 201 Intermediate Portuguese. (5)

fall and spring

Continuation of POR 101. Intensive drill of fundamentals in class and laboratory directed toward conversational fluency. 5 hours lecture, 1 hour lab. Fee. Prerequisite: POR 101 or instructor approval.

General Studies: G

M POR 313 Portuguese Composition and Conversation. (3)

fall

Develops skill in written Portuguese and corrected oral expression. Must be taken in sequence. Prerequisite: POR 201 or instructor approval.

General Studies: G

M POR 314 Portuguese Composition and Conversation. (3)

spring

Continuation of POR 313. Prerequisite: POR 313 or instructor approval.

General Studies: G

M POR 321 Luso-Brazilian Literature. (3)

selected semesters

Representative masterpieces of Portuguese and Brazilian literature from the beginning to the present. Prerequisite: POR 313 or instructor approval.

General Studies: HU

M POR 472 Luso-Brazilian Civilization. (3)

selected semesters

Lectures, readings, and discussion of important aspects of Luso-Brazilian civilization. Topics from music, art, folklore, literature, history, and politics. Prerequisite: POR 313 or instructor approval.

General Studies: HU, G

M POR 494 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Advanced Portuguese Composition and Conversation. (3)
- Brazilian Film. (3)

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

ROMANIAN (ROM)

M ROM 101 Elementary Romanian. (5)

fall and spring

Basic grammar with intensive drills in class and laboratory directed toward conversational fluency. 5 hours lecture, 1 hour lab.

M ROM 201 Intermediate Romanian. (5)

fall and spring

Continuation of ROM 101. Intensive drill of fundamentals in class and laboratory directed toward conversational fluency. 5 hours lecture, 1 hour lab. Prerequisite: ROM 101 or instructor approval.

M ROM 313 Romanian Composition and Conversation. (3)

fall and spring

Develops skills in written Romanian and correct oral expression. Must be taken in sequence with ROM 314. Prerequisite: ROM 201 or instructor approval.

M ROM 314 Romanian Composition and Conversation. (3)

spring

Continuation of ROM 313. Develops skills in written Romanian and correct oral expression. Must be taken in sequence. Prerequisite: ROM 313 or instructor approval.

M ROM 494 Special Topics. (1–4)

once a year

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

RUSSIAN (RUS)

M RUS 101 Elementary Russian. (4)

fall, spring, summer

Structural grammar and basic vocabulary. Introduces and reinforces aural/oral reading and writing skills. 4 hours lecture, 1 hour lab. Fee.

M RUS 102 Elementary Russian. (4)

spring and summer

See RUS 101. Fee. Prerequisite: RUS 101 (or its equivalent).

M RUS 201 Intermediate Russian. (4)

fall and summer

Systematic review of grammar. Develops vocabulary through reading and writing. Drill in aural/oral skills. 4 hours lecture, 1 hour lab. Fee. Prerequisite: RUS 102 (or its equivalent).

General Studies: G

M RUS 202 Intermediate Russian. (4)

spring and summer

See RUS 201. Fee. Prerequisite: RUS 201 (or its equivalent).

General Studies: G

M RUS 211 Basic Russian Conversation. (3)

fall

Intensive aural/oral drill to supplement reading and grammatical skills acquired in RUS 101, 102, 201, and 202. Required of Russian majors. Fee. Prerequisite: RUS 102.

General Studies: G

M RUS 212 Basic Russian Conversation. (3)

spring

See RUS 211. Fee. Prerequisite: RUS 102.

General Studies: G

M RUS 311 Russian Composition and Conversation. (3)

fall

Develops writing ability and oral expression. Prerequisite: RUS 202.

General Studies: G

M RUS 312 Russian Composition and Conversation. (3)

spring

See RUS 311. Prerequisite: RUS 202.

General Studies: G

M RUS 321 Foundations of Russian Literature. (3)

selected semesters

Literary movements, prose, poetry, and drama from early Kievan writings to 19th-century works of Pushkin, Lermontov, Gogol. Does not satisfy the CLAS language requirement for the BA degree. Open to nonmajors. Prerequisite: readings in translation.

General Studies: HU, H

M RUS 322 Great Russian Writers of the 19th Century. (3)

selected semesters

Surveys the great age of prerevolutionary Russian prose, including works of Gogol, Turgenev, Dostoevski, Tolstoy, and Chekhov. Does not

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

satisfy the CLAS language requirement for the BA degree. Open to nonmajors. Prerequisite: readings in translation.

General Studies: L/HU

M RUS 323 Modern Russian Literature and the Soviet Legacy. (3) *selected semesters*

See also FLA 323. 20th-century Russian writers: their prose, poetry, drama; problems of the writer in Soviet and post-Soviet society. Does not satisfy the CLAS language requirement for the BA degree. Open to nonmajors. Prerequisite: readings in translation.

