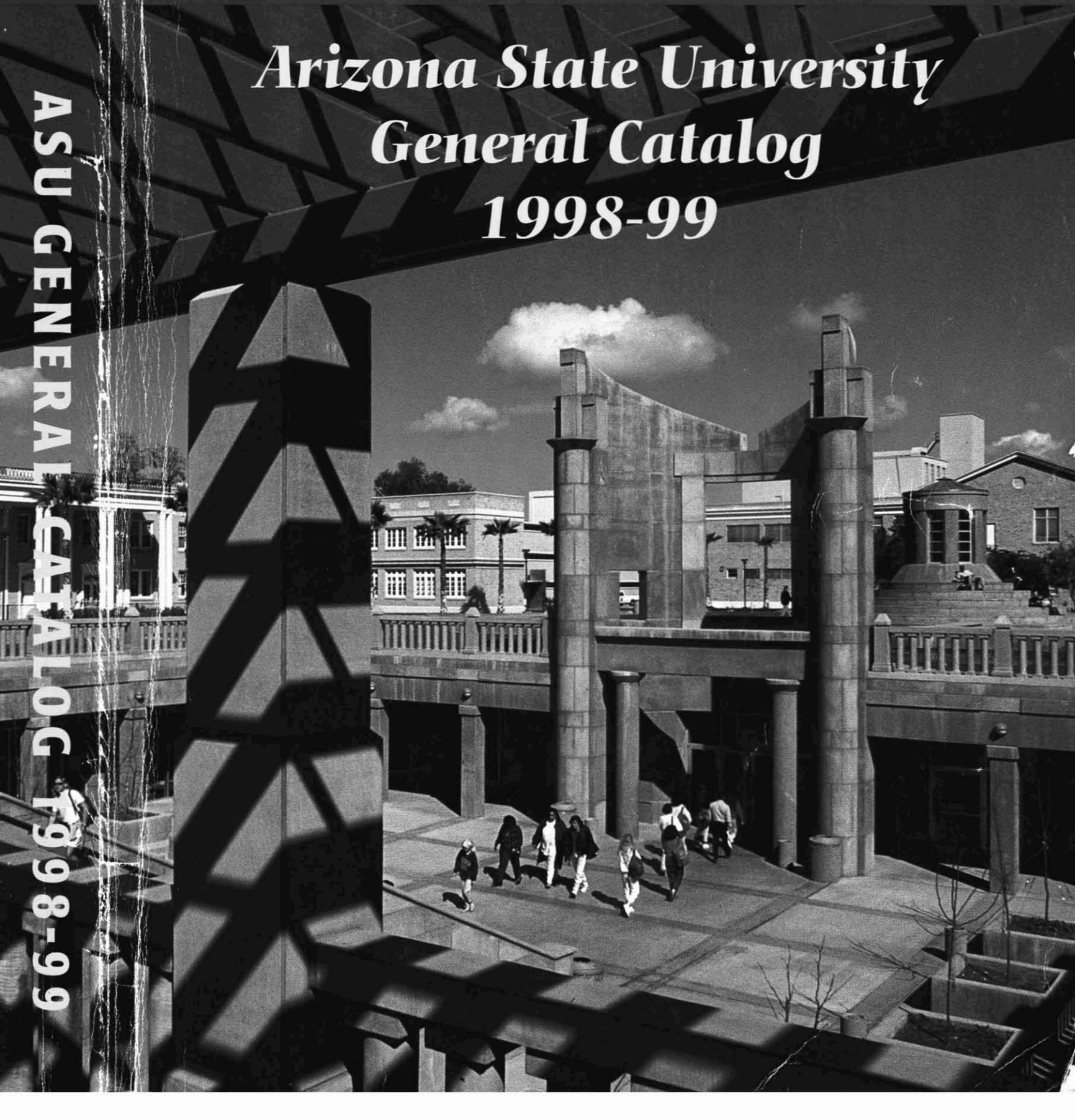
ASU Bulletin

Arizona State University General Catalog 1998-99



ASU GENERAL CATALOG 1998-99

$4.00

Arizona State University

1998–99 General Catalog

All co leges, schools, div sions, and departments establish certa n academic requirements that must be met before a degree s granted. Advisors, directors, department cha rs, and deans are available to help the student understand these requ rements, but the student is respons ble for fulfilling them. At the end of a student's course of study, f requirements for graduation have not been satisf ed, the degree is not granted. For this reason, t is important for all students to acquaint themselves with all regulations, to be informed throughout their college careers, and to be responsible for completing requ rements. Courses, programs, and requirements described in the catalog may be suspended, deleted, restricted, supplemented, or changed in any other manner at any t me at the sole discretion of the university and the Arizona Board of Regents. The catalog does not estab sh a contractual relationsh p but summarizes the total requ'rements the student must currently meet before qualifying for a faculty recommendation to the Arizona Board of Regents to award a degree.

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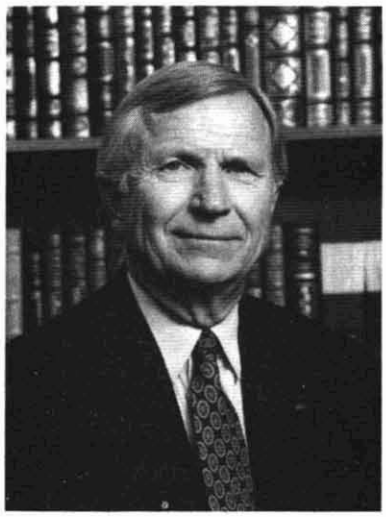
Front Cover

The Charles Trumbu Hayden L brary houses the univers ty s largest mult d sc p nary co ection The underground entrance was added n 1989 a ong w th 97,000 add t ona square feet of serv ce area See page 25 (Photo by J m R chardson



President Lattie F. Coor Tim Trumble photo

Dear ASU Students and Prospective Students:

It is my personal pleasure to introduce the Arizona State University *1998–99 General Catalog*. It is intended to put a great deal of important information at your fingertips and serve as a guide through your university experience.

The catalog comprises a rather imposing list of programs, courses, requirements, and services. We hope it is organized in a manner that makes it easy to find the information most applicable to you and your course of studies.

While the catalog will answer many of your questions, nothing will substitute for the guidance your advisor can provide. I strongly encourage you to work closely with an advisor to plan your academic program.

On behalf of Arizona State University, I wish you a challenging and fulfilling experience as you work to achieve your goals.

Sincerely,

Lattie F. Coor
President

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The ASU Web is the online presence of Arizona State University on the World Wide Web. Offering links and guides to almost 30,000 different Web pages housed on ASU servers, the ASU Web is becoming a comprehensive resource for learning about the people and places of Arizona State University. It is the goal of the ASU Web to help all visitors, students, staff, and faculty to make the most of their experiences at ASU while pioneering a new age of communications, research, and education.

ASU home page: www.asu.edu

See "Web Directory," page 531, for a list of college, department, and school Web sites.

The *General Catalog* is the official source of information for programs and requirements of ASU and its colleges, departments, and schools. For information on determining catalog year and university requirements, see "University Graduation Requirements," pages 79–83

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Codes and Abbreviations

Key to Course Listing Codes

Code	Definition
M	ASU Main campus code*
W	ASU West campus code*
GLG	Example of a departmental prefix designation
410	Example of a course number
(3)	Example of course semester hours
F	Course offered fall only
S	Course offered spring only
SS	Course offered summer session only
F, S	Course offered both semesters
A	Course offered once a year
F 1998	Course offered every other year on semester indicated
N	Course not regularly offered

* Campus codes are not used in the catalogs but appear in the fall and spring *Schedule of Classes* and the *Summer Sessions Bulletin.*

Key to General Studies Credit Abbreviations

Code	Definition
L1	Literacy and critical inquiry core courses (intermediate level)
L2	Literacy and critical inquiry core courses (upper division)
N1	Numeracy core courses (mathematics)
N2	Numeracy core courses (statistics and quantitative reasoning)
N3	Numeracy core courses (computer applications)
HU	Humanities and fine arts core courses
SB	Social and behavioral sciences core courses
S1	Natural sciences core courses (introductory)
S2	Natural sciences core courses (additional courses)
C	Cultural diversity in the United States courses
G	Global awareness courses
H	Historical awareness courses
/	or
	and

Course Prefix Index

The course descriptions in this catalog refer to ASU Main and ASU East courses. For ASU West course descriptions, see the *ASU West Catalog*. For graduate course descriptions, see the *Graduate Catalog*.

AAD Architectural Administration and Management . 122
ACC Accountancy 150
ADE Architectural Design and Technology Studios 123
AES Aerospace Studies 310
AET Aeronautical Engineering Technology 453
AFR African American Studies 311
AGB Agribusiness 457
AJS Administration of Justice[2]
AMS American Studies[2]
AMT Aeronautical Management Technology 442
ANP Environmental Analysis and Programming 123
APA Asian Pacific American Studies 408
APH Architectural Philosophy and History 123
ARA Art Auxiliary 254
ARB Arabic 353
ARE Art Education 254
ARP Architecture Professional Studies 124
ARS Art History 254
ART Art 257
ASB Anthropology 312
ASE Analysis and Systems 197
ASM Anthropology 314
AST Astronomy 374
ATE Architectural Technology 124
AVC Architectural Communication 125
BIO Biology 316
BIS Bachelor of Interdisciplinary Studies 113
BLE Bilingual Education 177
BME Bioengineering 206
BUE Business Education 179
BUS Business Administration 152
CCS Chicana and Chicano Studies 324
CDE Child Development 335
CED Counselor Education[1]
CEE Civil Engineering 214
CET Computer Engineering Technology 445
CGC Computer Graphic Communications 448
CHE Chemical Engineering 207
CHI Chinese 353
CHM Chemistry 322
CIS Computer Information Systems 151
CLS Clinical Laboratory Sciences/Medical Technology 367
COB College of Business 149
COE College of Education[1]
COM Communication 410
CON Construction 193
CPP College of Public Programs 409
CPY Counseling Psychology[1]
CSE Computer Science and Engineering 219
CSH Chicana and Chicano Studies 324
CSS Chicana and Chicano Studies 324
DAH Dance History 261
DAN Dance 261
DCI Curriculum and Instruction 174
DSC Design 130
ECD Early Childhood Education 175
ECE Engineering Core 197
ECN Economics 154
EDA Educational Administration and Supervision[1]
EDP Educational Psychology 183
EED Elementary Education 176
EEE Electrical Engineering 224
EET Electronics Engineering Technology 446
EMC Educational Media and Computers 176
ENG English 327
EPD Environmental Design and Planning[1]
EPE Exercise Science/Physical Education 331
ERS Environmental Resources 138
ETC Engineering Technology Core 440
ETM Environmental Technology Management 450
FAS Family Studies 335
FIN Finance 157
FLA Foreign Languages 352
FON Food and Nutrition 336
FRD Family Resources and Human Development 337
FRE French 353
GCU Cultural Geography 338
GER German 355
GLB Global Business[2]
GLG Geology 341
GPH Physical Geography 339
GRA Graphic Design 131
GRK Ancient Greek 355
GRN Gerontology 284
HCR Health Care Related 401

[1] See the *Graduate Catalog*

[2] See the *ASU West Catalog*.

HEB Hebrew 355
HED Higher and Postsecondary Education[1]
HEE Home Economics Education 337
HES Health Science 333
HIS History 343
HON Honors 295
HPS History and Philosophy of Science 371
HRM Human Resources Management[2]
HSA Health Services Administration 158
HUD Housing and Urban Development 139
HUM Humanities 347
IAP Interdisciplinary Arts and Performance[2]
IAS Integrative Studies[2]
IBS International Business Studies 159
IDN Indonesian 355
IED Indian Education 178
IEE Industrial and Management Systems Engineering 229
IMC Information and Management Core 451
IND Industrial Design 131
INT Interior Design 132
IPO International Program Overseas 57
ISM Information Systems Management[2]
ITA Italian 356
ITM Industrial Technology Management 451
JAC Joint Admission Continuous Enrollment 436
JPN Japanese 356
JRN Journalism 415
JUS Justice Studies 418
LAT Latin 357
LAW Law[1]
LES Legal and Ethical Studies 153
LIA Liberal Arts and Sciences 309
LIN Linguistics[1]
LIS Library Science 178
LNT Learning and Instructional Technology[1]
LSC Life Sciences[2]
MAE Mechanical and Aerospace Engineering 235
MAT Mathematics 363
MCB Molecular and Cellular Biology[1]
MCE Multicultural Education 178
MCO Mass Communication 415
MET Manufacturing Engineering Technology 454
MGT Management 163
MHL Music History/Literature 270
MIC Microbiology 367
MIS Military Science 370
MKT Marketing 165
MSE Materials Science and Engineering 209
MTC Music Theory and Composition 270
MTE Mathematics Education 365
MUE Music Education 271
MUP Music Performance 272
MUS Music 275
NOR Norwegian 357
NUR Nursing 401
OPM Operations and Production Management 163
PAF Public Affairs 420
PGS Psychology 385
PHI Philosophy 371
PHS Physical Sciences 375
PHY Physics 375
PLA Landscape Architecture 139
PLB Plant Biology 378
POL Politics[2]
POR Portuguese 357
POS Political Science 381
PSY Psychology 386
PUB Scholarly Publishing[1]
PUP Urban and Environmental Planning 140
QBA Quantitative Business Analysis 156, 164
RDG Reading Education 178
REA Real Estate 153
REC Recreation 423
REL Religious Studies 388
RUS Russian 357
SBS Social and Behavioral Sciences[2]
SCA Scandinavian 358
SCM Supply Chain Management 153
SED Secondary Education 179
SEM Science and Engineering of Materials[1]
SHS Speech and Hearing Science 392
SOC Sociology 390
SPA Spanish 358
SPE Special Education 180
SPF Educational Policy Studies 182
STE Society, Values, and Technology 198
STP Statistics and Probability 365
SWE Swedish 360
SWG Social Work[1]
SWU Social Work 429
TCM Telecommunication 416
THA Thai 360
THE Theatre 278
THP Theatre Performance and Production 279
UET Microelectronics Engineering Technology 447
UNI University 29
VTN Vietnamese 360
WAC Writing Across the Curriculum 330
WST Women's Studies 395

[1] See the *Graduate Catalog*.

[2] See the *ASU West Catalog*

Academic Organization

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

ASU Main

College of Architecture and Environmental Design
School of Architecture
School of Design
School of Planning and Landscape Architecture

College of Business
Department of Business Administration
Department of Economics
Department of Finance
Department of Management
Department of Marketing
School of Accountancy and Information Management
School of Health Administration and Policy

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

College of Engineering and Applied Sciences
Del E. Webb School of Construction
School of Engineering
- Department of Chemical, Bio, and Materials Engineering
- Department of Civil and Environmental Engineering
- Department of Computer Science and Engineering
- Department of Electrical Engineering
- Department of Industrial and Management Systems Engineering
- Department of Mechanical and Aerospace Engineering

College of Extended Education

College of Fine Arts
Department of Dance
Department of Theatre
School of Art
School of Music

College of Law

College of Liberal Arts and Sciences
African American Studies Program
Department of Aerospace Studies
Department of Anthropology
Department of Biology
Department of Chemistry and Biochemistry
Department of Chicana and Chicano Studies
Department of English
Department of Exercise Science and Physical Education
Department of Family Resources and Human Development
Department of Geography
Department of Geology
Department of History
Department of Languages and Literatures
Department of Mathematics
Department of Microbiology
Department of Military Science
Department of Philosophy
Department of Physics and Astronomy
Department of Plant Biology
Department of Political Science
Department of Psychology
Department of Religious Studies
Department of Sociology
Department of Speech and Hearing Science
Interdisciplinary Humanities Program
Women's Studies Program

College of Nursing

College of Public Programs
Asian Pacific American Program
Department of Communication
Department of Recreation Management and Tourism
School of Justice Studies
School of Public Affairs
Walter Cronkite School of Journalism and Telecommunication

Division of Undergraduate Academic Services
University 100 Program
Writing Across the Curriculum

Graduate College

School of Social Work

University Honors College

ASU East

College of Technology and Applied Sciences
- Department of Aeronautical Management Technology
- Department of Electronics and Computer Engineering Technology
- Department of Information and Management Technology
- Department of Manufacturing and Aeronautical Engineering Technology

East College

School of Agribusiness and Resource Management

ASU West

College of Arts and Sciences
Department of American Studies
Department of Integrative Studies
Department of Interdisciplinary Arts and Performance
Department of Life Sciences
Department of Social and Behavioral Sciences
Women's Studies Program

College of Education
Undergraduate Professional Teacher Preparation
Graduate Programs
Postbaccalaureate Programs for Teacher Certification

College of Human Services
Department of Administration of Justice
Department of Communication Studies
Department of Recreation and Tourism Management
Department of Social Work
Gerontology Program
Nursing (ASU Main program)

Division of Collaborative Programs
Center for Writing Across the Curriculum
Research Consulting Center
University College Center
University Honors College

School of Management
Accountancy
Business Administration
Global Business

Baccalaureate Degrees and Majors Offered at ASU Main and ASU East

Baccalaureate degrees and majors offered at ASU West are shown on page 534.
Graduate degrees and majors are shown on pages 290–292.

ASU MAIN

Bachelor of Arts
- Anthropology
- Art
  - *Concentrations*
  - Art history
  - Photographic studies
  - Studio art
- Asian Languages Chinese Japanese
- Broadcasting
  - *Emphases*
  - Broadcast journalism
  - Business/management
- Chemistry
- Chicana and Chicano Studies
- Communication
- Economics
- English
- Family Resources and Human Development[1]
  - *Concentrations:*
  - Family resources and human development in business
  - Family studies child development
  - Human nutrition—dietetics
- French
- Geography
  - *Emphases:*
  - Meteorology climatology
  - Urban studies
- German
- History
- Humanities
  - *Concentrations*
  - Architecture
  - Architecture, culture, and society
  - Business
  - Design
  - Film studies
  - Humanities/liberal arts
  - Justice studies
  - Planning
- Interdisciplinary Studies
- Italian
- Journalism
  - *Emphases*
  - News editorial
  - Public relations
  - Visual journalism
- Mathematics
- Music
- Philosophy
- Political Science
- Psychology
- Religious Studies
- Russian
- Sociology
- Spanish
- Theatre
  - *Emphases*
  - Acting
  - Design/technical theatre
  - Directing stage management
  - History theory and criticism
- Women's Studies

Bachelor of Arts in Education
- Early Childhood Education
- Elementary Education
  - *Concentration:*
  - Bilingual education English as a second language
- Secondary Education
  - *Academic specializations:*
  - Biological sciences
  - Business education
  - Chemistry
  - Chinese
  - Communication
  - Economics
  - English
  - Family resources and human development (home economics)
  - French
  - Geography
  - German
  - History
  - Japanese
  - Journalism
  - Mathematics
  - Mathematics chemistry
  - Mathematics physics
  - Physical education
  - Physics
  - Physics chemistry
  - Political science
  - Russian
  - Social studies
  - Spanish
- Selected Studies in Education[1]
- Special Education

Bachelor of Fine Arts
- Art
  - *Concentrations:*
  - Art education
  - Ceramics
  - Drawing
  - Fibers
  - Intermedia
  - Metals
  - Painting
  - Photography
  - Printmaking
  - Sculpture
- Dance
  - *Concentrations*
  - Choreography
  - Dance education
  - Dance studies
  - Performance
- Theatre
  - *Concentration:*
  - Theatre education

Bachelor of Interdisciplinary Studies

Bachelor of Music
- Music Education
  - *Concentrations:*
  - Choral general
  - Instrumental
  - String
- Music Therapy
- Performance
  - *Concentrations*
  - Guitar
  - Jazz
  - Keyboard
  - Music theatre
  - Orchestral instrument
  - Piano accompanying
  - Voice
- Theory and Composition
  - *Concentrations*
  - Composition
  - Theory

Bachelor of Science
- Accountancy
- Biology
  - *Concentration:*
  - Biology and society
- Chemistry
  - *Emphasis*
  - Biochemistry

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

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

Baccalaureate Degrees and Majors Offered at ASU Main and ASU East (continued)

Clinical Laboratory Sciences
Communication
Computer Information Systems
Computer Science[2]
Conservation Biology
Construction[2]
Options:
General building construction
Heavy construction
Residential construction
Specialty construction
Economics
Engineering Interdisciplinary Studies[1]
Environmental Resources
Concentration·
Natural resource management
Exercise Science/Physical Education
Concentrations
Exercise and wellness
Exercise science
Physical education
Family Resources and Human Development
Concentrations·
Family resources and human development in business
Family studies/child development
Human nutrition—dietetics
Finance
Geography
Emphases:
Meteorology-climatology
Urban studies
Geology
History
Interdisciplinary Studies
Justice Studies
Management
Marketing
Mathematics
Options:
Applied mathematics
Computational mathematics
General mathematics
Pure mathematics
Statistics and probability
Microbiology
Physics
Emphases·
Astronomy
Option I
Option II
Plant Biology
Concentrations·
Environmental science and ecology
Molecular biosciences/biotechnology
Urban horticulture
Political Science
Psychology
Real Estate
Recreation
Concentrations:
Recreation management
Tourism
Speech and Hearing Science
Supply Chain Management
Women's Studies

Bachelor of Science in Design
Architectural Studies
Design Science[1]
Graphic Design
Housing and Urban Development
Industrial Design
Interior Design[2]

Bachelor of Science in Engineering
Aerospace Engineering
Emphases.
Aerodynamics
Aerospace materials
Aerospace structures
Computer methods
Design
Mechanical
Propulsion
System dynamics and control
Bioengineering
Emphases:
Biochemical engineering
Bioelectrical engineering
Biomaterials engineering
Biomechanical engineering
Biomedical imaging engineering
Biosystems engineering
Molecular and cellular bioengineering
Premedical engineering
Chemical Engineering
Emphases.
Biochemical
Biomedical
Environmental
Materials
Premedical
Process engineering
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Environmental engineering
Computer Systems Engineering
Electrical Engineering
Engineering Special Studies
Options:
Manufacturing engineering
Premedical engineering
Industrial Engineering
Materials Science and Engineering
Emphases:
Biomaterials
Ceramic materials
Energy systems
Integrated circuit materials
Manufacturing and materials processing
Mechanical metallurgy
Metallic materials systems
Polymers and composites
Mechanical Engineering
Emphases.
Aerospace
Biomechanical
Computer methods
Control and dynamic systems
Design
Energy systems
Engineering mechanics
Manufacturing
Stress analysis, failure prevention, and materials
Thermosciences

Bachelor of Science in Landscape Architecture

Bachelor of Science in Nursing

Bachelor of Science in Planning
Urban Planning

Bachelor of Social Work

ASU EAST

Bachelor of Applied Science

Bachelor of Science
Aeronautical Engineering Technology[2]
Aeronautical Management Technology[2]
Options:
Airway science flight management
Airway science management
Agribusiness
Concentrations·
General agribusiness
Preveterinary medicine
Electronics Engineering Technology[2]
Options·
Computer systems
Electronic systems
Microelectronics
Telecommunications
Industrial Technology[2]
Options:
Environmental technology management
Industrial technology management
Information technology
Manufacturing Engineering Technology[2]
Emphases.
Manufacturing engineering technology
Mechanical engineering technology

[1] Applications for this program are not being accepted at this time.
[2] This major requires more than 120 semester hours to complete

April 1998

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May 1998

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June 1998

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July 1998

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August 1998

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September 1998

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University Calendar

1998 Summer Sessions

Check the 1998 *Summer Sessions Bulletin* for details and to confirm these dates.

Mon., Feb. 2– Tues., June 2	Registration and drop/add for first five week session and eight-week session
Mon., Feb. 2 Tues., July 7	Registration and drop/add for second five-week session
Thurs., Apr. 30	Final fee payment deadline for all summer sessions (For students who register after April 30, fees are due daily.)
Mon , June 1	Instruction begins for first five week session and eight-week session
Mon., June 8	Unrestricted withdrawal deadline for first five-week session and eight week session
Fri., June 19	Restricted course withdrawal for first five week session and eight-week session
Fri., June 26	Restricted complete withdrawal deadline for first five week session
Thurs., July 2	August graduation filing deadline (must be met to have name appear in commencement program)
	First five week session ends
Fr . July 3	Classes are excused for Independence Day
Mon , July 6	Instruction begins for second five week session
Mon , July 13	Unrestricted withdrawal deadline for second five week session
Fr ., July 17	Restricted complete withdrawal deadline for eight-week session
Fr., July 24	Eight week session ends
	Restricted course withdrawal deadline for second five-week session
Fri., July 31	Restricted complete withdrawal deadline for second five-week session
Fri., Aug. 7	Second five week session ends
	Commencement

1998 Fall Semester

Check the fall 1998 *Schedule of Classes* for details and to confirm these dates.

Thurs., Apr. 2– Fr. Apr. 10	Preregistration
Mon., Apr. 27 Fr , Aug 28	Drop/add
Wed., Apr. 29– Fr., Aug. 28	Registration
Tues , Aug 4	Final fee payment deadline for fall 1998 (For students who register after Aug. 4, fees are due daily.)

October 1998

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December 1998

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February 1999

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March 1999

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Thurs , Aug 20–Sun., Aug 23	Experiencing ASU: Orientation '98 activities
Thurs., Aug. 20	New Faculty and Academic Professional Orientation and Reception
Mon., Aug. 24	Instruction begins
Mon., Sept. 7	Classes are excused for Labor Day
Fri., Sept. 18	Unrestricted withdrawal deadline
Fri., Oct. 16	December graduation filing deadline (must be met to have name appear in commencement program)
Mon., Oct. 26	Winter session (College of Extended Education [CEE]) registration begins
Fr ., Oct 30	Restricted course withdrawal deadline
Wed., Nov. 11	Classes are excused for Veterans Day
Thurs., Nov. 26–Fri., Nov. 27	Classes are excused for Thanksgiving recess
Thurs., Dec 3	Restricted complete withdrawal deadline
Wed., Dec. 9	Instruction ends
Thurs., Dec 10	Reading day
Fr ., Dec 11–Sat , Dec. 12; Mon., Dec. 14–Thurs., Dec. 17	Final examinations
Fri., Dec. 18	Commencement
Sat., Dec 19	Midyear recess begins
Mon., Dec. 28	Winter session (CEE) instruction begins

1999 Spring Semester

Check the spring 1999 *Schedule of Classes* for details and to confirm these dates.

Mon., Nov. 2–Tues., Nov 10 1998	Preregistration
Mon., Nov. 30, 1998–Fri., Jan. 22, 1999	Drop/add
Wed., Dec. 2, 1998–Fri., Jan. 22, 1999	Registration
Tues., Dec. 15, 1998	Final fee payment deadline for spring 1999 (For students who register after Dec. 15, fees are due daily.)
Fri., Jan. 1, 1999	Winter session classes are excused for New Year's Day
Thurs., Jan. 14	Orientation and advisement for new transfer students
Fri., Jan. 15	Orientation and advisement for new freshmen
	Winter session (CEE) instruction ends
Mon., Jan. 18	Classes are excused for Martin Luther King Jr. Day
Tues , Jan. 19	Instruction begins
Fri., Feb. 12	Unrestricted withdrawal deadline

April 1999

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May 1999

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June 1999

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July 1999

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August 1999

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Sun., Mar. 14–Sun , Mar 21	Classes are excused for spring recess
Fri., Apr. 2	May graduation filing deadline (must be met to have name appear in commencement program)
	Restricted course withdrawal deadline
Mon., Apr. 29	Restricted complete withdrawal deadline
Wed., May 5	Instruction ends
Thurs , May 6	Reading day
Fri., May 7 Sat., May 8; Mon., May 10–Thurs., May 13	Final examinations
Fri , May 14	Commencement

1999 Summer Sessions

Check the 1999 *Summer Sessions Bulletin* for details and to confirm these dates.

Mon., Feb. 1–Tues., June 1	Registration and drop/add for first five week session and eight-week session
Mon., Feb. 1 Tues., July 6	Registration and drop/add for second five-week session
Thurs., Apr. 29	Final fee payment deadline for all summer sessions (For students who register after April 29, fees are due daily.)
Tues , June 1	Instruction begins for first five week session and eight week session
Mon , June 7	Unrestricted withdrawal deadline for first five week session and eight-week session
Fri. June 18	Restricted course withdrawal deadline for first five-week session and eight-week session
Fri., June 25	Restricted complete withdrawal deadline for first five week session
Thurs , July 1	First five week session ends
	August graduation filing deadline (must be met to have name appear in commencement program)
Fri., July 2	Classes are excused for Independence Day
Mon. July 5	Instruction begins for second five week session
Mon., July 13	Unrestricted withdrawal deadline for second five-week session
Fr ., July 23	Restricted complete withdrawal deadline for eight-week session
Fri., July 23	Eight-week session ends
	Restricted course withdrawal deadline for second five-week session
Fr . July 30	Restricted complete withdrawal deadline for second five-week session
Fri. Aug. 6	Second five week session ends
	Commencement

Frequently Asked Questions (FAQ)

How do I apply to ASU Main?
Complete an application and have transcripts and test scores, if needed, sent directly to Undergraduate Admissions. See page 59.

How do I apply to ASU East?
Complete an application. Request transcripts and test scores be sent to Undergraduate Admissions. See page 59. For more information, call 602/727 1142.

How do I apply to ASU West?
Contact the Admissions and Records Office at ASU West. See pages 533 535. For more information, call 602/543 8123.

What if I am a transfer student?
Upon admission, note the number of semester hours on your Certificate of Admission. When registering, consult your department advisor to determine how transfer credits fit into the curriculum (see "Academic Advising," page 69). Have you met the First Year Composition requirement (see page 79)? If you have completed 87 or more semester hours, file a program of study or declaration of graduation (see page 81).

What if I have a disability or am a veteran?
If you have a disability and will be requesting academic accommodations, see Disability Resources for Students, pages 39–40. Veteran students using GI benefits, see page 37.

How do I get financial aid?
In addition to applying for admission, complete the FAFSA before March 1. If you meet financial aid program criteria, you receive an award notification after April 15. See pages 37, 48 50.

How do I find a place to live and purchase a meal plan?
Apply early (four to six months in advance of the semester). See pages 37 38 for information on student housing. Meal plans may be purchased in advance for ASU Main or upon arrival on campus. For more information, call Campus Dining Services at 602/965 3464. For ASU East housing, call 602/988 9160, and for ASU East dining call 602/988 2903, or refer to "ASU East" page 435 for more information on dining and housing.

What about orientation?
Attend ASU Main orientation, where questions regarding advisement, class registration, student IDs, on campus housing, and other pertinent topics are answered. See page 60. Information regarding ASU East orientation can be obtained by calling 602/727 1041.

How do I get an ID, and what about parking?
See page 71 about obtaining an ASU student ID card. If you are planning to park at ASU Main, purchase a parking decal. See page 45. Parking on ASU East campus is free.

What about placement examinations and university testing requirements?
See pages 68 69.

Before I register for classes, how do I get an advisor?
Call the college of your major to schedule an appointment with an academic advisor. See page 69.

When and how do I register?
Refer to the *Schedule of Classes* for registration procedures and dates or access registration information online at www.asu.edu/registrar. Remember that you must first provide proof of measles immunity to Student Health. See pages 59–60.

Once I am registered and ready to go, how can I ensure my success at ASU?
Consider enrolling in UNI 100 Academic Success at the University See page 30.

Now that the business is over, what's left to do?
Become involved in the university by getting to know professors, joining student organizations, and taking advantage of the myriad of cultural, recreational, and social opportunities. For more information on ASU Main campus life, call Student Life at 602/965 6547, REACH at 602/965 2255, or ASASU at 602/965 3161; for ASU East, call 602/727 3278. Investigate the challenges and advantages of the University Honors College. See pages 293 295.

Academic Definitions

Academic Renewal. An undergradu ate who has been readmitted to the uni versity after an absence of at least five years and who has satisfactorily com pleted a minimum of 12 college-ap proved additional semester hours in residence at ASU within three semes- ters after re entry, with a GPA of 2.50 or higher in those courses and no grades lower than "C," may, upon peti tion to the dean of the college, have the former record treated in the same man- ner as transfer credits. See pages 70–71.

Advanced Placement. Students who have taken an advanced placement course of the College Entrance Exami nation Board (CEEB) in their second ary school *and* who have taken an Ad vanced Placement Examination of CEEB may receive university credit. See pages 65–68.

AECP. The American English and Culture Program (AECP) features an intensive, course of study designed for adult international students who desire to become proficient in English as a second language See pages 65 and 243.

ASU East. ASU East is located at the former Williams Air Force Base See pages 434–465.

ASU Main. ASU Main is the principal campus of ASU, located in Tempe. See page 24.

ASU West. ASU West is the Phoenix branch campus of ASU, established in 1984 by the Arizona Legislature to serve the educational needs of residents in western Maricopa County. See pages 532 544.

Audit Enrollment. A student who au- dits a course attends regularly sched uled class sessions but earns no credit. See page 73.

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

CLEP. As part of the College Level Examination Program CLEP), students who have taken a College Level Ex amination of the College Entrance Ex amination Board may receive univer sity credit. See pages 66–68.

Comprehensive Exam. A comprehen- sive examination is intended to permit a student to establish academic credit in a field in which the student has gained experience or competence equivalent to an established university course. See pages 65–68

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

Cooperative Education. Cooperative Education is any educational program that requires alternating classroom and work experience in government or in- dustry. The work experience exists for its educational value. See page 72

Corequisite. A requirement to be met, such as taking a certain course, *while* taking a course is a corequisite See *prerequisite* in this section

Course Prefix. The course prefix is the three letter designation assigned by each instruction unit The "Course Pre- fix Index," on pages 7 8, provides a comprehensive list. Also see *cross list ing* in this section

Credit Enrollment. One semester hour represents a minimum of one 50 minute class exercise per week per se- mester. A minimum of 120 semester hours is required for graduation with a baccalaureate degree. To obtain credit, a student must be properly registered and pay fees for the course. See page 73.

Cross-listing. One course may have more than one course prefix and may be offered by more than one depart ment. Some instruction units require students to enroll in a course under a certain prefix in order to receive credit properly. Course descriptions in the *General Catalog* indicate courses that are cross-listed.

Cum Laude. An undergraduate stu dent with a minimum of 60 semester hours of course work at ASU and a cu mulative GPA of 3.40–3.59 graduates *cum laude*. See page 83. Also see *magna cum laude* and *summa cum laude*.

Drop/Add. Drop or add is a process in which a student who has registered for courses for a semester or summer ses sion may drop or add courses through the first week of classes in a semester or the first two days of a summer ses sion See page 73.

Emphasis. An area of emphasis is a selection of courses within a major

Family Educational Rights and Privacy Act. The Family Educational Rights and Privacy Act of 1974, or Buckley Amendment, sets forth the requirements governing the protection of the privacy of the educational records of students who are or have been in attendance at Arizona State University. See page 78.

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

General Studies Requirement. The General Studies program consists of five core areas and three awareness areas. The core areas are literacy and critical inquiry, numeracy, humanities and fine arts, social and behavioral sci ences, and natural sciences. The awareness areas are cultural diversity in the United States, global awareness, and historical awareness. All under graduate students must successfully complete a minimum of 35 semester hours of approved General Studies courses. See pages 84–108.

GPA. The ASU grade point average (GPA) is obtained by dividing the total number of ASU grade points earned by the number of ASU semester hours graded. Grade point averages are rounded to the nearest hundredth of a grade point. See page 75.

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

Graduate Catalog. The *Graduate Catalog* describes the procedures and requirements for enrollment in the Graduate College. See pages 282 292 of the *General Catalog* for information on the Graduate College. See pages 290–292 specifically for a complete list of graduate degrees, majors, and con centrations.

Graduate-Level Courses. Courses numbered 500–799 are designed for graduate students. However, an upper division undergraduate student may en roll in graduate courses with the ap- proval of his or her advisor, the course instructor, the department chair, and the dean of the college or school in which the course is offered. See page 56.

Incomplete. A mark of "I" (incom plete) is given by the instructor only when a student who is otherwise doing acceptable work is unable to complete a course because of illness or other conditions beyond the student's control. See page 72 73.

Independent Study. The course num ber 499 has been reserved for indepen dent study courses in each of the instructional departments or divisions of the colleges at the undergraduate level. Independent study courses are honor courses and may be taken only by out standing senior students who have completed at least one semester in resi dence. See page 56.

International Baccalaureate. Stu dents who have taken a higher level ex amination through the International Baccalaureate program may receive university credit. See page 67

Junior. A student who has earned 56–86 hours is a junior.

Lower-Division Courses. Courses numbered 100–299 are designed prima rily for freshmen and sophomores. See page 56.

Magna Cum Laude. A student with a minimum of 60 semester hours of course work at ASU and a cumulative GPA of 3.60–3.79 graduates *magna cum laude*. See page 83. Also see *cum laude* and *summa cum laude* in this sec tion.

Major. A major is a specialized group of courses contained within the pro gram of study. Refer to college and school sections for specific descriptions and requirements.

Minor. A minor is a specialized group of courses contained within the pro gram of study available from some in struction units. Refer to page 109 and to college and school sections for spe cific descriptions and requirements.

Nonresident Tuition. This term refers to the charge assessed to nonresident students, as established in Arizona Board of Regents' Policy 4–102 See *resident tuition* in this section.

Omnibus Course. An omnibus course is offered on an experimental or tutorial basis when the course content is new or periodically changes. See page 56.

Option. An option is a selection of courses within a major.

Pass/Fail Enrollment. A mark of "P" (pass) or "E" (fail) may be assigned for this grading option. This grading method may be used at the option of in dividual colleges and schools within the university. See page 73.

Placement Examination. A profi ciency examination is given to: (a waive a course requirement, (b) validate certain transfer credits in professional programs, or (c) determine a student's ability in a field where competence is an important consideration. See page 68.

Prerequisite. A requirement to be met, such as completing a certain course, *be fore* registering for a course is a prerequisite. See *corequisite* in this section.

Probation. A student's college as sumes responsibility for enforcing aca demic standards and may place any stu dent on probation who has failed to maintain good standing. A student on academic probation is required to ob serve any rules or limitations the col lege may impose as a condition for re-tention. See page 77.

Program of Study. The complete ar ray of courses included in the study leading to a degree make up a student's program of study. A student must file an Undergraduate Program of Study or a Declaration of Graduation for gradua tion within the semester he or she earns his or her 87th hour. See page 81.

Resident Tuition. This term refers to the charge assessed to all students who register for classes at ASU. See *non resident tuition* in this section.

Restricted Complete Withdrawal. From the fifth week to the transaction deadline for a semester and from the seventh day to the transaction deadline for a summer session, students may withdraw from all courses but will re ceive a mark of "W" only from courses in which the instructor certifies that they are passing at the time of the with drawal See page 74.

Restricted Course Withdrawal. From the fifth week to the end of the 10th week of a semester and from the seventh day to the end of the third week of a summer session, students may withdraw with a mark of "W" only from courses in which the instructor certifies that they are passing at the time of withdrawal. See page 73 74.

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

Sophomore. A student who has earned 25 55 hours of credit is a sophomore.

Special Topics. Courses numbered 194, 294, 394, and 494 cover topics of immediate or special interest to a fac ulty member and students. See page 56.

Summa Cum Laude. A student with a minimum of 60 semester hours of course work at ASU and a cumulative GPA of 3.80–4.00 graduates *summa cum laude*. See page 83. Also see *cum laude* and *magna cum laude* in this sec tion.

TOEFL. The Test of English as a For eign Language (TOEFL) is taken by students whose native language is not English. See page 64–65. See also *AECP* in this section.

Transcript. An official transcript lists in chronological order all courses taken at ASU. It includes all grades received. It is signed and dated by the Registrar and displays the embossed seal of the university. The Office of the Registrar releases official transcripts only upon written request of the student for a fee of $1.00 per copy for enrolled students or $5.00 per copy for nonenrolled stu dents. Additional copies ordered at the same time are $1.00 each. The Request for Official Transcript form is available online at www.asu.edu/registrar/forms. Unofficial transcripts include all infor mation shown on the official transcript, plus information concerning changes, additions, etc., to the record. Unofficial transcripts may be obtained free of charge in person at the Office of the Registrar, any registrar site, or by mail if a signed release is enclosed. See page 76. Also see *Family Educational Rights and Privacy Act* in this section.

Unrestricted Withdrawal. During the first four weeks of a semester or the first six days of a summer session, a student may withdraw from any course with a mark of "W." See page 73.

Upper-Division Courses. Courses numbered 300–499 are designed prima-rily for juniors, seniors, and other ad vanced students. See page 56.

Accreditation and Affiliation

Arizona State University is accredited by the North Central Association of Colleges and Secondary Schools Programs in the various colleges, schools, divisions, and departments are accredited by, affiliated with, or members of national bodies as described in the "Academic Accreditation," "Academic Affiliation," and "Academic Membership" tables. Some programs in the College of Education are approved by the State Board of Education (Arizona) and the National Association of School Psychologists.

ASU West. ASU West is separately accredited by the Commission on Institutions of Higher Education of the North Central Association of Colleges and Schools. Professional programs in the various academic areas are accredited by national bodies as described in the "Academic Accreditation at ASU West" table, page 21.

Academic Accreditation

Unit or Program	Accredited by
College of Architecture and Environmental Design	
B.S.D., Interior Design	Foundation for Interior Design Education Research
M.Arch	National Architectural Accrediting Board
M.E.P.	Planning Accreditation Board
College of Business	
all programs	American Assembly of Collegiate Schools of Business
School of Accountancy and Information Management	American Assembly of Collegiate Schools of Business
School of Health Administration and Policy	Accrediting Commission on Education for Health Services Administration
College of Education	
M.C., Counseling	Council for Accreditation of Counseling and Related Educational Programs
Ph.D., Counseling Psychology; Ph.D., Educational Psychology with a concentration in school psychology	American Psychological Association
College of Engineering and Applied Sciences	
B.S.E., Aerospace Engineering; B.S.E., Bioengineering; B.S.E., Chemical Engineering; B.S.E., Civil Engineering; B.S.E., Computer Systems Engineering; B.S.E., Electrical Engineering; B.S.E., Industrial Engineering; B.S.E., Mechanical Engineering	Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc
B.S., Computer Science	Computer Science Accreditation Commission of the Computing Sciences Accreditation Board
B.S., Construction	American Council for Construction Education
College of Fine Arts	
Department of Theatre	National Association of Schools of Theatre
School of Music	National Association of Schools of Music
College of Law	
J.D.	American Bar Association
College of Liberal Arts and Sciences	
B.A., B.S., Family Resources and Human Development with a concentration in human nutrition—dietetics, M.S., Family Resources and Human Development with a concentration in general family resources and human development (human nutrition and foods area)	American Dietetic Association
B.S., Clinical Laboratory Sciences	National Accrediting Agency for Clinical Laboratory Sciences
M.S., Communication Disorders	American Speech-Language Hearing Association
Ph.D., Psychology with a concentration in clinical psychology	American Psychological Association

Academic Accreditation (continued)

Unit or Program	Accredited by
College of Nursing	
B S.N , M.S., Nursing	American Association of Colleges of Nursing Arizona Nurses Association (American Nurses Credentialing Center's Commission on Accreditation) Arizona State Board of Nursing National League for Nursing
College of Public Programs	
B.S., Recreation	Council on Accreditation of the National Recreation and Park Association
Master of Public Administration	National Association of Schools of Public Affairs and Administration
Walter Cronkite School of Journalism and Telecommunication	Accrediting Council on Education in Journalism and Mass Communications
College of Technology and Applied Sciences	
B.S., Aeronautical Engineering Technology; B.S., Electronics Engineering Technology, B.S., Manufacturing Engineering Technology	Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc.
School of Social Work	
B.S.W., M.S.W.	Council on Social Work Education

Academic Affiliation

Unit or Program	Affiliated with
College of Architecture and Environmental Design	
School of Architecture	American Institute of Architects, Central Arizona and Rio Salado Chapters Architectural Research Centers Consortium Association for Computer Aided Design in Architecture Association of Collegiate Schools of Architecture
School of Design	American Society of Interior Designers Human Factors and Ergonomics Society Industrial Designers Society of America Interior Design Educators Council International Interior Design Association Society of Environmental Graphic Designers
School of Planning and Landscape Architecture	American Planning Association American Society of Landscape Architects Association of Collegiate Schools of Planning Council of Educators in Landscape Architecture Society for Range Management Soil and Water Conservation Society Wildlife Society
College of Education	American Association of Colleges for Teacher Education American Educational Research Association The Holmes Partnership University Council for Educational Administration
College of Public Programs	
Department of Recreation Management and Tourism	American Humanics, Inc
School of Justice Studies	Onati International Institute for the Sociology of Law

Academic Membership

Unit or Program	Membership with
College of Education	American Association of Colleges for Teacher Education
	Association of Colleges and Schools of Education in State Universities and Land Grant Colleges
	The Holmes Partnership
	University Council for Educational Administration
College of Law	Association of American Law Schools
College of Liberal Arts and Sciences	
Department of Anthropology	American Anthropological Association
	Council for Museum Anthropology
Department of Biology	American Institute of Biological Sciences
	American Society of Naturalists
	American Society of Zoologists
	Animal Behaviorists' Society
	Sigma Psi
Department of Chemistry and Biochemistry	American Association for Advancement of Science
	American Chemical Society
	American Society for Advancement of Science
Department of Exercise Science and Physical Education	American Alliance for Health, Physical Education, Recreation and Dance
	American College of Sports Medicine
	American Physical Society
	Arizona Society of Medical Technology
	Committee on Allied Health Education
	National Association for Physical Education in Higher Education
	North American Society for Sports History
	North American Society for Sports Psychology and Physical Activity
Department of Family Resources and Human Development	American Dietetic Association
Department of Geography	Association of American Geographers
Department of Geology	American Association of Petroleum Geologists
	American Geophysical Union
	American Institute of Professional Geologists
	Geological Society of America
	Mineralogical Society of America
	Society of Economic Paleontologists and Mineralogists
Department of History	American Association for State and Local History
	American Association of Museums
	American Historical Association
	Institute of Historical Research
Department of Languages and Literatures	American Council on Teaching Foreign Language
	International Studies Association
	Modern Language Association
Department of Mathematics	American Mathematical Society
	Mathematical Association of America
	Rocky Mountain Mathematics Consortium
	Society for Industrial and Applied Mathematics
Department of Microbiology	American Society of Microbiology
Department of Military Science	Association of U.S. Army
M.S., Ph D., Molecular and Cellular Biology	American Society of Medical Technology
Department of Philosophy	American Philosophical Association

Academic Membership (continued)

Unit or Program	Membership with
Department of Physics and Astronomy	Acoustical Society of America American Association of Physicists in Medicine American Association of Physics Teachers American Astronomical Society American Crystallographic Association American Physical Society American Vacuum Society International Astronomical Union Materials Research Society Optical Society of America
Department of Plant Biology	American Association of Plant Physiologists Botanical Society of America Mycological Society of America Phycological Society of America
Department of Political Science	American Political Science Association Inter University Consortium for Political and Social Research
Department of Psychology	American Society of Clinical Psychologists
Department of Sociology	American Sociological Association
Department of Women's Studies	Association for Women in Science National Women's Studies Association
College of Nursing	American Association of Colleges of Nursing Western Institute of Nursing
College of Public Programs	
Department of Communication	Speech Communication Association Western States Communication Association
Department of Recreation Management and Tourism	Arizona American Indian Tourism Association Arizona Heritage Alliance Arizona Park and Recreation Association Arizona State Therapeutic Association National Park and Recreation Association Travel Tourism Research Association
School of Justice Studies	Arizona Justice Educators Association of Criminal Justice Doctoral Programs National Academic Advising
School of Public Affairs	National Association of Schools of Public Affairs and Administration
Walter Cronkite School of Journalism and Telecommunication	Association of Schools of Journalism and Mass Communication Broadcast Education Association
University Honors College	National Collegiate Honors Council

Academic Accreditation at ASU West

Unit or Program	Accredited by
College of Human Services	
Department of Recreation and Tourism Management	National Recreation and Park Association/American Association for Leisure and Recreation
Department of Social Work	Council on Social Work Education
School of Management	
all programs	American Assembly of Collegiate Schools of Business

General Information

Arizona State University provides an opportunity for students from all racial, cultural, and economic backgrounds to pursue a full range of high quality academic programs. The university actively seeks to have reflected within its student body and among its employees the rich diversity of cultures found within the state, the nation, and the world.

Active research programs contribute to and expand knowledge, thereby serving the instructional needs of students, contributing to the professional advancement of the faculty, and enhancing economic, social, cultural, and technological progress.

The university's teaching, research, and service programs seek to instill in students sensitivity to other races and cultures and a spirit of critical inquiry and challenge them to seek answers to fundamental questions of human concern. The university's support programs contribute to the academic success and personal development of all students.

The university seeks to expand cultural horizons, enhance respect for human diversity, improve moral and ethical standards, and educate for responsible citizenship while preparing its graduates to accept and perform capably in rewarding careers in our pluralistic society.

MISSION

Arizona State University has emerged as a leading national and international research and teaching institution with a primary focus on Maricopa County, Arizona's dominant population center. This rapidly growing, multicampus public research university offers programs from the baccalaureate through the doctorate for approximately 49,000 full time and part time students through ASU Main in Tempe; ASU West in northwest Phoenix, a major educational center in downtown Phoenix; ASU East, located at the Williams Campus (formerly Williams Air Force Base) in southwest Mesa; and other instructional, research, and public service sites throughout Maricopa County. ASU is a modern university that applies its research capabilities to the rapidly evolving needs of Maricopa County and the state.

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

ORGANIZATION

Arizona State University is part of a university system governed by the Arizona Board of Regents, a body corporate and politic with perpetual succession under the constitution and laws of Arizona. The board consists of eight citizens appointed by the governor of the state for terms of eight years, and one student regent serving for one year with the elected governor and state superintendent of public instruction as members ex officio.

The regents select and appoint the president of the university, who is the liaison between the Arizona Board of Regents and the institution. The president is aided in the administrative work of the institution by the senior vice president and provost, other provosts, vice presidents, deans, directors, department chairs, faculty, and other officers. Refer to "Academic Organization," page 9, and "Administrative and Academic Personnel," pages 522 527.

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

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

EQUAL OPPORTUNITY AND AFFIRMATIVE ACTION

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

ASU is committed to taking affirmative action in increasing opportunities at all levels of employment and to increasing participation in programs and activities by all faculty, staff, and students. Affirmative action is directed toward minority persons, women, special disabled veterans, Vietnam era veterans, and persons with disabilities.

University Policy Prohibiting Discriminatory Harassment

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

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

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

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

HISTORY OF ARIZONA STATE UNIVERSITY

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

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

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

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

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

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

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

During the Great Depression, Ralph W. Swetman was hired as president to "sweep clean," firing those faculty who did not have master's or doctoral degrees in order to follow North Central Association of Colleges and Secondary Schools guidelines.

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

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

The phenomenal growth of the college began after the end of World War II. Dr. Gammage had foreseen that the G.I. Bill of Rights would flood campuses everywhere with returning veterans. Many of the veterans who had received military training in Arizona had fallen in love with the state and vowed to return after the war The numbers within one year were staggering. In the

fall semester of 1945, 553 students were enrolled, over the weekend se mester break in January 1946, enroll ment increased 110% to 1,163 students. Successive semesters saw continuing increased enrollment.

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

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

The next three presidents Harry K. Newburn, 1969 71, John W. Schwada, 1971 81, and J. Russell Nelson, 1981 89 and Interim President Richard Peck, 1989, led the university to increased academic stature, expansion of the campuses, and rising enrollment. With approximately 49,000 students, ASU is the fifth largest university in the nation.

On January 1, 1990, Dr. Lattie F. Coor, a native Arizonan, became 15th in the institution's succession of principals and presidents. He has highlighted undergraduate education, research, cultural diversity, and economic development as the "four pillars" of the university's agenda. He has taken steps in these areas by further defining the role of ASU West and by initiating the establishment of ASU East

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

Athletics

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

During President Matthews' tenure, some team competition began. The Tempe Bulldogs saw some interesting and rough competition with the University of Arizona Wildcats (almost always on the losing end), but usually they competed against smaller schools around the state.

Dr. Gammage realized that athletics was a way to garner monetary support from the community. With the establishment of the Sun Angel Foundation in 1946, a new era began. The college's teams became the Sun Devils and, with a succession of fine coaches and an increasingly strong commitment to sports, became known worldwide. Today the university attracts students from throughout the world to its athletic programs.

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

In 1997, Arizona State University finished 13th nationally in the Sears Directors' Cup which recognizes the top athletic programs in the country. The women's golf team won its fourth NCAA championship in five years in 1996-97.

UNIVERSITY CAMPUSES AND SITES

ASU Main. ASU Main is located near the heart of metropolitan Phoenix in the city of Tempe (population 160,000). Nearby are the municipalities that make up the fast growing Valley of the Sun: Chandler, Gilbert, Glendale, Mesa, Scottsdale, and other communities.

ASU Main comprises more than 700 acres and offers outstanding physical facilities to support the university's educational programs. Buildings are modern, air conditioned, and attractively designed.

Broad pedestrian malls laid out in an easy to follow grid plan, bicycle lanes connecting all parts of the university and spacious lawns and subtropical landscaping characterize a campus serving the physical, aesthetic, and educational needs of students, faculty, and staff.

ASU East. The university's third campus, ASU East, opened at the Williams Campus in the fall of 1996, serving more than 1,000 students in degree programs offered by the College of Technology and Applied Sciences and School of Agribusiness and Resource Management, programs offered at no other Arizona campus. In 1997, East College was created to provide support courses for existing programs and to generate new degree programs at ASU East.

ASU East has joined with Chandler Gilbert Community College (CGCC) in the New Partnership in Baccalaureate Education that allows students to graduate in four years with an ASU baccalaureate degree earned entirely at the Williams Campus, at some savings in tuition.

The campus includes excellent educational facilities and unique residential opportunities, including a choice of traditional residence halls or two- to five bedroom homes.

ASU East is a student centered campus that offers many of the features of a small college in a rural area while providing access to the resources of a major research university and the amenities of a large metropolitan area. A shuttle service provides transportation between ASU East and ASU Main. The 600-acre ASU East campus is easily accessible via major interstate routes. For more information, see pages 434–465.

ASU West. ASU West is a campus of Arizona State University that offers upper-division undergraduate and graduate programs in the arts and sciences and in selected professional fields.

The campus is located between 43rd and 51st Avenues on West Thunderbird Road in Phoenix. Immediately west of the campus is the city of Glendale. The core campus was completed in March 1991 and includes the Fletcher Library, the Sands Classroom Building, the Classroom Laboratory/Computer Building, the Faculty and Administration Building, Kiva Lecture Hall, and the University Center Building.

For more information, see pages 532 544 of this catalog. For complete information and course listings, see the *ASU West 1998 99 Catalog.*

ASU Extended Campus. The ASU Extended Campus goes beyond the boundaries of the university's three physical campuses to provide access to academic credit and degree programs for working adults through flexible schedules; a vast network of off cam pus sites; classes scheduled days, evenings, and weekends; plus innovative delivery technologies, including televi sion, the Internet, CD ROM, and independent learning. The Extended Cam pus offers programs in partnership with the campuses and colleges of ASU. The Extended Campus also offers a variety of professional continuing education programs and community outreach. The ASU Downtown Center is the anchor location of the Extended Campus. Through the Extended Campus, life long learning opportunities are offered to students of all ages via stimulating courses, lecture series, and educational travel. Programs in the Sun Cities area are geared toward the retirement com munities and include a wide variety of courses from approximately 30 disciplines. These programs are in the pro cess of expansion throughout Maricopa County.

ASU Downtown Center. Located in downtown Phoenix at the Mercado, 502 E. Monroe, the ASU Downtown Center offers a variety of daytime and evening courses of interest to employees in private businesses and government agen cies and to individuals seeking personal growth and enrichment. These courses are offered either in a traditional class room manner or via interactive televi sion. In addition, microcomputer train ing classes are taught during daytime and evening hours. Professional con tinuing education and certificate programs are offered to working professionals. ASU mainframe and Internet access is available through the center's computer lab and library services.

For more information, see page 243.

ASU Research Park. The mission of the ASU Research Park is to enhance Arizona's high value research-based economic development and to build the university's capacity to educate and ad vance knowledge. To this end, the Research Park serves to attract to Arizona new corporate and regional headquar ters and research and development firms that broaden the base for potential research among ASU departments, in teract with graduate students, consult with university faculty, cosponsor seminars on research topics, and pro vide employment opportunities for graduates at ASU.

Long term excess revenues from ground leases within this 324 acre park flow back to the ASU foundation to be used for scholarships. The Research Park has several major tenants Iri dium North America, Fiberite, VLSI, Walgreens Healthcare Plus, Motorola University, Motorola Flat Panel Dis play Division facility, and the National Association of Purchasing Management who occupy a 50,000 square foot multitenant building developed by Transamerica Corporation and the Lakeside Technology Center, and a 44,000 square foot building developed by Price Elliot Research Park, Inc. The Research Park is part of the ASU effort to become a major research university by attracting high quality private and public research firms and institutions.

Camp Tontozona. Located in the famed Mogollon Rim country near Kohl's Ranch, northeast of Payson, this continuing education facility of the uni versity serves the needs of academic departments conducting teaching and research in mountain terrain. The camp is also available to faculty, staff, gradu ate students, and alumni for family use. For more information, call 602/965 6851.

The Arboretum. The Arboretum at Arizona State University is a flourish ing oasis of plants from around the world. Dedicated on November 20, 1990, this virtual outdoor classroom in cludes 162 species/varieties of trees and 172 species/varieties of other woody ornamental and herbaceous plants from diverse geographic regions as well as the Sonoran Desert. It contains one of the best collections of palms and conifers in the desert South west and a growing collection of native Southwestern plants.

The Arboretum actually began with Arthur J. Matthews. By the time Matthews' 30 year reign as president was finished, nearly 1,500 trees of 57 varieties and more than 5,700 feet of hedges were planted. One of his most enduring landscape projects was the planting of Palm Walk in 1916, which extends from University Drive south to Orange Mall.

Several Arboretum walking tours are designated on campus, including the historic north campus tour, the green trail tour, and the red trail tour.

UNIVERSITY LIBRARIES AND COLLECTIONS

The collections of the university's li braries comprise more than 3 million volumes, approximately 6.6 million mi croform units, and more than 36,000 periodical and serial subscriptions. Computer access to commercially and locally produced databases and the ability to borrow research materials from other libraries enhance local re sources. ASU is a member of the Asso ciation of Research Libraries and the Center for Research Libraries

For telephone numbers, see the "ASU Main Directory" on pages 528 530.

Charles Trumbull Hayden Library. The Charles Trumbull Hayden Library, designed by Weaver and Drover in 1966, houses the largest multidisciplinary collection. In addition to the open stack areas, separate collections and service areas include Current Periodi cals and Microforms; Government Documents; Interlibrary Loan and Document Delivery Services; Labriola National American Indian Data Center; Library Instruction, Systems, and Tech nology (L.I.S.T.); Reference; Reserve, Special Collections; and Archives and Manuscripts, which includes the Ari zona Collection, the Chicano Research Collection, and the Visual Literacy Collection

Specialized collections include com prehensive holdings of the Pre Ra phaelite period, a 14th-century manu script on algebra, the child drama col lection, the Thomas Mosher collection, the William S. Burroughs collection, and the papers of several major Arizona political figures.

Architecture and Environmental Design Library. The Architecture and Environmental Design Library, located in the College of Architecture and En vironmental Design/North building, contains books and periodicals pertinent to areas of study within the col lege. See page 114 for more informa tion.

Arizona Historical Foundation Library. Under a cooperative agreement with ASU, the Arizona Historical Foundation houses a library of several thousand volumes, manuscript collec tions, maps, and photographs, and a

large collection of audio/visual materials. Housed in the Charles Trumbull Hayden Library, the collection's focus is on the history of Arizona and the Southwest.

Fletcher Library. Located at the ASU West campus, Fletcher Library utilizes a range of electronic systems, from compact discs to telecommunications networks, to provide access to resources and delivery of materials. Its holdings include over 280,000 volumes, 3,600 serial subscriptions, and 1.4 million microfilms selected to complement ASU West course offerings.

Law Library. The John J. Ross William C. Blakley Law Library is located on McAllister Avenue. See page 296 for more information.

Music Library. A large collection of music scores, recordings, books, music reference materials, and listening facilities for individuals and groups are located on the third floor of the Music Building, West Wing

Daniel E. Noble Science and Engineering Library. The Daniel E. Noble Science and Engineering Library houses books, journals, and microforms in the sciences and engineering, the Map Collection, and the U.S. Patent and Trademark Depository.

University Archives. The University Archives collection (1885 present) of university theses and dissertations, administrative records of the university, historical photographs and personal papers of faculty, staff, and alumni as well as student, faculty, and official university publications are available for use at the Luhrs Reading Room in Hayden Library. The historic University Archives Building on Tyler Mall is the home of the 1907 Gallery, which hosts exhibits of historical photographs from the collections of the Department of Archives and Manuscripts

PERFORMING AND FINE ARTS FACILITIES

Computing Commons Gallery. One of the unique features of the Computing Commons building is an art gallery, located off the main lobby in the northwest corner of the building. The gallery has design features that are unique for showcasing technology based artwork and displays. The Computing Commons gallery can support display of national online computer art networks (e.g., via Internet) and holographic displays, as well as more traditional two-dimensional graphic presentations. This is an exciting decade for the arts as new technology-based tools and techniques open new avenues for creativity, as demonstrated by the exhibits in the Computing Commons Gallery.

Dance Studio Theatre. Located in the Physical Education Building East, the Dance Studio Theatre is a 6,000 square foot dance studio that also serves as a proscenium-style performance space The 300 seat theatre is devoted to informal and formal showcases of student and faculty choreographic work.

Drama City. Representing a synthesis of the creative energies of the Institute for Studies in the Arts and the Department of Theatre, Drama City is an 1,800 square foot black box theatre that serves as a laboratory for the development and presentation of experimental and innovative theatrical and interdisciplinary works.

Gallery of Design. Housed in the College of Architecture and Environmental Design, the Gallery of Design features traveling exhibitions on design and urban issues.

Paul V. Galvin Playhouse. Built to stage the largest productions of the ASU Theatre, the Paul V. Galvin Playhouse is a 496 seat proscenium stage theatre set at the east end of the Nelson Fine Arts Center. The Department of Theatre's annual season of 12 to 15 plays also includes productions in the Lyceum and Prism theatres and the Fine Arts Center Studios.

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

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

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

Lyceum Theatre. A small but technically sophisticated 164-seat proscenium-theatre, the Lyceum Theatre is a theatre laboratory devoted to the work of student playwrights, directors, and actors.

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

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

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

Organ Hall. Located in the new music building expansion, the Organ Hall houses the Fritts Organ. This tracker-action pipe organ is designed to capture the qualities of baroque European organs. The hall is designed to complement the organ with a barrel vaulted ceiling and wooden benches to seat 175 persons.

Prism Theatre. The Prism Theatre is an alternative black box space devoted to multiethnic, new, or experimental works.

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

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

Television Station KAET. KAET, Channel 8, is the university's PBS station. Studios of the award winning station are located in the Stauffer Communication Arts Building. To operate 24 hours a day, KAET employs more than 50 ASU students and interns. To learn more about KAET TV, visit its Web site at www.kaet.asu.edu or call 602/965-3506.

University Art Museum. The University Art Museum collections are housed in a large complex of galleries and art study rooms in two locations: the Nelson Fine Arts Center and the second floor of the Matthews Center. The Oliver B. James Collection of American Art ranges from the early 18th century to the contemporary and includes major works by Stuart, Ryder, Homer, and the Ash Can School painters. Master works by great printmakers such as Durer, Rembrandt, Whistler, and Hogarth are often featured in special exhibitions selected from the university's extensive print collection.

The gallery devoted to Latin American art features folk art as well as paintings by celebrated contemporary artists Rivera, Siquerios, and Tamayo. The museum also displays many fine examples of 19th- and 20th-century crafts, paintings, and sculpture.

The contemporary art holdings include works by Vernon Fisher, Leon Golub, Sue Coe, Luis Jimenez, and Robert Colescott. Exhibitions curated by the museum emphasize contemporary art and new media, crafts, and Mexican art.

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

Harry Wood Gallery. Housed in the Art Building (ART 120), the Harry Wood Gallery provides temporary exhibitions of the visual arts during the academic year.

COMPUTING FACILITIES AND SERVICES

Computers are a fundamental tool for research, instruction, and learning in every college and department at ASU. A variety of computing equipment and services are available for use by students, faculty, and staff.

Information Technology (IT) services provide programming, statistical, graphics, and other applications for microcomputers and mainframe computing systems. These services, including university-wide electronic mail and the library's online catalog, are accessible through a communications network from many sites and offices on and off campus via telephone connection. Communication with other research facilities is possible through the Internet.

A wide range of information on campus activities and related topics is available online. Faculty, staff, and students can access the ASU Home Page on the World Wide Web at www.asu.edu.

This Web site features a complete source of ASU information with text, photos, audio, and video. Via the Internet, ASU students, faculty, and staff also have access to the thousands of information systems around the world. The ASU server contains such information as a phone and electronic mail directory, the *Schedule of Classes*, the athletic calendar of events, weather forecasts from around the United States, and information from various colleges, departments, and organizations.

Educational services to assist faculty, students, and staff include online documentation, online consulting facilities, online tutorials, videotaped and written materials, and noncredit seminars.

IT provides the following service centers for the ASU academic community.

Computing Commons. The Computing Commons building (CPCOM) was opened in 1993 to provide the university with an ideal setting to learn and experience the vast new frontier of high performance computing. The Computing Commons draws together students, faculty, and staff from all disciplines, creating an environment designed to foster maximum interaction. The building and its facilities have drawn national recognition and acclaim as a model facility for the support of instruction and research in a technology-based environment. The Computing Commons houses a 200 workstation computing site, nine electronic classrooms, a Visualization Center, the Computing Assistance Center (COMPASS), a computer store, and a technology based art gallery.

Computing Assistance Center. The Computing Assistance Center (COMPASS) has a library of reference manuals, computing periodicals, and other information concerning computing systems and software. Self-paced training is available for a variety of subjects on Windows, DOS, Macintosh, and mainframe computers. COMPASS also distributes communication, virus protection, and other site license software.

Computer Training. ASU faculty and staff may register for hands-on, instructor-led classes on many PC applications, electronic mail, Internet applications, Web page development, statistical applications, and operating systems. Self-paced training is also available to faculty, staff, and students for a variety of subjects on Windows, DOS, Macintosh, and mainframe computers in COMPASS, CPCOM 202. To register for a class or to request a training schedule, call 602-965-2700 or access the training information online at www.asu.edu/it/fyi/help/trainingschedule.html.

Computing Consulting. ASU faculty, staff, and currently enrolled students can obtain computing consulting by calling 602/965-6500 or on a walk-in basis at COMPASS, CPCOM 202.

Consulting services are offered for ASU systems and software, including

1. networks and communications (data communications, utilizing ASU facilities, departmental local area networks; data communica tions software support);
2. electronic mail (VM/CMS, Ex change/Outlook, or microcomputer based electronic mail software; electronic post office; conferencing software; Internet);
3. microcomputing (support for faculty and staff who use microcom puters in their homes or offices, in c uding assistance with a variety of software [e g., word processing, spreadsheets, and database man agement systems]); and
4. research computing (statistical computing [e.g., SAS, SPSS]; pro gramming questions [e.g., FOR TRAN and C]; and software use on Academic Workstation Cluster, MVS, UNIX, National Supercom puting Centers, most workstation class machines, and the Visualiza tion Center).

Instructional Support. Instruction Support (is.asu.edu) serves as a devel opment center for the design and deliv ery of instruction utilizing technology. The Instruction Support Group is composed of interrelated units under which a wide range of talent and expertise is centrally available. Instruction Support is staffed by students, faculty, and re searchers skilled in the areas of system design, graphics, interactive software, networked delivery, and digital video The group facilitates not only the de velopment of instruction within the realm of currently available technol ogy, but also extends the potential to drive innovation and development. From this perspective, Instruction Support takes on the flavor of a research and development unit, a production group, and a training facility, in addi tion to providing an incubator for technological innovation

The Instruction Support Group works in collaboration with faculty in the coordination of cross disciplinary research and production projects relating to the integration of technology with education. Through partnerships with faculty and groups outside ASU, grant writing teams are able to leverage for support that may not otherwise be attainable by a single academic unit or faculty member. Central to effective support service is the establishment of a partnership among the various support units within the university Instruction Support coordinates the efforts of groups, including the College of Ex tended Education, University Libraries, Disabled Student Resources, and the Office of Research and Creative Activi ties, providing faculty with a wide ar ray of support services.

Instruction Support offers courses tailored toward enhancing the instruc tional use of technology by the univer sity teaching community Courses range from an introduction to technol ogy in education through advanced and customized approaches for instructors in specific programs.

Instruction Support (IS) Lab. The IS Lab provides an environment in which faculty may seek and receive one on one, guided or independent support for course development and delivery. Ex pert staff work closely with faculty to refine and develop their skills and con fidence in the design and delivery of instruction through a variety of technol ogy supported means, including syn chronous and asynchronous learning Located on the second floor of the Computing Commons, the IS Lab pro vides faculty, university professionals, and graduate students with a unique opportunity to integrate technology with instruction. The IS Lab sponsors workshops and demonstrations, and serves as a dynamic clearinghouse of information and referrals for effective integration of technology with educa tion.

Research Support. Research Support provides assistance to faculty, staff re searchers, and students in both scien tific and creative endeavors. Research Support encompasses both processing and operations. Processing involves consulting with software tools and pro gram coding directly related to projects or specific research. Operational activi ties support the overall work flow of university computing facilities. Activi ties include consulting for Computa tion, Statistics, Visualization and Geo graphical Information System platforms in conjunction with software package installation/use, training, me dia conversion, and product evaluation

A variety of computation facilities are provided in support of research and creative endeavors within the ASU community. C imputing facilities range from individual workstati n s to SMP/ MPP servers and mainframes Ex tended computer capabilities are avail able through access to national comput ing centers

Geographic Information Systems (GIS) Lab and Visualization Center. The GIS Lab ar d Visua izatic n Center both seek to estab ish partnerships with faculty, staff and students to acquire, create and enhance researcl and cre ative endeavors through the effective use of Visualization and GIS technolo gies

he Visualizati n Center is located in CPCOM 235 The center offers fac ulty, staff, and graduate students hard ware and software resources and ser vices for high level graphics and visu alization used in research Researchers can receive assistance with interactive viewing of scientif c data with t pics from both the Liberal and the Perform ing Arts and other visually related en deavors. The Visualiz ation Center serves as an incubat r for developing technologies in softwate, hardware, and co mmun cations.

The GIS Lab staff assists r searchers with hardw re nd softw r e to f cilitate the creation of ge ographic nformation systems for spatial analys s, q iery, and display The Lab supports research from various disciplines and provides additional resources to students who are enrolled in classes for GIS instruc tion. The GIS Lab, also l ocated in CPCOM 235 serves as a focal point for GIS users to meet and share informa tion and technical expertise.

ALUMNI ASSOCIATION

Founded in 1894, the Alumni Asso ciation is a volunteer led organization committed to serve and unite alumni for the purpose of advancing Arizona State University The associatic n pro vides a variety of services for ASU alumni as we as a series of events scheduled around the country

With more than 200,000 alumni liv ing in every state ar d throughout the world, the asso ciation plays an impor tant role as the university's primary support organizat on. Co mprising m re than 40 groups the campus, c llege, club, and chapter organizations 4Cs)

of the association provide opportunities for all alumni to stay involved with the part of ASU that interests them most.

Members of the ASU Alumni Association Board of Directors are elected each summer

The association's professional staff is led by Executive Director Susan Clouse Dolbert.

For information about the association or its board of directors, call 1 800–ALUMNUS or 602/965 ALUM (2586).

PROGRAM ASSESSMENT AND THE OFFICE OF UNIVERSITY EVALUATION

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

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

DIVISION OF UNDERGRADUATE ACADEMIC SERVICES

The Division of Undergraduate Academic Services was formed in 1993 to provide a focus for the university's undergraduate initiative.

The goals of the division are to improve the five year graduation rate of ASU undergraduates, increase the retention of first year students, improve the foundational skills (numeracy and literacy) of undergraduates, and increase employer and graduate satisfaction with an ASU education.

The division includes the Writing Across the Curriculum program (for course listings, see page 330), the Service Learning Project, the University 100 program (see UNI courses below), the Cross college Advising Services (see page 69), and the Degree Audit Report System (DARS) The Bachelor of Interdisciplinary Studies (B.I.S.) is administered through this division (see pages 110–111).

UNIVERSITY (UNI)

UNI 100 Academic Success at the University. (3) F S, SS
Mastery in time management, notetaking test taking college text reading university library use, goal setting and use of university resources. Lecture discussion on co-op learning Prerequisite freshman or sophomore or transfer student standing

UNI 101 Student Success Seminar. (1) F S, SS
Understanding human diversity, perspectives and values as they relate to student success Orientation to ASU resources study skills, and academic and social issues for students Seminar discussion

SERVICE LEARNING INTERNSHIPS

Service Learning uses community service to enhance education The project is based on the concept of reciprocal learning. Service Learning sections of regular courses are linked to credit bearing internships where students apply what they are learning in the community. For example, English composition classes provide structured academic components for ASU students who contribute one-on one homework tutoring, reading development, educational enrichment workshops, and learning readiness programs for children and youth from the Roosevelt School District for six hours per week for a full semester In turn, their community experiences and research form the basis of the tutors' classroom research and papers.

Students in service learning Plant Biology labs for nonmajors are teaching Julian Middle School and Salt River Elementary School fifth-grade students simplified versions of the science and math concepts they are learning themselves.

Students in a 100 level Physical Geography lab also partner with sixth grade students at the Salt River Elementary School to share their knowledge of the physical environment. ASU students are required to prepare personalized lesson plans for every tutoring session. All one on one tutoring is done in an after school environment at our partner agencies and schools, while the sciences have been written into the core curriculum in two of our partner schools.

Students may enroll in the internships with previous or current enrollment in the following linked courses.

Call 602/965 3097 for internship requirements and enrollment information.

Linked Courses

Composition and Linguistics Courses

ENG	102	First Year Composition	3
ENG	213	Introduction to the Study of Language	3
ENG	216	Persuasive Writing on Public Issues *L1*	3
ENG	217	Personal and Exploratory Writing *L1*	3
ENG	301	Writing for the Professions *L1*	3
ENG	312	English in Its Social Setting *HU/SB*	3

See ENG course listings for more details.

Sciences and Additional Courses

GLG	103	Introduction to Geology I Laboratory	1
GPH	111	Introduction to Physical Geography *S1/S2*	4
NUR	119	Introduction to Nursing and Health	3
PLB	108	Concepts in Plant Biology	4
SHS	250	Introduction to Phonetics	3
SHS	402	Modifying Communicative Behavior	3

See appropriate course listings for more details

INTERNSHIPS

ENG 484 Composition Internship. (3) F S
Links courses with internships which involve tutoring children in after school programs in the community and assisting them with reading, homework, and computer skills Three afternoons a week from 3:00–5 00 P.M. Monday through Thursday.

GLG 484 Geology Internship. (3) F, S
Assist in teaching seventh-grade students a simplified version of the GLG 101 lecture and GLG 103 laboratory in the context of hands on activities

GPH 484 Geography Internship. 3) F S
Assist in teaching sixth grade students a simplified version of the GPH 111 course and laboratory in the context of hands-on activities

NUR 484 Nursing Internship. 3) F, S
P an and conduct hea th ss es workshops for h gh schoo students at Desert Eag e Scho .
PLB 484 Science Internship. 3) F S
Ass st n teach ng fifth grade students a s m- p f ed vers on of the PLB 108 ecture n the context of des gn ng and p ant ng decorat ve, food produc ng and exper menta gardens
SHS 484 Speech and Hearing Internship. 3 F S
Observe test and deve op techn ques and theor es earned n e ther SHS 250 r 402 See Speech and Hearing Sc ence [SHS] cou se offerings for m re deta s

RESEARCH CENTERS, INSTITUTES, AND LABORATORIES

These units serve the university's mission in research. They are overseen by seven of the co leges and the vice pr ivost f or Research

College of Architecture and Environmental Design

Herberger Center for Design Excellence. The Herberger Center for De sign Excellence serves the Phoenix area through research, publications, and symposia regarding urban design, design, and environmental planning is sues For more information, call 602 96 6693.

College of Business

Arizona Real Estate Center. The Ari zona Real Estate Center, established in 1980, serves a multifunction research and educational role to foster better understanding of the real estate sector of the Arizona economy. Housing, commercial real estate, and construction activity data for Arizona and Maricopa County are collected by the center and are utilized for a variety of ongoing projects, including the calculation of affordability indexes and the computation of housing appreciation figures for the metropo itan Phoenix area. The center's annual outlook series provides a public forum for prominent members of the real estate industry to present their perceptions of market conditions.

For more information, contact the di rector, Arizona Real Estate Center, BA 319, 602 965 5440 The center's Web site is www.cob.asu.edu seid/arec.

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

For more information, contact the di rector, Bank One Economic Outlook Center, BA 319, 602 965 5543 The center's Web site is www.cob asu.edu seid/eoc.

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

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

For n ore information, contact the di rector, Center for the Advancement of Small Business, BAC 551, 602 965 3962. The center's Web site is www cob.asu.edu seid casb.

Center for Advanced Purchasing Studies. The Center for Advanced Purchasing Studies CAPS) was established in November 1986 by a national affiliation agreement between the ASU College of Business and the National Association of Purchasing Management (NAPM) It is the first and only program of its kind in the nation and is located in the Arizona State University Research Park, about eight miles south of the main ASU campus. CAPS conducts in depth research into the problems facing the purchasing profession today and, through its studies, seeks to improve purchasing effectiveness and efficiency, and the overall state of purchasing readiness.

For more information, call 602/752 2277, or contact

D RECTOR, CENTER FOR ADVANCED PURCHAS NG STUD ES
ASU RESEARCH PARK
2055 E. CENTENN AL C RCLE
PO BOX 22160
TEMPE AZ 85285–2160

Center for Business Research. The Center for Business Research (CBR) has been a consistent source of information on the Arizona and metropoli tan Phoenix economies since 1951 Both the business community and the public have had access to the economic indicators produced by the ongoing projects of the center, including quarterly net migration estimates for Arizona and Maricopa County, and the metropolitan Phoenix Consumer Price Index The center also conducts projects under the sponsorship of private and public agencies. Recent examples include the economic impact of Super Bowl XXX, a study of seasonal migration to Arizona, and an analysis of the state's hospital industry A monthly publication of the center, *AZB/Arizona Business*, plays a major role in disseminating to the public the economic information compiled by the research centers of the College of Business The staff within the center is available to respond to inquiries and to provide available data.

For more information, contact the di rector, Center for Business Research, BA 319, 602 965 3961. The center's Web site is www.cob.asu.edu/seid/cbr.

Center for Services Marketing and Management. The Center for Services Marketing and Management SMM Center) is a leading university based hub devoted to the study of services marketing and management since 1985. The SMM Center addresses how any company can improve internal service processes and use service and customer satisfaction as a competitive advantage. The center is cross industry in nature, encouraging firms to share the best ideas an practices for adaptation across industries. Though grounded in marketing, the center's work is also cross-functional, integrating concepts and techniques from marketing, operations, human resources, and management.

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

The SMM Center partners with 26 charter member firms, a who's who list of companies recognized for their ser vice orientation AT&T, Marriott, Federal Express, Harley Davidson, Xerox, MicroAge, Lucent Technolo gies, Ford, and Prudential.

The center offers its partner firms top flight executive education in services through the annual "Activating Your Firm's Service Culture" symposium, the annual "Services Marketing and Management" institute, and the annual "Information Technology Services Marketing" course, and provides cus tomized executive education programs and research projects which are tailored to and conducted for charter member firms.

The center also actively supports the College of Business' M.B.A. program that offers a certification in Services Marketing and Management The ser vices track infuses strong company based experience and encourages sum mer internships

For more information, contact the di rector, Center for Services Marketing and Management, BAC 440, 602 965 6201.

Center for the Study of Finance. The Center for the Study of Finance (CSF), established in 1986, serves the national financial, policy making, and academic communities through research, publica tions, conferences, and educational pro grams. The focus of such activities is on the changing nature of the domestic and international financial system with such specific areas as the interaction between financial markets, deposit in surance reform, the deregulation of fi nancial institutions, the financing of mergers and acquisitions, and the effect of government policy on financial mar kets receiving recent attention.

For more information, contact the di rector, Center for the Study of Finance, BAC 519, 602/965 5229

Joan and David Lincoln Center for Applied Ethics. The Joan and David Lincoln Center for Applied Ethics (LCAE) has provided training and sponsored research in applied ethics for organizations since 1980. The center's research focuses on the connection be tween valued based businesses and their financial performance. Its study of companies with 100 years of consistent dividend payments has been reported in *The Wall Street Journal* and numerous academic and professional journals.

The center sponsors an annual con ference on organizational ethics as well as on ethics for lawyers beyond the profession's code and model rules. Ex amples of topics covered in the center's published research reports include law yers and ethics, ethics and international labor practices, the rogue employee and ethics in organizations, and ethics and cultural variances in international busi ness.

Each year the center recognizes an outstanding business leader for exem plary ethical standards. Recipients of the Lincoln Center award in the past have been Lewis W. Lehr of 3M, the center's first recipient; Sir Adrian Cadbury of Cadbury Schweppes; Rob ert W. Galvin of Motorola; James Houghton of Corning Glass Works; R. William Taylor of the American Soci ety of Association Executives, Jerry Junkins of Texas Instruments; Bowen McCoy of Buzz McCoy Associates, Inc., and Aaron Feuerstein of Malden Mills Industries, Inc.

For more information, contact the di rector, Joan and David Lincoln Center for Applied Ethics, BA 352B, 602/965 2710.

Manufacturing Institute. See page 32 for information about this joint venture of the College of Business and the Col lege of Engineering and Applied Sci ences.

College of Education

Center for Bilingual Education and Research. Bilingual education is an internationally significant field that crosses many disciplines. In 1980, the College of Education formally insti tuted a Center for Bilingual Education and Research with a multidisciplinary perspective addressing local, national, and international concerns. The center initiates and coordinates research ven tures in bilingual/bicultural education and is responsible for assembling fac ulty and staff expertise and outside re sources to accomplish research goals.

The center also supports instructional activity in bilingual curricula and re lated program efforts within the col lege. Because of the cross disciplinary nature of bilingual education programs, a collegewide effort is necessary to de velop, evaluate, and strengthen such programs.

The center is committed to

1. enhancement of broadly based fac ulty participation in research;
2. acquisition of external research and training resources;
3 enhancement of communication networks with other local, state, national, and international institutions and agencies that can increase the center's ability to achieve its objec tives; and
4. development of a scholarly dis semination strategy incorporating colloquia, conferences, and publi cations.

For more information, contact the director, Center for Bilingual Education and Research, ED 414, 602/965 7134.

Center for Indian Education. The Center for Indian Education is an inter disciplinary research and service center established in 1959 It promotes stud ies in American Indian policy and administration that contribute to scholar ship and effective practices in educa tion, professional training, and tribal capacity building. It is structured to foster relations between the university and sovereign tribes, and to provide training and technical assistance for community programs. The center pub lishes the *Journal of American Indian Education* and sponsors workshops and colloquia that bring together scholars and tribal community leaders.

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

For more information, contact the di rector, Center for Indian Education, ED 415, 602 965–6292.

College of Engineering and Applied Sciences

Center for Innovation in Engineering Education (CIEE). This center, established in September 1994, promotes and encourages visionary approaches to educating engineering students. The center seeks support for the research, deve opment, and assessment of new educational paradigms, unique curricula, improved courses, and new deliv ery systems that embrace a range of learning models, alternative classroom management strategies, improved peda gogies, and advanced educational tech nologies. The center also develops and offers workshops and seminars to en courage wide scale implementation of those approaches that are shown to be effective in developing the attributes that will be needed by graduates.

The vision of the center is that its programs will (1) create and continu ously improve educational systems that will develop in graduates the skills, knowledge, and attitudes required for them to quickly and effectively become world class engineers; and (2) develop an expanding team of scholars that de sires to actively explore new and improved educational theories, methods, and technologies to improve teaching and learning.

For more information, contact the CIEE director, EC G205, 602/965 5350.

Center for Research in Engineering and Applied Sciences. The Center for Research in Engineering and Applied Sciences supports the faculty and stu dents in the knowledge creation and discovery mission of the university. The center provides research support services for all research in the college as well as interfacing with the research offices of the university and other col leges. The center area also supports the contribution of the college to the state's economic development through collab orative research partnerships with and technology transfer to industry. Spe cialized and interdisciplinary efforts are currently in place in such areas as acoustics, air pollution, alternative energy, applied mechanics, artificial intelligence, automated manufacturing bioengineering, communications, com putational microelectronics, computer aided design and manufacturing (CAD CAM), computer-integrated manufac turing (CIM), computer science, control systems, data and information systems, electrical characterization, environmen tal resources and control, expert sys tems, fluid mechanics, fuels and com bustion, materials, mass transfer, metal lurgy, nuc ear radiation, photovoltaics, plasma, plastics, pow er systems, analyses, robotics, semiconductor materials and fabrication, semiconductor proces sing, signal processing, soil mechanics, solar thermal energy, solid state elec tronics and systems design and analy sis, telecommunications, thermodynam ics, transportation systems, turbines, very large scale integrated (VLSI) cir cuits, waste management, and water resources.