General Studies: L/HU, G

M RUS 411 Advanced Composition and Conversation I. (3) *fall*

Improves aural discrimination and self-expression in oral and written skills, emphasizing vocabulary building. Subject materials drawn from current post-Soviet-Russian publications. Prerequisite: RUS 312.

General Studies: G

M RUS 412 Advanced Composition and Conversation II. (3) *spring*

See RUS 411. Prerequisite: RUS 312.

General Studies: G

M RUS 417 Applied Russian Phonetics. (2)

selected semesters

General improvement in language skills through aural/oral training in Russian phonology and an analysis of Russian orthography. Prerequisite: RUS 102.

M RUS 420 Russian Poetry. (3)

selected semesters

Development of Russian poetry from its beginnings to the present, including both native and émigré poets. Topics in criticism and the study of poetics. Prerequisite: RUS 312 or instructor approval.

General Studies: L/HU

M RUS 421 Pushkin. (3)

selected semesters

Pushkin's poetry, plays, and prose fiction, including *Eugene Onegin*, *The Little Tragedies*, *Tales of Belkin*, *Queen of Spades*, and *The Captain's Daughter*. Taught in English. Does not satisfy the Liberal Arts and Sciences language requirement for BA degree.

General Studies: L/HU

M RUS 423 Dostoyevsky. (3)

selected semesters

Dostoyevsky's major works of fiction, including *Crime and Punishment* and *Brothers Karamazov*. Taught in English. Does not satisfy the Liberal Arts and Sciences language requirement for BA degree.

General Studies: L/HU

M RUS 424 Tolstoy. (3)

selected semesters

Tolstoy's major works, including *War and Peace* and *Anna Karenina*. Taught in English. Does not satisfy the Liberal Arts and Sciences language requirement for BA degree.

General Studies: L/HU

M RUS 425 Chekhov. (3)

selected semesters

Chekhov's major works, representative short stories and major plays, including *The Cherry Orchard* and *Three Sisters*. Taught in English. Does not satisfy the Liberal Arts and Sciences language requirement for BA degree.

General Studies: L/HU

M RUS 430 Russian Short Story. (3)

selected semesters

Detailed study of representative works of the Russian short story genre. Includes authors from both Imperial and Soviet Russia. Prerequisite: RUS 312 or instructor approval.

General Studies: L/HU

M RUS 441 Survey of Russian Culture. (3)

selected semesters

Interplay of artistic, social, and political forces in the development of Russian culture from the Kievan period to the present. Exclusive use of Russian language source materials. Prerequisite: RUS 312 or instructor approval.

General Studies: L/HU, G, H

M RUS 493 Honors Thesis. (1–6)

selected semesters

M RUS 494 Special Topics. (1–4)

selected semesters

M RUS 495 Russian for Heritage Speakers. (1–6)

selected semesters

Generates professional proficiency by developing advanced communicative and written competency in standard literary Russian. Lecture, lab, tutorial. Prerequisite: instructor approval.

M RUS 498 Pro-Seminar. (1–7)

selected semesters

Topics may include the following:

- Senior Seminar. (3)

M RUS 499 Individualized Instruction. (1–3)

selected semesters

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

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

SCANDINAVIAN (SCA)

M SCA 250 Introduction to Scandinavian Culture. (3)

spring

Scandinavian identity from an interdisciplinary perspective with historic overview. Lecture, discussion.

General Studies: HU, G, H

M SCA 315 Old Norse. (3)

fall and spring

Readings and study of grammatical structures of Medieval Scandinavian with emphasis on the Sagas and Edda poetry and historical writings.

M SCA 316 Scandinavian Cinema. (3)

fall and spring

Presents Scandinavian films, with English subtitles, as representatives of contemporary and historical culture.

General Studies: HU, G

M SCA 450 Masterpieces of Scandinavian Literature. (3)

spring

Scandinavian literature in translation in its cultural and historical contexts.

General Studies: L/HU

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

SLAVIC (SLV)

M SLV 304 Computational Linguistics of Slavic Languages. (3)

spring

Information technology and Slavic languages, including Web design, digitalized resources, information retrieval, math/statistical analysis, and PERL. Lecture, lab.

General Studies: CS

M SLV 426 Contemporary East European and Eurasian Literatures. (3)

selected semesters

Readings in non-Russian literatures and literary criticism from Eastern Europe and Eurasia: Miłosz, Mrozek, Kis, Andrić, Kadare, Ajtmatov. Lecture, discussion.

General Studies: L/HU, G

M SLV 440 History of Slavic Languages. (3)

selected semesters

Comparative evolution of East Slavic, West Slavic, and South Slavic languages from the earliest record to the standardizing of national languages in the 19th and 20th centuries. Lecture, discussion.