For more information, contact the di rector, Center for Research in Engi neering and Applied Sciences, EC G136, 602 965 1725.

Center for Low Power Electronics. The technical areas of focus include

1. basic materials alternative materi als, and their fabrication;
2. device design optimization;
3. design of digital, analog, and hy brid low power circuits; and
4. power based physical design for single and multi chip VLSI sys tems.

For more information, contact the di rector, Center for Low Power Electron ics, ERC 115, 602/965 3708.

Center for Solid-State Electronics Research. CSSER focuses on research in the areas of semiconductors crystal growth, both by bu k and epitaxial techniques, device characterization and modeling, defect behavior in semicon ductors material characterization, processing, fine line lithography, surface analysis, and transport Major programs address semiconductor device modeling, transport theory, optoelec tronics, feroelectrics, semiconductor processing, microwave devices, and ul tra submicron devices. New programs address synthetic neural systems and their impact on VLSI design. Research in the specially designed facilities in cludes various aspects of submicron di mension devices.

For more information, contact the director, Center for Solid State Electron ics Research, ENGRC 115, 602/965 3708.

Manufacturing Institute. The Manu facturing Institute is a joint venture of the College of Business and the College of Engineering and Applied Sciences, established to enhance manufacturing research and industrial collaboration at the interface between the two colleges. The mission of the institute involves integrating aspects of manufacturing in both the business and engineering ar eas, helping to fulfill the university's goal of becoming one of the leading educational and research institutions in both manufacturing enterprise and manufacturing process technology is sues. The institute has two academic codirectors, one each from the College of Business and the College of Engi neering and Applied Sciences, and has active industry involvement.

For more information, contact one of the directors in GWC 402, 602/965 3709.

Center for System Science and Engineering Research. The Center for System Science and Engineering Research has established four focus areas: nonlinear dynamical systems, control theory and its applications, mathemati cal neuroscience, and scientific computing and interdisciplinary systems engineering The center is jointly spon sored by the College of Engineering and Applied Sciences and the College of Liberal Arts and Sciences. Its main goals are the creation and enhancement of interdisciplinary and cooperative research, graduate education, and pub lic service programs in the areas of sys tems science, applied mathematics and computation.

For more information, contact the SSERC director in GWC 606 at 602/ 965 8382.

Telecommunications Research Center. Telecommunications play a vital role in home, commercial, entertain ment, educational, scientific, and mili tary systems. The Telecommunications Research Center focuses its interests and activities in research and educa tional programs The approach is to conduct basic and applied research, develop technologies, and provide educa tion programs in all major areas of tele communications, from signal genera tion to reception. The targeted areas of excellence are antennas, propagation, and scattering; microwave circuits, de vices, and measurements; optical com munications; signal processing; broad-

band switching; and communication systems. Ultramodern laboratories and computational facilities are associated with the center.

For more information, contact the director, Telecommunications Research Center, GWC 411, 602 965 5311.

College of Fine Arts

Institute for Studies in the Arts. As the research center for the College of Fine Arts, the Institute for Studies in the Arts (ISA) serves as a laboratory for the research and development of new art forms, new ideas and concepts, and innovative technologies for artistic expression; a network for communication among creative scholars both within and outside the arts; and a resource base for the documentation, evaluation, and dissemination of research in the arts. ISA addresses the needs of a variety of populations through technical and monetary support and sponsorship of research projects, performances, exhibitions, and symposia.

ISA facilities include an experimental performance studio at Drama City and a state-of the art video production and post production laboratory in Matthews Center. ISA maintains a database of interdisciplinary scholarship in the arts and actively seeks to communicate with researchers from diverse backgrounds in the ASU community and worldwide.

ISA is open to a wide range of research proposals from both faculty and graduate students, provided such proposals address the ISA mission of experimentation and innovation in the arts.

For information, contact the director, Institute for Studies in the Arts, MCENT 252, 602 965 9438, or visit ISA's Web site at researchnet vprc.asu.edu/isa.

College of Law

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

For more information, contact the director, Center for the Study of Law, Science, and Technology, LAW 102, 602/965 2124

College of Liberal Arts and Sciences

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

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

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

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

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

For more information, contact the director, Arizona Center for Medieval and Renaissance Studies, SS 224, 602/965 5900.

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

For more information, contact the director, Cancer Research Institute, CRI 209, 602/965 3351.

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

The center administers student exchange programs with a number of universities in Asia. The center also sponsors a graduate student colloquium and film series on Asian topics. A reading room is located in the center office suite offering a variety of Asian and English language publications and newspapers from and about Asia.

For more information, contact the director, Center for Asian Studies, WHALL 105, 602/965 7184

Center for Latin American Studies. Arizona maintains an ever growing interest in Latin America that draws upon an extensive exper ence of historical and geographical ties. The Center for Latin American Studies is the focal point for these interests at ASU. Through ts program, the center serves the university community and main tains strong ties with various Latin American organizations in the state and the nation. Principal activities are co ordinating Latin American studies at the undergraduate and graduate levels, sponsoring student exchange programs, organizing events featuring Latin American arts and culture, numerous seminars and research conferences; publishing a wide range of professional materials; and undertaking and facilitating research about the region.

The center administers student exchange programs with the Catholic University of Bolivia and three Mexican universities the Autonomous University of Guadalajara, the Autonomous University of Nuevo Leon, and the University of Sonora Each spring several ASU students are selected to attend courses at the Latin American universities while Bolivian and Mexican students attend ASU.

Each year the center publishes several scholarly books as well as shorter monographs in its Special Studies Series

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

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

For more information, contact the director, Center for Latin American Studies, SS 213, 602 965 5127.

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

For more information, contact the director, Center for Meteorite Studies, PS C151, 602/965 6511.

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

The membership comprises faculty and academic professional researchers and research support personnel, most of whom hold simultaneous appointments in affiliated academic units. The Center for Solid State Science is the ASU focal point for interdisciplinary research on the properties and structures of condensed phases of matter. Current research topics include, among others, electronic materials, ceramics, composites, rare earth oxides, intercalation compounds, and ionic conductors.

Members of the center operate modern and sophisticated research facilities, organize regular research colloquia and symposia, and collaborate extensively with other researchers on projects of mutual interest. The principal topical research area in the center is the science and engineering of materials, with emphasis on the structure and reactivity of interfaces and surfaces; synthesis and processing of new materials, high resolution microstructural and chemical analysis; and research computing, consultation, and analysis with high speed computer graphics for physical modeling and visualization

The Goldwater Materials Science Laboratories of the center include

1. the Materials Preparation Facility (MPF), which provides a wide range of synthesis and processing capabilities for preparation of specimen materials. MPF also provides thermal analysis for study of solid state reactions and Auger and X ray photoelectron spectroscopy for analysis of surface compositions and electronic structure of surfaces;
2. the Materials Science Electron Microscopy Laboratory (MSEML), which provides state of the-art electron microscopes for analysis of microstructures, including imaging and diffraction, and high spatial resolution chemical analysis using energy dispersive X ray and electron energy loss microspectroscopy;
3. the Ion Beam Analysis of Materials IBeAM) Facility, which provides compositional and structural determination of the surface and near-surface regions (0–2mm) of solids by ion beam analysis where elemental composition and depth distribution information are needed. Channeling experiments are used to determine crystal pertection and site occupancy,
4. the Facility for High Resolution Electron Microscopy (HREM), which operates several ultra high resolution and ultra high vacuum electron microscopes and supports microscopy methods and instrumentation development, including holography, position and time resolved nanospectroscopy and energy-filtered imaging and diffraction. The center provides high-resolution capability for a large external group from other universities and industry; and
5. the Secondary Ion Mass Spectrometry (SIMS) laboratory, which provides depth profile and point composition analysis with very high chemical sensitivity, on the order of one part per billion, including isotopic analysis for many materials SIMS is also used as a chemical microscope, to image elemental distributions on specimen surfaces.

The Goldwater Materials Science Laboratories of the Center for Solid State Science are the primary teaching and research resources used by students in the Science and Engineering of Materials interdisciplinary Ph.D. program and the undergraduate option for Materials Synthesis and Processing. They are used for the same purposes by students from affiliated departments.

Special laboratories for other relevant research are available in affiliate departments. These include nuclear and electron resonance spectroscopy laboratories, X ray diffraction and fluorescence laboratories, mechanical properties measurements capability over a wide range of temperatures, optical (laser) spectroscopy laboratories, and scanning tunneling and atomic force microscope laboratories. Additional laboratories for related research are available in affiliate departments

For more information, contact the director, Center for Solid-State Science, PS B234, 602/965–4544.

Center for the Study of Early Events in Photosynthesis. This center, located in the College of Liberal Arts and Sciences, was established at ASU in 1988 as part of the USDA/DOE/NSF Plant Science Centers Program. The center serves as an infrastructure supporting ASU scientists who study photosynthesis using a variety of methods and approaches, ranging from molecular biology and biochemistry to organic chemistry, ultrafast laser spectroscopy, X ray crystallography, and theoretical chemistry. It is designed to enhance undergraduate, graduate, and postdoctoral education through multidisciplinary cooperative research projects.

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

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

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

For more information, contact the director, Center for the Study of Early Events in Photosynthesis, PS D207, 602/965 1963.

Deer Valley Rock Art Center. Deer Valley Rock Art Center, located two miles west of the Black Canyon Freeway on Deer Valley Road, is operated by the ASU Department of Anthropology in consultation with the Hopi, Yavapai, and Gila River Indian tribes. It includes more than 1,500 petroglyphs that cover the eastern slope of Hedgpeth Hills. For more information, call 602/582 8007.

Exercise and Sport Research Institute. The Exercise and Sport Research Institute (ESRI) is an interdisciplinary research unit located in the Department of Exercise Science and Physical Education and serves, in part, as a research facility for the interdisciplinary doctoral program in exercise science.

The major research areas can be described as follows. *Biomechanics* applies the laws of physics to the study of human movement. It examines internal and external forces applied to the human body and the effects these forces have on the body. *Exercise physiology* studies the acute responses of the body to exercise and its chronic adaptations to training. It also studies the interrelationships among physical activity, performance, and health. *Exercise biochemistry* focuses on the study of subcellular systems involved in the provision and regulation of energy transfer during exercise *Exercise endocrinology* studies interrelationships of exercise and training with stress, hormones, neurotransmitters, and the immune system. *Motor behavior and sport psychology* study human behavior in fundamental motor activity and sport. *Motor behavior* includes the subdomains of *motor learning, control,* and *development.* Motor learning focuses on skill acquisition, motor control studies how movement is regulated and controlled via the nervous system in normal and pathological populations, and motor development studies how growth and maturation affect performance and learning across the lifespan. Within the context of sport and exercise, *sport psychology* examines the influence of psychological variables on performance or health and the influence of participation on psychological phenomena.

The ESRI is affiliated with a number of medical institutions in the Phoenix area.

Faculty and graduate students at the ESRI are investigating a wide range of topics concerning human physical activity, including different ages, levels of health, levels of ability and fitness, and environments; and levels and types of training, body composition, nutrition, and physical and emotional stresses. Where applicable, these aspects are studied using an interdisciplinary approach.

For more information, contact the director, Exercise and Sport Research Institute, PEBE 159, 602/965–7473.

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

Faculty, staff, and advanced graduate students organize into working groups to develop a broad range of specific projects and lines of inquiry within the general categories of Hispanic entrepreneurship, science and technology, information and data compilation and dissemination, the Hispanic polity, and the arts. Ongoing activities of the HRC, primarily funded by external grants, include the Arizona Hispanic Business Survey, the *Bilingual Review Press,* the Coalition to Increase Minority Degrees, the Community Art and Research Outreach (CARO), Compañeros en la Salud, Project 1000, and the Western Alliance to Expand Student Opportunities.

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

For more information, contact the director, Hispanic Research Center, CFS 104, 602/965 3990.

Institute of Human Origins. The Institute of Human Origins (IHO), founded in 1981 by Donald Johanson, became part of the College of Liberal

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

For more information, visit the Institute of Human Origins, SS 103, or call 602/727-6570.

College of Public Programs

Morrison Institute for Public Policy. Established in 1981 by the Morrison family of Gilbert, Arizona, the Institute conducts research on public policy matters, informs policy makers and the public about issues of importance, and advises leaders on choices and actions. Morrison Institute offers a variety of services to public and private sector clients and pursues its own research agenda. Services include policy research, program evaluation, and public outreach. The institute's interests, research, and publications span such areas as education, urban growth, human services, workforce development, economic development, and arts and culture.

For more information, call 602/965-4525, visit the Web site at www.asu.edu/copp/morrison, or write

Morrison Institute for Public Policy
Arizona State University
PO Box 874405
Tempe, AZ 85287–4405

Vice Provost for Research

Center for Environmental Studies. Established in 1974, the center encourages and coordinates interdisciplinary environment-related activities in the natural and social sciences within the university.

Research programs within the center emphasize ecosystem and human impact studies; riparian and aquatic studies; wildlife biology; environmental regulation and policy issues; covering environmental risk assessment; hazardous materials; waste management; and studies relating to environmental problems on the U.S.-Mexico border. The center also organizes a variety of training programs for practitioners on current federal environmental regulations.

The center encourages communication among academic, government, and private sectors through research, workshops, seminars, and working papers. It manages the Sierra Ancha Research Station for the university. The station is located at an elevation of 5,000 feet in the desert-pine forest transition. It offers research potential in biology, geology, anthropology, resource management, and nuclear engineering. Research space and living accommodations are also available for academic and research organizations.

For more information, contact the director, Center for Environmental Studies, Tempe Center (University and Mill), 602/965-2975.

ASU East

For information on the Center for Agribusiness Policy Studies, see page 455.

CONSORTIUM FOR INSTRUCTIONAL INNOVATION

The Consortium for Instructional Innovation (CII) is a multidisciplinary unit committed to developing and supporting new pedagogical and technological approaches to teaching. CII uses a vast system of university resources to provide members of the university teaching community the opportunity to combine their talents and expertise with the latest technologies in producing beneficial new teaching methods.

CII combines existing teaching methods with technological options such as the use of computers, videotape, computer animation, and laser disks to create the best possible instructional methods.

CII offers assistance and financial aid to members of the teaching community who seek to develop projects in improving the quality of education at ASU. In evaluating proposals for curricular innovation, CII considers the applicability of projects to other areas and settings, the impact of projects on both students and faculty, and the commitment from the college or department in support of proposed programs.

In addition to developing teaching methods, CII periodically sponsors workshops and serves as a clearing house for information and referrals.

The units that make up CII are Computer and Network Consulting Services, University Libraries, University Media Systems, the University Program for Faculty Development, and the Writing Across the Curriculum program.

A pedestrian bridge makes crossing University Drive easy and safe for students.
Tim Trumble photo

Student Services

The university is committed to the belief that an education involves more than attending class. While the assimilation of information is a central part of the university experience, learning about others, about independence and leadership, and about living in a complex society are equally important Student Affairs' services and developmental programs reflect this philosophy.

UNDERGRADUATE ADMISSIONS

For many undergraduates, the first introduction to ASU is through the recruitment and admission programs of Undergraduate Admissions Personal contact with prospective students through high school and community college visits and through student visits on campus are some of the approaches that provide information about the academic programs and support services available at ASU. A primary goal of Undergraduate Admissions is to identify, inform, motivate, recruit, and enroll students from ethnic groups underrepresented at ASU Orientation programs ease the students' (and parents') transition to the ASU campus Undergraduate Admissions also coordinates and supports the ASU Parents Association. For more information, call 602 965 7788.

STUDENT FINANCIAL ASSISTANCE

Approximately two thirds of the full time students at ASU rely on some form of financial assistance to meet their educational expenses The purpose of Student Financial Assistance is to review and award financial resources from a variety of private, federal, state, and institutional sources Information about and applications for scholarships, grants, loans, and student employment are coordinated by this department. From these types of assistance, 30 40) students received approximately $225 million in 1996–97.

Computerization and an understanding of students' needs have contributed to the efficient and responsive operation of this student resource Assistance in student loan counseling and debt management services are innovative programs offered through this agency ASU is nationally recognized for providing this unique financial aid service. For more information, call 602/965 3355.

REGISTRAR

Management of the registration system and maintenance of academic records are the primary responsibilities of the Office of the Registrar. InTouch, the ASU touch tone telephone system for registration and fee payment, and the online registration system, accessible at any registrar site, including one at ASU West, ease the enrollment process and make ASU a national leader in the use of computerized registration. The Student Information System stores academic records and improves the quality of data used in academic advising The Office of the Registrar coordinates applications for graduation and undergraduate readmission, course changes and scheduling, transcript services, applications for residency, and verification of enrollment Additional information is available on the Web at www.asu.edu registrar or by phone at 602 965 3175

Veterans Services

This office offers complete educational services for U S veterans and their eligible dependents. Counseling about admissions registration, and veterans benefits is available Veterans programs provide service by advising all interested veterans and dependents about educational benefits and their optimum use Students must apply each semester to receive veterans benefits. The program also assists veteran students in obtaining suitable paid tutors, when needed, using their federal benefits Veterans must achieve adequate GPAs and semester hour progress toward their academic programs for continued educational benefits The university must report this progress each semester Students receiving veterans educational benefits are not eligible to receive pay for audited courses. The Veterans Services Section is located in SSV B117 For more information, call 602 965 7723

RESIDENTIAL LIFE

Living in one of the ASU Main residence halls provides students the opportunity to make the most of their college experience. Special residential communities for freshmen, honors students, students participating in fraternities and sororities and students in particular academic areas offer opportunities to enrich campus life

ASU East housing includes residence halls as well as two- to five bedroom homes. Call 602/988 9160 for further information. For additional informa tion about ASU East housing, see page 435.

The Freshman Year Experience pro gram provides a unique environment of classrooms, live in tutors, academic advisors, and other support services designed to help freshmen develop skills for success.

The Campus Communities program (see the Institute for Cocurricular Programs and Service [ICPS] on this page) provides residential communities for students with interests in a variety of areas. Students who do not want to participate in a campus community can benefit from the activities of other residential communities, including halls that feature apartment style or single rooms, or one that promotes a study in tensive environment.

Students are encouraged to apply for housing early. While applications are accepted at any time, assignment to a residence hall is not made until a student is admitted to the university. Resi dence hall assignments are made based upon the date of receipt of both the completed application and deposit. Re quests for specially modified rooms for students with disabilities should be noted on the application.

ASU Main residence hall application information may be obtained by calling 602/965 3515 or writing

RESIDENT AL L FE
ARIZONA STATE UN VERSITY
PO BOX 870212
TEMPE AZ 85287–0212

Information about ASU Main voluntary meal plans may be obtained by calling 602/965 3464 or writing

CAMPUS D N NG
AR ZONA STATE UN VERS TY
PO BOX 871101
TEMPE AZ 85287–1101

Information about ASU Main resi dential Campus Communities may be obtained by calling 602/965 9600 or writing

INSTITUTE FOR COCURRICULAR
PROGRAMS AND SERV CE
AR ZONA STATE UNIVERS TY
PO BOX 870212
TEMPE AZ 85287–0212

STUDENT DEVELOPMENT

Student Organization Resource Center. The Student Organization Re source Center provides opportunities for students to get involved with estab lished campus organizations and helps students start new organizations. The center maintains a list of all registered groups, schedules mall activities, and provides a resource desk where stu dents can get information on student activities and leadership opportunities. The REACH information desk is also in the Student Organization Resource Center located on the third floor of the Memorial Union. For more informa tion, call the center at 602/965 2249 or REACH at 602/965 2255.

Learning Resource Center. The Learning Resource Center (LRC) seeks to provide academic support services to students in an easily accessible manner. Services offered include tutoring, sup plemental instruction, peer advising, and computer-assisted instruction. For more information, call 602/965–6254.

Student Leadership Programs. Stu dent Leadership Programs serves as a resource to students interested in leadership development. Resources include a leadership library and information about the ASU Leadership Develop ment Model and other campus, local, and national leadership programs Staff are available for presentations; work shop facilitation; and advisement, guid ance, and coordination of efforts in leadership development. For more in formation, call 602/965 2249.

Child and Family Services. Child and Family Services (CFS) provides re sources and referral services to stu dents, faculty, and staff. Information about the Campus Children's Center (602/921 2737), Child Development Laboratory (602/965 7267), Child Study Laboratory (602/965 5320), and the College of Education Preschool (602/965 2510) may be obtained at CFS or by calling the programs directly. CFS maintains a child care re ferrals database and coordinates work shops and discussion groups on child and elder care issues. Educational ma terials and listings of additional on and off campus activities, programs, and services for children and their families are available at the CFS office, MU 14C. Appointments are recommended. For more information, call 602/965 9515.

Fraternities and Sororities. Involvement in a fraternity or sorority is one of the most rewarding aspects of a stu dent's college experience. Twenty two fraternities and 14 sororities provide opportunities for leadership develop ment, academic success, campus in volvement, community service, social interaction, brotherhood/sisterhood, and intramural participation. These organi zations are governed by the Interfraternity Council and the Panhellenic Coun cil. The National Panhellenic Council offers nine predominantly African American organizations for involve ment with community service, cultural learning, and a deep sense of tradition. The Hispanic Greek Council, consisting of two fraternities and two sorori ties, offers Hispanic students an oppor tunity to work on service projects, give back to the Latina/Latino culture, and network within the Hispanic commu nity. In addition to the benefits of lifelong membership, many of the fraterni ties and sororities have chapter houses or residence hall floors that provide a rewarding living/learning option for their members. For more information, call 602/965 2288 or 602/965 2249.

Institute for Cocurricular Programs and Service

Institute for Cocurricular Programs and Service (ICPS) is an interdisciplinary program designed to connect stu dents and faculty who share common interests. The program has both cur ricular and cocurricular elements, enabling students and faculty to meet in small seminars for course credit, or in informal discussion or workshop set tings.

Involvement in the institute's pro grams enables students to explore real world issues and gain experience with larger, nonuniversity communities. A number of academically based activi ties allow for close contact between students and professors, in-depth discussion of interdisciplinary themes, and service or research experiences cen tered around an interest area. ICPS ac tivities are open to all undergraduate students with an interest in exploring a theme or building community among like minded students and faculty.

ICPS offers various options for involvement in this program. Students may choose to participate in any or all

aspects of the program, ranging from drop in participation in seminars to liv ing in a community in one of the university's residence halls.

Residential Communities. Students with a deep commitment to their inter est area might choose to live in a com munity, regularly sponsoring their own programs around their interdisciplinary theme interest. These communities share space in one of the ASU resi dence halls, participating in regular residential activities, but working through their own leadership and with the Institute for Cocurricular Programs and Service staff to create a sense of place for community residents. In 1996–97, the Institute for Cocurricular Programs and Service offered nine resi dential communities: The Arts, from performance and studio arts to litera ture and other creative activities; Athena focuses on architecture, envi ronmental design, and the humanities, from the classical to the cutting edge; Deaf Pride addresses deaf, hard of hearing issues and American Sign Lan guage; Diana focuses on how women develop as leaders and creative indi viduals in our society; El Zócalo stud ies Chicana/Chicano life; Fitness fo cuses on exercise, health, and nutrition, Four Winds focuses on Native Amer ican issues and culture; 21st Century has emphasis on technology, culture, and society, including the Internet; and UMOJA, the African American experi ence. Students interested in developing a residential community may propose to live in the community early in spring for the following academic year.

Community Service Internships. Students with a 2 50 GPA from any academic program may enroll for three to six hours of internship credit for working in an area of community ser- vice. The Institute for Cocurricular Programs and Service internship pro gram is designed as a service learning experience that brings internship stu- dents together with various faculty members regularly during the intern ship experience to explore topics and issues that relate to community, ser vice, citizenship, and student involve ment.

Research Internships. The Institute for Cocurricular Programs and Service provides opportunities for students who wish to assist faculty in research that is multidisciplinary. Students may regis ter for up to three hours of internship credit for working on specific projects that help them to learn about the re search process, methodology, and im plications of academic research. The Institute for Cocurricular Programs and Service works in conjunction with vari ous faculty groups that have coordi nated multidisciplinary research proj ects in the greater ASU community.

Seminar Discussion Classes. A high- light of the Campus Communities pro- gram is the one hour seminar discus sion course that is offered in multiple sections each semester. These courses meet for a total of 15 hours in one regu lar semester and are designed as small group discussion seminars with one or two faculty members, exploring a par ticular theme. Some discussion semi nar participants choose to work on a particular project; others engage in in dividual study and discussion; still others explore selected readings. Stu- dents and faculty are able to propose theme interest areas to the Campus Communities program.

Seminar Series. Throughout the aca demic year, the Institute for Cocurric ular Programs and Service sponsors a series of small group seminars with in dividual faculty across disciplines to explore theme areas that students indi cated as an interest area. Students are invited to propose and develop semi nars along with the Institute for Co- curricular Programs and Service staff.

Capstone Course. A three-hour course that explores the nature of aca demic community; citizenship; what it means to be a college-educated person in the U.S. and world society; and the relationships among service, research, and education. The course is taught by faculty across disciplines and provides students with a service learning oppor tunity to reinforce the themes explored in class

Community Theme Programs. As students' interdisciplinary interests bring them together, they often develop their own ideas for group activities. These include such programs as film series, dance and music programs, holi day events with educational compo nents, and joint events with agencies, schools, and groups in the greater ASU community.

Academic transcript recognition for participating in the Campus Communi ties program is based on fulfilling ap proved course work, including partici pation in the Campus Communities seminar series and designating a par ticular interdisciplinary theme area of interest.

Students interested in participation in Campus Communities may do so by at tending a sponsored event, enrol ing in a Campus Communities course, or by calling the program office for further information at 602/965 9600 The In stitute for Cocurricular Programs and Service is housed in Student Affairs.

EDUCATIONAL DEVELOPMENT

Educational Development comprises four programs designed to assist stu dents with special needs and serves as an educational outreach program for ASU. The ASU/Phoenix Educational Opportunity Center, located off cam pus, provides information for college admissions and financial aid; the Up ward Bound program provides college preparation for high school students that are first generation and low in come, Disability Resources for Stu dents is a comprehensive support pro gram for students with disabilities who are attending ASU, and Veterans Up ward Bound is a program that prepares veterans for postsecondary enrollment All Educational Development programs are fully or partially funded by the U S Department of Education and are known nationally as TRIO programs.

The ASU/Phoenix Educational Op- portunity Center. This community outreach service focuses on low in come individuals The center has a main office at 1000 E. Apache Boule vard, Suite 118, Tempe, AZ, and satel lite offices around Maricopa County It offers vocational testing and guidance as well as assistance in application for admission, scholarships, and financial assistance at a postsecondary nstitut on suited to particular individuals' needs. Services are free For more informa tion, call 602 894–8451

Disability Resources for Students. Disability Resources for Students (DRS) ensures that qualified students with disabilities, upon request, are pro vided with reasonable and effective ac commodations DRS facilitates equa access to educational and cocurr cular

programs, campus activities, and career and employment opportunities for qual ıfied students with disabilities by offer ıng a wide range of academic support services that include, but are not lım ited to, the following: academic and career consultation; campus and com-munity program coordination and/or re ferrals, supplemental readers in coordi-nation with Recording for the Blind and Dyslexic (RFB&D); an ın-class note taking program; nonstandard academic testing accommodations; specialized equipment for specific disabilities; the Hewlett Packard Adaptive Technology Center, American Sign Language or oral interpreters; TTY access including campus pay phones, educational mate rials, e.g., braille/alternative print pro duction, large print, raised line charts and graphs, braille campus map; cam pus mobility services; and the Access Employment Program. Although stu dents are responsible for their own per-sonal care attendants, DRS does pro vide an Attendant Management Train-ing Program for students with disabili ties and maintains a current listing of applicants (untrained) for personal care attendants Also, a U.S. Department of Education TRIO Student Support Ser vices Grant allows DRS to incorporate a unique academic enhancement model into the disability support services pro-gram for 270 selected students with dis-abilities who meet TRIO eligibility re quirements

Some classroom accommodations, such as braille, audio tapes, interpreting services, enlarged print, and lab mate rial conversions, require an extended preparation time, i e., one semester. To ensure the availability of accommoda tions from the first day of class, stu-dents are required to preregister for classes and notify the appropriate DRS program coordinator immediately upon submitting a Course Request Preregis tration form. Although DRS will at tempt to provide requested appropriate accommodations for students who miss preregistration, they cannot be guaran teed and effective alternatives may be necessary.

Documentation is required and in formation regarding disabilities is con fidential For more information, call 602/965 1234 (Voice) or 602/965 9000 (TTY)

The Upward Bound Program. This program is designed to increase the academic skills and motivational levels of participants (low income, potential first generation college students) to the extent that they will complete high school and enter postsecondary institu-tions. The year-round program in cludes summer residential components. For more information, call 602/965 6483.

Veterans Upward Bound. This pro gram is designed for veterans who wish to pursue postsecondary education but whose life experiences did not ade quately prepare them for the educa tional requirements of today. College preparation instruction in writing, read ing, mathematics, general science, so cial science, study skills, and computer literacy are provided to suit each vet eran's individual needs. Veterans lack ing a high school diploma can also prepare for obtaining their General Education Development (GED) while participating in Veterans Upward Bound. Interest inventory assessments and career advisement are also avail able. For more information, call 602/ 965 3944.

STUDENT LIFE

Working closely with a variety of student populations, Student Life strives to increase student involvement in the ASU experience. Opportunities for leadership and community involve ment help students prepare for their roles as responsible citizens. Through their involvement in student activities, workshops, community service, and student governance, students learn the qualities of student leadership and the skills to be successful students.

Programs and services are targeted to an increasingly multicultural student community as Student Life places high priority upon the promotion of civic re-sponsibility and the celebration of di versity An emphasis is placed upon empowerment of individual students and student organizations, including in ternational students, adults re entering higher education, and commuter stu dents.

ASU and Student Life encourage student volunteerism and community involvement. Concern for the social environment is reflected in the activi ties of the Cultural Diversity Commit tee, Student Judicial Affairs, the Re entry Student Center, and the Interna tional Student Office.

Understanding the University Expe rience (Hispanic Mother/Daughter Pro gram) involves precollege women in early preparation for college.

The Student Life staff works closely with the academic and student support service areas of the university to make sure that students are aware of and use available resources. Staff members also act as advocates for students with other campus departments. For more information, call 602/965–6547.

COUNSELING AND CONSULTATION

Counseling and Consultation pro-vides confidential counseling services to all ASU students. The psychologists and counselors on staff help students with almost any type of problem or is sue related to adjusting to college life. The staff is particularly committed to helping minority students and nontradi tional students adjust to campus life.

Counseling and Consultation offers counseling groups for career explora tion, relationship difficulties, stress management, depression, assertiveness, eating disorders, family problems, and other common student issues. Indi vidual therapy and couples counseling are offered on a short term basis. Counseling and Consultation also pro vides emergency counseling to students experiencing an emotional crisis.

A career interest testing program is available to both students and nonstu dents. Other services available to the ASU community include consultation and outreach services to faculty and staff, academic instruction, research, a master's level practicum training pro gram, and an APA approved clinical internship program for doctoral stu dents in counseling and clinical psy chology. Students may schedule an ini tial counseling appointment either by phone (602/965 6146) or in person. After an initial personal consultation and four free individual sessions, stu dents are charged $10.00 per session. Counseling and Consultation is located in SSV B317.

The Multicultural Advancement Program (MAP). This program is a separate component within Counseling and Consultation and is built upon a student development model providing cultural, emotional, and academic sup port services to the university's minor ity student populations MAP counse lors provide this support through programs, workshops, summer insti tutes, academic classes, personal and

educational counseling, and sponsorship of student organizations. Students may schedule an appointment with a MAP counselor by phone (602/965-6060) or in person. The MAP office is located in SSV A361.

Testing Support Services. Testing Support Services (TSS) offers workshops to help students prepare for the following graduate entrance exams: The Graduate Record Exam (GRE), the Graduate Management Admissions Test (GMAT), the Law School Admission Test (LSAT), and the Medical College Admissions Test (MCAT). In addition, students may select individual tutoring sessions or a workshop (Basic Math Review) to enhance their math and/or quantitative analysis skills. Students may sign up for test preparation workshops by phone (602/965-6777) or in person. The TSS office is located in SSV B322.

STUDENT HEALTH

Services. Student Health offers fully accredited outpatient health care to all students enrolled at ASU. The professional staff, consisting of physicians, nurse practitioners, registered nurses, psychiatrists, social workers, counselors, dietitians, and health educators, has special interest and training in college health care. Consultant physicians in dermatology, orthopedics, and ear, nose, and throat are on site and are available by referral from a member of the Student Health professional staff.

Additional services include comprehensive women's health care, immunizations, a wart clinic, and an allergy clinic for students needing periodic injections. The pharmacy at Student Health provides many prescription and over the counter medications. Radiology and laboratory services are also available.

Substance abuse services are available at Student Health for students experiencing problems as a result of the use of alcohol or other substances and wishing to address the problems in a confidential setting.

For information about Student Health Services at ASU East, call 602/222-6568.

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

Hours. Students are strongly encouraged to schedule appointments to minimize waiting time and to allow students the opportunity to establish a relationship with one clinician. Appointments are available by calling 602/965-3349. Patients with urgent health care problems may be seen at Student Health's ASAP clinic.

Days	Hours
Mon., Wed., Fri.	8:00 A.M.-5:00 P.M.
Tues., Thurs.	9:00 A.M.-5:00 P.M.

Fees. Full-time students are not charged for primary care visits at Student Health. Part-time students are charged a visit fee. There are charges for consultant visits, continuing mental health visits, radiological procedures, laboratory procedures, medications, certain special or surgical procedures, and certain health education services. Patients receiving medical treatment off campus, such as consultations, emergency care, and hospitalization, are responsible for any resulting charges.

Insurance. *While Student Health provides comprehensive ambulatory care, it is not a substitute for health insurance.* Medical insurance coverage is strongly recommended for all students and is required for international students. Eligible students and dependents may enroll in health insurance coverage arranged by ASU. Dependents must complete an application and may require underwriting approval by the insurance carrier. The coverage assists students in paying for laboratory and radiology procedures, off-campus consultations, hospitalization, surgery, emergency, and after-hours care. Students may purchase health insurance through InTouch, the ASU touch-tone telephone registration system, or at any registrar site. For more information, call the Student Health insurance office at 602/965-2411.

STUDENT PUBLICATIONS

The activities of Student Publications are most visible in the *State Press*. The campus newspaper, one of the largest daily newspapers in Arizona, is published five days a week by ASU students who make editorial decisions with the support of an experienced university staff director.

The *State Press* provides students with on-the-job training in newswriting, photography, editing, advertising, and production work. The *State Press* also addresses the many informational needs of the university community, not only through stories about the campus, and local and national events, but through paid advertisements by area merchants, campus groups, and university faculty, students, and staff. The *Digiguide* is Student Publications' online community guide and includes complete listings of restaurants, hotels, apartments, transportation, campus maps, and fun places to go within the community surrounding ASU. Visit the site at http://news.vpsa.asu.edu.

Student Publications publishes *Hayden's Ferry Review* twice a year. This literary magazine features fiction, poetry, photography, and illustrations submitted from people throughout the country.

Student Publications provides complete prepress services to the university community. For more information, call 602/965-7572.

MEMORIAL UNION

The Memorial Union (MU) is a major center of student, faculty, and staff activity. Students have many opportunities for involvement, including the student directed MU Activities Board (MUAB). The MUAB plans and delivers programs and daily events through the following committees: Comedy, Culture and Arts, Film, Gallery, Marketing, Recreation, Special Events, and the Executive Board. For more information, call 602-965-6822.

The MU is staffed primarily by students, providing students the opportunity to develop leadership skills and a customer service orientation. Student employment is available in building management, conference room setup, clerical support, film projection, food services, gallery installation, information desk services, and recreation center services.

The MU also sponsors one of the fin est intercollegiate bowling programs in the United States, with men's and women's teams competing throughout the country. For more information, call 602/965 3642.

MU facilities include student lounges, a gallery, a cinema, meeting rooms, and ballrooms. Student govern ment and other student organization of fices are located on the third floor. Recreational activities include billiards, bowling, and amusement games. The MU provides a diversity of dining op tions for individual and group needs and provides catering and conference services. The building houses a card and gift shop, copy center, credit union, dry cleaners, hair salon, photo shop, post office, record shop, travel agency, and four automated teller machines (ATMs). The MU operates the univer sity information desk and lost and found. For more information, call 602 965 5728.

ASSOCIATED STUDENTS OF ARIZONA STATE UNIVERSITY (ASASU)

ASASU is the student government of the university and the official represen tative of the student body in matters of university governance and budgeting. Students can take advantage of the Bike Co op Repair Service, Campus Clubs and Organizations, College Councils, the Counseling and Health Advisory Committee, Community Support Pro gram, Entertainment Events, Environ mental Issues, the Executive Commit- tee, Graduate Research Support Oppor tunities (GRSO), Homecoming, Info Devils, Lecture Series, the Multicul tural Awareness Board, Off Campus Student Services, Public Relations, the Safety Escort Service, Special Events, State Relations, Student Legal Assis tance, and the Student Senate. For more information, call 602/965 3161

CAREER SERVICES

Career Services provides advisement for individual career planning concerns and offers information about numerous career fields and permanent positions. Students are encouraged to use the Ca reer Development Center throughout their academic careers. A computer ized career planning system assists stu dents in evaluating and making career choices. Career Services offers work shops and classroom presentations on career planning, interviewing skills, résumé writing, and a myriad of addi tional career related topics. Advisors are available to assist students on an in- dividual basis in career planning and employment.

Hundreds of employers from busi ness, industry, government, social ser vice agencies, health organizations, and school districts come to ASU to inter view students seeking permanent and career related summer, intern, and co op employment. Career Services schedules these interviews for both em ployers and students to meet each group's needs and interests In addi tion, career and job fairs are scheduled throughout the year

The agency's services support stu dents' career development throughout their college experience, and Career Services encourages participation in programs as early as the student's freshman year. The offices are located in SSV C359 and C363. For more in formation, call 602 965 2350

STUDENT RECREATION COMPLEX AND RECREATIONAL SPORTS

Students who want to get involved or meet people with similar interests should visit the Student Recreation Complex (SRC) to learn more about Recreational Sports. Student Affairs' Recreational Sports is one of the largest programs of its kind in the country, serving more than 20,000 students an nually. Programs offered include intra mural sports, informal recreation, fit ness, aquatic and sports skills classes, outdoor recreation, children and family programs, sport clubs, adaptive recre ation for individuals with long or short term disabilities, a wellness cen ter, safety education, and special events.

Located on the south end of Palm Walk, the SRC is one of the finest stu dent recreation facilities in the United States. Features include a variety of re sistance and cardiorespiratory equip ment, a 9,000 square foot weight room, three large gymnasiums, 14 indoor rac quetball courts and one squash court, martial arts, aerobics and sport club rooms, outdoor equipment rental, and an adaptive weight area. Outdoor fa cilities include a lighted, multiuse com plex with four fields, a 43 mile perim eter walking and jogging path, four sand volleyball courts, 14 tennis courts, and a 70 meter swimming pool with two movable bulkheads that allow the pool to be divided into three parts for simultaneous multiuse programming.

For more information, stop by for a tour or call 602 965 8900.

ARIZONA PREVENTION RESOURCE CENTER

The Arizona Prevention Resource Center (APRC is a partnership among ASU, the Governor's Division of Drug Policy, the Arizona Department of Edu- cation, and the Arizona Department of Health Services.

The APRC serves as a centralized source for individuals, schools, and communities throughout Arizona to support, enhance, and initiate programs focused on the prevention of the use of tobacco products and the use and abuse of alcohol and other drugs; gangs and violence; and other areas, such as health promotion, domestic violence, and dropout prevention The APRC operates in the following program ar eas:

1. clearinghouse to provide accu rate, timely, and personalized pre vention information and materials through in house collection, access to national sources, and linkages between prevention programs in Arizona;
2. training and technical assistance to provide high quality, responsive training and technical assistance for organizations and individuals un dertaking prevention programs in local communities and schools,
3. evaluation and research to coor dinate and provide leadership for a statewide evaluation strategy for al coho and other drug prevention programs; to produce an annual in ventory of substance abuse preven tion, education, and treatment pro grams in Arizona; to design and conduct contracted evaluations of community based prevention pro- grams; and to promote quality and accountability in all aspects of APRC operations; and
4 planning and special projects to promote effective collaboration be tween prevention and treatment program leadership, to broaden the funding base for prevention pro grams, and to develop and strengthen partnerships.

For more information, call the APRC at 602/727–2772 or write

ARIZONA PREVENTION RESOURCE CENTER
ARIZONA STATE UNIVERSITY
PO BOX 872208
TEMPE AZ 85287–2208

Information can also be obtained at

ASU DOWNTOWN CENTER
BUILDING B
641 EAST VAN BUREN SUITE B2
PHOENIX AZ
602/727–5400 (FAX)
800/432–2772
(TOLL-FREE IN ARIZONA/TTY)

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

The ADGPRC can be contacted at 602/727–5015 or toll-free at 800/981–3702.

INTERCOLLEGIATE ATHLETICS

The university is a member of the National Collegiate Athletic Association, Division I, and the Pacific-10 Conference. The university has 21 varsity intercollegiate sports and more than 500 participants. Intercollegiate athletics at ASU are governed by a board of faculty, students, and staff under the regulations of the Arizona Board of Regents, the NCAA, the Pacific–10 Conference, and the university. Policies are administered by Intercollegiate Athletics. All athletic grants-in-aid and scholarships are administered in coordination with Intercollegiate Athletics.

RELIGIOUS ACTIVITIES

Various religious centers representing most major religious groups are available near the main campus and provide students with the opportunity to participate in programs of religious worship and to meet other students through social activities. For more information, call the Campus Interfaith Council at Danforth Chapel, 602/965–3570.

OTHER OPPORTUNITIES FOR STUDENT INVOLVEMENT

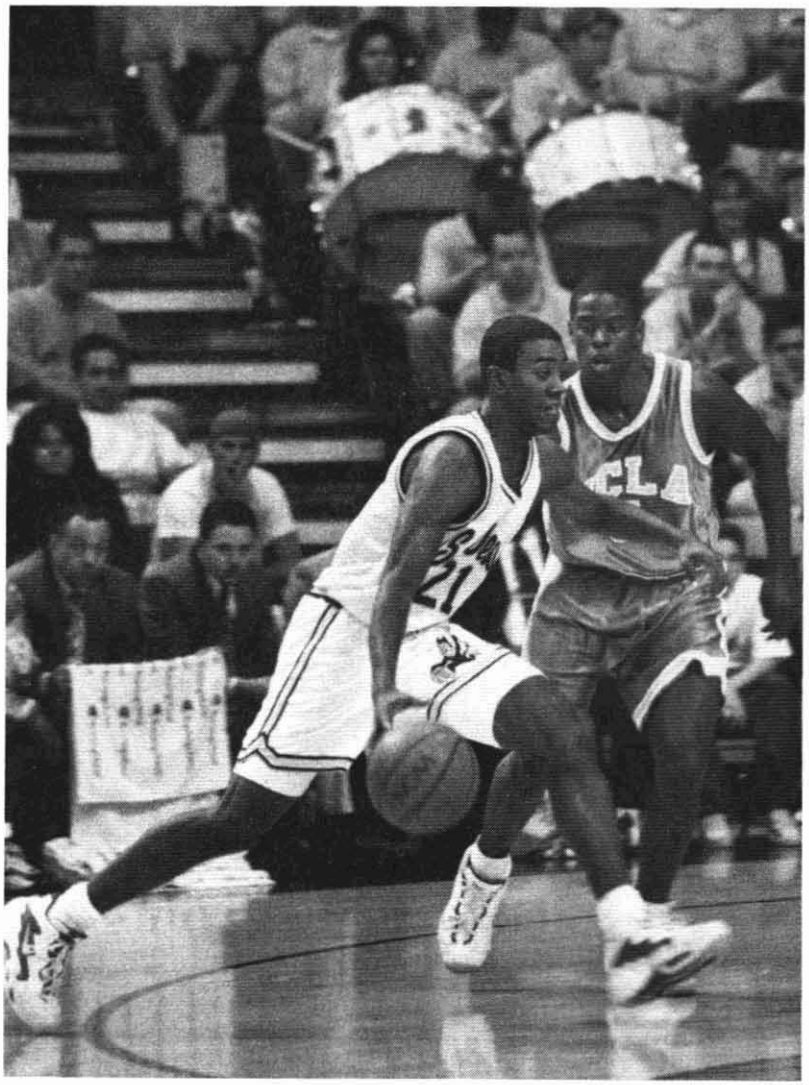
Dance. The Department of Dance and Dance Arizona Repertory Theatre, a student touring outreach company, present 12 to 14 faculty- and/or student-directed concerts each year. Interested students should attend open auditions, which are held at the beginning of each semester. For more information, call 602/965–5029.

Forensics. The Sun Devil Forensic squad, associated with Pi Kappa Delta, national forensic honorary association, travels to trophy tournaments across the country. For more information, call Dr. Clark D. Olson, director of Forensics, at 602/965–3825.

Interpreters Theatre. Participants write, compile, and perform scripts for presentation in diverse on- and off-campus settings through the Department of Communication. For more information, call 602/965–4111 or 602/965–5061.

Music. Performing organizations with the School of Music provide opportunities for involvement and credit, including bands, Lyric Opera Theatre, symphony orchestra, and university choral organizations. For more information, call the School of Music at 602/965–3371.

Theatre. The University Theatre presents four to six faculty-directed productions and eight to 14 student-directed productions each year. Audition information is available from the Department of Theatre office, GHALL 232.



Jeremy Veal sees an opening and begins a drive to the basket against UCLA.
Conley Photography

Fees, Deposits, and Other Charges

The Arizona Board of Regents reserves the right to change fees and charges without notice. The current semester *Schedule of Classes* generally reflects up to date fee amounts.

The following fees apply to both credit and noncredit (audit) registrations and are subject to change.

DEFINITIONS

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

ACADEMIC YEAR TUITION

The resident and nonresident tuition for fall and spring semesters is shown in the "1997–98 Resident and Nonresident Tuition" table on this page. The amounts listed are per semester hour each academic term. For more information on classification for fee status, see "Residency Classification Procedures and Policies," pages 47–48.

Students registered for seven or more hours are considered full time for tuition payment purposes. See "Enrollment Verification Guidelines," page 72.

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

College of Business Fee. Beginning with the 1997–98 academic year, an annual program fee will be assessed for resident and nonresident M.B.A. and select professional business master's degree students who begin their first year in the programs in the fall of 1997 or thereafter (i.e., 1997–98 academic year, $1,000.00; 1998–99 academic year, $2,000.00). Contact the College of Business for more information.

College of Law Fee. Effective fall 1998, rates for admitted full time law students will be $1,187.50 more per semester than standard resident or nonresident rates. In fall 1999, those rates will increase to $1,375.00 more per semester. See the current semester *Schedule of Classes* for fee amounts.

College of Nursing Fee. Effective summer 1998, a one time program fee of $6,300.00 will be assessed for students admitted into the off-campus Post-Master's Family Nurse Practitioner program. Contact the College of Nursing for more information.

Off-Campus and Independent Learning Courses. For information on fees for off-campus and independent learning courses, see "Instructional Programs" and "Distance Learning," pages 241–242.

Summer Sessions Fees. The 1998 registration fee per semester hour is $105.00 except for law students. The registration fee per semester hour for law students is $209.00. For more information on the summer sessions, see page 431 and the *Summer Sessions Bulletin*.

1997–98 Resident and Nonresident Tuition[1]

Semester Hours	Resident Tuition[2]	Nonresident Tuition
1	$105	$ 360
2	210	720
3	315	1,080
4	420	1,440
5	525	1,800
6	630	2,160
7	994	2,520
8	994	2,880
9	994	3,240
10	994	3,600
11	994	3,960
12 or more	994	4,320

[1] Tuition is subject to change for 1998–99.

[2] In addition to tuition, students are charged other fees (e.g., the Student Recreation Complex fee and financial aid trust fee). Specialized fees adopted by the Arizona Board of Regents for selected graduate professional programs apply to students in the colleges of Business, Law, and Nursing (see above).

OTHER FEES, DEPOSITS, AND CHARGES

Special Class Fees and Deposits. Cer tain university classes require payment of fees or deposits for materials, break age, and rentals These fees and dep s its are listed in the *Schedu e of Classes* for each semester. See the "Special Class Fees and Dep sits" table on pages 51 55.

Student Recreation Complex Fee. All students (except university emplo y ees) who take at east one class at ASU Main must pay a mandatory Studen t Recre it on Complex fee. Ful time (seven or more hours students are charged $25 00 per sen ester Part time students pay $12) per semester, and summer students pay a per semester hour fee. See the current semester *Schedu e of C asses* f r more informa tion

Financial Aid Trust Fee. All students must pay a financial a d trust fee Full time (seven or m re hours students are charged no m re than one percent of the current tuition The fee for students enrolled six or fewer hours is half that charged full time students. The total summer sessions fee do es not exceed the amount for a full time student Fees collected from students are matched by the St ite of Arizona and used to create a F nancial Aid Trust Fund, from which student g ants are awarded under the usual financial aid eligibility criteria ava lable at the ASU Student Financial Ass stance office in the Stu dent Services Building

Arizona Students' Association (ASA) Fee. The ASA is a nonprofit obbying organization that represents Arizona's public university students to the Ari zona Board of Regents, State Legisla ture, and U S Cong ess During 1997, students at the state un ve sities voted to change the mechanism for funding the ASA. A $1.00 fee will be harged to each student each semester Any re funds for this fee w ll be provided through the ASA Central Office at 602 966–6358

Late Registration

Fee asse sed on re st ations be g nnin w th the f r t day of ea h session $ 0 00

A $1). 00 late fee is a sc assessed on registration payments received after the fee payment de id ne but processed be fore the class enrol ment purge

Transcripts

Offic a transcripts for currently enrolled students .... $1 00 each
Official transcripts for nonenro led students .. . . $5 00 copy

Additional copies ordered at the same time are $1 00 each. Requests for official transcripts should be made at least two weeks in advance of the time desired.

Copies of Educational Records Other Than ASU Transcripts

Number of P ages	*Total Charge*
1 to 5	free
6 to 10	$2 00
11 to 15	$3.00

Copies of additional pages cost $1.00 per each five pages copied.

Graduation Application or Reapplication

Undergraduate $12 00
Graduate $17 00

A late fee of $5 00 is added to the charge noted above if not paid on or be fore the deadlines shown in the "Uni versity Calendar," pages 12 14.

Comprehensive Examination. This fee is paid by all students seeking to es tablish credit by examination and is $7 50 per semester hour

Private Music Instruction

One half hour of instruction weekly $40 00
One hour of nstruction weekly $60.00
More than ne hour of instruction weekly music majors only $60.00

Musical Instrument Rental Charge

Charge for use of university owned musical instruments . $25 00

Consult the School of Music for spe cific information.

Binding and Microfilm Fees

Binding fee for thesis or dissertation .... $17.00 per copy

This fee is subject to change. Addi tional charges may be required depend ing on the size and nature of the docu ment

Dissertation microfilming fee $50 00

This fee is subject to change.

Sun Card/ID Card

Replacement fee $10 00

Parking Decals. A parking decal must be purchased, in person or by using the Park Smart touch tone telephone sys tem 602/921 PARK (7275), for motor vehicles parked on campus except in areas where metered parking or visitor lots are available. Photo identification is required Annual decals range from $45.00 to $105.00 for controlled access parking. For more decal sales informa tion, call 602/965–6124.

Each vehicle registered at ASU Park ing and Transit Services must comply with Arizona emission standards (A.R.S. § 15 1627G) during the entire registration period The fee for this emission inspection is $10.00 to $20.00 per vehicle.

Everyone is encouraged to support travel reduction measures by using mass transit, the university shuttle bus, carpooling, bicycling, or walking whenever possible. See "Transporta tion" on page 46 for more information.

Parking Violations. Due to high de mand, parking regulations are strictly enforced. Fines range from $10.00 to $50.00. Appeals to parking citations may be filed within 14 calendar days to Parking and Transit Services and, after payment, may be further appealed to the Parking Citation Appeals Board Unpaid parking citations are delinquent financial obligations subject to provi sions of the "Delinquent Financial Obligations" section, page 47. Any person owing three or more unpaid parking citations or $100 00 in unpaid parking citations is subject to impound ment. A $85.00 minimum fee is as sessed if impoundment is required. For more information, call 602 965–4527.

Returned Checks. Checks returned by a bank are assessed a $10.00 service charge with repayment needed within five business days of notification A second $10.00 service charge is made if the returned check is not repaid within this five day period. Repayment of a returned check must typically be in cash.

The university may have arrange ments with its bank to redeposit auto matically for a second time checks for which there are insufficient funds No service charge is assessed by ASU until a check is returned to ASU; however, the payer may be assessed a service charge by the payer's financial institu tion.

Students paying registration fees and tuition with a check that is subse quently not honored by a financial in stitution are subject to involuntary

withdrawal from the university if re payment is not made. All students in vo untarily w thdrawn are charged tu ition and/or registration fees according to th e standard refund schedule as of the involuntary withdrawal date, as de termined by the university

On-Campus Housing. The cost of Main campus hc using varies. In 1997 98 the most typica cost is $2,730 00 per acaden tc year. Meal plans are pur chased separately For more informa tion , see " Residential Life." pages 37 38 or ca l 602 965 3515.

TRANSPORTATION

Tc reduce air pollution and traffic congestion students are encouraged to tra el to and from campus by means other than automobile Nearby on campus automobile parking space is m ited ar d tightly controlled.

A ternative transportation modes are used by thousands of ASU students. ASL is served by a Phoenix area re giona bus service: monthly and re duced fare semester passes are avail able on campus. In addition, an inexpensive express shuttle runs be tween ASU Ma n in Tempe and ASU West in northwest Phoenix; another shutt e runs amon_ ASU Main, Mesa Community College, and ASU East in Mesa; and a Free Local Area Shuttle (FLASH) is available around the pe riphery of ASU Main

Bicyc e ridership at ASU is esti mated to be more than 15,000 students da ly Ample racks in many locations enable the parking and securing of bi cyc es. Bicycle use is restricted only in those areas of campus where pedestrian traffic is sufficiently heavy to make such use a hazard. The Bike Co op Re pair Service provides assistance with bicycle m aintenance

Also careful class scheduling, when possible, can reduce a student's trans portation needs. For more information n con mute a ternatives, call 602/965 1)72

PAYMENT METHODS AND DEADLINES

InTouch. The InTouch system, at 602/ 3S0 1S)0, allows students to register for classes, to drop add, and to make fee payment from any touch tone ph ne Fees can be paid from any touch tone phone with available financial aid, debit cards, VISA, and MasterCard. Refer to the *Schedule of Classes* for available dates and times and more information about the In-Touch system.

Debit/Credit Cards. ASU accepts debit cards, VISA, and MasterCard. Debit/credit card payments through In Touch are processed online with the bank. See the *Schedule of Classes* for information about using debit/credit cards by mail or campus payment boxes.

Check. Checks payable for the exact amount of charges and without a re strictive endorsement are generally ac ceptable, except for students on check use suspension due to a previously re turned check.

Financial Aid. Students receiving fi nancial aid may use their expected aid to pay university charges, including tu ition and fees. Students who wish to do so must follow specified procedures See the current semester *Schedule of Classes* for more information.

Veterans Deferred Payment. The Veterans Readjustment Assistance Act allows veterans to apply for deferred payment of registration fees. A Certifi cate of Eligibility must be presented. Contact the Veterans Services Section for information on meeting the neces sary requirements at SSV B117 or call 602/965 7723. The university may deny this privilege to students with pre vious delinquent obligations.

Payment Deadlines. Fees must be paid by the deadline dates and times in dicated or the registration is voided. A fee payment deadline is printed on all Schedule/Billing Statements and in the *Schedule of Classes.*

REFUNDS

Academic Year Resident and Non-resident Tuition. Students withdraw ing from school or individual classes receive a refund as follows:

Withdrawal Date	Refund
Before first day of the semester	100% less $10 00
One through 7 calendar days	80%
8 through 14 calendar days	60%
15 through 21 calendar days	40%
22 through 28 calendar days	20%
After the 28th calendar day	No refund

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

Withdrawal occurs on the calendar day that withdrawal is requested, either in person at a registrar site or by phone using InTouch, the ASU touch-tone telephone system for registration and fee payment. Students withdrawing for medical or other extenuating circum stances may contact the Comptroller's Office Student Fee Payment Section, SSV B235, for refunds that may be available under these circumstances.

Summer Sessions Fees. Students withdrawing from any summer session or individual classes receive a refund as follows:

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

* A $10 00 processing fee is subtracted per session

Refunds are based on the session days and not the class meeting dates for any particular class.

Special Class Fees and Deposits. Re funds, if any, are determined by the de partment offering the course. Refund determination is based on withdrawal date, type of activity, and costs already assessed by the department.

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

Late Registration. This fee is not re-fundable.

Student Recreation Complex Fee. This fee is refundable only upon com plete withdrawal in percentage incre ments per the refund schedule.

Financial Aid Trust Fee. This fee is not refundable.

Official Transcripts. Overpayments by mail of $5 00 or less are only re funded by specific request.

Graduation Fee. Overpayments by mail of $5.00 or less are refunded only by specific request.

Residence Halls. Refunds to students departing from ASU Main residence halls before the end of the academic year are computed on the following ba sis.

Charges and Deposits Housing payments and deposits are refunded as prescribed by the Residential Life Li cense Agreement that students sign when they apply for residence hall ac commodations. Students should refer to this document for specific information on refunds.

Other University Charges. Other uni versity charges are normally not re fundable, except for individual circumstances.

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

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

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

DELINQUENT FINANCIAL OBLIGATIONS

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

1 Each university shall establish pro cedures to collect outstanding obligations owed by students and former students.

2. Each university shall maintain a system to record all delinquent fi nancial obligations owed to that university by students and former students

3 Students with delinquent obliga tions shall not be allowed to register for classes, purchase parking decals, receive cash refunds, or obtain transcripts, diplomas, or certificates of program completion. The university may allow students to register for classes, obtain transcripts, diplomas, or certificates of program completion if the delinquent obligation is $25.00 or less.

4. Unpaid obligations shall remain a matter of record until students and former students satisfy their financial obligations or until satisfactory arrangements for repayment are made with the university

5. The university may write off delinquent financial obligations of students according to accepted accounting principles and after appropriate collection efforts. No such write-off shall operate to relieve the student of liability for the obligation nor shall such write off entitle the student to release of any transcripts, diplomas, certificates of program completion, or to register for further university classes until such obligation is actually paid.

6. Each university shall include this policy in its bulletin or catalog.

A late charge of $10 00 is made for any balances due the university not paid within 30 days of the initial due date, with a second $10.00 late charge being made if these amounts are not paid within 30 days of the first late charge. Procedures to be followed for disputed charges are available from the Accounts Receivable Section of the Business Services Office, located in ADM A109.

RESIDENCY CLASSIFICATION PROCEDURES AND POLICIES

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

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

Mere physical presence in Arizona for one year does not automatically establish residency for tuition purposes. Adult students and emancipated minors must combine physical presence in Arizona for one year with objective evidence of their intent to make Arizona their permanent home. If these steps are delayed, the one-year period is extended until both presence and intent have been demonstrated for one full year. In addition to physical presence and intent, the student must demonstrate financial independence for the two tax years immediately preceding the request for resident classification. The student must demonstrate objective evidence of self-support and that he or she was not claimed as an income tax deduction by his or her parents or any other individual for two years. An adult student is defined as being at least 18 years of age at the beginning of the domicile year. For a complete definition of an emancipated minor, refer to the Arizona Board of Regents' residency classification policies, available in the Residency Classification Section, SSV B115.

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

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

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

Exceptions to the General Residency Rule

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

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

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

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

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

Procedures for Establishing Residency Status

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

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

Failure to file a timely written petition for reclassification of residency status for tuition purposes constitutes a waiver of the student's right to apply for the given semester. Petition deadlines are published each semester in the *Schedule of Classes.*

Residency classification is an extremely complex issue. The information presented here is a summary and does not address each individual's situation; therefore, students are encouraged to make a personal visit to the Residency Classification Section to discuss their individual circumstances as soon as possible. Guidelines for determination of residency for tuition purposes are subject to review and change without notice. For more information, call the Residency Classification Section at 602/965 7712.

Financial Aid

The primary responsibility for financing a college education belongs to students and their families. Student Financial Assistance helps students meet this responsibility by evaluating applications through the use of a standard financial need analysis system. Student Financial Assistance determines the cost of a student's attendance as

1997–98 Typical Student Budgets

Item	Dependent on campus	Dependent off campus	Dependent with parents	Independent
Rent	$ 2,700	$ 3,600	$ 900	$ 4,600
Food	1,800	1,800	1,800	2,125
Personal (including loan fees)	2,500	2,500	2,500	3,000
Total living	$ 7,000	$ 7,900	$ 5,200	$ 9,725
Tuition	$ 1,988	$ 1,988	$ 1,988	$ 1,988
Special fees	71	71	71	71
Books	700	700	700	700
Resident total	$ 9,759	$10,659	$ 7,959	$12,484
Nonresident tuition	$ 8,640	$ 8,640	$ 8,640	$ 8,640
Nonresident total	$16,411	$17,311	$14,611	$19,136

well as how much students and their families can afford to contribute toward that cost. It is the student's responsibility to complete all applications in an accurate and timely manner and to notify Student Financial Assistance of any changes in circumstances that might affect eligibility (e.g., loss of parent's income or change in residency classification). Financial assistance is available as scholarships, grants, loans, and employment. This aid has been made available collectively by the university, alumni, private foundations, civic groups, individuals, and state and federal governments.

To be considered for financial aid, all students must complete an application separate from the admission application. The Free Application for Federal Student Aid (FAFSA) is the only required application. It is not necessary to complete any other application that may require an application fee. The form should be completed in January or February preceding the academic year the student anticipates attending ASU. The priority date for applying is March 1. Applications completed by this date are considered for all grant funds. Applications completed after this date are processed; however, they are considered late applications. Late applications may receive limited grant dollars and a higher proportion of loan or work dollars.

A statement of need letter is sent to all applicants. This letter estimates expenses and contribution for the school year and specifies the amount of the applicant's financial need. Students are notified by mail regarding any additional items or documents needed to complete their applications. These items may include copies of federal tax returns, proof of valid visa, and proof of registration with the Selective Service. Students receive a separate Financial Aid Notification. This letter informs them of the types and amounts of aid they are eligible to receive through ASU. Applicants should read carefully all correspondence received from Student Financial Assistance.

Students receiving aid from Student Financial Assistance are required to meet minimum standards of satisfactory academic progress. In addition to maintaining the minimum GPA defined for good academic standing, undergraduate students awarded on a full-time basis must complete a minimum of 24 semester hours within the academic year. Failure to meet these standards results in the suspension of aid funds for subsequent semesters until the deficiency is satisfied.

Students can access personal information regarding financial aid through the Financial Aid Services Through Technology (FASTT) phone system at 602/968-4400 or on the FASTT Web site at www.asu.edu/fastt. Students can check on

1. documents still needed to complete a financial aid file;
2. award information; and
3. financial aid forms, both for printing on a printer for mailing and interactive forms that can be sent across the Web.

For help on how to use the Web, contact ISURF at 602/965-2410.

TYPES OF FINANCIAL AID AND MAJOR PROGRAMS

More than 30,000 students receive financial aid resources that total more than $225 million. There are four categories of financial aid: scholarships, grants, loans, and employment.

Scholarships

There are two sources of scholarships at ASU: university funded scholarships and private donor scholarships. Many scholarships are offered on the basis of academic merit. However, financial need criteria may also be included in the selection of recipients. Other considerations are GPA, leadership qualities, and community service.

The Scholarship Office coordinates all scholarship programs. High school students should contact their high school counselors to determine the appropriate process for obtaining a variety of scholarships available to entering freshmen. Other undergraduate students may contact the Scholarship Office. In addition, many academic units provide scholarship funding and select students based on a variety of criteria, which include artistic talent, musical ability, and athletic performance.

Private Donor Scholarships. More than 6,200 students at ASU receive private donor scholarships. Most of these scholarship funds are provided by employers, private individuals, or organizations, and corporations. In most cases the private donor specifies the criteria used by the Scholarship Office to identify candidates for a particular scholarship.

University Scholarships. More than 5,400 ASU students receive a scholarship from university sources that is generally in the value of tuition and/or fees. The largest source for university scholarships is the waiver program authorized by the Arizona Board of Regents. In addition, many scholarships are funded from a general endowment fund. Some of the typical areas targeted for these scholarships are top academic seniors in Arizona high schools, underrepresented minority students, students who demonstrate leadership, students who demonstrate scholastic or scientific abilities, students with disabilities, and nontraditional students.

Grants

Like scholarships, grants are provided to students without repayment or service obligation. However, the criterion to receive a grant is generally a calculation of financial need. More than 12,000 ASU students receive some form of a grant.

Federal Pell Grant. The Federal Pell Grant program is funded by the federal government and is a basic financial resource to low- and moderate-income students. Eligibility is determined through the financial aid application process by the federal government. Under this program, the university converts entitlements to cash grant payments. A student may be eligible for a maximum grant of $2,700.00 per year.

Federal Supplemental Educational Opportunity Grant. Funds are received from the federal government by the university, which is required to match the funds. Student Financial Assistance then determines the eligibility of a student based on a specific calculation of exceptional financial need. Generally, recipients of the Federal Pell Grant are eligible to receive a Federal Supplemental Educational Opportunity Grant. Maximum grants are $800.00.

Arizona State Grant. This program is a three-partner program of federal, state, and university funding. Students with a high financial need may receive this particular form of funding. It is

restricted to residents of Arizona. Maximum grants are $1,500.00.

Arizona Trust Fund. This grant source is provided in partnership between ASU students and the state legislature. These funds are provided primarily to resident, undergraduate, or underrepresented students with a high financial need. Maximum grants are $1,500.00.

University Grant. University Grants are generally reserved as the last financial aid program to be used to resolve a student's need. Grants range from $200.00 to $2,000.00.

Loans

About 19,000 students borrow approximately $124 million annually. A variety of loan programs provide assistance to students and, in some cases, parents in the financing of a university education.

William D. Ford Direct Student Loan. Through the William D. Ford Direct Student Loan program, the federal government loans money to students based on the university's determination of the student's financial need and cost of education, and the student does not begin repayment until after graduation. Under this program students have two loan options: subsidized and unsubsidized. With a Subsidized Direct Student Loan, the federal government pays the interest on the loan principle during the student's in school status, grace, and other authorized periods of deferment. The school bases eligibility for a subsidized loan on the student's financial need which is determined by subtracting the expected family contribution from the cost of education. The school may determine the student to have eligibility for an Unsubsidized Direct Student Loan. In this program, the federal government does not pay the interest during the student's in school status, grace, or other authorized periods of deferment; thus, as the student proceeds through school interest will accrue and will be added once the student enters repayment. Otherwise, conditions and terms for the two programs are the same.

There is a variable interest rate that is adjusted every July 1. Interest cannot exceed 8.25%. The federal government provides several options for repayment once the student has left school. For students who are considered dependent based on their financial aid application, the following total annual loan limits for subsidized and unsubsidized apply: freshman may borrow up to $2,625.00 per year; sophomores, up to $3,500.00 per year; and juniors and seniors, up to $5,500.00 per year. For students who are considered independent, the following annual loan limits apply: freshman may borrow up to $6,625.00 of which only $2,625.00 can be subsidized, sophomores, up to $7,500.00 of which only $3,500.00 can be subsidized; and juniors and seniors, up to $10,500.00, of which only $5,500.00 can be subsidized.

Federal Perkins Loan. The Federal Perkins Loan program is funded by the federal government, the school is the actual lender, and repayments after graduation are made to the university at a 5% interest rate. Like the Subsidized Student Loan, no interest accrues on the Perkins Loan during the enrollment period. ASU students could be awarded a maximum loan of $3,000.00. If funding is available, deferment and cancellation provisions may apply to graduates working in community service, qualifying law enforcement, and teaching occupations.

Federal Direct Parent Loan for Undergraduate Students. Under the Federal Direct Parent Loan for Undergraduate Students PLUS, parents may borrow money from the federal government on behalf of their dependent students. With this loan, interest is not deferred and repayment begins 60 days after disbursement of the loan to the parent. The PLUS approval is based on the parent's credit history. If parents are determined ineligible for a PLUS and students need additional funds, they should contact the Student Financial Assistance office for their eligibility for an Unsubsidized Direct Student Loan. The interest rate for the PLUS loan is variable but cannot exceed 9% through July 1, 1998. The maximum loan amount is determined by subtracting all other financial aid from the student's cost of education.

Employment

Approximately 7,000 students earn $26 million from on campus part time student employment programs.

Federal Work-Study. Funds for this program are provided on a matching basis by the federal government and the university. Students employed under this program receive the same pay rates as other students being employed at the university. In this program, students must demonstrate a financial need. Employers are encouraged to hire minority and needy students.

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

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

Taxability of Financial Aid Programs

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

These publications and forms can be obtained from the IRS at its toll free number 1-800-829-FORM (3676). These publications and forms can also be accessed online at www.irs.ustreas.gov/prod/forms_pubs.

Special Class Fees and Deposits for ASU Main and ASU East

Refunds of special class fees and deposits are processed automatically if the related course is dropped during the first week of class. After the first week, refunds, if any, are determined by the department offering the course. Refund determination is based on withdrawal date, type of activity, and costs already incurred by the department. For special class fees and deposits at ASU West, see the *ASU West 1998 99 Catalog*. For more information, see "Other Fees, Deposits, and Charges," pages 44–46, and "Refunds," pages 46–47.

Special Fees

AMT	222	Instrument Pilot Ground School	$100.00
AMT	280	Aerospace Structures, Materials, and Systems	10 00
AMT	314	Commercial Pilot Ground School	100.00
ART	115	Three Dimensional Design	10 00
ART	201	Photography I	25 00
ART	214	Life Drawing I	25 00
ART	227	Watercolor I	40 00
ART	231	Sculpture I	40 00
ART	260	Ceramics for Nonmajors	25.00
ART	261	Ceramic Survey	25 00
ART	272	Jewelry I	25.00
ART	274	Wood I	25 00
ART	276	Fibers I	25.00
ART	294	ST: Fibers for Nonmajors	25 00
ART	294	ST: Introduction to Printmaking	30.00
ART	301	Photography II	25 00
ART	304	Advanced Photography	25.00
ART	305	Color Photography I	30.00
ART	314	Life Drawing II	25 00
ART	315	Life Drawing III	25.00
ART	324	Painting III (fall only	40 00
ART	325	Figure Painting	25 00
ART	327	Watercolor II	40 00
ART	331	Sculpture II	40.00
ART	332	Sculpture III	40 00
ART	333	Foundry Casting Methods	40 00
ART	351	Intaglio I	40 00
ART	352	Lithography I	40 00
ART	354	Screen Printing I	35.00
ART	355	Photo Process for Printmaking I	25 00
ART	360	Ceramic Throwing	25 00
ART	364	Ceramic Handbuilding I	25.00
ART	365	Ceramic Handbuilding II	25 00
ART	372	Jewelry II	15 00
ART	373	Metalworking I	15.00
ART	374	Wood II	25.00
ART	376	Fibers Loom Techniques	25.00
ART	377	Surface Design	25.00
ART	394	ST Carving	25.00
ART	394	ST· Ceramics	15.00
ART	394	ST Fibers Design for Nonmajors	25.00
ART	394	ST Relief Printmaking	35.00
ART	394	ST Turning	25.00
ART	401	Nonsilver Photography	30.00
ART	403	Senior Photographic Projects	25 00
ART	404	Portraiture Photography	25 00
ART	405	Advanced Color Photography	35 00
ART	407	View Camera	$25.00
ART	414	Advanced Life Drawing	25.00
ART	415	Art Anatomy	20 00
ART	423	Advanced Painting (fall only)	40.00
ART	425	Advanced Figure Painting	25 00
ART	427	Advanced Watercolor	40 00
ART	431	Special Problems in Sculpture	40.00
ART	432	Neon Sculpture	45.00
ART	436	Architectural Sculpture	40 00
ART	437	Film Animation	20.00
ART	438	Experimental Systems in Sculpture	40 00
ART	444	Computer Art I	40.00
ART	446	Computer Art II	35 00
ART	448	Computer Animation	20.00
ART	451	Advanced Intaglio	40 00
ART	452	Advanced Lithography	40.00
ART	454	Advanced Screen Printing	35.00
ART	455	Advanced Photo Processes for Printmaking	30.00
ART	456	Fine Printing and Bookmaking I	30.00
ART	457	Fine Printing and Bookmaking II	30 00
ART	458	Papermaking	20 00
ART	459	Monoprinting	20.00
ART	460	Ceramic Clay	25 00
ART	463	Ceramic Glaze	25.00
ART	466	Special Problems in Ceramics	25.00
ART	472	Advanced Jewelry	15.00
ART	473	Advanced Metalworking	15 00
ART	474	Advanced Wood	25.00
ART	476	Fibers: Multiple Harness Weaving	25.00
ART	477	Printed Textiles	30 00
ART	494	ST: Advanced Sculpture	20 00
ART	494	ST: Carving	25 00
ART	494	ST Color for Jewelry	15.00
ART	494	ST: Computer Animation II	40 00
ART	494	ST· Computer Animation III	40 00
ART	494	ST: Experimental Paper	25 00
ART	494	ST· Fibers and Surface	25 00
ART	494	ST: Forging Techniques	15 00
ART	494	ST. Foundry	40 00
ART	494	ST. Introduction to Printmaking	30 00
ART	494	ST· Mold Making and Casting	15.00
ART	494	ST. Neon Workshop	40 00
ART	494	ST Photo Design	25 00
ART	494	ST· Portraiture Photography	25 00
ART	494	ST Print Textiles	25 00
ART	494	ST Relief Printmaking	35.00
ART	494	ST. Turning	25.00
ART	494	ST Vapor Glazes	15 00

Special Class Fees and Deposits for ASU Main and ASU East (continued)

Special Fees (continued)

ART	494	ST View Camera	$35.00
ART	494	ST: Watercolor	40.00
ART	494	ST Wood Carving	30.00
ART	498	PS Landscape Photography Theory	25 00
ART	551	Intaglio Projects	40.00
ART	594	Carving	25.00
ART	594	Turning	25 00
ART	598	ST Advanced Color Photography	35.00
ART	598	ST: Advanced Photo Processes for Printmaking	30 00
ART	598	ST Advanced Screen Printing	35 00
ART	598	ST Advanced Sculpture	20.00
ART	598	ST. Architectural Sculpture	40.00
ART	598	ST. Art Anatomy	20.00
ART	598	ST. Ceramic Clay	25 00
ART	598	ST· Ceramic Glaze	25.00
ART	598	ST· Experimental Paper	25 00
ART	598	ST. Experimental Systems in Sculpture	40 00
ART	598	ST Fibers and Surface	25 00
ART	598	ST· Figure Painting	25 00
ART	598	ST· Fine Printing and Bookmaking I	30.00
ART	598	ST Fine Printing and Bookmaking II	30 00
ART	598	ST Forging Techniques	15 00
ART	598	ST. Foundry	40 00
ART	598	ST Introduction to Printmaking	30 00
ART	598	ST Jewelry Metalworking	15 00
ART	598	ST Life Drawing	25 00
ART	598	S Lithography	40 00
ART	598	ST Mold Making and Casting	15 00
ART	598	ST. Monoprinting	20 00
ART	598	ST Neon Sculpture	45 00
ART	598	ST Neon Workshop	40 00
ART	598	ST Nonsilver Photography	30 00
ART	598	ST Papermaking	20 00
ART	598	ST Photo Processes for Printmaking I	25 00
ART	598	ST Portraiture Photography	25 00
ART	598	ST Printed Textiles	30 00
ART	598	ST Relief Printmaking	35 00
ART	598	ST Screen Printing	35 00
ART	598	ST Special Problems in Ceramics	25.00
ART	598	ST Special Problems in Sculpture	40 00
ART	598	ST View Camera	35.00
ART	598	ST Watercolor	40 00
ART	598	ST Wood	25.00
ART	598	ST Wood Carving	30.00
ART	621	Studio Problems: Ceramics	25 00
ART	621	Studio Problems: Metals	15 00
ART	621	Studio Problems: Printmaking	25 00
BIO	181	General Biology	10 00
BIO	301	Field Natural History	25.00
BIO	370	Vertebrate Zoology	$25 00
BIO	502	Transmission Electron Microscopy	20 00
BIO	505	Scanning Electron Microscopy	20 00
BLE	40	Teaching Science and Social Studies to Children	5.00
BLE	496	Field Experience	10.00
BUS	502	Managerial Communication	8 00
CHI	101	Elementary Chinese	15 00
CHI	102	Elementary Chinese	15 00
CHI	107	Chinese for International Professions I	15 00
CHM	101	Introductory Chemistry[1]	15.00
CHM	107	Chemistry and Society	15 00
CHM	113	General Chemistry	15 00
CHM	114	General Chemistry for Engineers[1]	15.00
CHM	115	General Chemistry with Qualitative Analysis[1]	15 00
CHM	116	General Chemistry[1]	15 00
CHM	117	General Chemistry for Majors I[1]	15 00
CHM	118	General Chemistry for Majors II[1]	15 00
CHM	235	Elementary Organic Chemistry Laboratory[1]	15 00
CHM	319	Organic Chemistry Laboratory for Majors I[1]	15 00
CHM	320	Organic Chemistry Laboratory for Majors II[1]	15 00
CHM	326	Analytical Chemistry Laboratory[1]	15 00
CHM	335	General Organic Chemistry Laboratory[1]	15 00
CHM	336	General Organic Chemistry Laboratory[1]	15 00
CHM	343	Physical Chemistry Laboratory[1]	15 00
CHM	367	Elementary Biochemistry Laboratory	15 00
CHM	422	Instrumental Analysis Laboratory	15 00
CHM	424	Separation Science[1]	15 00
CHM	431	Qualitative Organic Analysis[1]	15.00
CHM	444	General Physical Chemistry Laboratory[1]	15 00
CHM	452	Inorganic Chemistry Laboratory[1]	15.00
CHM	464	Biophysical Chemistry Laboratory[1]	15.00
CHM	467	General Biochemistry Laboratory	15.00
CHM	480	Methods of Teaching Chemistry[1]	15 00
CHM	593	Applied Project Glass Blowing[1]	25.00
CLS	310	Principles of Clinical Chemistry I	25.00
CLS	320	Principles of Clinical Microbiology I	25.00
COM	484	Communication Internship	20 00
COM	584	Communication Internship	20.00
DCI	396	Field Experience I	10 00
DCI	397	Field Experience II	10.00
ECD	496	Field Experience	10 00
EDP	560	Individual Intellectual Assessment	12.50
EED	320	Teaching Science to Children	5.00
EED	401	Teaching Science and Social Studies to Children	5 00
EED	478	Student Teaching in the Elementary School	25.00
EED	496	Field Experience	10 00
EED	578	Student Teaching in the Elementary School	25 00
EED	598	ST Using Math Manipulatives Elementary Schools	5 00
EED	598	ST Using Math Manipulatives/Middle Schools	5 00

[1] Chemistry classes may also carry a deposit See "Deposits"

Special Class Fees and Deposits for ASU Main and ASU East (continued)

Special Fees (continued)

EPE	105	Physical Education Activity (Archery)	$15 00
EPE	105	Physical Education Activity (Bowling)	25 00
EPE	105	Physical Education Activity (Fencing)	45 00
EPE	105	Physical Education Activity (Golf)	45.00
EPE	105	Physical Education Activity (Quest Boxing)	30 00
EPE	105	Physical Education Activity (Rock Climbing)	35 00
EPE	110	Movement Analysis Laboratory (Golf)	45 00
EPE	110	Movement Analysis Laboratory (Fencing)	45.00
EPE	205	Physical Education Activity (Archery	15.00
EPE	205	Physical Education Activity (Bowling)	25.00
EPE	205	Physical Education Activity Golf)	45 00
EPE	305	Physical Education Activity (Golf)	45.00
EPE	335	Biomechanics	15.00
EPE	340	Physiology of Exercise	15.00
EPE	345	Motor and Developmental Learning	15.00
EPE	370	Advanced First Aid	8.00
EPE	505	Applied Exercise Physiology Techniques	15.00
FON	142	Applied Food Principles	35.00
FON	341	Introduction to Planning Therapeutic Diets	15.00
FON	442	Experimental Foods	15.00
FON	445	Quantity Food Production	15 00
FON	446	Human Nutrition Assessment Lecture/ Laboratory	25.00
FON	545	Recent Developments in Institutional Feeding	15 00
FON	598	Research Methods in Nutrition	15 00
FRE	101	Elementary French	15 00
FRE	102	Elementary French	15.00
FRE	107	French for International Professions I	15 00
FRE	111	Fundamentals of French	15.00
FRE	201	Intermediate French I	15.00
FRE	202	Intermediate French II	15.00
FRE	207	French for International Professions II	15.00
GER	101	Elementary German	15.00
GER	102	Elementary German	15.00
GER	111	Fundamentals of German	15.00
GER	201	Intermediate German	15.00
GER	202	Intermediate German	15 00
GLG	102	Introduction to Geology II (Historical)	20.00
GLG	103	Introduction to Geology I Laboratory	5 00
GLG	294	Geology of the Planets	10.00
GLG	305	Geology of the Earth, Moon, and Planets	10.00
GLG	310	Structural Geology	5 00
GLG	336	Invertebrate Paleontology	10 00
GLG	405	Geology of the Moon	10 00
GLG	406	Geology of Mars	10 00
GLG	420	Volcanology	35.00
GLG	424	Petrology	5 00
GLG	435	Sedimentology	15.00
GLG	436	Principles of Stratigraphy	20 00
GLG	441	Ore Deposits	20 00
GLG	455	Advanced Field Geology	35 00
GLG	456	Cordilleran Regional Geology	10.00
GLG	490	Clastic Sedimentology and Petrology	$20 00
GLG	490	Topics in Geology. Moon	10.00
GLG	490	Topics in Geology Pyroclastic Rocks	25.00
GLG	490	Topics in Geology: Remote Sensing	10 00
GLG	490	Topics in Geology Volcano	25.00
GLG	510	Advanced Structural Geology	10 00
GLG	520	Advanced Physical Volcanology	35 00
GLG	524	Advanced Igneous Petrology	20 00
GLG	525	Advanced Metamorphic Petrology	5 00
GLG	591	Volcanology	35.00
GLG	598	ST: Advanced Field Geology	35 00
GLG	598	ST· C astic Sedimentology and Petrology	20.00
GLG	598	ST: Cordilleran Regional Geology	10.00
GLG	598	ST Geology of Mars	10.00
GLG	598	ST: Ore Deposits	20.00
GLG	598	ST: Petrology Petrography	5.00
GLG	598	ST Principles of Stratigraphy	20.00
GLG	598	ST· Sedimentology	15.00
GLG	598	ST: Volcanology	35 00
GPH	111	Introduction to Physical Geography	8.00
GPH	211	Landform Processes	15.00
GPH	418	Landforms of the Western United States	20.00
GPH	491	Geographic Field Methods	20.00
HEB	101	Elementary Modern Hebrew	15.00
HEB	102	Elementary Modern Hebrew	15.00
HEB	201	Intermediate Modern Hebrew	15 00
HEB	202	Intermediate Modern Hebrew	15 00
HES	394	ST: Step Aerobics	20.00
IDN	101	Elementary Indonesian I	15.00
IDN	102	Elementary Indonesian II	15.00
IDN	201	Intermediate Indonesian I	15 00
IDN	202	Intermediate Indonesian II	15.00
IEE	591	Seminar: Manufacturing Strategy	50.00
IEE	591	Seminar: Effects of Economics/New Products Market	50.00
IEE	591	Seminar· Strategic Product Development	50 00
IEE	591	Seminar: New Product Strategic	50.00
ITA	101	Elementary Italian	15 00
ITA	102	Elementary Italian	15.00
ITA	201	Intermediate Italian	15.00
ITA	202	Intermediate Italian	15.00
JPN	101	Elementary Japanese	15.00
JPN	102	Elementary Japanese	15.00
JPN	107	Japanese for International Professions I	15.00
JPN	201	Intermediate Japanese	15.00
JPN	202	Intermediate Japanese	15 00
JPN	207	Japanese for International Professions II	15.00
JUS	484	Internship	20 00
JUS	584	Internship	20.00
MIC	206	Microbiology Laboratory	25 00
MIC	302	Advanced Bacteriology Laboratory	25 00
MIC	421	Experimental Immunology	20.00
MIC	470	Bacterial Diversity and Systematics	25.00

Special Class Fees and Deposits for ASU Main and ASU East (continued)

Special Fees (continued)

MUP	111	Studio Instruction	$60.00
MUP	121	Studio Instruction	40 00
MUP	127	Studio Instruction	60.00
MUP	311	Studio Instruction	60 00
MUP	321	Studio Instruction	40 00
MUP	327	Studio Instruction	60.00
MUP	511	Studio Instruction	60 00
MUP	521	Studio Instruction	40.00
MUP	527	Studio Instruction	60 00
MUP	727	Studio Instruction	60.00
NOR	101	Elementary Norwegian	15.00
NOR	102	Elementary Norwegian	15 00
NOR	201	Intermediate Norwegian	15.00
NOR	202	Intermediate Norwegian	15.00
NUR	211	Nurse-Client Relationships	15 00
NUR	214	Health Assessment in Nursing Practice	15.00
NUR	217	Basic Clinical Skills	15 00
NUR	314	Health Assessment for Registered Nurses	15.00
NUR	330	Care of Acute and Chronically Ill Adults	15.00
NUR	427	Community Health Nursing	9.00
NUR	428	Management of Client in Health Care Settings	30 00
NUR	429	Community Health Nursing Clinical	15.00
NUR	430	Home Health Care	15.00
NUR	560	Advanced Health Assessment (spring 1998)	45.00
NUR	580	Adult Health Nursing Assessment/ Promotion Practicum (fall 1998)	45.00
PLB	108	Concepts in Plant Biology	10 00
PLB	260	Plants in Cities: Introduction to Urban Horticulture	20 00
PLB	300	Comparative Plant Diversity	15 00
PLB	308	Plant Physiology	30.00
PLB	310	The Flora of Arizona	20.00
PLB	362	Landscape Plants I	10.00
PLB	370	Landscape Practices (spring 1998)	25.00
POR	101	Elementary Portuguese	15 00
POR	201	Intermediate Portuguese	15.00
REC	463	Senior Internship	20 00
REC	494	ST: Tourism and Public Lands	15.00
RUS	101	Elementary Russian	15.00
RUS	102	Elementary Russian	15 00
RUS	201	Intermediate Russian	15 00
RUS	202	Intermediate Russian	15 00
RUS	211	Basic Russian Conversation	15.00
RUS	212	Basic Russian Conversation	15 00
SED	478	Student Teaching in Secondary Schools	25.00
SED	496	Field Experience	10 00
SED	578	Student Teaching in the Secondary Schools	25 00
SED	598	ST: Using Math Manipulatives/Middle Schools	5 00
SPA	101	Elementary Spanish	15.00
SPA	102	Elementary Spanish	15.00
SPA	107	Spanish for International Professions I	$15.00
SPA	111	Fundamentals of Spanish	15.00
SPA	201	Intermediate Spanish	15.00
SPA	202	Intermediate Spanish	15 00
SPA	207	Spanish for International Professions II	15.00
SPE	478	Student Teaching in Special Education	25.00
SPE	496	Field Experience	10.00
SPE	498	PS Field Experience	10.00
SWE	101	Elementary Swedish	15 00
SWE	102	Elementary Swedish	15 00
SWE	201	Intermediate Swedish	15 00
SWE	202	Intermediate Swedish	15 00
THA	101	Elementary Thai I	15.00
THA	102	Elementary Thai II	15.00
THA	201	Intermediate Thai I	15.00
THA	202	Intermediate Thai II	15.00
THP	113	Techniques of Theatrical Makeup	5 00
THP	213	Introduction to Technical Theatre	40.00
THP	312	Puppetry with Children	10.00
THP	340	Scene Design	5.00
THP	345	Lighting Design	15 00
THP	440	Advanced Scene Design	5.00
THP	441	Scene Painting	20.00
THP	444	Drafting for the Stage	5 00
THP	445	Advanced Lighting Design	5 00
THP	506	Scenography	5.00
THP	512	Puppetry Workshop	10.00
UET	415	Electronic Manufacturing Engineering Principles	10 00
WST	294	Women and Social Action	20.00

Deposits

ADE	321	Architectural Studio I	$25.00
ADE	322	Architectural Studio II	25 00
ADE	421	Architectural Studio III	25.00
ADE	422	Architectural Studio IV	25 00
ADE	510	Foundation Architectural Studio	25.00
ADE	511	Core Architectural Studio I	25 00
ADE	512	Core Architectural Studio II	25.00
ADE	521	Advanced Architectural Studio I	25 00
ADE	522	Advanced Architectural Studio II	25 00
ADE	621	Advanced Architectural Studio III	25.00
ADE	622	Advanced Architectural Studio IV	25 00
CHM	101	Introductory Chemistry[2]	10.00
CHM	107	Chemistry and Society[2]	10.00
CHM	113	General Chemistry[2]	10 00
CHM	114	General Chemistry for Engineers[2]	10.00
CHM	115	General Chemistry with Qualitative Analysis[2]	10.00
CHM	116	General Chemistry[2]	10.00
CHM	117	General Chemistry for Majors I[2]	20.00

[1] Chemistry classes may also carry a deposit See "Deposits."