General Studies: SB

M SLV 498 Pro-Seminar. (1–7)

selected semesters

Topics may include the following:

- Senior Seminar. (3)

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

SPANISH (SPA)

For more SPA courses, see the "Course Prefixes" table, or access www.asu.edu/aad/catalogs/courses. The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

M SPA Note 1. Students who have completed their secondary education in a school where Spanish was the official language of instruction should begin their studies at the 325 level or above. No student who has completed more than two years of high school in a Spanish-speaking country, where Spanish is the medium of instruction in the school, is allowed to register in a Spanish language class below the 400 level.

M SPA 101 Elementary Spanish. (4)

fall, spring, summer

Fundamentals of the language. Emphasizes listening, speaking, reading, and writing. Credit is allowed for only SPA 101 or 111. 4 hours lecture, 1 hour lab. Fee. See SPA Note 1.

M SPA 102 Elementary Spanish. (4)

fall, spring, summer

See SPA 101. Credit is allowed for only SPA 102 or 111. Fee. See SPA Note 1. Prerequisite: SPA 101 (or its equivalent).

M SPA 107 Spanish for International Professions I. (8)

fall

Accelerated program alternative to SPA 101, 102 sequence. Functional approach to needs of international professions. Fee. See SPA Note 1.

M SPA 111 Fundamentals of Spanish. (4)

fall and spring

Primarily for students with two years of high school Spanish who need review to enter second-year study. Credit is allowed for only SPA 111 or both SPA 101 and 102. 4 hours lecture, 1 hour lab. Fee. See SPA Note 1.

M SPA 201 Intermediate Spanish. (4)

fall, spring, summer

Continuation of fundamentals. Emphasizes the development of the skills of reading, listening comprehension, speaking, writing, and culture. 4 hours lecture, 1 hour lab. Fee. See SPA Note 1.

Prerequisite: SPA 102 or 111.

General Studies: G

M SPA 202 Intermediate Spanish. (4)

fall, spring, summer

See SPA 201. Fee. See SPA Note 1. Prerequisite: SPA 201 (or its equivalent).

General Studies: G

M SPA 203 Intermediate Spanish for Bilinguals. (4)

fall

For Spanish-speaking students, in lieu of SPA 201. Composition, literature, conversation, grammar fundamentals. 4 hours lecture, 1 hour lab. Fee. See SPA Note 1. Prerequisite: SPA 102 or 111 or placement examination.

General Studies: G

M SPA 204 Intermediate Spanish for Bilinguals. (4)

spring

For Spanish-speaking students, in lieu of SPA 202. Composition, literature, conversation, grammar fundamentals. 4 hours lecture, 1 hour lab. See SPA Note 1. Prerequisite: SPA 203 (or its equivalent).

General Studies: G

M SPA 207 Spanish for International Professions II. (8)

spring

Continuation of SPA 107, alternative to SPA 201, 202 sequence. Expansion of communicative proficiency in specific areas of international professions. Fee. See SPA Note 1. Prerequisite: SPA 107 or instructor approval.

General Studies: G

M SPA 311 Spanish Conversation. (3)

fall and spring

Designed primarily for nonmajors to promote vocabulary building and communicative expression in Spanish through discussions based on cultural readings. See SPA Note 1. Prerequisite: SPA 202 (or its equivalent).

M SPA 312 Spanish Conversation. (3)

fall and spring

See SPA 311. See SPA Note 1. Prerequisite: SPA 311 (or its equivalent).

M SPA 313 Spanish Conversation and Composition. (3)

fall, spring, summer

Designed to develop skill and accuracy in spoken and written Spanish. Required of majors; SPA 313 and 314 must be taken in sequence.

See SPA Note 1. Prerequisite: SPA 202 (or its equivalent).

General Studies: G

M SPA 314 Spanish Conversation and Composition. (3)

fall, spring, summer

See SPA 313. See SPA Note 1. Prerequisite: SPA 313 (or its equivalent).

General Studies: G

M SPA 315 Spanish Conversation and Composition for Bilinguals. (3)

fall

Emphasizes comparing standard Spanish with regional Southwest Spanish. May be taken in lieu of SPA 313 and 314. See SPA Note 1. Prerequisite: SPA 202 or 204 or instructor approval.

M SPA 316 Spanish Conversation and Composition for Bilinguals. (3)

spring

See SPA 315. See SPA Note 1. Prerequisite: SPA 315 (or its equivalent).

M SPA 319 Business Correspondence and Communication. (3)

selected semesters

Organization and presentation of clear, effective business communications; vocabulary applicable to modern business usage. See SPA Note 1. Prerequisite: SPA 314 or 316 or instructor approval.

General Studies: G

M SPA 325 Introduction to Hispanic Literature. (3)

fall and spring

Critical approach to and analysis of literary types, including poetry, drama, short story, and novel. Required of all majors. See SPA Note 1. Prerequisite: SPA 313.

General Studies: HU

M SPA 400 Introduction to Spanish Linguistics. (3)

fall

Introduces the discipline and methods of linguistics through the study of Spanish data. Prerequisite: SPA 412 (or its equivalent).