[2] Chemistry classes may also carry a nonrefundable special class fee. See "Special Fees."

Special Class Fees and Deposits for ASU Main and ASU East (continued)

Deposits (continued)

CHM	118	General Chemistry for Majors II[2]	$20.00
CHM	235	Elementary Organic Chemistry Laboratory[2]	20.00
CHM	319	Organic Chemistry Laboratory for Majors I[2]	20.00
CHM	320	Organic Chemistry Laboratory for Majors II[2]	20.00
CHM	326	Analytical Chemistry Laboratory[2]	20.00
CHM	335	General Organic Chemistry Laboratory[2]	20.00
CHM	336	General Organic Chemistry Laboratory[2]	20 00
CHM	343	Physical Chemistry Laboratory[2]	25.00
CHM	367	Elementary Biochemistry Laboratory[2]	20.00
CHM	422	Instrumental Analysis Laboratory[2]	25 00
CHM	424	Separation Science[2]	25 00
CHM	431	Qualitative Organic Analysis[2]	20 00
CHM	444	General Physical Chemistry Laboratory[2]	25.00
CHM	452	Inorganic Chemistry Laboratory[2]	20 00
CHM	464	Biophysical Chemistry Laboratory	20.00
CHM	467	General Biochemistry Laboratory[2]	20.00
CHM	525	Spectrochemical Methods of Analysis[2]	25 00
CHM	526	X-ray Methods of Analysis[2]	25.00
CHM	527	Electrical Methods of Chemical Analysis[2]	25 00
DSC	593	Applied Projects	25.00
DSC	599	Thesis	25 00
IND	360	Industrial Design III	25.00
IND	361	Industrial Design IV	25.00
IND	460	Design Project I	25.00
IND	461	Design Project II	25.00
INT	364	Interior Design Studio I	$25.00
INT	365	Interior Design Studio II	25.00
INT	464	Interior Design Studio III	25.00
INT	465	Interior Design Studio IV	25.00
INT	466	Interior Design Studio V	25.00
INT	467	Interior Design Studio VI	25.00
PLA	361	Landscape Architecture III	25.00
PLA	362	Landscape Architecture IV	25 00
PLA	461	Landscape Architecture V	25.00
PLA	462	Landscape Architecture VI	25 00
PUP	361	Urban Planning III	25.00
PUP	362	Urban Planning IV	25 00
PUP	461	Urban Planning V	25 00
PUP	462	Urban Planning VI	25.00
PUP	572	Planning Studio I Data Inventory and Analysis	25.00
PUP	574	Planning Studio II. Options and Implementation	25.00

Class Fees Paid in Class or at Location Listed

AET	300	Aircraft Design I	$0–40 00
AMT	100	Flight Safety I[3]	
AMT	200	Flight Safety II[3]	
AMT	300	Flight Safety III[3]	
AMT	387	Multiengine Pilot Ground School	17.00/hr
EPE	105	Physical Education Activity: Scuba	35.00
EPE	305	Physical Education Activity: Advanced Scuba	35.00

[1] Chemistry classes may also carry a deposit. See "Deposits."

[2] Chemistry classes may also carry a nonrefundable special class fee. See "Special Fees."

[3] Fees are variable and paid directly to contractor for rental of aircraft

Classification of Courses

See pages 7 8 for the "Course Prefix Index."

COURSE INFORMATION

Information about all lower- and upper division courses offered at ASU Main and ASU East appears in the *General Catalog,* published every spring. Classes scheduled for the current or upcoming fall or spring semester are listed in the *Schedule of Classes,* published before the beginning of registration. Classes scheduled for the summer sessions are listed in the *Summer Sessions Bulletin,* published every spring The *Schedule of Classes* and *Summer Sessions Bulletin* are also available online at www.asu edu/registrar/schedule. Information about all courses that apply toward graduate programs appears in the *Graduate Catalog,* published annually Information about lower- and upper division courses offered at ASU West appears in the *ASU West Catalog,* published annually.

COURSE NUMBERING SYSTEM

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

300–499 (Upper-Division) Courses. Upper division courses are designed primarily for juniors, seniors, and other advanced students Prerequisites and other restrictions should be noted before registration. Courses at the 400 level apply to graduate degree requirements for individual programs of graduate study when approved by the Graduate College. See "Reserving of Course Credit by Undergraduates" on page 71.

500–799 (Graduate-Level) Courses. Graduate level courses are designed for graduate students. However, an upper division undergraduate student may enroll in these courses with the approval of the student's advisor, the course instructor, the department chair, and the dean of the college in which the course is offered. If the course does not meet an undergraduate graduation requirement, it may be eligible for use in a future graduate program on the same basis as work taken by a nondegree graduate student. See "Reserving of Course Credit by Undergraduates" on page 71.

Continuing Registration. Courses numbered 595, 695, and 795, Continuing Registration, carry one semester hour of credit; however, the student receives neither credit nor grade for the course.

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

OMNIBUS UNDERGRADUATE COURSE DESCRIPTIONS

191 First-Year Seminar. (1 3)
Sma course emphasiz ng student faculty d s cuss on/ nteraction Strongly recommended for first year students. Must have taken 25 or fewer semester hours. Consu ting an academic advisor before enro ing s recommended

194, 294, 394, 494 Special Topics. (1–4)
Covers topics of immed ate or spec al nterest to a facu ty member and students

484 Internship. (1–12)
Structured practical expenence fo lowing a contract or plan supervised by faculty and pract't oners.

498 Pro-Seminar. (1–7)
Sma group study and research for advanced students w th n the r majors Major status n the department or nstructor approval is requ red.

499 Independent Study. (1 3)
Provides an opportunity for orig na study or invest gation n the major or f eld of specia za tion on an nd v dua and more autonomous basis Ne ther a substitute for a cata og course nor a means of taking a cata og course on an nd v dua bas s Requires app cation we in advance of regular reg strat on with the stu dent s adv sor, the adv sor's signature, and approva by both the nstructor with whom the student w l work and the cha r of the department offering the course. This course may be taken only by outstanding senior students who have comp eted at east one semester n residence and who have a cumulat ve GPA of 3 00 or higher n the major or f eld of spec a - ization A spec a class fee may be required

First-Year Seminar. The First Year Seminar series is specifically designed to meet the needs of the first year stu-

dent. Faculty volunteer to direct the seminars and choose course topics according to their own interests and areas of specialization. Class size is restricted so that, early in their college careers, students may interact directly with some of the best faculty the university has to offer.

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

OMNIBUS GRADUATE COURSE DESCRIPTIONS

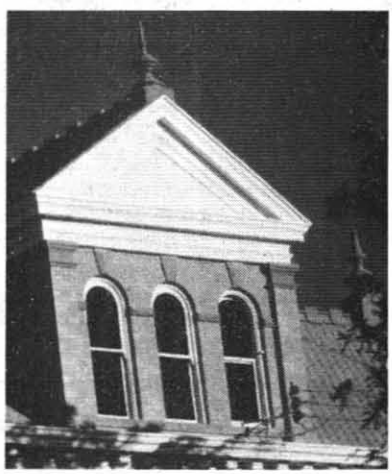
500, 600, 700 Research Methods. (1–12)
Course on research methods in a specific discipline.

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

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

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

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



Old Main, the oldest building on campus. Tim Trumble photo

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Key to Course Listing Codes

Code	Definition
M	ASU Main and ASU East campus code*
W	ASU West campus code*
GLG	Example of a departmental prefix designation
410	Example of a course number
(3)	Example of course semester hours
F	Course offered fall only
S	Course offered spring only
SS	Course offered summer session only
F, S	Course offered both semesters
F 1998	Course offered every other year on semester indicated
A	Course offered once a year
N	Course not regularly offered

* Campus codes are not used in the catalogs but appear in the fall and spring *Schedule of Classes* and the *Summer Sessions Bulletin*.

Undergraduate Enrollment

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

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

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

Remaining in good standing in the university community is a privilege rather than a right. A student, by enrolling, voluntarily assumes certain obligations of conduct and performance These expectations in conduct include avoiding irresponsible use of alcohol and the use, possession, distribution, or possession with intent of distribution of illegal drugs The university enforces its conduct rules through prescribed procedures outlined in the *Student Code of Conduct.* The university also cooperates fully with law enforcement agencies to enforce all laws relating to alcohol and illegal substances

The university has a strong interest in its students' conduct. Students are expected, as part of their obligations of enrollment, to become familiar with the *Student Code of Conduct,* available at Student Life (SSV B228). Violations of the *Student Code of Conduct* whether committed by individuals or groups, are subject to university discipline, as are violations of university regulations with regard to academic dishonesty. The university reserves the right to take necessary and appropriate action to protect the safety and welfare of the campus community. Such action may include taking disciplinary measures under the *Student Code of Conduct* against students whose behavior off campus involves the sale or distribution of illegal drugs, physical assault, or violence that may present a clear and present danger to the safety of the university or to members of the university community.

STUDENT SERVICES AT ASU

Arizona State University is a richly diverse academic setting with more than 49,000 students. The ASU student may be a traditional 18 to 24 year old, a recent high school graduate, a community college transfer, someone returning to college to pursue a degree, or a professional studying for an advanced degree or career change. The ASU student may live in residence halls, with sororities or fraternities on campus, or in one of the many communities in the metropolitan Phoenix area. Each of the 50 states and more than 100 countries have students enrolled at ASU.

The university is organized into several distinct administrative areas. Student Affairs, one of these areas, is responsible for the delivery of a variety of services and developmental programs in support of students' university needs and educational pursuits. These programs and services are based upon human development research that advocates that a person develop culturally, emotionally, intellectually, morally, physically, psychologically, socially, and spiritually.

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

Enrollment services to students begin with recruitment, admissions, student financial assistance, on-campus housing, and registration programs. Student Affairs encourages students to explore the facilities, services, and human resources available. ASU Main agencies guiding students in their educational experience include Career Services, Counseling and Consultation, Educational Development, the Memorial Union, Recreational Sports, Residential Life, Student Development, Student Health, Student Life, and Student Publications. Each of these areas provides specialized learning opportunities that contribute to an environment that fosters both personal and academic growth.

Undergraduate Admission

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

For information and application materials, prospective students may call 602/965-7788 or write

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

With reasonable advance notice, Undergraduate Admissions arranges for a tour of ASU Main, a university information session, and, if desired, a meeting with an admissions counselor.

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

Admission Procedures for New Freshman and Transfer Applicants

Individuals interested in admission to an undergraduate program at ASU need to have the following items on file at Undergraduate Admissions.

1. application for admission, including residency information;
2. official transcript(s) mailed directly from the institution(s);
3. American College Test (ACT), Scholastic Aptitude Test (SAT), or Test of English as a Foreign Language (TOEFL) scores, as needed; and
4. a $40.00 nonrefundable application fee, required of all applicants applying as nonresidents or residing outside Arizona.

Applicants are urged to apply and to have their materials sent as soon as possible to enable university officials to make an early decision concerning the applicant's admission and to permit the student to take part in preregistration and orientation. After all necessary items are received, a minimum of four weeks should be allowed for an admission decision to be made

Early Notification Date. Applicants whose files are complete (all necessary documentation has been received) by November 1 receive notification by December 1. Applicants whose files are complete by December 1 receive notification by January 15.

Application. Prospective students must complete and sign the Application for Undergraduate Admission. A $40.00 nonrefundable application fee is required of all applicants applying as nonresidents or residing outside Arizona.

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

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

Residency Classification Information. Like other state supported colleges and universities, ASU distinguishes between resident and nonresident students with regard to tuition. Residents of Arizona are required to provide residency information, which is part of the admission application. Any student who does not provide residency information is classified as a nonresident for tuition purposes. For more information, call the Residency Classification Section at 602/965-7712.

Transcripts. Transcripts must be requested by the applicant. Official transcripts of academic records from high school and a separate transcript from each institution of higher education the student has attended must be *mailed directly to Undergraduate Admissions by the records office of the issuing institution(s). Transcripts sent or carried by hand by the applicants themselves or transmitted by facsimile (fax) machine are not accepted.* High school transcripts must show GPA, rank in class, and date of graduation. Applicants under the age of 22 must also have official high school records submitted. An English translation of all foreign language transcripts is required.

Entrance Examinations. All new freshman applicants *must* take either the American College Test (ACT) or Scholastic Aptitude Test (SAT) on a national test date in their junior or senior year of high school. Transfer applicants who are under the age of 22 must submit ACT or SAT scores, which are used to complete competency requirements and for course placement.

A report of the test scores should be sent to Undergraduate Admissions directly from

AMERICAN COLLEGE TESTING
PROGRAM
PO BOX 168
IOWA CITY IA 52240

or the

COLLEGE BOARD ADMISSIONS
TESTING PROGRAM
BOX 592-R
PRINCETON NJ 08540

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

An applicant whose native language is not English is usually required to take the Test of English as a Foreign Language (TOEFL). See "International Student Admissions," on page 64.

Certificate of Admission. After being admitted, students receive a Letter of Admission, a Measles Immunization Verification form, and publications that contain information about orientation programs.

Upon receipt, a student should check their admission information for accuracy and report any errors and changes to Undergraduate Admissions at 602/965-5641

Immunization Requirements. Every newly admitted student born after December 31, 1956, must provide proof of measles immunity to Student Health. A tuberculin skin test is strongly recommended for students who work in health care or food services or for international students who come from a high risk environment *Students are not permitted to register until proof of immunity to measles (rubeola) is on file with Student Health.*

For more information, call Student Health at 602/965-1358. Students may fax proof of measles immunity to Student Health at 602/965-2269

The following proof of measles (rubeola) immunity is considered adequate·

1. record of measles (rubeola) immu nization received after January 1, 1980;
2. record of blood test showing measles (rubeola) immunity; or
3. proof of diagnosed measles (rubeola) case

Orientation

University orientation programs for new students and their parents are pro vided at numerous times during the year, including the beginning of each semester Each orientation program in cludes academic advisement, campus tours, special events, and an introduc tion to university resources and proce dures. Parent programs are also in cluded Newly admitted students are sent information preceding each orien tation program. Students are strongly encouraged to attend orientation activi ties.

Undergraduate Admission Standards

The Arizona Board of Regents estab lishes undergraduate admission stan dards for the university in general. *Particular colleges schools, or depart ments within the university may estab lish stricter standards, which are given in the respective sections of the catalog and should be noted by students plan ning to enroll in any of these programs.*

Admission Requirements

Graduation from Secondary School. To be eligible for admission to ASU, an applicant must have graduated from a recognized high school with satisfac tory scholarship defined as meeting both the general aptitude and basic competency requirements shown in the "General Aptitude Requirements for Freshmen" and "General Aptitude Re quirements for College Transfers" tables and the "Basic Competency Re quirements" table, page 61.

Applicants with a maximum of one deficiency in no more than two compe tency areas may be admitted with con ditions subject to removing the defi ciencies within one calendar year of

General Aptitude Requirements for Freshmen

Residency Classification	Class Rank		Composite Score ACT[1]		SAT[2]		GPA (4.00 = A)
Arizona residents[3]	top quarter	*or*	22	*or*	1040	*or*	3.00 competency GPA[4]
Nonresidents[5]	top quarter	*or*	24	*or*	1110	*or*	3.00 competency GPA

[1] The ACT scoring system has been mod fied. As a result, these scores are effective for tests taken in and after October of 1989. Equivalent scores for tests taken before October 1989 are 21 for Arizona residents and 23 for nonresidents.

[2] The SAT scoring system has been modified. As a result, these recentered scores are effective for tests taken on or after April 1, 1995 Equivalent scores for tests taken before April 1995 are 930 for Arizona residents and 1010 for nonresidents

[3] All resident freshmen who carry a competency GPA from 2 50 to 2.99 or who rank in the top 26–50% of the graduating high school class are admitted with conditions.

[4] A GPA calculated on courses that are used to fulfi l competency requirements

[5] All nonresident freshmen who believe they have had a strong high school background and who rank in the top 26–50% of their graduating classes or who carry a competency GPA from 2 50 to 2.99 may apply and are considered on a case by case basis Based on the review, the applicants may be admitted with conditions, deferred until additional course work is completed, or den ed.

General Aptitude Requirements for College Transfers[1]

Residency Classification	Transferable Semester Hours	GPA (4.00 A)	Materials Required
Arizona residents	1 23	2.00 college GPA plus general aptitude requirements for freshman plus competency requirements	Application, college and high school transcripts, and ACT or SAT scores
	24 or more	2.00 college GPA plus competency requirements	Application, college and high school transcripts, and ACT or SAT scores
Nonresidents[2]	1 23	2 50 college GPA plus general aptitude requirements for freshman plus competency requirements	Application, college and high school transcripts, and ACT or SAT scores
	24 or more	2.50 college GPA plus competency requirements	Application, college and high school transcripts, and ACT or SAT scores

Students 22 years of age or older at the time of enrollment do not need to meet competency requirements and therefore need not submit high school transcripts or test scores

[2] All nonresident transfers who have earned a 2 00–2 49 cumulative GPA are encouraged to apply and are considered on a case by case basis Based on the review, the applicants may be admitted with conditions, deferred until additional course work is completed, or denied.

Basic Competency Requirements

High School Courses		Test Scores		College Courses
English				
Four years high school: English composition/ literature based	*or*	Minimum test score: ACT English 21[1] or SAT I Verbal 530 (450)[2]	*or*	One transferable three-semester hour college-level course in English composition
Mathematics				
Four years high school: One year Algebra I One year Geometry I One year Algebra II One year advanced mathematics	*or*	Minimum test score ACT Math 20[1] or SAT I Math 520 (500)[2]	*or*	One transferable three semester hour course in mathematics for which Algebra II is a prerequisite
Laboratory Science				
Three years high school, one each from three of the following: biology chemistry earth science physics integrated sciences An advanced level course may be substituted for one subject area	*or*	Two years high school lab science biology, chemistry, earth science, physics plus minimum SAT II: subject test score on one of the following: Chemistry Achievement 600 (575)[2] Biology Achievement 590 (550)[2] Physics Achievement 620 (590)[2] ACT Science Reasoning 20 The test score may not be from any subject from which high school credit was earned.	*or*	Three transferable four semester hour college level lab science courses in different subject areas An advanced level course may be substituted for one subject area
Social Science				
Complete both A and B.				
A One year high school American history	*or*	Minimum SAT II: subject test score on American History and Social Studies Achievement 560 (510)[2]	*or*	One transferable three semester-hour college level American history course
B One year high school social science (e.g., European history, world history, sociology, geography, government, anthropology)	*or*	Minimum SAT II: subject score on World History Achievement 580 (545)[2]	*or*	One transferable three semester hour college level social science course
Foreign Language				
Two years of the same foreign language	*or*	NA	*or*	One year of transferable college study in the same foreign language
Fine Arts				
One unit of fine arts or a combination of two semesters of fine arts	*or*	NA	*or*	One transferable three credit fine arts course

[1] The ACT scoring system has been modified. As a result, these scores are effective for tests taken in and after October of 1989 Equivalent scores for tests taken before October 1989 are 19 for English and 18 for math.

[2] The SAT scoring system has been modified. As a result, these recentered scores are effective for tests taken on or after April 1, 1995 Equivalent scores for tests taken before April 995 are in parentheses

university enrollment. See page 77 for an explanation of procedures to meet these competencies.

Competencies may be met by combi nations of high school and college courses or test scores. A minimum 2 00 average (4 00 A) must be earned in the courses taken in each of the six competency areas. Students 22 years of age or older at the time of enrollment need only meet the general aptitude re quirements. An applicant whose most recent education is outside the United States and whose school does not issue a traditional U.S. high school transcript may be exempt from fulfilling the com petency requirements. See the "Basic Competency Requirements" table on page 61.

If the applicant is unable to meet these specific admission requirements, it is possible to file a letter of appeal with the University Undergraduate Ad missions Board

UNIVERS TY UNDERGRADUATE
ADMISSIONS BOARD
AR ZONA STATE UN VERSITY
PO BOX 870112
TEMPE AZ 85287–0112

The decision of the board is final. The applicant must be able to meet at least one of the following criteria to be considered for appeal:

1. an upward grade trend during the high school career or an upward grade trend during the senior year;
2. positive recommendations from secondary school administrators, faculty, or counselors based on considerations such as academic potential, work experience, and leadership ability;
3. an average score of 50 or greater on the General Education Develop ment (GED ; or
4. completion of at least 12 semester hours of college freshman level academic studies (at a community college or at a university or both) with a GPA of 2.50 or higher on a 4.00 = A scale in courses in En glish, social science, mathematics, physical or natural science, foreign languages, fine arts, or the humani ties.

The School of Engineering recom mends calculus. The laboratory sci ences chosen should include at least one unit in physics and one year of chemistry. One year of biology is strongly recommended.

The College of Nursing requires one year each of high school physics and chemistry Two years of high school chemistry are recommended.

Admission before Graduation from High School. Admission may be granted to high school seniors who sub mit a six semester or seven semester transcript that shows academic quality and rank in class in keeping with ad mission standards and who complete the steps in the undergraduate admis sion procedures. Admission is official when a verification of the high school graduation showing the final GPA, the rank in class, and the date of graduation has been received in the mail by Under graduate Admissions directly from the high school. In addition, students who are admitted with more than two defi ciencies must submit, at least 45 days in advance of the semester, official records to verify the completion of competencies such that *no more than* two deficiencies remain. Students with more than two deficiencies who have not been admitted 45 days in advance of the semester may not be eligible for admission. An admission may be can celed if the final verification shows that the applicant has not met the university requirements for admission or that more than two deficiencies remain.

Admission of Nondegree Appli cants—Undergraduate. Any high school graduate is invited to enroll for six or fewer semester hours per semes ter of undergraduate course work as a nondegree student. Students currently enrolled in high school and persons un der the age of 18 may be admitted as nondegree students by submitting offi cial ACT or SAT scores that meet the general aptitude requirements of the university. Persons admitted as non degree students for a specific year and term must remain nondegree until the next semester.

Anyone interested in admission as a nondegree undergraduate student at ASU must submit to Undergraduate Admissions: (1) a Nondegree Under graduate Application for Admission (including residency information) and (2) a $40 00 nonrefundable application fee (for applicants applying as nonresi dents or residing outside Arizona). Ap plicants who are not high school gradu ates or who are younger than age 18 must also submit ACT or SAT scores.

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

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

Transfer Applicants

All transfer applicants under the age of 22 must submit official high school records, including an ACT or SAT score, and meet basic competency re quirements. Students who will be 22 years old by the time the semester be gins are exempt from the competency requirements.

Arizona Applicants. An Arizona applicant for transfer admission must have a cumulative GPA of 2.00 (4.00 = A) or higher in all work undertaken at previous institutions of higher learning. A minimum of 24 college or university transferable semester hours must have been earned to be considered a transfer applicant

Arizona transfer applicants must have the respective minimum GPAs to be admitted to the professional pro grams in the following areas: Computer Science 2.50; Construction 2.25; Economics 2.50; Engineering 2.50; and Technology 2.25. Other aca demic units may have different GPA requirements to enroll in junior- or se nior level courses.

Nonresident Applicants. A non Ari zona applicant for transfer admission must have a cumulative GPA of 2.50 or higher on a 4.00 A scale in all work undertaken at previous institutions of higher learning. Applicants who have at least a 2.00 on a 4.00 – A scale and who believe that they have a strong academic record are considered on a case by case basis.

Regardless of residency, all appli cants for the majors of Computer Sci ence and Economics in the College of Liberal Arts and Sciences must have transfer GPAs of 2.50 or higher.

Transfer Credit

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

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

Certain types of credits cannot be transferred to ASU, including the following types:

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

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

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

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

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

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

Community college students who plan to transfer to ASU at the end of their first or second years are strongly advised to plan their community college courses to meet the requirements of the curricula they select.

Students Attending Arizona Community Colleges. To determine the equivalency of courses offered by Arizona community colleges and courses offered at ASU, a student should refer to the *Arizona Higher Education Course Equivalency Guide* in consultation with an academic advisor. Provided college attendance has been continuous, students are permitted to follow the degree requirements specified in the ASU catalog in effect at the time they began community college work. See pages 80–81, "Guidelines for Determination of Catalog Year."

Transfer General Education Core Curriculum

With the statement of values as common ground, the Arizona public community colleges and universities have agreed upon a common structure for a general education core curriculum. This core curriculum provides students attending any Arizona public postsecondary institution with the opportunity to build a core general education program which is transferable to any other state institution without loss of credit. This common agreement is called the Transfer General Education Core Curriculum (TGECC).

The TGECC is composed of a minimum of 41 semester hours of lower division general education course work in which a student may prepare for transfer. The TGECC is transferable from one Arizona community college to another Arizona community college. Students transferring from an Arizona community college to one of the state universities have the option of completing the lower division general education requirements at the university to which they transfer or completing the TGECC. Courses beyond the TGECC which are completed at an Arizona community college will be accepted in transfer by each university according to course articulation information provided in the *Arizona Higher Education Course Equivalency Guide.*

Completion of the TGECC will fulfill lower-division general education requirements at all state universities. Students utilizing this option will still be required to fulfill lower-division program requirements and prerequisites within their college and major/minor area of study. In order to most efficiently complete a degree program, students should select courses to meet the TGECC requirements that will also fulfill program requirements in the college and major they intend to pursue upon transfer. Majors in the professional fields (i.e., architecture, engineering, business, fine/creative arts, or health professions) and sciences have significant prerequisites and/or program requirements that must be completed before a student may be admitted to upper division course work. Community college students who are undecided about which of the universities they plan to attend or what program of study they intend to pursue are advised to explore educational options while they complete the TGECC. In all cases, students have the responsibility for selecting general education course work that is relevant to the requirements of their intended major and degree.

Transfer students must meet established institutional admission standards, as well as admission criteria for specific majors and programs at the state universities. Students who complete both the TGECC and an Associate of Arts degree will be assigned junior-class standing by the state universities.

Junior class standing is based on the number of units a student has earned and does not necessarily indicate the remaining number of units needed to complete degree requirements. Course prerequisites, major requirements, and upper division requirements will continue to be specified by each university. Appropriate sequencing of courses and timely completion of course prerequisites are essential to ensure efficient progress toward a baccalaureate degree. Students who have identified the university they plan to attend and/or a major area of study are advised to fulfill requirements and prerequisites identified by these programs through transfer guides and/or curriculum check sheets provided by the state universities. The TGECC does not replace or disregard articulation agreements developed to enhance the transfer process between specific institutions.

The TGECC is reviewed and monitored each academic year by the subject area articulation task forces and the General Education Articulation Task Force (GEATF). The statewide GEATF is composed of representatives from each Arizona community college and state university. The GEATF is responsible for monitoring the TGECC and reviewing related appeals. The GEATF is responsible to the Academic Program Articulation Steering Committee (APASC).

Admission before Receipt of Final Transcript

Students enrolled in other colleges and universities are considered for admission on the basis of meeting all admission requirements, except for a final transcript of work in progress. This final transcript must be sent to Undergraduate Admissions directly from the issuing institution immediately after the work in progress has been completed. Transcripts carried by hand are not accepted. *Admission is official only after the final transcript has been received showing that the applicant has met the university admission requirements.* In the event the applicant does not qualify or has falsified application documents, admission and registration are cancelled, and any registration fees paid are returned.

Appeal Procedure. Transfer students who feel they have been unjustly denied credit for courses they have taken may appeal to the standards committee of the colleges in which they have enrolled. This procedure does not apply to community college transfer of credit greater than the 64 hour maximum; see "Community Colleges." The decision of this committee is final.

An applicant for transfer admission whose academic record fails to meet ASU admission standards is denied admission. Such an applicant, however, may write a letter of appeal accompanied by three letters of recommendation to the University Undergraduate Admissions Board for reconsideration of his or her application:

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

The decision of this board is final.

International Student Admissions

To comply with Immigration and Naturalization Services regulations, students who plan to attend ASU on an F-1 or J-1 visa must

1. have a minimum GPA of 3.00 (4.00 = A) from secondary school course work if a freshman applicant, or have a minimum GPA of 2.50 (4.00 = A) from college or university course work, if a transfer applicant,
2. meet basic competency requirements if attended four years of high school in the U.S.,
3. submit a financial statement not more than six months old from a financial institution assuring adequate resources to support themselves while in residence at the university;
4. have all required admissions materials and credentials reach Undergraduate Admissions by May 1 if applying for the fall semester or October 1 if applying for the spring semester (an English translation of all foreign language documents is required),
5. pay a nonrefundable application fee of $40.00 in U.S. funds; and
6. meet all appropriate immigration standards and requirements.

Credit from a Foreign Institution. Transfer credits or advanced standing is granted for academic course work completed at foreign tertiary level institutions that are either recognized by the home government/Ministry of Education as a degree awarding institution or attached to a regionally accredited U.S. college or university as a Study Abroad Program. There will be no advanced credits for the international affiliation programs overseas unless they comply with this general policy.

TOEFL

Applicants whose native language is not English identified by the U.S. Department of State Bureau of Public Affairs must provide evidence of English language proficiency as indicated by acceptable scores on the Test of English as a Foreign Language (TOEFL). A minimum TOEFL score of 500 is required for general admission to the university and a minimum score of 550 is required for the professional programs in the School of Engineering and the Del E. Webb School of Construction. The following three exceptions apply:

1. Applicants who have completed their junior and senior years in a U.S. high school may provide an SAT Verbal score of 550 or an ACT English subscore of 23 in place of a TOEFL score for the professional programs in the School of Engineering and the Del E. Webb School of Construction. Scores of 530 on the SAT Verbal or 21 on the English subscore place these applicants in the preprofessional programs.
2. Applicants who have completed a minimum of 48 semester hours of transfer credits at a U.S. college or university including completion of two semesters of first year composition, earning a minimum 2.50 cumulative GPA, may be admitted into the preprofessional programs without the TOEFL. Entrance into the professional programs in the School of Engineering and the Del E. Webb School of Construction requires a TOEFL score of 550, an SAT verbal score of 580, or an ACT English subscore of 23.

3. Applicants who have received a bachelor's degree from a college or university in the United States are exempt from the TOEFL. If these applicants meet the admission stan dards for the professional pro grams, exclusive of language tests, they are admitted to the profes sional program.

Upon admission to the university, such students are issued a Certificate of Eligibility (Form I 20 or IAP–66), which enables them to apply for the ap propriate visa.

All F 1 or J 1 visa students must have insurance coverage against illness and accident before being permitted to register. Insurance must be maintained throughout the student's enrollment in the university and may be obtained at the time of registration.

Upon arrival on campus, students must report to the international student advisor in Student Life.

American English and Culture Program

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

AMERICAN ENGL SH AND CULTURE PROGRAM, DEPARTMENT 4
AR ZONA STATE UN VERSITY
PO BOX 873106
TEMPE AZ 85287 3106

Acceptance into the American En glish and Culture Program is separate from admission to the university. For more information, see page 243.

Admission of Applicants with Disabilities

Students should contact Disability Resources for Students (DRS) immediately upon admission to the university to receive information regarding eligi bility requirements and deadlines that will ensure accommodations for the be ginning of the semester.

Call or write

D SABILITY RESOURCES FOR STUDENTS
AR ZONA STATE UN VERSITY
PO BOX 873202
TEMPE AZ 85287–3202
602/965–1234 (VOICE/TTY)

Advanced Placement Credit

Examination	Score	Semester Hours	Equivalency
Art—History	5 or 4	6	ARS 101, 102
	3	3	ARS 101 or 102
Art Studio—Drawing	5	6	ART 111, 112
	4	3	ART 111
Art Studio—General	5	6	ART 112, DEC*
	4	3	ART 112
Biology	5 or 4	8	BIO 181, 182
	3	4	BIO 181
Chemistry	5 or 4	9	CHM 113, 115
	3	4	CHM 113
Computer Science A	5 or 4	3	CSE 100
Computer Science AB	5 or 4	6	CSE 100, 200
Economics Introductory Macroeconomics	5 or 4	3	ECN 111
Economics Introductory Microeconomics	5 or 4	3	ECN 112
English Language and Composition	5 or 4	6	ENG 101, 114 eligible for ENG 102H
English Literature and Composition	5 or 4	6	ENG 101, 204 eligible for ENG 102H
French Language	5	14	FRE 201, 202, 311, 312
	4	11	FRE 201, 202, 311
	3	8	FRE 201, 202
French Literature	5	18	FRE 111, 201, 202, 321, 322
	4	12	FRE 111, 201, 202
	3	8	FRE 201, 202
German Language	5	14	GER 201, 202, 311, 312
	4	11	GER 201, 202, 311
	3	8	GER 201, 202
German Literature	5	15	GER 111, 201, 202, 314
	4	12	GER 111, 201, 202
	3	8	GER 201, 202
History American or European	5 or 4	6	HIS 103 and 104 *or* HIS 101 and 102
	3		Department evaluates examination and recommends credit.
Latin Language	5	16	LAT 101, 102, 201, 202
	4	12	LAT 101, 102, 201
	3	8	LAT 101, 102
Mathematics—Calculus AB	5, 4, or 3	4	MAT 270
Mathematics—Calculus BC	5 or 4	8	MAT 270 and 271; additional credit may be granted upon departmental approval.
	3	4	MAT 270
Music	5 or 4	3	MTC 125

* If the portfolio emphasizes 3D, the student can request to have it evaluated for ART 115 credit.

The following accommodations can take up to three months for production and/or coordination: adapted instructional material development, alternative print formats (e.g., large print, braille and computer based files), lab equip ment adaptation, reader service, and sign language and oral interpreting ser vices. Students who miss preregistra tion cannot be guaranteed these accom modations and may have to use alternate accommodations.

Special Programs for Advanced Placement and Credit

A maximum of 60 hours of credit are awarded for any or all programs, in cluding ASU comprehensive and profi ciency examinations In these categories, only credit earned by comprehen sive examination counts toward the resident credit requirement for graduation.

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

There is no limit to the number of AP credits that can be used to meet the General Studies requirement, including the requirements in natural sciences (S1 and S2), and literacy and critical in quiry (L1 and L2).

When the scores are received by the university directly from the CEEB, credit is awarded as shown in the "Ad vanced Placement Credit" table on pages 65–66.

College-Level Examination Program (CLEP). Students who have taken a College Level Examination of the Col lege Entrance Examination Board may receive university credit The table of CLEP credit applies to all students en rolling in the university for the first time in August 1975 and any student enrolling thereafter CLEP examina tion credit is *not* given where (1) it duplicates credit previously earned by the student at the university or accepted by the university for work done elsewhere

Advanced Placement Credit (cont.)

Examination	Score	Semester Hours	Equivalency
Physics B	5 or 4	6	PHY 111, 112
	3	3	PHY 111
Physics C Electricity and Magnetism	5 or 4	4	PHY 112, 114; or, upon departmental approval, credit may instead be granted for PHY 131, 132.
Physics C Mechanics	5 or 4	4	PHY 111, 113; or, upon departmental approval, credit may instead be granted for PHY 121, 122.
Political Science			
American Government and Politics	5 or 4	3	POS 110
Comparative Government and Politics	5 or 4	3	POS 150
Psychology	5 or 4	3	PGS 101
		3	Department evaluates examination and recommends credit.
Spanish Language	5	14	SPA 201, 202, 311, 312
	4	11	SPA 201, 202, 311
	3	8	SPA 201, 202
Spanish Literature	5	15	SPA 111, 201, 202, 325
	4	12	SPA 111, 201, 202
	3	8	SPA 201, 202
Statistics	5 or 4	3	STP 226

CLEP Credit

General Examinations	Semester Hours	Equivalency
English Composition	None	With essay qualifies for ENG 105
Humanities	6	Elective credit
Mathematics	3	MAT 106
Natural Sciences	8	Elective credit
Social Sciences and History	6	Elective credit
Subject Examinations	**Semester Hours**	**Equivalency**
American Government	3	POS 110
American History		
Early Colonization to 1877	3	HIS 103
1865 to the Present	3	HIS 104
American Literature	6	ENG 241, 242
Analysis and Interpretation of Literature	3	Elective credit

CLEP Credit (cont.)

Subject Examinations	Semester Hours	Equivalency
Calculus with Elementary Functions	4	MAT 270
College Algebra (1993) (replaces College Algebra [1979])	3	MAT 117 (Students must score 46 or higher to receive credit.)
College Algebra and Trigonometry	3	MAT 170
College French	8	FRE 101, 102
College German	8	GER 101, 102
College Spanish	8	SPA 101, 102
English Literature	3	Elective credit
Freshman College Composition (replaces College Composition and Freshman English)	None	With satisfactory essay qualifies for ENG 105.
General Biology	8	BIO 181, 182
General Chemistry	8	CHM 113, 115
Human Growth and Development	None	No credit
Information Systems and Computer Applications	3	Elective credit
Introduction to Educational Psychology	None	No credit
Introductory Accounting	6	Elective credit
Introductory Business Law	3	Elective credit
Introductory Psychology	3	PGS 101
Introductory Sociology	3	SOC 101
Principles of Macroeconomics (replaces Introductory Macroeconomics)	3	ECN 111 (Students must score a 75 or higher to receive credit.) College of Business students may not use this for ECN 111 requirement.
Principles of Management	None	No credit
Principles of Marketing	None	No credit
Principles of Microeconomics (replaces Introductory Microeconomics)	3	ECN 112 (Students must score a 75 or higher to receive credit.) College of Business students may not use this for ECN 112 requirement.
Trigonometry	None	No credit
Western Civilization (9)		
Ancient Near East to 1648	6	HIS 100, 101
1648 to the Present	3	HIS 102

or (2) it is more elementary than a course in which the student has already received credit. All examinations are given monthly by University Testing Services.

There is no limit to the number of CLEP credits that can be used to fulfill the General Studies requirement. The General Studies requirement in natural sciences (S1 and S2) and literacy and critical inquiry (L1 and L2) are not satisfied by CLEP (See the General Studies Courses table on pages 87 108).

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

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

All equivalency is subject to future review and possible catalog change.

For more information, call University Testing Services at 602/965 7146 or stop by EDB 302.

International Baccalaureate Diploma/Certificate. Students who present an International Baccalaureate Diploma/Certificate may qualify for university credit, depending on the level of the examination and the grade received. Arizona State University grants credit for higher-level courses only. A grade of 5 qualifies the student to receive credit for up to two introductory courses while a grade of 4 qualifies a student to receive credit for one introductory course. No credit is awarded for English as a Second Language (English B). Credit is awarded according to the table of "International Baccalaureate Diploma/Certificate Credit," page 69.