M SPA 412 Advanced Conversation and Composition. (3)

fall and spring

Oral and written Spanish communication skills, with particular attention given to developing fluency and facility. Required of majors. Prerequisite: SPA 314 or 316 or instructor approval.

General Studies: G

M SPA 413 Advanced Spanish Grammar. (3)

fall

Intensive analysis of the Spanish language. Required of teaching majors. Prerequisite: SPA 314 or 316 or instructor approval.

General Studies: G

M SPA 417 Spanish Phonetics and Phonology. (3)

fall

Introduces the theory and practice of Spanish phonetics and phonology. Prerequisite: SPA 412.

M SPA 420 Applied Spanish Linguistics. (3)

spring

Applies linguistic principles to the teaching of Spanish. Prerequisites: FLA 400 (or its equivalent); SPA 412.

General Studies: L

M SPA 421 Spanish in the Southwest. (3)

fall

Discussion and linguistic analysis of Southwest Spanish. Prerequisite: SPA 412.

General Studies: L/SB, C

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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M SPA 422 Spanish Lexicology and Lexicography. (3)

fall

Explores the linguistic theory and methodology related to the defining of meanings of words in Spanish dictionaries. Prerequisite: SPA 412 or instructor approval.

M SPA 425 Spanish Literature. (3)

fall and spring

Surveys Spanish literature from its beginning to 1700. Prerequisite: SPA 325.

General Studies: HU

M SPA 426 Spanish Literature. (3)

fall and spring

Surveys Spanish literature from 1700 to the present. Prerequisite: SPA 325.

General Studies: HU

M SPA 427 Spanish American Literature. (3)

fall and spring

Surveys major works, figures, and movements from Colonial period to 1880. Prerequisite: SPA 325.

General Studies: L

M SPA 428 Spanish American Literature. (3)

fall and spring

Surveys major works, figures, and movements from 1880 to the present. Prerequisite: SPA 325.

General Studies: L, G

M SPA 429 Mexican Literature. (3)

selected semesters

Selected readings from pre-Columbian writers/poets (e.g., Macuixóchitl) through the novel of the Revolution to the present. Prerequisite: SPA 325.

M SPA 434 Drama of the Golden Age. (3)

spring

Dramatic works of Lope de Vega, Calderón de la Barca, and their contemporaries. Prerequisite: SPA 325.

M SPA 435 Cervantes—*Don Quijote*. (3)

fall

Don Quijote and the development of the novel. Prerequisite: SPA 325.

M SPA 454 19th-Century Spanish American Narrative. (3)

fall

Principal works in the novel, short story, narrative fiction, and narrative (Gauchesque) poetry. Prerequisite: SPA 325.

M SPA 456 20th-Century Spanish American Fiction. (3)

spring

Major works and movements. Prerequisite: SPA 325.

M SPA 464 Mexican American Literature. (3)

fall

Representative literature in Spanish and English by Mexican Americans, emphasizing sociocultural as well as literary values. Prerequisite: SPA 325.

General Studies: HU, C

M SPA 471 Civilization of the Spanish Southwest. (3)

spring

Political, intellectual, social, economic, and artistic development of the Spanish-speaking people of the Southwest. Prerequisite: SPA 314 or 316 or instructor approval.

General Studies: HU, C

M SPA 472 Spanish American Civilization. (3)

fall

Growth of the institutions and cultures of Spanish American people. Prerequisite: SPA 314 or 316 or instructor approval.

General Studies: HU, G, H

M SPA 473 Spanish Civilization. (3)

spring

Political, intellectual, social, economic, and artistic development of the Spanish nation from its origin to the present. Prerequisite: SPA 314 or 316 or instructor approval.

General Studies: HU/SB, G

M SPA 474 Mexican Culture. (3)

fall and spring

Examines diverse aspects of Mexican culture since the 1910 Revolution. Lecture, discussion. Prerequisite: SPA 325.

M SPA 485 Mexican American Short Story. (3)

selected semesters

Critical study of contemporary short stories by Mexican American authors, with emphasis on their Spanish-language writings.

Prerequisite: SPA 325 or instructor approval.

General Studies: L

M SPA 486 Mexican American Novel. (3)

selected semesters

Social and literary contexts of representative novelists, emphasizing their Spanish-language writings. Prerequisite: SPA 325 or instructor approval.

M SPA 487 Mexican American Drama. (3)

selected semesters

Representative dramatic works, with emphasis on the history and development of this genre from its regional origins to the present. Prerequisite: SPA 325 or instructor approval.

M SPA 494 Special Topics. (1–4)

selected semesters

Topics may include the following:

- Lexicography. (3)
- Introduction to Hispanic Linguistics. (3)

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

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

SWEDISH (SWE)

M SWE 101 Elementary Swedish. (4)

fall

Reading, writing, speaking, and understanding of basic Swedish. 4 hours lecture, 1 hour lab. Fee.

M SWE 102 Elementary Swedish. (4)

spring

Reading, writing, speaking, and understanding of basic Swedish. 4 hours lecture, 1 hour lab. Fee. Prerequisite: SWE 101 (or its equivalent).

M SWE 201 Intermediate Swedish. (4)

fall

Reviews Swedish grammar with emphasis on the development of the skills of speaking, listening comprehension, reading, and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: SWE 102 (or its equivalent).

M SWE 202 Intermediate Swedish. (4)

spring

Reviews Swedish grammar with emphasis on the development of the skills of speaking, listening comprehension, reading, and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: SWE 201 (or its equivalent).

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

THAI (THA)

M THA 101 Elementary Thai I. (5)

fall

Basic communication, reading, and writing skills. Intensive oral/aural classroom drill supplemented by prose readings in Thai script. 4 hours lecture, 1 hour lab. Fee.

M THA 102 Elementary Thai II. (5)

spring

Basic communication, reading, and writing skills. Intensive oral/aural classroom drill supplemented by prose reading. 4 hours lecture, 1 hour lab. Fee. Prerequisite: THA 101 (or its equivalent).

M THA 201 Intermediate Thai I. (5)

fall

Systematic review of grammar. Continued development of communication skills with increased emphasis on reading and writing. 4 hours lecture, 1 hour lab. Fee. Prerequisite: THA 102 (or its equivalent).

General Studies: G

M THA 202 Intermediate Thai II. (5)

spring

Systematic review of grammar. Continued development of communication skills with increased emphasis on reading and writing.

4 hours lecture, 1 hour lab. Fee. Prerequisite: THA 201 (or its equivalent).
General Studies: G

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

VIETNAMESE (VTN)

M VTN 101 Elementary Vietnamese I. (5)

fall
 Basic skills in modern conversational Vietnamese and development of basic reading and writing skills, with special emphasis on tones. 4 hours lecture, 1 hour lab.

M VTN 102 Elementary Vietnamese II. (5)

spring
 Basic skills in modern conversational Vietnamese and development of basic reading and writing skills, with special emphasis on tones. 4 hours lecture, 1 hour lab. Prerequisite: VTN 101 (or its equivalent).

M VTN 201 Intermediate Vietnamese I. (5)

fall
 Improves speaking, listening, reading, and writing competence through dialogues, reading passages, pattern drill, and grammar and communicative exercises. 4 hours lecture, 1 hour lab. Prerequisite: VTN 102 (or its equivalent).
General Studies: G

M VTN 202 Intermediate Vietnamese II. (5)

spring
 Improves speaking, listening, reading, and writing competence through dialogues, reading passages, pattern drill, and grammar and communicative exercises. 4 hours lecture, 1 hour lab. Prerequisite: VTN 201 (or its equivalent).
General Studies: G

M VTN 321 Advanced Vietnamese and Literature I. (3)

fall
 Readings from modern, contemporary, and folk literatures as well as current periodicals. Lecture, discussion, Internet, student presentations, debate. Prerequisite: VTN 202 (or its equivalent) or instructor approval.

M VTN 322 Advanced Vietnamese and Literature II. (3)

spring
 Continuation of VTN 321. Readings from modern, contemporary, and folk literatures as well as current periodicals. Lecture, discussion, Internet, student presentations, debate. Prerequisite: VTN 321 (or its equivalent) or instructor approval.

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

Ullman Professors: Collins, Hedrick

Professors: Briggs, Burke, Capco, Chandler, Church, Clark-Curtiss, Creath, Curtiss, Day, Deviche, Dowling, Elser, Faeth, Fisher, Frasch, Grimm, Harrison, Hölldobler, B. Jacobs, M. Jacobs, Klopatek, Lawson, Mandarino, Misra, Moore, Mossman, Nash, Rutowski, Sarewitz, A. Smith, B. Smith, Sommerfeld, Trelease, Vermaas, Walsberg, Webber, Wu, Young

Associate Professors: Armendt, Chang, Clark, Escalante, Fewell, Garcia-Pichel, Goldstein, Hoffman, Hogue, Kinzig, Kumar, Mason, McGregor, Neuer, Newfeld, Orchinik, Pigg, Ramakrishna, Rawls, Roberson, Slater, Stout, Stromberg, Szarek, Towill

Assistant Professors: Amdam, Anderies, Chen, Crook, DeNardo, Gadau, Gerber, Haydel, Kim, Laubichler, Liebig, McGraw, Minter, Mor, Rhoads, Robert, Rosenberg, Sabo, Touchman, Verrelli, Wilson-Rawls, Wojciechowski