Comprehensive Examinations. A comprehensive examination is intended to permit a student to establish academic credit in a field in which the student has gained experience or competence equivalent to an established university course. Applications are

given only for courses listed in the current catalog and only for courses in which a comprehensive examination can serve as a satisfactory measure of accomplishment.

A number of restrictions apply. The student must be enrolled at ASU with *no more than 100 semester hours of credit* earned. The examinations must be taken during the first two semesters in residence in a degree program at the university. *No more than 60 semester hours of credit may be established* by comprehensive examinations (including AP and CLEP credit) and independent learning courses.

Comprehensive examinations may not be taken in any course in which the student has been given admission credit or transfer credit from any educational institution. Credit may not be received for an examination in an elementary level of a field in which the student has earned more advanced credit nor for a prerequisite for a course already completed.

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

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

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

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

Proficiency Examinations. Proficiency examinations and auditions are given

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

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

UNIVERSITY TESTING REQUIREMENTS

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

1. Take the ACT English or SAT verbal examination and have scores submitted to ASU.
2. Receive a score of 4 or 5 for the advanced placement examination in English offered by the College Entrance Examination Board and have scores submitted to ASU
3. Take the CLEP general examination in English, earning a score that qualifies for placement in ENG 105, and have scores submitted to ASU.
4. Have previously taken ENG 101, 102, 105, 107, or 108 at ASU and received a grade of "D" or higher. If the course was taken before 1980, contact the Recording Section, SSV B114, before registering for classes.
5. Transfer a course equivalent to ENG 101, 102, 105, 107, or 108 with a grade of "C" or higher. An official transcript showing the grade must be received at ASU at least six weeks before registration. If a student transfers an equivalent composition course from a public community college or university in Arizona, the equivalency is automatically posted, and the student need not take further action. A student transferring a composition course from any other college or university must have the course evaluated for equivalency. See "First-Year Composition Requirement," page 79, for more information.

Placement Examinations

English. New students and continuing, re-entry, transfer, and nondegree students who have not taken any composition courses are placed in First-Year Composition courses according to their scores on the ACT English or SAT Verbal tests. Students who score 18 (16)[1] or below on the ACT English test or 460 (380)[2] or below on the SAT Verbal test must enroll in WAC 101, a basic writing course (see page 330). Students who score between 19 (17)[1] and 28 (24)[1] on the ACT English test or between 470 (390)[2] and 650 (580)[2] on the SAT Verbal test are eligible to enroll in ENG 101. Students who score 29 (25)[1] or higher on the ACT English test or 680 (590)[2] or higher on the SAT Verbal test may take ENG 105 in place of ENG 101 and 102. Students who are accepted in the University Honors College are eligible to enroll in ENG 105 after being advised. Students may also qualify for ENG 105 by achieving appropriate scores on the CLEP General Examination in English Composition with Essay or the CLEP Subject Examination in College Composition with Essay.

Foreign Language. For information regarding foreign language placement testing, see page 352, "Foreign Language Requirement and Placement," and pages 66–69, "Special Programs for Advanced Placement and Credit."

Mathematics. Placement examinations before registering in mathematics

[1] The ACT scoring system has been modified. As a result, these scores are effective for tests taken in and after October 1989 Equivalent scores for tests taken before October 1989 are in parentheses

[2] The SAT scoring system has been modified. As a result, these scores are effective for tests taken in and after April 1995. Equivalent scores for tests taken before April 1995 are in parentheses.

courses are not required at ASU. Students planning to register in mathematics courses should consult the Self Advising flowchart available at university advising offices and the Department of Mathematics offices in PSA 208 and 216. The flowchart places emphasis on a student's prior preparation and performance in mathematics. In most lower division mathematics courses, an intensive review by the students is followed by a test during the first week of classes. Students not doing well on these tests are encouraged to enroll immediately in a less demanding mathematics course. Students needing additional evaluation are encouraged to take the Algebra Placement Exam or the Calculus Placement Exam, administered by appointment at University Testing Services (UTS), EDB 302. Call UTS at 602/965-7146 for an appointment.

Academic Advising

Effective academic advising of students is an essential aspect of the educational experience at ASU. The university is committed to providing quality advising to continuing, first time, and transfer students. To achieve the highest quality advising, students, faculty, and staff must work to form a partnership. To ensure timely and accurate advising to their majors, each college has advisors to assist students in developing programs of study, assessing educational goals, and understanding rules, procedures, and curriculum requirements. In some colleges, these advisors are faculty members. In others, they are full time, professional advisors. In most instances, students have academic and career advising available from both faculty members and full time advisors. Students are encouraged to take advantage of the skill and knowledge of the advising professionals available to them. Most new students and many continuing students have mandatory advising as a condition of registration.

An additional unit, Cross college Advising Services ([CAS] UASB 129, 602/965-4464), is a central advising, referral, and information facility whose staff is available to assist students in their academic careers at ASU. Emphasis is placed on advising services to first time, prospective, transfer, and visiting students and students in transition, such as those changing majors and those without majors. In addition to guidance in the exploration or selection of a major, CAS provides general academic information and referrals to all areas of student academic support.

Students are strongly encouraged to seek academic advising at the earliest possible time and regularly throughout their academic careers, whether or not advising is mandatory in their particular programs. Advisors may be contacted at the locations and times shown in the "Academic Advising" table. See page 549 for a list of building abbreviations and names.

International Baccalaureate Diploma/Certificate Credit

Examination	Score	Semester Hours	Equivalency
Art/Design	7, 6, or 5	6	ART 111, 112
	4	3	ART 112
Biology	7, 6, or 5	8	BIO 181, 182
	4	4	BIO 181
Chemistry	7, 6, or 5	9	CHM 113, 115
	4	4	CHM 113
Economics	7, 6, or 5	6	ECN 111, 112
	4	3	ECN 111
English A	7, 6, or 5	6	ENG 101, 110
	4	3	ENG 110
English B	No credit		None
Foreign Language A or B*	4	4	Foreign language 101
Foreign Language A or B*	5	8	Foreign language 101, 102
History American	7, 6 or 5	6	HIS 103, 104
	4	3	HIS 103
History European	7, 6, or 5	6	HIS 101, 102
	4	3	HIS 101
Mathematics	7, 6, 5, or 4	4	MAT 270
Physics	7, 6, or 5	8	PHY 111, 112, 113, 114
	4	4	PHY 111, 113

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

Readmission to the University

Undergraduate students who have previously attended ASU but have not been enrolled at ASU for one semester or more are required to apply for readmission for the semester in which reenrollment is intended. Nonresident applicants must submit a nonrefundable $40.00 application fee. If, meanwhile, the student has attended another accredited college or university, it is necessary for the student to have on file an official transcript of all academic work taken. Failure to report such attendance is considered misrepresentation and falsification of university records. In addition, it is considered cause for Records Hold action and withholding of further registration privileges.

An applicant for readmission to a degree program must meet the requirements for good standing (see page 77) and the requirements of the college to which the application is being made. An applicant who has been denied readmission may appeal to the University Undergraduate Admissions Board. Nondegree applicants for readmission must have a minimum GPA of 2.00. If not, the applicant must apply to ASU through Undergraduate Admissions.

Conditional Readmission. A student completing academic work in progress at another institution may be granted conditional readmission. This conditional status remains effective until an official transcript is received. The student is subject to Records Hold action, and additional registration privileges are withheld if this condition for readmission is not cleared by midsemester.

Academic Renewal

Academic renewal is a university policy administered for the purpose of recalculating the ASU cumulative GPA of undergraduate students who have been readmitted to a degree program after an absence of at least five continuous calendar years including summer sessions and who have completed in good standing a minimum of 12 college-approved additional hours in residence within three semesters after reentry. Students may have the former academic record before the five year absence (including transfer credits) accepted in the same manner as if the credits were transfer credits. That is, earned hours are carried forward for up to 60 hours of credit in which a grade of "C" or higher was earned. The cumulative GPA is based only on credits earned subsequent to the student's reentry. All graduation residency, academic recognition residency, and GPA requirements must be fulfilled after academic renewal.

A request for academic renewal follows this procedure

1. Students interested in academic renewal must request the Application for Academic Renewal from the Readmission Section of the Office of the Registrar or the dean of the college offering the major.
2. The Application for Academic Renewal may be submitted immediately upon readmission but not later than the start of the third semester after readmission
3. The Application for Academic Renewal is submitted by the student to the dean of the college offering the major.
4. The dean specifies in advance a minimum of 12 semester hours.
5. When the approved credits are completed with a cumulative GPA of 2.50 or higher, and no grade lower than "C" in each course, the dean forwards the Application for Academic Renewal to the Office of the Registrar for processing.

Academic Advising[1]

College or School	Location	Telephone	Days	Hours
College of Architecture and Environmental Design	ARCH 141	602/965-3584	Mon.-Fri.	8:00 A.M.-12:00 NOON, 1:00 P.M.-5:00 P.M.
College of Business	BA 123	602/965-4227	Wed Other weekdays	9:00 A.M.-6:30 P.M. 9:00 A.M.-4:30 P.M.
College of Education	EDB 7	602-965-3877	Mon.-Fri.	9:00 A.M.-5:00 P.M.
College of Engineering and Applied Sciences	EC G100	602/965-3421	Mon.-Fri.	8:00 A.M.-12:00 NOON, 1:00 P.M.-5:00 P.M. Appointments are recommended.
College of Fine Arts	GHALL 127	602/965-4495	Mon.-Fri.	8:00 A.M.-12:00 NOON, 1:00 P.M.-5:00 P.M.
College of Law	LAW 101	602/965-1474	Mon.-Fri.	8:00 A.M.-5:00 P.M. Call for additional hours.
College of Liberal Arts and Sciences	SS 111	602/965-6506	Mon.-Fri.	8:00 A.M.-5.00 P.M.
College of Nursing	NUR 108	602/965-2987	Mon.-Fri.	8:00 A.M.-5:00 P.M.
College of Public Programs	WILSN 203	602/965-1034	Mon.-Fri.	8:00 A.M.-5:00 P.M.
Graduate College	WILSN lobby	602/965-3521	Mon.-Fri	8:00 A.M.-5:00 P.M. Walk-ins are welcome, appointments are recommended.
School of Social Work	WHALL 135	602/965-6081	Mon., Fri Tues.-Thurs	9.00 A.M.-3.00 P.M. 9:00 A.M.-5:30 P.M. Appointments are recommended.
Cross-college Advising Services	UASB 129	602/965-4464	Mon., Wed. Tues., Thurs. Fri	8:00 A.M.-6:30 P.M.[2] 8:00 A.M.-5:00 P.M. 7:00 A.M.-5:00 P.M.
University Honors College	MCL 112	602/965-2359	Mon.-Fri.	8:00 A.M.-5:00 P.M. Appointments are recommended.

[1] Students seeking academic advising at ASU East should see page 436 for more information

[2] Walk-ins are welcome

Only students working toward their first undergraduate degree are eligible to apply for academic renewal, which may be effected only once during a student's academic career. Academic renewal is transferable among colleges. All students with ASU GPAs below 2.00 are eligible to petition for academic renewal. Individual colleges may elect to entertain petitions for academic renewal from students with ASU GPAs above 2.00. College standards committees have final authorization on academic renewal petitions. Eligibility for graduation is based on the ASU cumulative GPA after academic renewal. However, a student's complete record —before and after academic renewal— remains on the transcript and may be taken into consideration when a student applies for undergraduate professional or graduate programs.

Registration

All persons attending a class at ASU must be registered for that class. A student is considered to be registered when all registration fees have been paid in full.

Eligibility. Only eligible students may register for courses at ASU. An eligible student is either continuing from the previous semester or has been admitted or readmitted to the university. See "Undergraduate Admission," pages 60–64, and "Readmission to the University," page 69.

Proof of Identification. To receive university services, photo identification must be presented. Each admitted or readmitted student who completes the registration process for a regular semester needs to obtain a student identification card. This photo identification card is valid for the duration of the student's enrollment at ASU.

Photo IDs are issued throughout the semester at the Sun Card office located in the Memorial Union. See the *Schedule of Classes*. Refer to "Sun Card/ID Card," page 45.

Registration Fees. Registration fees are due and must be paid in full at the time specified each semester in the *Schedule of Classes*. If any payment tendered is unauthorized, incomplete, or received after the due date, registration fees are considered not paid.

Schedule of Classes. The *Schedule of Classes*, published for the fall and spring semesters, and the *Summer Sessions Bulletin* are distributed without charge. These publications are also available online at www.asu.edu/registrar/schedule. They list course offerings, dates, times, places, and procedures for registration, along with other important information relating to the term.

Course Loads. A minimum full-time course load for an undergraduate student is 12 semester hours. The maximum course load for which a student may register is 18 semester hours (with the exception of a 19-hour maximum for students enrolled in the Colleges of Engineering and Applied Sciences or Architecture and Environmental Design). A student wishing to register for more than the maximum must petition the standards committee of the college in which the student is enrolled and must obtain an approved override before registration. See "Summer Session Semester Loads," for summer course load information.

Reserving of Course Credit by Undergraduates. Seniors at ASU within 12 semester hours of graduation may enroll in a 400-level or graduate course and reserve the credit for possible use in a future graduate program. The course cannot be used to meet a baccalaureate graduation requirement. Before registration in the course, the student must submit a Graduate College Petition form requesting credit reservation. The form must be signed by the student's advisor, the head of the academic unit offering the class, and the dean of the Graduate College.

Permission to reserve a course does not guarantee admission to a graduate degree program or that the course may be used toward graduate degree requirements. A maximum of nine semester hours may be reserved, and only courses with an "A" or "B" grade are applicable. Reserved credit earned before admission to a graduate degree program is classified as nondegree credit. The maximum course load for a student enrolled in a reserved course is 15 semester hours during a regular semester and six hours during a summer session.

Summer Session Semester Hour Load. The summer session semester hour load limit is seven semester hours for each five-week session and nine semester hours for the eight-week session. The student may not exceed a total of 14 semester hours for any combination of sessions.

Concurrent Enrollment. Provided that the other university regulations concerning enrollment, graduation requirements, and transfer of credits are not violated, a student may enroll in classes at other institutions or in independent learning courses while enrolled at ASU. However, the student is urged to seek advising before concurrent enrollment to assure orderly progress toward a degree. If total credits exceed the maximum course load, prior permission must be granted by the college standards committee. See "Course Loads," this page.

Attendance. The instructor has full authority to decide whether class attendance is required.

The next step following registration is a trip to the bookstore. Tim Trumble photo

Enrollment Verification Guidelines. The registrar is responsible for verifying enrollment according to the general guidelines in the "Enrollment Verification Guidelines" table. Independent learning courses are not considered for enrollment verification purposes.

Cooperative Programs

Cooperative Education. Cooperative education at ASU is any educational program that requires *alternating classroom and work experience* in government or industry. The work experience exists for its educational value.

Full-time Status of Co-op Students. A co-op student, during a work semester, is identified as both co-op and full-time by the university. In order to qualify, the student must have prescribed hours and GPA requirements.

Rights and Privileges of Co-op Students. During their work semesters, co-op students have the rights, privileges, and protections with regard to university matters accorded to full-time students, except financial aid. They maintain catalog continuity and have student access to university facilities and events.

Financial Aid for Co-op Students. Co-op students are not identified to lenders (including ASU) as being in loan repayment status. They have an "in school" full-time enrollment status. Co-op students do not receive any financial aid disbursement during their co-op semesters, *nor are such awards transferred to another semester.* The student is responsible for notifying Student Financial Assistance as soon as plans for a co-op term are made but no later than 10 days before the co-op term begins. The department or school is responsible for notifying Student Financial Assistance of students approved for co-op terms.

Traveling Scholar Program. The Traveling Scholar Program is a cooperative program between the state universities designed to enable students to take advantage of programs or special resources that are not available at their own institutions. Any undergraduate student with a GPA of at least 2.50 or graduate student with a GPA of at least 3.00 enrolled at ASU, Northern Arizona University, or University of Arizona may be designated a Traveling Scholar by prior mutual agreement of the appropriate academic authorities at both the sponsoring and hosting institutions. Contact the Registrar's Records Information Section for more information and the application form.

Grading System

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

Grades and Marks. All grades and marks appear on the grade report, permanent record, and/or unofficial transcript.

They are indicated by the letters shown in the "Grades" table on page 73.

Grading Options. Ordinarily a grade of "A," "B," "C," "D," or "E" is given upon completion of a course, unless a grading option of "audit" or "pass/fail" is indicated at the time of registration. *Grading options cannot be changed after the close of the drop/add period.*

Incomplete. A mark of "I" (incomplete) is given by the instructor only when a student who is otherwise doing acceptable work is unable to complete a course because of illness or other conditions beyond the student's control. The mark of "I" should be granted only when the student can complete the unfinished work with the same instructor. However, an incomplete ("I") may be completed with an instructor designated by the department chair if the original instructor later becomes incapacitated or is otherwise not on campus. The

Enrollment Verification Guidelines

	Full Time	Half Time	Less Than Half Time
Regular semester			
Undergraduate	12 or more hours	6–11 hours	5 or fewer hours
Graduate	9 or more hours	5–8 hours	4 or fewer hours
Graduate assistant*	6 or more hours		
Five-week summer session			
Undergraduate	4 or more hours	2 hours	1 hour
Graduate	3 or more hours	2 hours	1 hour
Graduate assistant*	2 or more hours	1 hour	
Eight week summer session			
Undergraduate	6 or more hours	3–5 hours	2 or fewer hours
Graduate	5 or more hours	3–4 hours	2 or fewer hours

* For enrollment verification purposes, graduate assistant is a generic term that includes graduate assistant, teaching assistant, research assistant, graduate associate, teaching associate, and research associate

student is required to arrange with the instructor for the completion of the course requirements. The arrangement is recorded on the Request for Grade of Incomplete form. The student has one calendar year from the date the mark of "I" is recorded to complete the course. If the student completes the course within the calendar year, the instructor must submit a Request for Grade of Incomplete/Authorization for Change of Grade form to the Office of the Registrar, whether the student passed or failed the course. Marks of "I" are changed to a grade of "E" for purposes of evaluating graduation requirements for undergraduate students. Marks of "I" received in the fall 1983 semester or thereafter for undergraduate courses that have been on a student's record for more than one calendar year are automatically changed to a grade of "E." An undergraduate student does not register or pay fees for a course for which an incomplete "I" has been received in order to complete the course.

Students who receive a mark of "I" in courses at the 500 level or above have one calendar year to complete the course for a grade. After one calendar year, the mark of "I" becomes a permanent part of the transcript. To repeat the course for credit, a student must register and pay fees. The grade for the repeated course appears on the transcript but does not replace the permanent "I."

Satisfactory. A mark of "Y" (satisfactory) may be used at the option of individual colleges and schools within the university and is appropriate for internships, projects, readings and conferences, research, seminars, theses, and workshops. The "Y" is included in earned hours but is not computed in the GPA.

Credit Enrollment. The semester hour is the unit on which credit is computed. It represents one 50 minute class exercise per week per semester. To obtain credit, a student must be properly registered and must pay fees for the course.

Audit Enrollment. A student may choose to audit a course, in which case the student attends regularly scheduled class sessions, but no credit is earned. The student should obtain the instructor's approval before registering and paying the fees for the course. Selected courses may not be audited. Veteran students using education benefits should see "Veterans Services," page 37.

The mark of "X" is recorded for completion of an audited course, unless the instructor determines that the student's participation or attendance has been inadequate, in which case the mark of "W" (unrestricted withdrawal) may be recorded. This grading option may not be changed after the close of drop/add. The "X" is not included in earned hours and is not computed in the GPA.

Pass/Fail Enrollment. A mark of "P" (pass) or "E" (fail) may be assigned for this grading option. This grading method may be used at the option of individual colleges and schools within the university. Consult the college dean's office for detailed information and restrictions before registration. "P" is included in earned hours but is not computed in the GPA.

Remedial Enrollment. A mark of "RC" (remedial credit) or "RN" (remedial no credit) may be assigned for this grading option. The course appears on an unofficial ASU transcript but does not appear on the grade report or official ASU transcript and is not included in earned hours. Remedial hours are included in verification of enrollment for purposes of loan deferment and eligibility.

Instructor-Initiated Drop. An instructor may drop a student for nonattendance during the second week of classes in fall or spring semesters or the first two days of each summer session. Instructor initiated drops for nonattendance are signed by the dean or dean's designee. The college notifies students by mail. The student must contact the instructor before the end of the first week of classes if absences during that period cannot be avoided.

Drop/Add. Students registering for courses for a semester or summer session may drop or add courses through the first week of classes in a semester or the first two days of a summer session. See the *Schedule of Classes* or *Summer Sessions Bulletin* for dates of drop/add periods. During this period, a student may drop one or more but not all scheduled courses without penalty. Courses that are dropped do not appear on the student's transcript and fees paid are fully refunded, depending on the student's remaining hours. A student who wishes to withdraw from all courses during the drop/add period must process an unrestricted withdrawal.

Unrestricted Course Withdrawal. During the first four weeks of a semester or the first six days of a summer session, a student may withdraw from any course with a mark of "W." See the *Schedule of Classes* or the *Summer Sessions Bulletin* for dates of the unrestricted withdrawal period.

Restricted Withdrawal. From the fifth week to the end of the 10th week of a semester and from the seventh day to the end of the third week of a summer session, students may withdraw with a mark of "W" from only courses

Grades

Grade	Definition	Value	Notes
A	Excellent	4.00	
B	Good	3.00	
C	Average	2.00	
D	Passing	1.00	
E	Failure	0.00	
I	Incomplete		
NR	No report		
P	Pass		
RC	Remedial credit		Appears only on unofficial copy of ASU transcript.
RN	Remedial no credit		Appears only on unofficial copy of ASU transcript.
W	Withdrawal		
X	Audit		
Y	Satisfactory		

in which the instructor certifies that they are passing at the time of the withdrawal. See the *Schedule of Classes* or the *Summer Sessions Bulletin* for dates of the restricted withdrawal period.

The number of restricted withdrawals with the mark of "W" is limited. One restricted withdrawal is assessed for each course withdrawn from, unless the student is withdrawing from all courses. A complete withdrawal results in the assessment of one restricted withdrawal against a student's limit. The number of withdrawals is a total of two for students during freshman, sophomore, junior, or senior standing; and a total of two for students during second undergraduate degree standing.

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

Procedure for Restricted Withdrawal

1. Obtain a withdrawal form from any registrar site.
2. Obtain a signature and verification of grade from instructor(s)
3. Have the form processed at any registrar site.

Instructor-Initiated Withdrawal. An instructor may withdraw a student from a course with a mark of "W" or a grade of "E" only in cases of disruptive classroom behavior. A student may appeal an instructor initiated withdrawal to the standards committee of the college in which the course is offered. The decision of the committee is final. Restricted withdrawal limits do not apply to withdrawals initiated by an instructor.

Withdrawal from the University. To withdraw from *all* classes after having paid registration fees, a student must submit a request in person, withdraw using InTouch, or submit a signed request to the Office of the Registrar. The InTouch complete withdrawal option is only available through the first week of classes for a semester. During the unrestricted complete withdrawal period, a student may withdraw from all courses with marks of "W." During the restricted complete withdrawal period, a student may withdraw with marks of "W" only from courses that the instructors certify the student was passing at the time of withdrawal. See the *Schedule of Classes* or the *Summer Sessions Bulletin* for dates of the complete withdrawal periods. No one is permitted to withdraw from the university or to conduct any registration transaction in the last two weeks of the semester. The date of the complete withdrawal is always the date the withdrawal form or letter is received in the Office of the Registrar.

Medical/Compassionate Withdrawal. Normally, a medical/compassionate withdrawal request is made in cases where serious illness or injury (medical) or other significant personal situation (compassionate) prevents a student from continuing his or her classes and incompletes when other arrangements with the instructor are not possible Usually, consideration is for complete withdrawal. All applications for withdrawal require thorough and credible documentation; application for less than a complete withdrawal must be especially well documented to justify the selective nature of the medical/compassionate withdrawal request.

Medical Withdrawal. When a student must withdraw from one or more classes for personal medical reasons, that student may request a medical withdrawal. This policy covers both physical health and mental health difficulties. A medical withdrawal aids the student in two ways:

1. it is considered an unrestricted withdrawal, regardless of when it occurs; and
2. according to the policies of the Student Fee Payment Office, the student may be refunded a greater portion of tuition and/or fees paid for the semester than the published university refund schedule would normally allow.

Compassionate Withdrawal. When a student must withdraw from one or more classes for significant personal reasons, not related to the student's personal physical or mental health (for example, care of a seriously ill child or spouse, or a death in the student's immediate family), that student may request a compassionate withdrawal. A compassionate withdrawal aids the student in the two ways listed above under "Medical Withdrawal."

Each college has a dean's representative (medical compassionate withdrawal designee) to review medical/compassionate withdrawal requests. A student requesting a medical/compassionate withdrawal is referred to the dean's designee of the college of the major. A nondegree student is referred to the dean's designee of the college with which he or she is primarily affiliated. The dean's designee determines the appropriateness of the medical/compassionate withdrawal request and whether an administrative hold is indicated. Removal of the hold must be authorized by the designee before the student can register for a future semester or be readmitted to the university

Although the medical compassionate withdrawal procedure may be used at any time during or after the close of the specified semester, the student is encouraged to submit the application as early as possible.

During the unrestricted withdrawal period (generally the first four weeks of a semester or the first six days of a summer session), a student who follows the regular withdrawal procedure will automatically be granted a "W" in each of his or her classes, regardless of the reasons for withdrawing and whether or not he or she is passing the classes. However, even during the unrestricted withdrawal period, a student must process a formal medical/compassionate withdrawal to be eligible for consideration of a larger refund of tuition and/or fees than would be granted under regular unrestricted withdrawal procedures.

For both partial and complete withdrawals, during both the unrestricted withdrawal period and the restricted withdrawal period, a student who follows the medical/compassionate withdrawal procedure will be granted a "W" in each of his or her classes upon approval of the medical/compassionate

withdrawal, regardless of whether or not he or she is passing. The medical/compassionate withdrawal procedure will result in a special note line on the unofficial transcript.

Even after the close of the semester, the dean's designee in the college of the student's major may approve a medical/compassionate withdrawal for each class for which a "W" is to be granted, regardless of which college of fered the course(s). Refunds are not given beyond six months past the close of the semester.

Only one Request for Documented Medical/Compassionate Withdrawal form needs to be filed with the college of the major, even if classes in more than one college are involved. The form should clearly specify each class for which the student is to receive a grade of "W." Signatures from the instructor(s) and/or department chair(s) for each class are not required; the dean's designee's signature is suffi cient.

Grade Points. For the purpose of computing the grade point average (GPA), grade points are assigned to each of the grades for each semester hour as follows: "A," four points; "B," three points; "C," two points; "D," one point; "E," zero points. GPAs are rounded to the nearest 100th of a grade point.

Grade Point Average. Grade points earned for a course are multiplied by the number of semester hours to pro duce honor points. For example, re ceiving an "A," which is assigned four grade points, in a three semester hour course would produce 12 honor points The grade point average (GPA) is ob tained by dividing the total number of honor points earned by the total number of semester hours graded "A," "B," "C," "D," or "E." Other grades do not carry grade points. *Semester* GPA is based on *semester* net hours. *Cumula tive* GPA is based on *total* net hours.

Change of Grade. Ordinarily the in structor of a course has the sole and fi nal responsibility for any grade re ported. Once the grade has been reported to the registrar, it may be changed upon the signed authorization of the faculty member who issued the original grade. Approval for the change is also required by the depart ment chair and the dean of the college concerned. This policy also applies to the grade of "I" (incomplete).

University Policy for Student Appeal Procedures on Grades

Informal. The steps outlined below, beginning with step A, must be fol lowed by any student seeking to appeal a grade. Student grade appeals must be processed in the regular semester im mediately following the issuance of the grade in dispute (by commencement for fall or spring), regardless of whether the student is enrolled at the university. It is university policy that students fil ing grievances and those who are wit nesses are protected from retaliation Students who believe they are victims of retaliation should immediately con tact the dean of the college in which the course is offered

A. The aggrieved student must first undergo the informal procedure of conferring with the instructor, stat ing the evidence, if any, and rea sons for questioning that the grade received was not given in good faith. The instructor is obliged to review the matter, explain the grad ing procedure used, and show how the grade in question was deter mined. If the instructor is a gradu ate assistant and this interview does not resolve the difficulty, the stu dent may then go to the faculty member in charge of the course (regular faculty member or director of the course sequence) with the problem.

B. If the grading dispute is not re solved in step A, the student may appeal to the department chair or other appropriate chair of the area within the department (if any). The department chair may confer with the instructor to handle the prob lem. Step B applies only in depart mentalized colleges.

C. If these discussions are not ad equate to settle the matter to the complainant's satisfaction, the stu dent may then confer with the dean of the college concerned (or the dean designate), who will review the case. If unresolved, the dean or designate may refer the case to the college academic grievance hearing committee to review the case for mally In most instances, however the grievance procedure does not go beyond this level.

Formal. The following procedure takes place after steps A, B, and C or A and C) have been completed.

D. Each college has on file in the of fice of the dean (and in each de partment of the college) the proce dures and composition of the undergraduate or graduate aca demic grievance hearing committee for student grievances Each col lege committee shall operate under grievance procedures as stated which satisfy due process require ments. The committee shall always meet with the student and the in structor in an attempt to resolve the differences. At the conclusion of the hearing, the committee shall send its recommendations to the dean.

E. Final action in each case will be taken by the dean after full consid eration of the committee's recom mendation. Grade changes, if any are recommended, may be made by the dean. The dean shall inform the student, instructor, department chair (if any), the registrar, and the grievance committee of any action taken.

Repeating Courses. An undergraduate course taken at ASU may be repeated for credit if the grade of "D," "E," or "W" or a mark of "X" is received. Un dergraduate courses in which grades of "D" or "E" are received may be re peated only once After an undergradu ate student repeats 100 and 200 level courses, the student's transcript shows both grades, but the student's cumula tive GPA reflects only the higher grade. After an undergraduate student repeats 300 or 400 level courses, the student's cumulative GPA and the transcript re flect both grades

After completing the course, the stu dent must file a Deletion Form with the Office of the Registrar To be eligible for the deletion of "D" or "E" grades, the course must be repeated at ASU. Students who have graduated are not eligible to delete the grade for a course taken before the award of the ASU bachelor's degree.

This policy does not apply to seminar and independent study courses with different content each semester. This policy affects only undergraduate students and undergraduate courses.

Demonstration of Mastery. An undergraduate student who receives a "D" in a course in which a "C" or higher is required may use the grade from an equivalent course taken elsewhere to demonstrate mastery at the "C" or higher level. However, the course may neither be transferred to ASU (since credit has already been given for the course) nor computed in the student's GPA.

Midterm Report. Instructors are required to evaluate students at midterm for academic progress. A student who has been evaluated for a "D" or "E" at midsemester receives a midterm report. The midterm "D" and "E" grades are not recorded on the student's permanent record. Midterm reports are mailed to the student's local address of record.

Final Grades. Grades may be viewed online at www.asu.edu/registrar or accessed through InTouch at 602/350–1500.

Records Hold. The Office of the Registrar enforces a financial records hold or administrative hold on the records of a student when an outstanding financial obligation or disciplinary action has been reported.

When a hold is placed on a record, the following results may occur:

1. No official or unofficial transcript is issued.
2. Registration privileges are suspended.
3. Other student services may be revoked.

The hold remains effective until removed by the initiating office. It is the student's responsibility to clear the conditions causing the hold.

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

1. the student's name and former name(s);
2. the student ID number,
3. the date of birth; and
4. the dates of attendance.

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

The Office of the Registrar does not issue a transcript if the student has a financial records hold. The student must supply a specific address if the transcript is to be mailed. The fee for an official transcript for a student not enrolled is $5.00 for the first copy. Additional copies ordered at the same time are $1.00 each. The fee is $1.00 per copy for a student enrolled for a current or future semester.

Unofficial transcripts may be requested in person at the Office of the Registrar, any registrar site, or by mail or fax 602/965 2295 if a signed release is enclosed. There is no charge for an unofficial transcript.

All in person transcript requests require presentation of photo identification. Requests are not accepted from third parties without a written release from the student. For information on parental access to records, see "Access to Records," page 78.

Basic Competencies

Area	ASU Courses That May Be Used to Meet Basic Competencies
American history	Any one course: HIS 103, 104
English	Any one course: ENG 101, 105, 107; WAC 101, 107
Fine arts	Any undergraduate three semester-hour course offered in the College of Fine Arts.
Foreign language	Student must complete through the 102 course level of any foreign language course.
Laboratory science*	
Chemistry	Any one course: CHM 101, 113, 117
Earth sciences	Any numbered selection: 1. GLG 101 and 103 2. GPH 111
Life sciences	Any numbered selection: 1. BIO 100, 113, 120, 181, 182, 201 2. PLB 108
Physics	Any numbered selection: 1. AST 111 and 113 2. AST 112 and 114 3. PHS 110 4. PHY 101 5. PHY 105 6 PHY 111 and 113 7. PHY 112 and 114 8. PHY 121 and 122 9. PHY 131 and 132
Mathematics	Any one course: MAT 106, 114, 117, 119, 170, 210, 260, 270, 290
Social science	Any one course: ASB 102; ECN 111, 112; GCU 102, 121, 141; HIS 100, 101, 102; PGS 101; POS 101, 110, 120, 150, 160; SOC 101

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

Retention and Academic Standards

Class Standing. Hours earned determine class standing.

Student	Hours Earned
Freshman	24 or fewer hours earned
Sophomore	25–55 hours earned
Junior	56–86 hours earned
Senior	87 or more hours earned
Graduate	Bachelor's degree from accredited institution

Academic Good Standing. Academic good standing for degree seeking students for the purpose of retention is defined as follows:

Total Earned Hours	Minimum Cumulative GPA
24 or fewer	1.60
25 55	1.75
56 or more	2.00

A student who does not maintain the minimum GPA standard is placed on academic probation or is disqualified. A student on academic probation is in conditional good standing and is permitted to enroll. A student who has been disqualified is not in academic good standing and is not permitted to enroll for fall or spring semesters.

To transfer from one college to another within the university or to be eligible for readmission, a student must have a GPA of 2.00 or higher. The GPA determining good standing is computed on courses taken only at ASU.

For purposes of retention or transfer, an individual college may set higher GPA standards; otherwise, the university standards prevail. See the college sections of this catalog or contact the college deans' offices for statements regarding college retention standards.

Meeting Basic Competencies. New students are required to have completed a specific number of courses in the areas of American history, English, laboratory science, mathematics, and social science. Students who are exempt from these requirements include transfer students with 36 or more transferable semester hours, students admitted by GED, and students who are 22 years of age or older by the first day of the semester. An admitted student who needs to meet competencies in one or more of these areas must satisfy the requirement within one year of the beginning of the student's first semester at ASU. Subject competencies in each area may be met by earning a grade of "D" or higher at ASU in an appropriate course(s) as listed in the "Basic Competencies" table on page 76.

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

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

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

College actions are forwarded to the Office of the Registrar for processing.

Dean's List. Undergraduate students who earn 12 or more graded semester hours ("A," "B," "C," "D," or "E") during a semester in residence at ASU with a GPA of 3.50 or higher are eligible for the Dean's List. A notation regarding Dean's List achievement appears *only* on the final grade report available online at www.asu.edu/registrar.

Satisfactory Academic Progress. The university is required to publish and enforce standards of satisfactory academic progress for certain students (e.g., student athletes, students receiving financial aid, and students receiving veterans benefits)

Certification of satisfactory progress for student athletes is verified by the academic advisor and the dean's designee for certifying satisfactory progress. Certification of satisfactory progress for students receiving financial aid or veterans benefits is verified by Student Financial Assistance or the Veterans Services Section respectively. Students should contact their advisors or the appropriate office for additional information on satisfactory progress requirements.

Student Academic Complaints. If a student is dissatisfied with the instruction received in a class or with the interaction with the instructor of the class, the student may pursue the following avenues in the order listed:

1. The student may discuss the complaint with the instructor of the class.
2. If the issue is not resolved at this level, the student may contact the chair of the department in which the course is offered.
3. If further discussion or appeal is needed, the student may contact the dean of the college in which the course is offered.

Probation. A student's college assumes responsibility for enforcing academic standards and may place any student on probation who has failed to maintain good standing as previously defined. For purposes of probation and retention, an individual college may set higher GPA standards. A student on academic probation is required to observe any rules or limitations the college may impose as a condition for retention.

Disqualification. A student who is placed on probation at the end of a semester is subject to disqualification by the college at the end of the following semester if the conditions imposed for retention are not met.

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

Reinstatement. If a student with a GPA of 2.00 or greater has been dis qualified by one college and seeks to transfer to another college at ASU, the student may apply at the Readmissions Section (SSV B114) or directly to the college to which the student wishes and is qualified to transfer.

To be reinstated into an ASU college other than the disqualifying college, the student must submit an application for reinstatement to the University Under graduate Admissions Board through the Readmissions Section of the Office of the Registrar.

To be reinstated into the same college from which the student was dis qualified, the student must submit an application for reinstatement to the dis qualifying college. When reinstate ment includes readmission, application must be made to the Readmissions Sec tion of the Office of the Registrar.

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

Academic Integrity. The highest stan dards of academic integrity are ex pected of all students. The failure of any student to meet these standards may result in suspension or expulsion from the university or other sanctions as specified in the University Student Academic Integrity Policy. Violations of academic integrity include, but are not limited to, cheating, fabrication, tampering, plagiarism, or facilitating such activities. The University Student Academic Integrity Policy is available from the Office of the Senior Vice President and Provost and from the deans of the individual colleges.

Suspension or Expulsion for Academic Dishonesty. All decisions relat ing to expulsion or suspension that are concerned with academic dishonesty are the sole prerogative of the dean of the school or college in which the stu dent has been admitted. These deci sions of suspension or expulsion can be appealed in accordance with estab lished university procedures. Applica tion for reinstatement may be made to any of the academic units within the university after the specified period of suspension. Merely having remained in a suspended status for a period of time does not, in itself, constitute a basis for reinstatement.

Student Records

Family Educational Rights and Privacy Act of 1974

The Family Educational Rights and Privacy Act of 1974, also known as the Buckley Amendment, sets forth the requirements governing the protection of the privacy of the educational records of students who are or have been in at tendance at ASU.

Definitions

Eligible Student. For the purpose of this act, an *eligible student* is defined as any individual formally admitted to and enrolled at ASU or the parents of a *de pendent* eligible student. Dependency is defined by Section 152 of the Inter nal Revenue Code of 1954.

Record. The term *record* includes any information or data recorded in any medium, including, but not limited to, handwriting, print, tapes, film, micro film, microfiche, and electronic means.

Types of Information

Educational Record. The term *educa tional record* refers to those records di rectly related to a student and main tained by an educational institution. Two types of educational records are subject to the provisions of this act: (1) directory information and (2) person ally identifiable information. The term does not include those records specifi cally excluded by Section 99.3 of the privacy act.

Directory Information. The term *di rectory information* includes the fol lowing student information: name, lo cal and permanent addresses, local telephone number, date and place of birth, citizenship, residency status, aca demic level, major field of study, col lege of enrollment, participation in officially recognized activities and sports, weight and height of members of ath letic teams, dates of attendance, de grees and awards received, and the most recent previous educational agency or institution attended by the student.

Personally Identifiable Information. The term *personally identifiable infor mation* includes the name of a student's parent or other family member(s), a personal identifier such as the student's Social Security number, a list of personal characteristics, or other information that would make the student's identity easily traceable and any information, including directory informa tion, that the student has indicated not to be released

Access to Records

An eligible student or a parent of a dependent eligible student may inspect and review the student's educational records. Some form of photo identification must be displayed before access to educational records is allowed.

Directory information may be re leased to anyone without consent of the student unless the student has indicated otherwise Students may request that this information not be released by completing a form in the Office of the Registrar. A request to withhold this information excludes the student from being listed in the annual directory only if the request is submitted to the Office of the Registrar before the end of the third week of the fall semester.

All other educational records that contain personally identifiable information may not be released without the written consent of the student. A par ent of a dependent student may chal lenge denial of such access by produc ing the most current copy of Internal Revenue Form 1040. If that form lists the student in question as a dependent, the parent is required to sign an affidavit that affirms that the student is his or her dependent. The affidavit is retained by the Office of the Registrar. Upon receipt of the affidavit, the university makes student records available to the parent for the rest of that calendar year as specified under the Buckley Amendment.

Students may grant access to parents or agencies by completing a form in the Office of the Registrar.

Location of Policy and Records

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

University Graduation Requirements

UNIVERSITY REQUIREMENTS

All students enrolled in a baccalaureate degree program must fulfill the following university requirements to graduate.

Credit Requirements

A minimum of 120 semester hours is required for graduation with a baccalaureate degree. A minimum of 45 semester hours in upper-division courses is required for graduation. Some programs may require more than 45 upper division semester hours for graduation; refer to college graduation requirements for the specific number required.

Not more than 60 semester hours in independent learning courses and/or earned by comprehensive examination (including AP, CLEP, and IB exams) are accepted for credit toward the baccalaureate degree.

Grade Point Requirement

A minimum cumulative grade point average (GPA) of 2.00 for all courses taken at ASU is required to graduate with a baccalaureate degree.

General Studies Requirement

All students enrolled in a baccalaureate degree program must satisfy a university requirement of a minimum of 35 semester hours of approved course work in General Studies, as described on pages 84–87. General Studies courses are listed on pages 87–108, in the course descriptions, in the *Schedules of Classes*, and in the *Summer Sessions Bulletin*.

Students transferring from Arizona community colleges with the Transfer General Education Core Curriculum (TGECC) have met all lower division General Studies requirements.

First-Year Composition Requirement

Completion of both ENG 101 and 102 or ENG 105 with a grade of "C" or higher is required for graduation from ASU in any baccalaureate program (see pages 81–82). International students from non-English speaking countries may meet the First-Year Composition requirement by completing ENG 107 and 108 with a grade of "C" or higher.

New or Transfer Students. Before new students or transfer students can register for the first time at ASU, they must determine what courses to take to complete the university First-Year Composition requirement; the students must then enroll immediately in composition courses and continue to do so every term until composition requirements are met. *College offices may grant waivers to the immediate and continual enrollment requirement when there are scheduling conflicts detrimental to the student's academic progress.* Transfer students from other Arizona colleges or universities can determine the acceptability of their composition courses by referring to the most recent Arizona Commission for Postsecondary Education *Course Equivalency Guide* in consultation with an academic advisor. Composition courses transferred from out-of-state institutions must be evaluated and approved by advisors specifically designated for this purpose by the dean of each college.

The transfer student must file an application in the student's college for Equivalency of First-Year Composition Requirements, along with a transcript and catalog descriptions of the composition courses to be transferred. The application, available in each college, should be filed immediately upon transfer of course work to ASU so that the student is able to enroll in an additional composition course, if required to do so.