Clinical Professors: Downs, Mass

Clinical Associate Professor: Roberts

Clinical Assistant Professor: Lefevre

Research Professors: Cardineau, Davidson, Hooper, Mahoney, Pearson

Associate Research Professors: Lopez, Pettit

Assistant Research Professors: Bertram, Eggink, Hope, Hu, Luo, Walmsley

Senior Research Scientists: Bingham, Landrum, LoBrutto

Curator: Gill

Senior Research Professional: Kazilek

School of Life Sciences

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 LSC 226

Robert E. Page Jr., Director

**Ronald L. Rutowski,
 Associate Director for Undergraduate Programs**

**Jim Elser,
 Associate Director for Research and Training Initiation**

**Jon Harrison,
 Associate Director for Facilities**

Regents' Professors: Alcock, Arntzen, Maienschein, Pyne

Foundation Professor: Page

BIOLOGY—BS

The major in Biology consists of a minimum of 37 semester hours in biology, and a minimum of 16 semester hours in related fields, plus a three-semester-hour calculus course, and a three-semester-hour statistics course. One upper-division PLB or MIC course is also required. A minimum grade of "C" (2.00) is required for all course work in the major and related fields. Required major courses are

BIO 187 General Biology I <i>SG</i>	4
BIO 188 General Biology II <i>SQ</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 320 Fundamentals of Ecology (3)	
BIO 331 Animal Behavior (3)	
BIO 370 Vertebrate Zoology (4)	
BIO 385 Comparative Invertebrate Zoology (4)	

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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MIC 220 Biology of Microorganisms (3) and MIC 206 Microbiology Laboratory SG* (1)	
PLB 300 Comparative Plant Diversity LSG (4)	
Choose one of the courses below	3-4
BIO 351 Developmental Anatomy (3)	
BIO 353 Cell Biology (3)	
BIO 360 Animal Physiology (3)	
MIC 360 Bacterial Physiology (3)	
PLB 308 Plant Physiology (4)	
Total	21-24

* MIC 206 must be taken with 205 to secure SG credit.

The remaining hours to bring the total to 37 are selected from among upper-division courses, approved for major credit, in BIO, MIC, PLB, and approved BCH courses, in consultation with an advisor. The major must include at least three upper-division laboratory courses. Required courses in related fields plus math proficiency are

CHM 113 General Chemistry I SQ	4
CHM 115 General Chemistry with Qualitative Analysis SQ	5
or CHM 116 General Chemistry II SQ (4)	
Choose between the combinations of organic chemistry courses below	4 or 8
CHM 231 Elementary Organic Chemistry SQ ¹ (3)	
CHM 235 Elementary Organic Chemistry Laboratory SQ ¹ (1)	
or	
CHM 233 General Organic Chemistry I (3)	
CHM 234 General Organic Chemistry II (3)	
CHM 237 General Organic Chemistry Laboratory I (1)	
CHM 238 General Organic Chemistry Laboratory II (1)	
MAT 251 Calculus for Life Sciences MA	3
or MAT 210 Brief Calculus MA (3)	
or any other calculus course approved by an advisor	
Choose between the combinations of introduction to physics courses below	4 or 8
PHY 101 Introduction to Physics SQ (4)	
or	
PHY 111 General Physics SQ ² (3)	
PHY 112 General Physics SQ ² (3)	
PHY 113 General Physics Laboratory SQ ² (1)	
PHY 114 General Physics Laboratory SQ ² (1)	
STP 226 Elements of Statistics CS	3
or STP 231: Statistics for Biosciences (3)	
Total	23-31

¹ Both CHM 231 and 235 must be taken to secure SQ credit.

² Both PHY 111 and 113 or PHY 112 and 114 must be taken to secure SQ credit.

Concentration in Biology and Society

The major in Biology with a concentration in biology and society is intended for students with a strong interest in life sciences and in the interaction between life sciences and the society within which science is done. This option consists of a minimum of 44 semester hours in life sciences and societal interface courses, and 11 hours in related fields. A three-semester-hour mathematics proficiency course and a three-semester-hour statistics course are also required. A minimum grade of "C" (2.00) is required in all course work in the major or related fields. Required courses are as follows:

BIO 187 General Biology I SG	4
BIO 188 General Biology II SQ	4

BIO 311 Biology and Society	3
BIO 314 Research Colloquium in Biology and Society I L*	2
BIO 320 Fundamentals of Ecology	3
or BIO 345 Organic Evolution (3)	
BIO 340 General Genetics	4
or BIO 341 Genetic Analysis (5)	
BIO 414 Research Colloquium in Biology and Society II* L	1
BIO 493 Honors Thesis L	3
or BIO 495 Undergraduate Thesis (3)	
or BIO 499 Individualized Instruction (3)	
or approved hours in research (3)	
MAT 251 Calculus for Life Sciences MA	3
or MAT 210 Brief Calculus MA (3)	
or any other calculus	
Total	27

* Both BIO 314 and 414 must be taken to secure L credit.

The remaining courses to complete the major are determined by the student in consultation with an advisor and must be distributed in the following areas:

- 12 hours of upper-division electives from BIO, MIC, PLB;
- 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;
- 11 hours of physical sciences (CHM recommended); and
- three to four hours of an approved course in statistics.

CLINICAL LABORATORY SCIENCES—BS

The Clinical Laboratory Sciences degree program prepares individuals to practice in the field of clinical laboratory sciences, which includes the major disciplines of clinical chemistry, hematology, immunohematology, immunology, and microbiology. Employment opportunities exist in hospital, private, physician, and research laboratories and in government, sales, management, and education. After obtaining a BS degree in Clinical Laboratory Sciences, the graduate is eligible for national certification by examination.

A major in Clinical Laboratory Sciences consists of 40 semester hours in clinical laboratory sciences courses. A minimum grade of "C" (2.00) is required in all course work in the major or related fields. Also required are the following courses:

BCH 361 Principles of Biochemistry	3
BIO 360 Animal Physiology	3
CHM 113 General Chemistry I SQ	4
CHM 231 Elementary Organic Chemistry SQ ¹	3
MIC 205 Microbiology SG ²	3
or MIC 220 Biology of Microorganisms (3)	
MIC 206 Microbiology Laboratory SG ²	1
Total	17

¹ Both CHM 231 and 235 must be taken to secure SQ credit.

² Both MIC 205 and 206 must be taken to secure SG credit.

Equivalent courses may be substituted upon approval of an advisor. Students must consult with the clinical laboratory sciences advisor to select general electives courses.

Completion of the degree is dependent upon acceptance of the student into the accredited professional study program, which consists of 40 hours of clinical laboratory sciences courses. The university does not guarantee all students to be accepted into the professional study program due to space limitations at the clinical affiliates and restrictions of program accreditation. For more information on acceptance procedures and program standards, contact the school for a program brochure. For proper course planning, students must meet with a clinical laboratory sciences advisor.

CONSERVATION BIOLOGY—BS

The major in Conservation Biology consists of a minimum of 41 semester hours in the required major courses and a minimum of 16 hours in related fields, plus a three-semester-hour calculus course and a three-semester-hour statistics course. A minimum grade of “C” (2.00) is required for all course work in the major and related fields. Required courses are as follows:

BIO 187 General Biology I <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 <i>SQ</i>	4
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i>	5
or CHM 116 General Chemistry II <i>SQ</i> (4)	
Choose between the combinations of organic chemistry	
courses below.....	4 or 8
CHM 231 Elementary Organic Chemistry <i>SQ*</i> (3)	
CHM 235 Elementary Organic Chemistry Laboratory <i>SQ*</i> (1)	
or	
CHM 233 General Organic Chemistry I (3)	
CHM 234 General Organic Chemistry II (3)	
CHM 237 General Organic Chemistry Laboratory I (1)	
CHM 238 General Organic Chemistry Laboratory II (1)	
MAT 251 Calculus for Life Sciences <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 231: Statistics for Biosciences (3)	
Total.....	18 or 23

* Both CHM 231 and 235 must be taken to secure SQ credit.

MICROBIOLOGY—BS

The BS degree in Microbiology consists of a minimum of 41 semester hours in microbiology and 17 hours in approved related fields. A minimum grade of “C” (2.00) is

required for all course work in the major and related fields. Required courses are as follows:

BIO 187 General Biology I <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 233 General Organic Chemistry I (3)	
CHM 234 General Organic Chemistry II (3)	
CHM 237 General Organic Chemistry Laboratory I (1)	
CHM 238 General Organic Chemistry Laboratory II (1)	
MIC 206 Microbiology Laboratory <i>SG</i> ²	1
MIC 220 Biology of Microorganisms.....	3
MIC 302 Advanced Bacteriology Laboratory <i>L</i> ³	2
MIC 360 Bacterial Physiology.....	3
MIC 401 Research Paper <i>L</i> ³	1
Total.....	30

¹ Both CHM 231 and 235 must be taken to secure SQ credit.

² Both MIC 205 and 206 must be taken to secure SG credit.

³ Both MIC 302 and 401 must be taken to secure L credit.

A minimum of 11 semester hours of upper-division electives in microbiology or approved life science fields must be taken. These elective hours must include two courses chosen from the following:

MIC 421 Experimental Immunology.....	2
MIC 442 Bacterial Genetics Laboratory.....	1
MIC 446 Techniques in Molecular Biology/Genetics Lab.....	2
MIC 470 Bacterial Diversity and Systematics.....	4
MIC 484 Internship.....	3
MIC 494 ST: Clinical Bacteriology Laboratory.....	3
MIC 495 Undergraduate Research.....	2

In addition, students are required to fulfill the university mathematical studies requirements with MAT 210 (or 251, 270) as their MA course and BIO 406, STP 226, STP 294 (or any CSE course that meets the CS requirement). The required supplemental courses are as follows:

CHM 113 General Chemistry I <i>SQ</i>	4
CHM 115 General Chemistry with Qualitative Analysis <i>SQ</i>	5
or CHM 116 General Chemistry II <i>SQ</i> (4)	
PHY 111 General Physics <i>SQ*</i>	3
PHY 112 General Physics <i>SQ*</i>	3
PHY 113 General Physics Laboratory <i>SQ*</i>	1
PHY 114 General Physics Laboratory <i>SQ*</i>	1
Total.....	16 or 17

* Both PHY 111 and 113 or PHY 112 and 114 must be taken to secure SQ credit.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 93.