For more information, the student should go to the appropriate college or school listed in the "Academic Advising" table on page 70. Refer to "Building Abbreviations," page 549, for more information.

Resident Credit Requirement

Resident credit refers to a course that is offered in a regular semester, winter session, intersession, or summer session. Credit earned through comprehensive examinations is also included when calculating ASU resident hours. Credit earned through independent learning, advanced placement, the College Level Examination Program, or an International Baccalaureate Diploma/Certificate (as described on page 67) are excluded when calculating ASU resident hours.

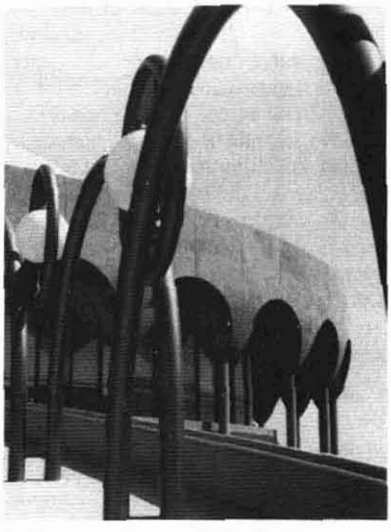
Campus Resident Credit Requirement. Every candidate for the baccalaureate degree is required to earn a minimum of 30 semester hours in resident credit courses at the ASU campus from which the student will graduate.

Guidelines for Determination of Catalog Year

The *General Catalog* is published annually. Department, division, school, college, and university requirements may change and are upgraded often. In determining graduation requirements, an undergraduate student may use only one edition of the *General Catalog* but may elect to follow any subsequent catalog. Students maintaining continuous enrollment at any public Arizona community college or university may graduate according to the requirements of the catalog in effect at the time of initial enrollment or according to the requirements of any single catalog in effect during subsequent terms of continuous enrollment. Students may maintain continuous enrollment whether attending a single public community college or university in Arizona or transferring among public institutions in Arizona while pursuing their degrees.

Students transferring among Arizona public higher education institutions must meet the admission, residency, and all curricular and academic requirements of the degree-granting institution.

1. A semester in which a student earns course credit is counted toward *continuous* enrollment. Noncredit courses, audited courses, failed courses, or courses from which the student withdraws do not count toward the determination of *continuous* enrollment for catalog



A close-up glimpse of Grady Gammage Memorial Auditorium. Tim Trumble photo

Continuous Enrollment—Example A

Student's Activity	Semester/Year	Status
Admitted and earned course credit at an Arizona community college	Fall 1998	Active
Continued at an Arizona community college	Spring 1999 Fall 1999	Active
Transferred to an Arizona university	Spring 2000	Student enrolled under 1998–99 or any subsequent catalog

Continuous Enrollment—Example B

Student's Activity	Semester/Year	Status
Admitted and earned course credit at an Arizona community college	Fall 1996	Active
Enrolled but earned all "Ws," or "Es"	Spring 1997	Inactive
Enrolled in audit courses only	Fall 1997	Inactive
Nonattendance	Spring 1998	Inactive
Transferred to an Arizona university	Fall 1998	Student enrolled under 1998–99 or any subsequent catalog

Continuous Enrollment—Example C

Student's Activity	Semester/Year	Status
Admitted and earned course credit at an Arizona community college	Fall 1996	Active
Nonattendance	Spring 1997 Fall 1997 Spring 1998	Inactive
Readmitted and earned course credit at an Arizona community college	Fall 1998	Active
Transferred to an Arizona university	Spring 1999	Student enrolled under 1998–99 or any subsequent catalog

Continuous Enrollment—Example D

Student's Activity	Semester/Year	Status
Admitted and earned course credit at an Arizona community college	Fall 1996	Active
Nonattendance	Spring 1997	Inactive
Readmitted and earned course credit at an Arizona community college	Summer 1997	Active
Nonattendance	Fall 1997 Spring 1998	Inactive
Transferred to an Arizona university	Fall 1998	Student enrolled under 1996–98 or any subsequent catalog

Continuous Enrollment—Example E

Student's Activity	Semester/Year	Status
Admitted and earned course credit at an Arizona community college	Summer 1996	Active
Continued at an Arizona community college	Fall 1996 Spring 1997	Active
Nonattendance	Fall 1997	Inactive
Readmitted and earned course credit at an Arizona community college	Spring 1998	Active
Transferred to an Arizona university	Summer 1998	Student enrolled under 1996–98 or any subsequent catalog

purposes. See the "Continuous Enrollment Example A" and "Continuous Enrollment Example B" tables

2 Students who do not meet the minimum enrollment standard stipulated in number 1 during three consecutive semesters (fall/spring/fall or spring/fall/spring) and the intervening summer term* at any public Arizona community college or university are no longer considered continuously enrolled. These students must meet requirements of the public Arizona community college or university catalog in effect at the time they are readmitted or of any single catalog in effect during subsequent terms of *continuous* enrollment after readmission. See the "Continuous Enrollment Example C" and "Continuous Enrollment Example D" tables.

3. Students admitted or readmitted to a public Arizona community college or university during a summer term must follow the requirements of the catalog in effect the following fall semester or of any single catalog in effect during subsequent terms of *continuous* enrollment. See the "Continuous Enrollment Example E" table.

4. In areas of study in which the subject matter changes rapidly, material in courses taken long before graduation may become obsolete or irrelevant. Course work that is more than eight years old is applicable to completion of degree requirements at the discretion of the student's major department. Departments may accept such course work, reject it, or request that the student revalidate its substance. The eight year limit on course work applies except when program accreditation agencies limit the life of course work to fewer than eight years. Departments may also require students to satisfy current major requirements rather than major requirements in earlier catalogs, when completing earlier requirements is no longer possible or educationally sound

5. Enrollment by Arizona community college students in nontransferable courses still constitutes enrollment for purposes of determining whether the student has been continuously enrolled For example, if a student takes two semesters of cooperative education classes, which are not transferable to the university but constitute *continuous* enrollment at the community college, the university should consider it *continuous* enrollment

6. Exceptions made by an institution apply only to the institution that made the exception. For example, if the community college departments accepted credit that was more than eight years old, the university department to which the student transfers has the right and the obligation to reevaluate any credit more than eight years old.

Inquiries about these guidelines may be directed to the student's academic advisor

* Students are not obligated to enroll and earn course credit during summer terms, but summer enrollment may be used to maintain continuous enrollment status.

Declaration of Graduation

Students following the curriculum requirements of the 1996–98 or later catalog editions may be eligible to file a Declaration of Graduation using the Degree Audit Reporting System DARS

DARS is an automated process that matches courses a student has completed with the requirements of a particular academic degree program, resulting in a report that shows the student which requirements are satisfied and which requirements remain to be fulfilled, thus providing a guide for efficient selection of courses toward graduation For example a Biology major would request a Degree Audit Report that would show how his or her completed ASU and transfer course work would apply to the biology degree program

A student must review his or her degree audit with the academic advisor and submit a Declaration of Graduation within the semester he or she earns the 87th semester hour Students who have not met the above requirement are prevented from further registration.

Students following the curriculum requirements of the 1994–96 or earlier catalog editions plus selected students following later catalogs, will follow the Program of Study requirement instead of the Declaration of Graduation Inquiries about whether to follow the Declaration of Graduation procedure or the Program of Study procedure may be directed to the academic advisor

Program of Study Requirements

A student following the curriculum requirements of the 1994–96 or earlier catalog editions plus selected students following later editions, must file an Undergraduate Program of Study for graduation within the semester the student earns his or her 87th semester hour The Program of Study guides the student in accomplishing successful completion of degree requirements in a timely manner. Students who have not met the above requirement are prevented from further registration

Program of Study forms and procedural information are available from the Graduation Section at SSV B113A, at any registrar site, or online at www.asu.edu registrar forms

Application for Graduation Requirements

The following steps are required to complete the graduation process:

1. Register for the final semester.
2. Pay the graduation fee at Cashiering Services. Note the deadline date listed in the "University Calendar," pages 12–14.
3. Submit the fee receipt to the Graduation Section, SSV B113A, and apply for graduation. The Degree Audit Report or Program of Study is reviewed at this time and the graduation date and eligibility to graduate are verified.
4. Complete all course work listed on the Degree Audit Report or Program of Study by graduation date.

For more information about application for graduation requirements at ASU West, contact ASU West Admissions and Records, UCB 120.

Students must comply with the above requirements to graduate.

The Application for Graduation along with the Degree Audit Report or Program of Study is reviewed to verify graduation eligibility.

Petition for Variance from Degree

Any student wishing to have a college or university degree requirement variance must petition the standards committee of the college in which the student is enrolled. In addition, variance from university degree requirements must be approved by the Main Campus Standards Committee.

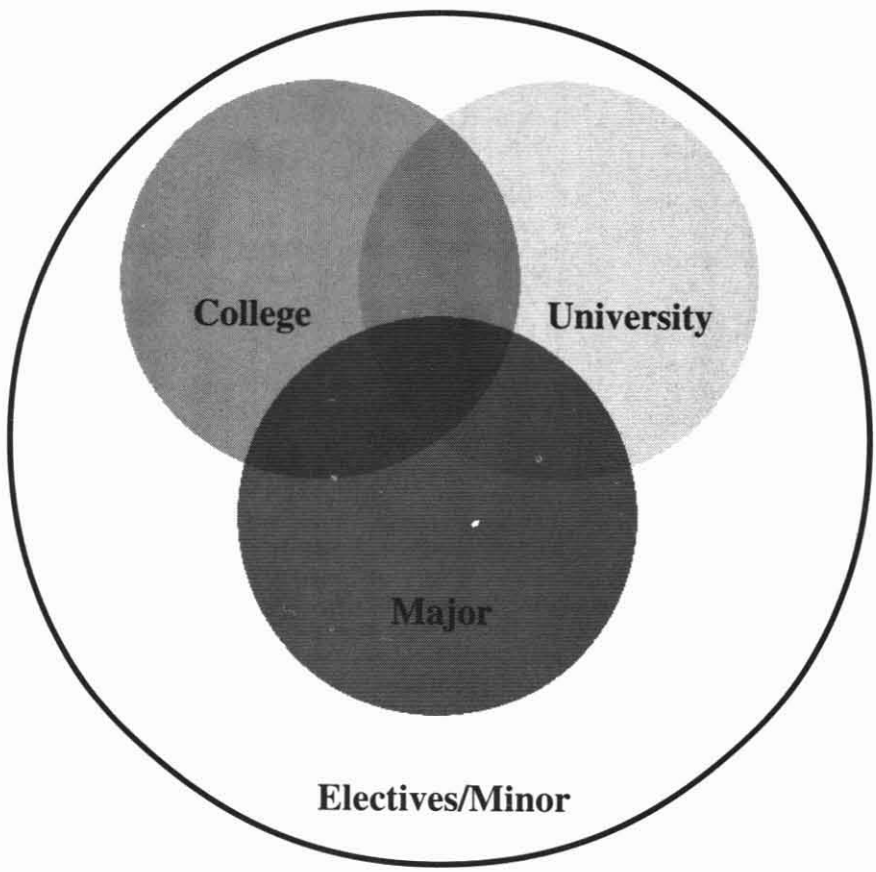
All petitions must originate with the student's advisor. Refer to the college sections of this catalog for college and department requirements.

Main Campus Standards Committee. This committee advises the Office of the Senior Vice President and Provost regarding undergraduate student petitions that concern university-wide academic requirements. These requirements include but are not limited to requirements on the amount of transfer credit, graduation requirements, limits on credit by examination, and requirements for a second baccalaureate degree (see page 83). To petition for a variance from such university requirements, the normal department, division, school, and college forms and procedures are used. Only petitions that have been denied at the college level are forwarded to the Main Campus Standards Committee.

OTHER REQUIREMENTS

The separate units of the university, such as colleges, schools, and departments, have specific requirements for graduation that must be satisfied for a baccalaureate degree. For those requirements, see the appropriate *General Catalog* section. Students are encouraged to consult with an academic advisor in planning a program to ensure that it meets the various requirements. A well-planned program may enable a student to concurrently satisfy a portion

Graduation Requirements Venn Diagram



of the General Studies requirement together with a portion of a college or major requirement.

OVERVIEW OF GRADUATION REQUIREMENTS

At ASU, students take classes that fulfill four types of requirements. As illustrated in the "Graduation Requirements Venn Diagram" on page 82, some courses can fulfill two or more types of requirements, but other courses fulfill only one requirement. The total semester hours needed to graduate are represented by the largest circle. The university minimum is 120 semester hours. Some majors, however, require more than 120 semester hours.

Although the three shaded circles are equal in size and the white circle is larger than all three, the total number of semester hours for each type of requirement may vary.

University Requirements. The light gray circle represents university requirements. The General Studies requirement and the First-Year Composition requirement are among the university requirements, described below. For General Studies, a minimum of 35 semester hours in five core and three awareness areas is required. For more information, see pages 84–108.

College Requirements. The medium gray circle represents college requirements. Some colleges and schools have additional requirements, especially the College of Liberal Arts and Sciences. It is important that you understand the requirements of your college.

Major. The dark gray circle represents the requirements of the major. The semester hours required for a major may be as low as 30 hours or as high as 63 hours.

Electives/Minor. The white circle represents electives and the requirements of a minor. A minor typically adds an additional 18 to 25 semester hours. Though every student must eventually declare a major, a minor is not required. For more information on minors, see page 110. Some courses, while providing semester hours toward graduation, fall outside the shaded circles and are not required in your program for graduation. These courses are electives. Some majors leave no room for electives within the minimum 120 semester hours required to graduate.

General Graduation Information

Graduation with Academic Recognition. An undergraduate student must have completed at least 60 semester hours of resident credit at ASU to qualify for graduation with academic recognition for a baccalaureate degree.

Cumulative GPA	Academic Recognition
3.40–3.59	*cum laude*
3.60–3.79	*magna cum laude*
3.80–4.00	*summa cum laude*

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

A student who has a baccalaureate degree from ASU and is pursuing a second baccalaureate degree at ASU (with a minimum of 30 hours of resident credit) is granted academic recognition on the second degree based on the semester hours earned subsequent to the posting of the first degree. If fewer than 60 semester hours are completed at ASU subsequent to completion of the first ASU degree, the level of academic recognition can be no higher than that obtained on the first degree. If 60 or more semester hours are completed at ASU after completion of the first ASU degree, the level of academic recognition is based on the GPA earned for the second ASU degree. Inquiries about graduation with academic recognition may be directed to the Graduation Section, 602/965–3256.

Second Baccalaureate Degree. The student seeking a second baccalaureate degree must meet admission criteria for that degree. After conferral of the first degree, a minimum of 30 semester hours in resident credit must be successfully completed at the ASU campus from which the second baccalaureate degree will be awarded. The student must meet all degree and university requirements of the second degree.

Concurrent Degrees. More than one baccalaureate degree may be pursued concurrently if prior approval is given by the standards committee(s) of the college(s) offering the degrees. Students may receive concurrent degrees if they meet the minimum requirements for both degrees.

Graduate Degrees. See the "Graduate College" and "College of Law" sections for graduate degrees offered and statements of requirements for graduate degrees. A *Graduate Catalog* may be obtained from the Graduate College.

The celebration begins for Cristina Francese, School of Social Work graduate, as bachelor's degrees are conferred during spring commencement. Tim Trumble photo

General Studies

All undergraduate students must fulfill the General Studies requirement.

General Studies is based on four principles. The first is the distinction between skill and knowledge—the instrumental skills by means of which knowledge is acquired and communicated and the knowledge itself in the sense of fact, information, or conclusions. Second is the distinction between skill in the use of language and skill in the use of figures—literacy and numeracy. Third is the conventional division of knowledge into the humanities, the social sciences, and the natural sciences. And fourth is the concept of the university graduate as a person who is not only prepared for advanced study or a particular profession, but also is amply prepared to lead a constructive and satisfying personal, social, and civic or political life. This principle implies a commonality of knowledge (that is, knowledge shared with others), skill in learning and in communicating with others, and a diversity of learning that frees the person to enjoy the diversity of human potentiality. In addition to the four principles, the program recognizes the value of sustained experience in the acquisition of a skill or the mastery of a body of knowledge, the increasing importance of literacy and numeracy skills because of the rapid growth of modern knowledge, the utility of historical perspective, and the internationalization of modern life.

The General Studies Program consists of *five core areas* and *three awareness areas*. The core areas are as follows:

1. literacy and critical inquiry (L1 and L2);
2. numeracy (N1, N2, N3);
3. humanities and fine arts (HU);
4. social and behavioral sciences (SB), and
5. natural sciences (S1 and S2).

These areas provide training in basic academic skills and assure that students are introduced to the traditional branches of knowledge.

The *three awareness areas* are as follows:

1. cultural diversity in the United States (C),
2. global awareness (G); and
3. historical awareness (H).

These areas contribute to the development of an international perspective, foster an understanding of current human events by study of the past, and promote appreciation of cultural diversity within the contemporary United States.

The courses approved by the ASU Main General Studies Council (for ASU Main and ASU East) for meeting the General Studies requirement are noted in the *General Catalog* following this section, in the course descriptions, and in the *Schedule of Classes* each academic term. The courses approved by the ASU West General Studies Council can be found in the *ASU West Catalog* and in the *Schedule of Classes*.

General Studies Requirement

All students enrolled in a baccalaureate degree program must successfully complete a minimum of 35 semester hours of approved General Studies courses. The required distribution of General Studies courses among the core areas and awareness areas is described below. It is important to note that 35 semester hours must be taken in the five core areas. Students also must take courses that satisfy each of the three awareness areas. Note, however, that the awareness area requirement does not mean that the student must exceed 35 hours. Many courses concurrently satisfy a core requirement and an awareness area requirement.

The following conditions apply in taking courses to satisfy the General Studies requirement:

1. a course may satisfy a core and an awareness area requirement concurrently;
2. a course may not be used to concurrently satisfy requirements in two core areas, even if it is approved for more than one core area; and
3. a course may be used to concurrently satisfy requirements in two awareness areas, if it is approved for those areas.

There is no limit to the number of advanced placement (AP) or CLEP credits that can be used to meet the General Studies requirement (see pages 66–67). However, the natural sciences (S1 and S2) and literacy and critical inquiry (L1 and L2) portions of the Gen-

eral Studies requirement are not satis fied by CLEP.

First-Year Composition is a univer sity requirement of all students that is separate from and in addition to Gen eral Studies.

Transfer Credit

Students transferring from Arizona community colleges with the Transfer General Education Core Curriculum (TGECC) have met all ower division portions of the General Studies require ment. Students transferring from other approved institutions of higher educa tion ordinarily are given General Stud ies credit, hour for hour, for work done in those institutions insofar as it is equivalent in content to General Stud ies courses at this university.

College and School Requirements

Colleges and schools may require their students to take specific courses to satisfy the General Studies require ment. In some instances, the number of semester hours exceeds the minimum 35 semester hours because of the re quired college or school courses.

Also, colleges and schools can define requirements that go beyond the Gen eral Studies requirement and require additional courses. Those colleges and schools can designate specific General Studies approved courses that students must take to satisfy college or school requirements

Students are encouraged to consult with an academic advisor in planning a program to ensure that it meets the various requirements A well planned program may enable a student to con currently satisfy requirements at the university, college or school, and de partment levels.

CORE AREAS

Literacy and Critical Inquiry (L1 and L2)

Literacy is here defined broadly as communicative competence in written and oral discourse; critical inquiry is defined as the gathering, interpretation, and evaluation of evidence Building on the proficiency attained in tradi tional freshman composition courses, the literacy and critical inquiry require ments help students sustain and extend their ability to reason critically and communicate clearly through language. Thus, the literacy and critical inquiry requirement stipulates a sequence of two courses beyond First Year Compo sition.

Requirement. Six semester hours are required. One L1 course is required, typically at the sophomore level, in which students learn how to gather, in terpret, and evaluate evidence and to express their findings in writing or speech. This course includes a series of formal, graded, and written or spoken assignments The L1 course s prefer ably taken after completion of the First Year Composition requirement Com pletion of one sem ester of First Year Composition is required

One L2 upper division course is re quired with advanced subject matter and rigorous critical writing assign ments. The course should be taken in the student's ma or discipline and may also count toward the major.

Numeracy (N1, N2, and N3)

The numeracy requirement is in tended to ensure that students have skill in basic mathematics, can use math ematical analysis in their chosen ields, and can understand how computers can make mathematical analysis more pow erful and eff cient. Numeracy thus has three components. First, the acquisi tion of essential skill in basic math ematics requires the student to com plete a course in college al ebra or to demonstrate a higher level of skill by completing a course for which college algebra is a prerequisite. The second component, the real world applicatio n of mathematical reasoning requires the student to take a course in the use of quantitative analysis to solve problems of substance Many students may use courses in statistics to satisfy this re quirement The third component of nu meracy requires use of the computer to assist in serious analytical work Com puters are widely used to study the im plications of social decisions or to model physical systems, and computer modeling courses are available in many major programs

Requirement. Six semester hours are required. *One course must be selected from the mathematics category; a sec ond course must be selected from either of the remaining two categories listed below.* However, if competence is demonstrated in college algebra by passing an exemption examination, six semester hours are still required, and one course in the mathematics category that has College Algebra as a prerequi site may be selected, or all six semester hours may be taken in one or both of the two remaining categories.

1. *Mathematics.* A course in college mathematics (i.e., MAT 114), col lege algebra (i e., MAT 117), pre-calculus i.e., MAT 170), or any other mathematics course for which college algebra is a prerequi-site fits this category
2. *Statistics and Quantitative Reason ing.* Courses that emphasize the use of statistics or other mathemati cal methods in the interpretation of data and in describing and under standing quantitative relationships fit this category The course se lected can be taken in the student's major discipline and can count to ward the major's semester hour re quirements
3. *Computer Applications* Courses that involve the use of computer programming languages or soft ware in the development of skills in analytical thinking fit this category. The course selected can be taken in the student's major discipline and can count toward the major's se mester hour requirements.

Humanities and Fine Arts (HU)

The hun anities are concerned with questions of human existence and the universality of human life, questions of meaning and the nature of thinking and know ing, and questions of moral, aes thetic, and other human values. The humanities investigate these questions in both the present and the past and make use of philosophy, foreign lan-guages, linguistics and communication studies, religious studies, literature, and fine arts The fine arts constitute the artist's creative deliberation about real ity, meaning, knowledge, and values. The hun anities and fine arts core area enables students to broaden and deepen their consideration of basic human val ues and their interpretation of the expe riences of human beings

Requirement. See "Combined Re quirement" on page 86.

Social and Behavioral Sciences (SB)

The social and behavioral sciences provide scientific methods of inquiry and em pirical knowledge about human behavior, both within society and indi vidually The forms of study may be

cultural, economic, geographic, historical, linguistic, political, psychological, or social. The courses in this area address the challenge of understanding the diverse natures of individuals and cultural groups who live together in a world of diminishing economic, linguistic, military, political, and social distance.

Combined Requirement. *A total of 15 semester hours must be completed in the following two core areas: (1) social and behavioral sciences and 2) humanities and fine arts. Four conditions must be satisfied.*

1. A minimum of six semester hours must be taken in one core area and nine hours in the other core area.
2. At least one course within the 15 semester hours must be at the upper division level.
3. Two courses from the same department in either core area are required.
4. Courses from at least two departments in either core area must be taken.

Natural Sciences (S1 and S2)

Courses in the natural sciences core area help the student to develop an appreciation of the scope and limitations of scientific capability to contribute to the quality of society. Knowledge of methods of scientific inquiry and mastery of basic scientific principles and concepts, in particular those that relate to matter and energy in living and nonliving systems, are stressed. Firsthand exposure to scientific phenomena in the laboratory is important in developing and understanding the concepts, principles, and vocabulary of science. At least one of the two laboratory courses required in the natural sciences core area must include an introduction to the fundamental behavior of matter and energy in physical or biological systems.

Requirement. Eight semester hours are required. *One laboratory course in the natural sciences* that includes a *substantial* introduction to the fundamental behavior of matter and energy in physical or biological systems is required.

A second laboratory course in the natural sciences selected, for example, from anthropology, astronomy, biology, chemistry, experimental psychology, geology, microbiology, physical anthropology, physical geography, physics, or plant biology is required.

AWARENESS AREAS

Students must complete courses that satisfy each of the three awareness areas. Courses that are listed for a core and an awareness area may satisfy both requirements concurrently, as may courses that are listed for more than one awareness area.

Cultural Diversity in the United States (C)

The contemporary "culture" of the United States involves the complex interplay of many different cultures that exist side by side in various states of harmony and conflict. The U.S. history involves the experiences not only of different groups of European immigrants and their descendants, but also of diverse groups of American Indians, Hispanic Americans, African Americans, and Asian Americans, all of whom played significant roles in the development of contemporary culture and together shape the future of the United States. At the same time, the recognition that gender, class, and religious differences cut across all distinctions of race and ethnicity offers an even richer variety of perspectives from which to view oneself. Awareness of cultural diversity and its multiple sources can illuminate the collective past, present, and future and can help to achieve greater mutual understanding and respect.

The objective of the cultural diversity requirement is to promote awareness and appreciation of cultural diversity within the contemporary United States. This is accomplished through the study of the cultural, social, or scientific contributions of women and minority groups, examination of their experiences in the United States, or exploration of successful or unsuccessful interactions between and among cultural groups.

Global Awareness (G)

Human organizations and relationships have evolved from being family and village centered to the modern global interdependence that is apparent in many disciplines, for example, contemporary art, business, engineering, music, and the natural and social sciences. Many serious local and national problems are world issues and require solutions that exhibit mutuality and reciprocity. These problems occur in a wide variety of activities, such as food supply, ecology, health care delivery, language planning, information exchange, economic and social developments, law, technology transfer, and even philosophy and the arts. The global awareness area recognizes the need for an understanding of the values, elements, and social processes of cultures other than the culture of the United States. The global awareness area includes courses that recognize the nature of other contemporary cultures and the relationship of the American cultural system to generic human goals and welfare.

Courses that meet the requirement in global awareness are of one or more of the following types:

1. area studies that are concerned with an examination of culture specific elements of a region of the world;
2. the study of a non-English language;
3. studies of international relationships, particularly those in which cultural change is facilitated by such factors as social and economic development, education, and the transfer of technology; and
4. studies of cultural interrelationships of global scope such as the global interdependence produced by problems of world ecology.

Historical Awareness (H)

The historical awareness area aims to develop a knowledge of the past that can be useful in shaping the present and future. Because historical forces and traditions have created modern life and lie just beneath its surface, historical awareness is an aid in the analysis of present day problems. Also, because the historical past is a source of social and national identity, historical study can produce intercultural understanding by tracing cultural differences to their origins in the past. Even the remote past may have instructive analogies for the present.

The historical awareness area consists of courses that are historical in method and content. In this area, the term "history" designates a sequence of past events or a narrative whose intent or effect is to represent such a sequence. The requirement presumes that these are human events and that history includes all that has been felt, thought, imagined, said, and done by human beings. History is present in the lan-

guages, art, music, literature, philosophy, religion, and the natural sciences, as well as in the social science traditionally called history.

GENERAL STUDIES COURSES

The following ASU Main and ASU East General Studies courses satisfy the requirements of the five core areas and three awareness areas. General Studies courses are regularly reviewed. Since courses are occasionally added to and deleted from the list, students should always consult the *Schedule of Classes* each semester to see which courses currently meet the General Studies requirement.

A student receives the General Studies credit a course carries in the semester in which the course is taken, with one exception: *a course listed on an approved program of study but subsequently deleted from the General Studies list retains the General Studies credit it carried when the program of study was approved.*

Under each core and awareness area, courses are presented alphabetically by course prefix. The course prefix is followed by course number and course title. The number in parentheses following the course title indicates the semester hours of credit. The letter following the semester hours of credit indicates when the course will be offered. See "Key to Course Listing Codes" on page 57.

The table, "Key to General Studies Credit Abbreviations," identifies which requirement(s) the course meets. This key is also used in the *Schedule of Classes.* General Studies courses are also identified following course descriptions.

The campus codes "M" (for ASU Main) and "W" (for ASU West) identify the campus that maintains academic control over the course (i.e., course content, registration restrictions, General Studies designations, and other curricular matters). ASU East courses are listed under the "M" campus code. The campus code is not used in the catalogs but appears in the *Schedule of Classes,* on transcripts, and other enrollment and registration records.

Key to General Studies Credit Abbreviations

Code	Description
L1	Literacy and critical inquiry core courses (intermediate level)
L2	Literacy and critical inquiry core courses (upper division)
N1	Numeracy core courses (mathematics)
N2	Numeracy core courses (statistics and quantitative reasoning)
N3	Numeracy core courses (computer applications)
HU	Humanities and fine arts core courses
SB	Social and behavioral sciences core courses
S1	Natural sciences core courses (introductory)
S2	Natural sciences core courses (additional courses)
C	Cultural diversity in the United States courses
G	Global awareness courses
H	Historical awareness courses
/	or
,	and

General Studies Courses

			L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
	493	Honors Thesis (3–6) F, S, SS See description on page 101 Only three semester hours may fulfill L2 requirement		L2										
ACC	330	Accounting Information Systems. 4 F, S, SS	L1											
	430	Taxes and Business Decisions (4 F, S, SS		L2										
AES	301	Air Force Leadership and Management I (3 F		L2										
	303	Air Force Leadership and Management II 3) S		L2										
	401	Preparation for Active Duty I 3 F		L2										
AGB	250	World Food Dynamics 3) S											G	
	258	International Agribusiness (3) F											G	
	444	Agribusiness Analysis (3 S		L2										
	450	International Agricultural Development 3) S											G	
	453	World Agricultural Resources (3 SS											G	
AMT	308	Air Transportation 3 F											G	
ANP	236	Introduction to Computer Modeling (3 F, S Cross listed as DSC/PUP 236)					N3							
APH	100	Introduction to Environmental Design. 3 F, S, SS (Cross listed as DSC/PUP 100.						HU					G	H
	200	Introduction to Architecture. (3 F						HU					G	
	300	World Architecture I/Western Cultures. 3 F						HU					G	H
	301	World Architecture II/Eastern Cultures. 3 S											G	
	304	American Architecture. 3 N						HU						
	305	Contemporary Architecture 3) N						HU						
	313	History of Western Architecture I 3) F		L2				HU						
	314	History of Western Architecture II 3 S		L2				HU						

			L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
	411	History of Landscape Architecture. (3) F (Cross-listed as PLA 310.)												H
	441	Ancient Architecture. (3) N						HU						
	443	Renaissance Architecture. (3) N						HU						
	444	Baroque Architecture. (3) N						HU						
	446	20th-Century Architecture I. (3) F						HU						
	447	20th-Century Architecture II. (3) S						HU						
ARA	303	Art Appreciation and Human Development. (3) F						HU						
	488	Understanding Art. (3) F, S		L2				HU						
ARS	100	Introduction to Art. (3) F, S, SS						HU						
	101	Art of the Western World I. (3) F, S						HU						H
	102	Art of the Western World II. (3) F, S						HU						H
	201	Art of Asia. (3) A						HU						H
	202	Art of Africa, Oceania, and the Americas. (3) A						HU						H
	300	Introduction to Art. (3) F, S						HU						
	302	Art of Africa, Oceania, and the Americas. (3) A						HU						H
	340	Art in America. (3) A						HU						H
	350	19th-Century Photography. (3) A						HU						
	351	20th-Century Photography. (3) A						HU						
	400	History of Printmaking. (3) A						HU						H
	402	Art of Ancient Egypt. (3) N						HU						H
	404	Greek Art. (3) A						HU						H
	406	Roman Art. (3) A						HU						H
	410	Early Christian and Byzantine Art. (3) A						HU						
	412	Early Medieval Art. (3) N						HU						H
	414	Romanesque Art. (3) A						HU						H
	416	Gothic Art. (3) A						HU						
	418	Renaissance Art in Northern Europe. (3) A						HU						
	420	Early Renaissance Art in Italy. (3) N						HU						H
	422	Italian High Renaissance Art and Mannerism. (3) A						HU						
	424	Italian Baroque Art. (3) A						HU						H
	426	Art of the 17th Century in Northern Europe. (3) A						HU						H
	428	Art of the 18th Century. (3) A						HU						H
	430	Art of Spain and Its Colonies. (3) A						HU						H
	432	From David to Daumier: European Art 1780–1860. (3) F						HU						H
	434	From Courbet to Cézanne: History of European Art 1860–WWI. (3) S						HU						
	436	Art at the Turn-of-the-Century: 1885–1914. (3) F						HU						
	438	Art of the 20th Century I. (3) A						HU						H
	439	Art of the 20th Century II. (3) A						HU						H
	442	Critical Issues in American Painting I. (3) A						HU						
	443	Critical Issues in American Painting II. (3) A						HU						
	444	Modern American Art, 1900–1945. (3) A						HU						H
	457	History of Art Criticism. (3) N												H
	458	Critical Theories in the Visual Arts. (3) N						HU						
	462	Precolumbian Art I. (3) A						HU						H
	463	Precolumbian Art II. (3) A						HU						H
	465	Native North American Art. (3) A						HU						H
	466	Native American Art of the Southwest. (3) A						HU				C		H
	468	Art of the Arctic and Northwest Coast. (3) N						HU						
	469	Mexican Art. (3) A						HU						H
	472	Art of China. (3) A						HU						
	473	Art of Japan. (3) A						HU						
	475	Chinese Painting. (3) A						HU						
	480	Research Methods. (3) F, S		L2										

			L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
	485	Women in the Visual Arts. (3) S		L2										
ART	444	Computer Art I (3) F, S					N3							
	446	Computer Art II. 3) A					N3							
ASB	102	Introduction to Cultural and Social Anthropology 3) F, S							SB				G	
	202	Ethnic Relations in the United States (3 F, S										C		H
	211	Women in Other Cultures (3 N											G	
	222	Buried Cities and Lost Tribes Our Human Heritage. (3) S						HU						
	231	Archaeological Field Methods 4) S									S2			
	240	Introduction to Southeast Asia (3) F (Cross listed as GCU/HIS/POS/REL 240.)											G	
	242	Asian American Experiences: An Anthropological Perspective 3) F	L1									C		
	250	Anthropology Topics (3) S	L1											
	302	Ethnographic Field Study in Mexico (3) SS	L1						SB				G	
	311	Principles of Social Anthropology. (3) S							SB					
	321	Indians of the Southwest. (3) S		L2					SB			C		H
	322	Indians of Mesoamerica (3 S							SB				G	
	323	Indians of Latin America (3) F							SB				G	
	324	Peoples of the Pacific 3) N											G	
	325	Peoples of Southeast Asia (3) F											G	
	326	Human Impacts on Ancient Environments (3 S							SB					H
	330	Principles of Archaeology. 3) F, S							SB					
	333	New World Prehistory (3) F		L2					SB					
	335	Prehistory of the Southwest. (3 F, S							SB			C		H
	337	Pre-Hispanic Civilization of Middle America. (3) S												H
	351	Psychological Anthropology. (3) S							SB					
	353	Death and Dying in Cross Cultural Perspective (4) F						HU	SB				G	
	355	Shamanism, Healing, and Consciousness. 3 S						HU	SB					
	361	Old World Prehistory I (3) F												H
	362	Old World Prehistory II. (3 S												H
	383	Linguistic Theory· Phonetics and Phonology (4 F							SB					
	400	Cultural Factors in International Business. (3) S (Cross listed as IBS 400.)											G	
	412	History of Anthropology. (3) F		L2					SB					
	416	Economic Anthropology (3) F		L2					SB					
	462	Medical Anthropology Culture and Health. 3) F 1998										C		
	471	Introduction to Museums (3 F		L2										
	480	Introduction to Linguistics (3) F						SB						
	481	Language and Culture 3) S						SB						
	483	Sociolinguistics and the Ethnography of Communication (3) N						SB						
ASE	485	Engineering Statistics. 3) F, S, SS				N2								
ASM	101	Human Origins and the Development of Culture. 3) F, S						SB						
	301	Peopling of the World (3) S						SB						
	342	Human Biological Variation. (4) S									S2			
	344	Fossil Hominids. 3) N												H
	348	Social Issues in Human Genetics. (3) S							SB					
	452	Dental Anthropology (4) F									S2			
	455	Primate Behavior Laboratory. (3 N		L2										
AST	111	Introduction to Solar Systems Astronomy. (3) F (Both AST 111 and 113 must be taken to secure S1 or S2 credit)								S1	S2			

			L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
	112	Introduction to Stars, Galaxies, and Cosmology. (3) S (Both AST 112 and 114 must be taken to secure S1 or S2 credit.)								S1	S2			
	113	Astronomy Laboratory I. (1) F (Both AST 111 and 113 or AST 113 and 321 must be taken to secure S1 or S2 credit)								S1	S2			
	114	Astronomy Laboratory II. (1 S (Both AST 112 and 114 or AST 114 and 322 must be taken to secure S1 or S2 credit.)								S1	S2			
	321	Introduction to Planetary and Stellar Astrophysics (3) F (Both AST 113 and 321 must be taken to secure S1 or S2 credit)								S1	S2			
	322	Introduction to Galactic and Extragalactic Astrophysics 3 S (Both AST 114 and 322 must be taken to secure S1 or S2 credit.)								S1	S2			
BIO	100	The Living World (4) F, S, SS								S1	S2			
	120	Human Physiology. (4) F, S									S2			
	181	General Biology (4) F, S, SS								S1	S2			
	182	General Biology. (4) F, S, SS									S2			
	193	The Nature of Biological Science. (4 F								S1	S2			
	201	Human Anatomy and Physiology I. (4 F, S SS									S2			
	241	Human Genetics. (4) F									S2			
	302	Cancer and Heart Disease. (3) F		L2										
	303	Radiation and Life. (3) S		L2										
	304	Radiation Medicine and Biology 3) F		L2										
	316	History of Biology Conflicts and Controversies (3) N (Cross listed as HPS 330)												H
	318	History of Medicine 3) N (Cross listed as HPS 331.)												H
	319	Environmental Science (Nonmajor (3 F (Cross listed as PLB 320.)											G	
	321	Introductory Ecology Laboratory. (3) S		L2										
	406	Computer Applications in Biology (3) F (Cross listed as PLB 432.					N3							
	410	Techniques in Wildlife Conservation Biology 3 F		L2										
	415	Biometry (4) F				N2								
	416	Professional Values in Science. (2 3) A (Cross listed as HPS 410.		L2										
	426	Limnology (4) S		L2										
	428	Biogeography. 3) F		L2										
	435	Research Techniques in Animal Behavior. (3 S 1999		L2										
	446	Principles of Human Genetics (3) A		L2										
	470	Systematic Zoology. (4) S 1999		L2										
BIS	402	Senior Seminar. (3) F, S, SS		L2										
BME	201	Introduction to Bioengineering. (3) F (Cross-listed as STE 201)	L1											
	202	Global Awareness Within Biomedical Engineering Design (3) F		L1				HU						
	413	Biomedical Instrumentation. (3) F		L2										
	423	Biomedical Instrumentation Laboratory 1) F		L2										
BUS	301	Fundamentals of Management Communication (3 F S, SS		L1										
	451	Business Research Methods. (3 N		L2										
CCS	101	Introduction to Chicana and Chicano Studies (3) F										C		
	111	Introduction to Chicana and Chicano Culture (3) S										C		
	300	Chicana and Chicano Culture and Society. (3) F										C		
CDE	232	Human Development (3) F, S							SB					
	430	Infant/Toddler Development in the Family. (3 F							SB					

			L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
	437	Observational and Naturalistic Methods of Studying Children (3) N		L2					SB					
CEE	486	Integrated Civil Engineering Design (3) F, S		L2										
CET	150	Digital Systems and Microprocessors. (3) F, S					N3							
CGC	212	Computer Aided Design and Drafting CADD . (3) S					N3							
	310	Computer Graphics Programming C++). (3) F, S					N3							
	312	3D Computer Graphics Modeling and Representation. (3) F					N3							
CHE	352	Transport Laboratories. 3) S		L2										
	461	Process Control (4) F					N3							
CHI	201	Intermediate Chinese. 5) F											G	
	202	Intermediate Chinese (5) S											G	
	207	Chinese for International Professions II (10) S											G	
	313	Advanced Chinese. 3) F											G	
	314	Advanced Chinese (3) S											G	
	321	Chinese Literature. 3) F	L1					HU						
	322	Chinese Literature. (3) S	L1					HU					G	
	413	Introduction to Classical Chinese. (3) F						HU						
	414	Introduction to Classical Chinese. (3) S						HU						
CHM	101	Introductory Chemistry (4 F, S, SS								S1	S2			
	107	Chemistry and Society (4) F, S								S1	S2			
	113	General Chemistry (4) F, S, SS								S1	S2			
	114	General Chemistry for Engineers. (4) F, S								S1	S2			
	115	General Chemistry with Qualitative Analysis. (5) F, S, SS								S1	S2			
	116	General Chemistry 4) F, S								S1	S2			
	117	General Chemistry for Majors I (4) F								S1	S2			
	118	General Chemistry for Majors II. (5) S								S1	S2			
	231	Elementary Organic Chemistry. (3) F, S (Both CHM 231 and 235 must be taken to secure S1 or S2 credit								S1	S2			
	235	Elementary Organic Chemistry Laboratory. (1) F, S (Both CHM 231 and 235 must be taken to secure S1 or S2 credit.)								S1	S2			
	444	General Physical Chemistry Laboratory. (2) S (Both CHM 444 and 452 must be taken to secure L2 credit		L2										
	452	Inorganic Chemistry Laboratory (1 2 S (Both CHM 444 and 452 must be taken to secure L2 credit)		L2										
	464	Biophysical Chemistry Laboratory. (2) S (Both CHM 464 and 467 must be taken to secure L2 credit)		L2										
	467	General Biochemistry Laboratory (2 S (Both CHM 464 and 467 must be taken to secure L2 credit.)		L2										
CIS	200	Computer Applications and Information Technology. (3 F, S, SS					N3							
CLS	450	Principles of Clinical Laboratory Administration (2) F, S (Both CLS 450 and 460 must be taken to secure L2 credit.)		L2										
	460	Principles of Clinical Laboratory Education. 1) S Both CLS 450 and 460 must be taken to secure L2 credit)		L2										
COB	300	Strategic Business Foundations. (3) F, S, SS		L2										
COM	100	Introduction to Human Communication. (3) F, S, SS							SB					
	110	Elements of Interpersonal Communication (3) F, S, SS							SB					
	222	Argumentation (3 F S	L1											
	225	Public Speaking (3) F, S, SS	L1											