COLLEGE OF LIBERAL ARTS AND SCIENCES

MOLECULAR BIOSCIENCES AND BIOTECHNOLOGY—BS

The BS degree in Molecular Biosciences and Biotechnology is designed to prepare students for productive careers in rapidly expanding areas within the life sciences, such as biotechnology, medicine, and biomedical research or any area of biology at the molecular and cellular level. Courses and faculty are drawn primarily from the School of Life Sciences and the Department of Chemistry and Biochemistry.

The major in Molecular Biosciences and Biotechnology consists of a minimum of 59 semester hours of course work plus two courses in mathematics specifically designed for this program. A minimum grade of "C" (2.00) is required for all course work in the major. The required major courses (30 total semester hours) are as follows:

BIO 340 General Genetics	4
MBB 245 Cellular and Molecular Biology <i>SQ</i>	4
MBB 247 Applied Biosciences: Biotechnology	4
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 to secure *SG* credit.

Choose at least one of the following courses (or combinations) for a minimum of three to four semester hours. Although only one advanced lab course is required, students are encouraged to take two:

BIO 451 Cell Biotechnology Laboratory.....	3
MBB 350 Applied Genetics.....	4
MBB 445 Techniques in Molecular Biology/Genetics.....	2
MBB 446 Techniques in Molecular Biology/Genetics Lab ¹	2
MIC 420 Immunology: Molecular and Cellular Foundations.....	3
MIC 421 Experimental Immunology ²	2
MIC 441 Bacterial Genetics	3
MIC 442 Bacterial Genetics Laboratory ³	1

¹ MBB 446 is taken with MBB 445.

² MIC 421 is taken with MIC 420.

³ MIC 442 is taken with MIC 441.

Required supplemental courses in biology, chemistry, mathematics and physics (28 total semester hours) are as follows (a minimum grade of "C" (2.00) is required for all course work):

BCH 361 Principles of Biochemistry.....	3
BCH 367 Elementary Biochemistry Laboratory.....	1
CHM 113 General Chemistry I <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 233 General Organic Chemistry I (3)	
CHM 234 General Organic Chemistry II (3)	
CHM 237 General Organic Chemistry Laboratory I (1)	
CHM 238 General Organic Chemistry Laboratory II (1)	

MAT 251 Calculus for Life Sciences <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 32

¹ Both CHM 231 and 235 must be taken to secure *SQ* credit.

² Both PHY 111 and 113 must be taken to secure *SQ* credit.

³ Both PHY 112 and 114 must be taken to secure *SQ* credit.

Satisfaction of the university computer/statistics/quantitative applications requirement is met with MAT 351 Mathematical Methods for Genetic Analysis, or MAT/BIO 394 ST: Introduction to Computational Molecular Biology, in which a minimum grade of "C" (2.00) is required.

Additional courses are available in the life or physical sciences for elective credit.

PLANT BIOLOGY—BS

The School of Life Sciences offers three options to meet the needs of students whose interests are in the rapidly expanding areas within plant biology. Students may choose the general program option, which allows the opportunity to develop strength in one area or discipline. Others may choose to design a more specific, but interdisciplinary, program in one of the following two optional concentrations: environmental science and ecology; plant biochemistry and molecular biology.

Each concentration promotes interaction between diverse groups and captures the growing interdisciplinary nature of scientific investigations. When one of these options is chosen, the title will appear on transcripts and other university documents.

The three curricular options prepare students for careers in technical, industrial, and educational fields as well as professional degree programs in medicine or research and post-graduate education in the life sciences.

General Program

The BS degree in Plant Biology consists of a minimum of 38 semester hours in plant biology and approved life science and physical science courses. A minimum grade of "C" (2.00) is required for all course work in the major and related fields. Required courses are as follows:

BIO 320 Fundamentals of Ecology.....	3
or BIO 340 General Genetics (4)	
BIO 353 Cell Biology	3
PLB 200 Biology of Plants <i>SQ</i> *.....	3
PLB 201 Biology of Plants Laboratory <i>SQ</i> *.....	1
PLB 306 Plant Anatomy.....	4
PLB 308 Plant Physiology	4
PLB 484 Internship	3
or PLB 499 Individualized Instruction (3)	
Total	21–22

* Both PLB 200 and 201 must be taken to secure *SQ* credit.

The remaining hours to bring the total to 38 are selected from among relevant courses in plant biology, other life sciences, and physical sciences in consultation with an advisor.