			L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
	230	Small Group Commun'cation (3) F, S, SS							SB					
	241	Introduction to Oral Interpretation. 3) F, S, SS	L1					HU						
	250	Introduction to Organizational Communication. 3) F, S, SS							SB					
	263	Elements of Intercultural Communication. (3) F, S, SS							SB			C	G	
	308	Empirical Research Methods in Communication. 3) F, S, SS		L2										
	316	Gender and Communication (3) F, S							SB			C		
	319	Persuasion and Social Influence. (3) F, S, SS							SB					
	320	Communication and Consumerism (3) A							SB					
	321	Rhetorical Theory and Research (3) F, S		L2				HU						H
	323	Communication Approaches to Popular Culture (3) F, S, SS										C		
	325	Advanced Public Speaking. (3 F, S	L1											
	344	Performance of Oral Traditions. (3) N						HU				C		
	357	Communication Technology and Information Diffusion. (3) F							SB					
	371	Language, Culture, and Communication. (3) F, S							SB			C	G	
	410	Interpersonal Communication Theory and Research. (3) F, S, SS							SB					
	411	Communication in the Family. (3) A							SB					
	421	Rhetoric of Social Issues. (3) F, S						HU						
	426	Political Communication. (3) F							SB					
	441	Performance Studies (3) F, S, SS						HU						
	445	Narrative Performance. (3 N						HU						
	446	Interpretation of Literature Written by Women (3) N						HU				C		
	450	Theory and Research in Organizational Communication (3) F, S, SS							SB					
	463	Intercultural Communication Theory and Research (3) F, S, SS							SB				G	
CON	101	Construction and Culture: A Built Environment (3) F, S						HU					G	H
	389	Construction Cost Accounting and Control 3) F, S					N3							
	472	Development Feasibility Reports. (3) F, S		L2										
	495	Construction Planning and Scheduling. (3) F, S					N3							
	496	Construction Contract Administration. (3) F, S		L2										
CSE	100	Principles of Programming 3) F, S, SS					N3							
	180	Computer Literacy. (3) F, S, SS					N3							
	181	Applied Problem Solving with BASIC. (3) F, S, SS					N3							
	183	Applied Problem Solving with FORTRAN (3) F					N3							
	200	Concepts of Computer Science. (3) F, S, SS					N3							
	210	Data Structures and Algorithms I. (3) F, S, SS					N3							
	423	Microcomputer System Hardware. (3) S		L2										
CSH	310	Chicana and Chicano Folklore (3) A						HU				C		
	351	Contemporary Chicana and Chicano Arts. (3) A						HU				C		
	363	Chicana and Chicano Literature. (3 F (Cross listed as ENG 363.)		L2				HU				C		
	485	Chicana Writers. (3) A		L2				HU				C		
CSS	331	Contemporary Issues in the Chicana and Chicano Community. (3) S										C		
	336	Issues in Immigration and Migration. (3) A										C		H
	340	Chicanas and Chicanos in the U.S. Economy. (3) S										C		
	432	Issues in Chicana and Chicano Gender (3 A										C		
DAH	100	Introduction to Dance (3) F, S						HU						
	201	Cross Cultural Dance Perspectives (3) F, S						HU					G	
	300	Focus on Dance (3) F, S, SS						HU						
	301	Philosophy and Criticism of Dance (3) F, S		L2				HU						
	401	Dance History I. (3 F						HU						
	402	Dance History II (3) S						HU						

			L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
DSC	100	Introduction to Environmental Design. (3) F, S, SS (Cross listed as APH/PUP 100)						HU					G	H
	101	Design Awareness. (3) F, S, SS						HU					G	
	236	Introduction to Computer Modeling. (3 F, S, SS (Cross listed as ANP/PUP 236.)					N3							
ECE	100	Introduction to Engineering Design. (4) F, S					N3							
	300	Intermediate Engineering Design. 3) F, S, SS	L1											
	380	Probability and Statistics for Engineering Problem Solving (3 F, S				N2								
	400	Engineering Communications (3) F, S, SS		L2										
ECN	111	Macroeconomic Principles. (3) F, S, SS							SB					
	112	Microeconomic Principles (3 F, S							SB					
	304	Current Issues in Economics and Politics. (3) A	L1						SB					
	306	Survey of Internationa Economics. 3) A (Cross listed as IBS 306.)							SB					
	313	Intermediate Macroeconomic Theory (3) F, S							SB					
	314	Intermediate Microeconomic Theory. (3) F, S							SB					
	331	Comparative Economic Systems (3) N							SB				G	
	360	Economic Development (3 N							SB				G	
	365	Economics of Russia and Eastern Europe 3) A							SB				G	
	404	History of Economic Thought. (3 N							SB					
	421	Earnings and Employment 3 A		L2					SB					
	436	International Trade Theory 3) A							SB				G	
	438	International Monetary Economics. (3) A							SB				G	
	441	Public Finance. (3 A		L2					SB					
	450	Law and Economics 3 A		L2										
	480	Introduction to Econometrics. (3) A				N2								
EDP	303	Human Development. (3) F, S		L2										
	310	Educational Psychology. (1–6) F, S, SS							SB					
	454	Statistical Data Analysis in Education. (3) F, S, SS				N2								
EEE	490	Sen or Design Laboratory (3 F, S		L2										
EMC	321	Computer Literacy. 3) F, S, SS					N3							
	323	Computer Applications (3) F, S					N3							
ENG	200	Critical Reading and Writing about Literature. 3) F, S	L1					HU						
	201	World Literature (3 F						HU						H
	202	World Literature. (3) S						HU						H
	204	Introduction to Contemporary Literature. 3) A						HU						
	212	English Prose Style. (3 N	L1											
	215	Strategies of Academic Writing. (3) F, S	L1											
	216	Persuasive Writing on Public Issues (3 F, S	L1											
	217	Personal and Exploratory Writing. (3) F, S	L1											
	218	Writing about Literature (3 F, S	L1											
	221	Survey of English Literature. (3) F, S						HU						H
	222	Survey of English Literature (3) F, S						HU						H
	241	American Literature. 3) F, S						HU						
	242	American Literature. 3) F, S						HU						
	301	Writing for the Professions (3) F, S	L1											
	303	Classical Backgrounds of English Literature (3) N						HU						
	307	Utopian Literature (3) N		L2				HU						H
	312	English in Its Social Setting (3 F, S						HU	SB					
	321	Introduction to Shakespeare. (3) F, S		L2				HU						
	331	American Drama. 3 A		L2										
	332	Major American Novels 3) A		L2										
	333	American Ethnic Literature. (3 A		L2								C		
	352	Short Story. (3) F, S						HU						

		L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
	353 Afr an American Literature. Beginnings through the Harlem Renaissance. 3 F		L2				HU				C		
	354 African American Literature. Post Harlem Renaissance to the Present (3) S		L2				HU				C		
	355 History of the Drama (3) N		L2				HU						
	356 Bibl ca Backgrounds of Literature. 3) A						HU						
	35 Int oduction to Folklore 3) N						HU						
	359 American Indian Literatures. (3 N		L2				HU				C		
	361 Silent Film 4 F						HU						
	36 Sound Film Genres. (4 S						HU						
	363 Ch cana and Chicano Literature. 3 F (Cross listed as CSH 363.)		L2				HU				C		
	411 H story of L terary Cr ticism (3) N						HU						
	413 Histo y of the English Language 3 A						HU						
	4 5 Med eval Literature. 3 N						HU						
	4 6 Chaucer: *Canterbury Tales* 3) A						HU						
	417 Chaucer: *Tro lus and Criseyde* and the M nor Works 3 N						HU						
	418 Renaissance Literature. 3 N		L2				HU						
	4 9 English Literature in the Early 17th Century. (3) N		L2				HU						
	421 Shakespeare 3 F, S						HU						
	422 Studies in Shakespeare. (3 A						HU						
	423 Renaissance Drama. 3 N		L2				HU						
	424 Milton 3) A						HU						
	425 R mantic Poetry (3 N						HU						
	426 Vi torian Poetry 3) N		L2				HU						
	427 Restoration and Early 18th Century. (3) N						HU						
	428 The Later 18th Century 3 N						HU						
	433 V ctor an Cultural Backgrounds. 3 N		L2				HU						
	435 19th Century American Poetry (3) N						HU						
	437 Restoration and 18th Century Drama. 3) S 1999						HU						
	440 American Literature to 1815 (3) N						HU						
	44 2 th Century American Drama. 3) N						HU						
	443 Amer an Poetry, 1900– 945 (3 N						HU						
	444 Studies in American Romanticism, 1830–1860. (3 N						HU						
	445 Amer can Realism, 1870–1900 (3 N		L2				HU						
	448 2(th Century British and Irish Novel. (3) N						HU						
	45 The Novel to Jane Austen. 3) N						HU						H
	452 The 19th Century Novel (3) N						HU						
	453 The American Novel to 1900. (3 N						HU						
	454 The An erican Novel, 1900–1945 3) N						HU						
	45 American Poetry Since 1945 (3 A						HU						
	458 Am erican Novel Since 1945 3) N		L2				HU						
	460 Western American Literature (3) A		L2				HU						
	461 Wo mer and L terature 3) N						HU						
	462 20th Century Women Authors. 3) N						HU						
	463 European Drama from Ibsen to 1914. (3) N						HU						
	464 Eur pean Drama from 1914 to the Present. 3 N						HU						
	471 terature for Adolescents. 3) F, S						HU						
FPE	441 Phys ology of Women in Sport. (3) S		L2										
	442 Physical Activity in Health and Disease (3 F		L2										
	443 Exercise Endocrinology. (3) S		L2										
	448 Applied Sport Psychology (3 S		L2										
	460 Theory of Strength Tra ning (3) S		L2										
ERS	130 Soils nd Environmenta Quality 4) F, S								S1	S2			
	246 Introduction to the Environmental Sciences (3) F, S											G	
	350 Env ronmental Statistics (3) F				N2								

			L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
ETC	100	Languages of Technology (4 F, S					N3							
	200	Impact of Communications Technology on Society. (3 F, S	L1											
	400	Techn cal Communications 3 F, S, SS		L2										
FAS	330	Personal Growth in Human Relationships. (3 F, S							SB					
	331	Marriage and Family Relationships. 3) F, S							SB					
	361	Introduction to Family Child Research Methods. 3) S	L1											
	435	Advanced Marriage and Family Relationships (3 F							SB					
FIN	461	Financial Cases and Modeling. 3) A		L2										
FLA	150	Introduction to East Asian Culture. (3 S						HU					G	
	323	Survey of Literature of the Soviet Era in Translation 3) F, S		L2				HU					G	
	400	Linguistics. 3 S							SB					
	420	Foreign L terature in Translation (3 F, S						HU					G	
	421	Japanese Literature in Translation (3 F, S		L2				HU					G	
FON	344	Nutrition Services Management. (3) S	L1											
	448	Community Nutrition. (3 F		L2										
FRE	201	Intermediate French I (4 F, S, SS											G	
	202	Intermediate French II. 4) F, S, SS											G	
	205	Readings in French Literature. (3 F, S, SS											G	
	207	French for International Professions II. (8 S											G	
	311	French Conversation (3 F, S											G	
	312	French Composition. 3) F, S											G	
	319	Business Correspondence and Communication. (3) S											G	
	321	French Literature 3 F, S		L2				HU						H
	322	French Literature. 3 F, S		L2				HU						
	411	Advanced Spoken French. 3 F, S											G	
	412	Advanced Written French 3 F, S											G	
	415	French Civilization I. 3 F						HU						
	416	French C vilization II 3) S						HU					G	
	441	French Literature of the 17th Century. (3 N						HU						
	442	French L terature of the 17th Century (3 N						HU						H
	445	French L terature of the 18th Century (3 N		L2				HU						
	452	French Novel of the 19th Century. (3) N						HU						
	453	Theater of the 19th Century 3) N		L2				HU						
	461	Preatomic Literature. 3) F						HU						
	462	Postatomic Literature (3 S						HU						
	471	The Literature of Francophone Africa and the Caribbean. 3) N		L2				HU						
GCU	102	Introduction to Human Geography. 3) F, S							SB					
	121	Wor d Geography 4 F S							SB				G	
	141	Introduction to Economic Geography. (3 N							SB					
	240	Introduct on to Southeast Asia (3 F (Cross listed as ASB/HIS/POS/REL 240)											G	
	253	Introduction to Cultural and Historical Geography. (3) N							SB				G	
	322	Geography of U S. and Canada. 3 A							SB					
	323	Geography of Latin America (3) F							SB				G	
	325	Geography of Europe. (3 A							SB				G	
	326	Geography of Asia. 3) F							SB				G	
	327	Geography of Africa 3) N							SB				G	
	328	Geography of Middle East and North Africa. (3) N							SB				G	
	332	Geography of Australia and Oceania. (3) A											G	
	344	Geography of Hispanic Americans 3) S										C		
	350	The Geography of World Crises. (3 F, S							SB				G	
	351	Population Geography 3 F							SB					
	352	Political Geography (3 N							SB				G	
	357	Social Geography (3) A							SB					

			L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
	359	Cities of the World I (3) N											G	
	360	Cities of the World II 3 N											G	
	361	Urban Geography. 3) F, S							SB					
	421	Geography of Arizona and Southwestern United States (3 F, S										C		
	423	Geography of South America (3) S							SB				G	
	424	Geography of Mexico and Middle America. 3) A							SB				G	
	425	Geography of Mexican American Borderland (3 S		L2									G	
	426	Geography of Russia and Surrounding (3 N							SB				G	
	442	Geographical Analysis of Transportation (3 S							SB					
	495	Quantitative Methods in Geography 3) F				N2								
	496	Geographic Research Methods. 3) F, S		L2										
GER	201	Intermediate German. (4 F, S, SS											G	
	202	Intermediate German (4) F, S, SS											G	
	311	German Conversation. (3) F											G	
	312	German Conversation 3) S											G	
	313	German Composition. (3 S											G	
	319	Business Correspondence and Communication. 3 N											G	
	411	Advanced Grammar and Conversation. 3 F											G	
	412	Advanced Grammar and Composition 3) S											G	
	415	German Civilization (3) S						HU						H
	416	German Civilization. 3) F						HU						H
	421	German Literature. (3 F						HU						
	422	German Literature (3) S		L2				HU						
	453	German Literary Masterpieces on Film 3 F, S, SS						HU					G	H
GLG	101	Introduction to Geology I (Physical). 3) F, S, SS (Both GLG 101 and 103 must be taken to secure S1 or S2 credit.								S1	S2			
	102	Introduction to Geology II Historical). 3) S Both GLG 102 and 104 must be taken to secure S2 credit									S2			
	103	Introduction to Geology I Laboratory (1) F, S, SS (Both GLG 101 and 103 must be taken to secure S1 or S2 credit)								S1	S2			
	104	Introduction to Geology II Laboratory 1 S (Both GLG 102 and 104 must be taken to secure S2 credit.									S2			
	105	Introduction to Planetary Science. 4) S									S2			
	110	Environmental Geology. (3 F (Both GLG 110 and 111 must be taken to secure S2 credit.)									S2		G	
	111	Environmental Geology Laboratory. 1) F Both GLG 110 and 111 must be taken to secure S2 credit.)									S2			
	450	Geology Field Camp. (6 SS		L2										
GPH	111	Introduction to Physical Geography 4) F, S								S1	S2			
	211	Landform Processes (3 S		L1										
	212	Introduction to Meteorology I 3 F (Both GPH 212 and 214 must be taken to secure S2 credit									S2			
	214	Introduction to Meteorology Laboratory I (1 F (Both GPH 212 and 214 must be taken to secure S2 credit)									S2			
	418	Landforms of the Western United States. 3 A		L2										
GRA	318	History of Graphic Design 3) F						HU						
	345	Design Rhetoric (3) F, S		L2										
GRK	301	Ancient Greek Literature 3 F						HU						
	302	Ancient Greek Literature. (3 S						HU						

			L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
HIS	100	Western Civilization. (3) F, S							SB					H
	101	Western Civilization. (3) F, S							SB					H
	102	Western Civilization. (3) F, S							SB				G	H
	103	The United States. (3) F, S							SB					H
	104	The United States. (3) F, S							SB					H
	107	Introduction to Japan. (3) A							SB				G	H
	111	Global History Since 1500. (3) F, S											G	H
	230	American Social History. (3) A	L1											H
	240	Introduction to Southeast Asia. (3) F (Cross listed as ASB/GCU/POS/REL 240)											G	
	270	Judaism in American History (3) N							SB					H
	273	American Military History. (3) N							SB					H
	300	Historical Inquiry. (3) F, S	L1						SB					H
	303	American Cultural History. (3) F, S							SB					H
	304	American Cultural History. (3) F, S							SB					H
	305	Asian Civilizations (3) A							SB				G	H
	306	Asian Civilizations. (3) F, S							SB				G	H
	308	Modern Southeast Asia. (3) S							SB				G	H
	312	Interpreting China's Classics. (3) F (Cross listed as HUM 312.)		L2				HU						H
	320	Ancient Greece. (3) F							SB					H
	321	Rome. (3) S							SB					H
	322	The Middle Ages. (3) A							SB					H
	323	The Middle Ages (3) A							SB					H
	324	Renaissance (3) F		L2					SB					H
	325	Reformation. (3) S		L2					SB					H
	326	Early Modern Europe. (3) A							SB					H
	327	Early Modern Europe. (3) N							SB					H
	329	19th Century Europe (3) A							SB					H
	330	19th-Century Europe. (3) A							SB					H
	331	20th-Century Europe (3) N							SB				G	H
	332	20th Century Europe. (3) N							SB				G	H
	333	Women and Society in Europe. (3) N		L2				HU	SB					H
	335	Family, Class, and Society in Modern Europe. (3) N		L2					SB					H
	351	England. (3) A							SB					H
	352	England. (3) N							SB					H
	357	19th Century West. (3) F							SB					H
	358	The West in the 20th Century (3) S							SB					H
	360	American Indian History to 1900. (3 F							SB			C		H
	361	American Indian History Since 1900 (3) S							SB			C		H
	363	African American History I. (3) A							SB			C		H
	364	African American History II. (3) A							SB			C		H
	365	Islamic Civilization. (3) N						HU						H
	366	The Modern Middle East (3) N							SB				G	H
	369	Exploration and Empire. (3) S		L2										H
	370	Women in U.S. History, 1600–1880 (3) F							SB			C		H
	371	Women in U S History, 1880–1980. (3) S							SB			C		H
	380	History of the Mexican American (3) A							SB					H
	382	Historical Statistics (3) N				N2								
	383	Latin America. (3) A							SB					H
	384	Latin America. (3) A							SB					H
	401	American Colonial History. (3) A							SB					H
	404	The Early Republic, 1789–1850. (3) A		L2					SB					H
	406	Civil War and Reconstruction. (3) A		L2					SB					H
	407	The Emergence of Modern America (3) A							SB					H
	409	Recent American History. (3) A							SB					H

			L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
	410	Recent American History. 3 A							SB					H
	411	Contemporary America (3 A							SB					H
	414	The Modern American Economy. (3) A							SB					H
	415	American Diplomatic History (3 A							SB					H
	416	American Diplomatic History (3 A							SB				G	H
	417	Constitutional History of the United States. (3) N							SB					H
	418	Constitutional History of the United States. 3) N							SB					H
	419	American Urban History. 3 A							SB					H
	420	American Urban History. 3) A							SB					H
	421	H story of American Labor (3) N							SB					H
	422	Rebellious Women (3) A		L2					SB			C		H
	424	The Hispanic Southwest. 3) N							SB					H
	425	The American Southwest (3 A		L2					SB					H
	426	Indian History of the Southwest. 3) S							SB			C		H
	428	Arizona. (3) F. S							SB					H
	430	20th Century Chicano History. (3 A							SB					H
	431	The French Revolution and the Napoleonic Era. (3 N							SB					H
	433	Modern France. (3 A							SB				G	H
	434	Hitler: Man and Legend. 3 F							SB					H
	435	Modern Germany 3 A							SB				G	H
	437	Eastern Europe and the Balkans (3 N							SB					H
	438	Eastern Europe and the Balkans. 3) N							SB				G	H
	441	Imperial Russ a (3) A							SB					H
	442	The Soviet Union. 3 A							SB				G	H
	443	Russia and the United States 3) A							SB				G	H
	445	Tudor England. 3 A							SB					H
	446	Stuart England. 3 N							SB					H
	449	Modern Britain 3 A							SB				G	H
	450	British Constitutional History 3) N							SB					H
	451	The British Empire. 3) A							SB					H
	455	Inte lectual History of Modern Europe 3 N						HU						H
	456	History of Spain (3 A						HU	SB					H
	457	History of Spain. (3 A						HU	SB				G	H
	460	Spanish South America (3) N							SB					H
	461	Spanish South America. 3 N							SB					H
	463	Intellectual and Cultural History of Latin America 3) N							SB					H
	464	The United States and Latin Amer ca (3) A							SB				G	H
	466	Mexico 3 A							SB					H
	467	Mex co 3) S							SB					H
	468	Brazil 3 N							SB					H
	469	Chinese Thought and Way 3 N							SB					H
	470	Chinese Thought and Way 3 N							SB				G	H
	471	The United States and Japan (3) A							SB				G	H
	473	China 3 A							SB					H
	474	China. 3 A							SB				G	H
	475	The An er can Experience in Vietnam 1945 1975 (3 A							SB				G	H
	477	Japan 3 A		L2					SB					H
	478	Japan (3 A							SB				G	H
	481	The People's Republic of China. 3 N							SB				G	H
	488	History of Fire 3 F		L2										H
HON	171	The Human Event. 3 F	L1					HU						H
	72	The Hu an Event 3 S	L1					HU						H
HPS	322	History of Science (3 F						HU						H
	323	History of Science (3) S						HU						H
	330	History of B ology· Conflicts and Controversies 3 A Cross listed as BIO 316												H

			L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
	331	History of Medicine (3) A (Cross-listed as BIO 318.)												H
	410	Professional Values in Science. (2 3) A (Cross listed as BIO 416)		L2										
HUM	110	Contemporary Issues in Humanities. (3) F, S						HU						
	200	Encountering the Humanities (3) S						HU						
	301	Humanities in the Western World (4) F	L1					HU						H
	302	Humanities in the Western World. (4) S	L1					HU						H
	310	Japanese Cities and Cultures to 1800 (3) S (Cross listed as REL 355.)	L1					HU						H
	312	Interpreting China's Classics (3) F (Cross listed as HIS 312)		L2				HU						H
	320	Hispanic Cultures Europe and the Americas. (3) F	L1					HU						H
	340	Contemporary American Film and Popular Culture. (3) F						HU						
	420	Interpreting Latin America. (3) S						HU					G	H
	440	Los Angeles and Cultural Theory. (3) S	L1					HU				C		
	450	Technology and Culture. (3) S	L1					HU						
	460	Postmodern Culture and Interpretation. (3) F		L2										
	462	Psychoanalysis and Culture. (3) F		L2				HU	SB					
	465	Narrative in the Human Sciences. (3) F		L2				HU						
	498	Pro-Seminar in the Humanities. 3) A		L2				HU						
IBS	300	Principles of International Business. (3) A											G	
	306	Survey of International Economics. (3) A (Cross-listed as ECN 306.)							SB					
	400	Cultural Factors in International Business. (3) S (Cross listed as ASB 400.)											G	
IDN	201	Intermediate Indonesian I. (5) F											G	
	202	Intermediate Indonesian II (5) S											G	
IEE	205	Microcomputer Applications in Industrial Engineering. (3) F, S					N3							
	305	Information Systems Engineering (3) F					N3							
	374	Quality Control. (3) F				N2								
	463	Computer Aided Manufacturing and Control. (3) F, S					N3							
	475	Introduction to Simulation. (3) F, S					N3							
	476	Operations Research Techniques/Applications. (4) F, S				N2								
IND	316	20th-Century Design I. (3) F						HU						H
	317	20th Century Design II. (3) S						HU						H
	470	Professional Practice for Industrial Design. (3) F		L2										
INT	223	Interior Design Issues and Theories. (3) F						HU						
	310	History of Interior Design I. (3) F						HU						H
	311	History of Interior Design II. (3) S						HU						H
	412	History of Decorative Arts in Interiors. (3) F						HU						
	442	Specifications and Documents for Interiors. (3) F		L2										
ITA	201	Intermediate Italian. (4) F, S											G	
	202	Intermediate Italian. (4) F, S											G	
	311	Italian Composition and Conversation. (3) F, S											G	
	312	Italian Composition and Conversation. (3) F, S											G	
	314	Advanced Italian. (3) N											G	
	325	Introduction to Italian Literature. (3) F						HU						
	415	Italian Civilization. (3) N		L2				HU					G	
	430	Italian Literature of the Middle Ages. (3) N						HU						
	441	Dante: *Divina Commedia.* (3) N		L2				HU						
	443	Italian Literature of the Renaissance (3) N						HU						H
	446	Italian Literature of the 18th and 19th Centuries. (3) N						HU						
	449	20th Century Italian Literature. (3) N						HU					G	

			L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
JPN	201	Intermediate Japanese 5) F											G	
	202	Intermediate Japanese (5 S											G	
	207	Japanese for International Professions II. 10 S											G	
	311	Japanese Conversation and Composition 3 F											G	
	312	Japanese Conversation and Composition 3 S											G	
	313	Advanced Japanese (3) F											G	
	314	Advanced Japanese. (3) S											G	
	321	Japanese Literature. 3) N		L2				HU					G	
JRN	201	Journalism Newswriting. 3) F, S, SS	L1											
	301	Reporting 3) F, S		L2										
JUS	100	The Justice System (3 F, S, SS							SB					
	180	Introduction to American Indian Justice Studies 3 F 1999										C		
	200	Topics in Concepts and Issues of Justice. 3) F, S SS							SB					
	280	American Indian Law and Society (3 F, S, SS										C		
	302	Basic Statistical Analysis in Justice Studies. (3) F, S, SS				N2								
	321	Wealth Distribution and Poverty 3 F										C		
	360	Law and Social Control. (3 F, S, SS							SB					
	380	Contemporary Issues of American Indian Nations. (3) F, S, SS										C		
	404	Imperatives of Proof. (3) F, S, SS		L2										
	415	Gender and International Development (3) F, S, SS		L2									G	
	450	Alternatives to Incarceration 3 F S, SS		L2										
	463	Discretionary Justice. 3 F, S, SS							SB					
	469	Political Deviance and the Law 3 F, S, SS		L2					SB			C		
	470	Alternative Dispute Resolution. 3 F, S, SS		L2										
	474	Legislation of Morality (3) F, S SS		L2										
	477	Youth and Justice (3 F, S, SS		L2					SB					
	480	Law, Policy, and American Indians 3 F, S, SS										C		
LAT	201	Intermediate Latin. 4 F						HU						
	202	Intermediate Latin. 4 S						HU						
LIA	390	The Use of Research Libraries 3 F, S	L1											
MAE	468	Aerospace Systems Design (3 F, S		L2										
	490	Projects in Design and Development. 3) F, S		L2										
MAT	114	College Mathematics. 3 F, S, SS			N1									
	117	College Algebra 3) F, S, SS			N1									
	119	Finite Mathematics. (3 F, S, SS			N1									
	170	Precalculus. (3 F, S, SS			N1									
	210	Brief Calculus. 3) F, S, SS			N1									
	260	Technical Calculus I 3) F, S, SS			N1									
	270	Calculus with Analytic Geometry I. 4) F, S, SS			N1									
	290	Calculus I (5 N			N1									
	300	Mathematical Structures. 3) F, S		L2										
	419	Linear Programming (3) S				N2								
	421	Applied Computational Methods 3) F, S					N3							
	423	Numerical Analysis I (3) F, S					N3							
	425	Numerical Analysis II. 3) F, S					N3							
	427	Computer Arithmetic. (3 S					N3							
	451	Mathematical Modeling. (3 S				N2								
MCE	446	Understanding the Culturally Diverse Child. 3 A										C		
MCO	120	Media and Society. (3 F, S							SB					
	402	Communications Law (3 F, S, SS		L2										
	418	History of Communications. 3 F, S							SB					H
	430	International Communication (3) F, S											G	
	450	Visual Communication. 3) F, S, SS						HU						
	456	Political Communication. 3 F, S							SB					

			L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
	460	Race, Gender, and Media. (3) S										C		
MET	416	Applied Computer Integrated Manufacturing. (3) F					N3							
MGT	463	Strategic Management. (3) F, S, SS		L2										
MHL	201	Mac Literacy for Musicians. (3) F, S, SS					N3							
	344	Music in World Cultures. (3) F, S						HU					G	
	352	The Evolution of Jazz (3) F 1998												H
	438	Music in the Classic Era. (3) F 1998												H
	439	Music in the 19th Century. (3) F 1999		L2										H
	441	Music of the Baroque Era. (3) F 1999		L2										
	447	Music Since 1900. (3) F, SS		L2										
	466	North American Indian Music. (3) S 1999		L2				HU				C		
MIC	205	Microbiology. (3) F, S, SS (Both MIC 205 and 206 must be taken to secure S2 credit.)									S2			
	206	Microbiology Laboratory. (1) F, S, SS (Both MIC 205 and 206 must be taken to secure S2 credit.)									S2			
	302	Advanced Bacteriology Laboratory. (2) F, S (Both MIC 302 and 401 must be taken to secure L2 credit.)		L2										
	401	Research Paper. (1) F, S, SS (Both MIC 302 and 401 must be taken to secure L2 credit.)		L2										
MIS	410	American Defense Policy I. (3) F							SB					
	412	American Defense Policy II. (3) S							SB					
	414	Comparative Defense Policy Analysis (3) F							SB					
	416	Soviet/CIS Foreign and Defense Policies. (3) S							SB					
MKT	460	Strategic Marketing. (3) F, S, SS		L2										
MUE	381	Music Therapy Research. (3) S		L2										
MUS	340	Survey of Music History (3) F, S, SS						HU						H
	347	Jazz in America. (3) F, S, SS						HU						
	353	Survey of Afro-American Music (3) A						HU						
	354	Popular Music (3) A						HU						
	355	Survey of American Music. (3) F, S, SS						HU						H
	356	Survey of the Musical Theatre (3) A						HU						
NUR	211	Nurse Client Relationships. (3) F, S *(Effective through fall 1998.)*	L1											
	306	Professional Development for Registered Nurse Students Process, Roles, and Function (3) F, S	L1											
	403	Research in Nursing Practice. (3) F, S *(Effective through fall 2000.)*		L2										
PGS	101	Introduction to Psychology (3) F, S, SS							SB					
	222	Human Sexual Behavior. (3) F, S							SB					
	270	Psychology of Adjustment. (3) F, S, SS							SB					
	304	Effective Thinking (3) A	L1											
	306	Environmental Psychology (3) F, S, SS							SB					
	315	Personality Theory and Research. (3) F, S, SS							SB					
	341	Developmental Psychology. (3) F, S							SB					
	344	Directed Child Study (3–4) F, S, SS		L2										
	350	Social Psychology (3) F, S, SS							SB					
	351	Honors Social Psychology. (3) N		L2					SB					
	365	Community Psychology. (3) F, S							SB					
	414	History of Psychology. (3) F, S		L2					SB					
	427	Psychology of Aging. (3) N		L2					SB					
	441	Cognitive Development. (3) F, S		L2					SB					
	443	Abnormal Child Psychology. (3) F, S		L2					SB					

			L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
	444	Adolescent Psychology and Psychopathology (3 N		L2										
	445	Child Language and Drawing. 3 F							SB					
	446	Social Development 3) N		L2										
	450	Social Perception and Cognition 3) N		L2										
	451	Stereotyping, Prejudice, and Discrimination. 3) N		L2										
	452	Applied Social Psychology. (3) F		L2										
	461	Interpersonal Influence (3) N							SB					
	463	Advanced Psychology of Adjustment 3) F		L2										
	465	Psychology of Stress and Coping. (3 F		L2										
	466	Abnormal Psychology 3) F, S, SS							SB					
	467	Psychology of Magical Beliefs (3) N		L2										
PHI	101	Introduction to Phi osophy. (3) F, S, SS						HU						
	103	Principles of Sound Reasoning (3) F, S, SS	L1					HU						
	301	History of Ancient Philosophy. 3) F						HU						H
	302	History of Modern Philosophy (3) S						HU						H
	304	Existentialism. 3) N						HU						
	305	Ethical Theory (3) A						HU						
	306	Applied Ethics 3) F, S, SS						HU						
	307	Philosophy of Law. (3) A						HU						
	308	Philosophy of Art 3 A						HU						
	309	Social and Political Philosophy (3 A						HU						
	310	Environmental Ethics (3 A						HU						
	311	Philosophy in Literature. (3 A						HU						
	312	Theory of Knowledge (3 A						HU						
	314	Philosophy of Science. (3) A						HU						
	315	Philosophy of Language (3) A						HU						
	316	Metaphysics. 3) A						HU						
	317	Philosophy of Mind (3 A						HU						
	318	Ph losophy of Religion. (3) A						HU						
	319	Philosophy of Computing (3) N					N3	HU						
	325	Philosophy of Social Science 3) N						HU	SB					
	332	19th Century Philosophy. (3) N						HU						
	335	History of Ethics 3) A						HU						
	350	Philosophical Argument and Exposition (3 S		L2										
	402	Empiricism 3 N						HU						
	403	Contemporary Analytic Philosophy. 3 A						HU						
PHS	110	Fundamentals of Physical Science. (4) F, S								S1	S2			
	208	Patterns in Nature. (4) F, S (Cross listed as STE 208.)								S1	S2			
PHY	101	Introduction to Physics (4 F, S								S1	S2			
	11	General Physics. (3 F, S, SS (Both PHY 111 and 113 must be taken to secure S1 or S2 credit)								S1	S2			
	112	General Physics (3 F, S, SS (Both PHY 112 and 114 must be taken to secure S1 or S2 credit)								S1	S2			
	113	General Physics Laboratory. 1) F, S, SS Both PHY 111 and 113 must be taken to secure S1 or S2 credit)								S1	S2			
	114	General Physics Laboratory. 1) F, S, SS (Both PHY 112 and 114 must be taken to secure S1 or S2 credit.)								S1	S2			
	121	University Physics I Mechanics (3 F, S, SS (Both PHY 121 and 122 must be taken to secure S1 or S2 credit.)								S1	S2			
	122	University Physics Laboratory I. (1) F, S, SS Both PHY 121 and 122 must be taken to secure S1 or S2 credit.)								S1	S2			

			L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
	131	University Physics II Electricity and Magnetism 3) F, S, SS (Both PHY 13 and 132 must be taken to secure S1 or S2 credit								S1	S2			
	132	University Physics Laboratory II. 1) S, SS Both PHY 131 and 132 must be taken to secure S1 or S2 credit								S1	S2			
	151	Physics II (4 F								S1	S2			
	252	Physics III. 4 S								S1	S2			
	420	Research Paper. 1) F, S		L2										
PLA	310	History of Landscape Architecture (3) F Cross-listed as APH 411.)												H
	420	Theory of Urban Design (3 F Cross listed as PUP 420						HU						
PLB	108	Concepts in Plant Biology (4) F, S, SS								S1	S2			
	260	Plants in Cities: Introduction to Urban Horticulture. (4 S									S2			
	300	Comparative Plant Diversity. 4 F		L2							S2			
	320	Environmental Science Nonmajor) 3 F Cross listed as BIO 319)											G	
	414	P ant Pathology (3) F		L2										
	432	Computer Applications in Biology 3 F (Cross listed as BIO 406.)					N3							
POR	201	Intermediate Portuguese. 5) S											G	
	313	Portuguese Composition and Conversation. (3 F											G	
	314	Portuguese Composition and Conversation. 3 S											G	
	321	Luso Brazilian Literature 3 N						HU						
	472	Luso Brazil an Civilization. (3) N						HU					G	
POS	101	Political Ideologies (3 F, S							SB					
	110	Government and Politics. (3 F, S							SB					
	150	Comparative Government. (3) F, S							SB				G	
	160	Global Politics. 3) F, S							SB				G	
	220	Po itical Issues and Public Policy. 3) A							SB					
	230	Current Issues in National Po itics. 3) F, S		L1					SB					
	240	Introduction to Southeast Asia (3 F (Cross listed as ASB/GCU/HIS/REL 240)											G	
	260	Current Issues in International Politics 3 F, S		L1					SB				G	
	270	American Legal System. (3 F, S							SB					
	301	Empirical Political Inquiry (3) F, S							SB					
	310	American National Government. 3 F, S							SB					
	313	The Congress 3) A							SB					
	314	The American Presidency. 3 A							SB					
	315	The Supreme Court (3 A							SB					
	316	State and Local Government (3 A							SB					
	320	Pub ic Admin`stration. (3) A							SB					
	325	Public Policy Development. (3) A							SB					
	331	Public Opinion. 3 A							SB					
	332	Amer can Politica Parties 3) A							SB					
	333	Interest Groups. (3) A							SB					
	336	Electoral Behavior (3 A							SB					
	340	History of Polit ca Philosophy I. (3 A						HU						H
	341	History of Political Philosophy II. 3) A						HU						H
	346	Problems of Democracy. (3 A						HU						
	350	Comparative Politics. (3 A							SB				G	
	356	Western Europe 3) A							SB				G	
	357	South Asia Politics 3 A							SB				G	
	358	Southeast Asia (3 A							SB				G	

			L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
	359	African Politics and Soc'ety (3) N							SB				G	
	360	World Politics (3) A							SB				G	
	361	American Foreign Policy (3 A							SB				G	
	364	U S. National Security Analyses. (3) A							SB					
	370	Law and Society (3 A							SB					
	401	Political Statistics. (3) F, S				N2								
	410	Urban Government and Politics (3 A							SB					
	417	The Arizona Political System (3) N							SB					
	422	Politics of Bureaucracy (3) N							SB					
	423	Politics of Budgeting. (3 N							SB					
	426	Elements of Public Policy (3 A							SB					
	431	Campaigns and Elections. 3) A							SB					
	433	Money and Politics. 3) A							SB					
	434	Media and Politics. 3) A							SB					
	435	Women and Politics. (3) N							SB			C		
	439	Minority Group Politics in America 3 N							SB			C		
	442	American Political Thought. 3) A						HU						
	443	Topics in Contemporary Political Theory (3) A						HU						
	445	Asian Political Thought (3 A							SB				G	
	450	Russia and Successor States. (3) A							SB				G	
	451	China, Japan, and the Koreas (3 A							SB				G	
	452	China. (3) A							SB				G	
	453	South America. (3 A							SB				G	
	454	Mexico. (3 A							SB				G	
	455	Central America and the Caribbean (3) A							SB				G	
	459	South and Southern Africa (3) A							SB				G	
	463	Inter American Relations (3 A							SB				G	
	465	International Organization and Law 3) A							SB				G	
	467	International Security (3) A							SB				G	
	468	Comparative Asian Foreign Policies. (3) A							SB				G	
	471	Constitutional Law I 3) A							SB					
	472	Constitutional Law II 3) A							SB					
	485	Political Economy (3 A							SB					
	486	International Political Economy. (3) A							SB				G	
	498	Pro Seminar. 3) A		L2										
PSY	230	Introduction to Statistics (3) F, S, SS				N2								
	290	Research Methods. (4) F, S	L1								S2			
	330	Statistical Methods (3 S				N2								
	390	Experimental Psychology (3) S		L2										
	420	Analysis of Behavior. (3) N		L2										
	424	Genetic Psychology 3 S		L2										
	425	Biological Bases of Behavior (3) N		L2										
	426	Neuroanatomy (4) N		L2										
	434	Cognitive Psychology (3) S		L2										
	437	Human Factors (3 F		L2										
PUP	100	Introduction to Environmental Design. (3) F, S, SS (Cross-listed as APH/DSC 100)						HU					G	H
	200	The Planned Environment. (3) F						HU						H
	236	Introduction to Computer Modeling. (3) F, S (Cross-listed as ANP/DSC 236					N3							
	301	Introduction to Urban Planning (3 F, S, SS	L1											
	412	History of the City. 3) F												H
	420	Theory of Urban Design. 3) S (Cross listed as PLA 420)						HU						
	445	Women and Environments (3) F										C		
	452	Ethics and Professional Practice. (3 S		L2										

			L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
QBA	221	Statistical Analysis (3) F, S				N2								
	321	Applied Quality Analysis I. 3) A		L2										
	391	Management Science. 3 N				N2								
	450	Operations and Process Analysis. (3) A		L2										
REC	120	Leisure and the Quality of Life (3 F, S, SS							SB					
	160	Leisure and Society 3) A							SB					
	305	Introduction to Travel and Tourism 3) F, S											G	
	330	Programming of Recreation Services. 3) F, S		L2										
	380	Wilderness and Parks in America (3) S							SB					H
	458	International Tourism. 3 F, S											G	
REL	100	Religions of the World 3) F, S						HU					G	
	200	The Study of Religious Traditions (3 A	L1					HU					G	
	201	Religion and the Modern World 3) A	L1					HU						
	202	Religion and Popular Culture (3) F, S						HU				C		
	203	Saints and Sinners: Explorations in Sacred Biography. (3 F, S						HU						H
	205	Living and Dying. (3) F, S						HU						
	210	Introduction to Judaism (3 A	L1					HU						H
	225	African American Religion 3) A						HU				C		
	240	Introduction to Southeast Asia (3 F Cross listed as ASB GCU/HIS/POS 240.											G	
	270	Introduction to Christianity 3) A						HU						
	305	Ritual, Symbol, and Myth 3) A		L2				HU						
	310	Western Religious Traditions (3 F						HU						H
	315	Hebrew Bible (Old Testament (3 A		L2				HU						H
	317	Introduction to Rabbinic Judaism (3 A						HU						H
	320	American Religious Traditions 3) F, S						HU				C		H
	321	Religion in America 3) F, S						HU				C		H
	322	Malcolm and Martin. 3 F, S						HU				C		
	323	Black Religion A Biographical Approach. (3) F, S						HU				C		
	330	Native American Religious Traditions. (3 A						HU				C		
	331	History of Native American Religious Traditions 3) N		L2					HU			C		H
	332	South American Indian Religions (3) F, S						HU					G	
	344	Religion and Values in Japanese Life. (3 S						HU					G	
	345	Asian Religious Traditions 3 F						HU					G	
	350	Hinduism (3) A		L2				HU					G	H
	351	Buddhism. (3 A		L2				HU					G	
	355	Japanese Cities and Cultures to 1800. (3) S (Cross listed as HUM 310	L1					HU						H
	365	Islamic Civilization, 700–1300 (3 F						HU						H
	366	Islamic Civilization, 1300 to Present. 3) F						HU					G	H
	371	New Testament 3 A						HU						
	372	Formation of the Christian Tradition. 3 A						HU						H
	377	Religion in Russia. 3 F, S						HU						H
	379	Religion, Nationalism, and Ethnic Conflict (3) F, S						HU					G	
	381	Religion and Moral Issues (3 A		L2				HU						
	385	Contemporary Western Religious Thought (3) A		L2				HU						
	390	Women and Religion. 3) A						HU					G	
	410	Judaism in Modern Times. (3 N						HU						H
	415	The Jewish Mystical Tradition (3) A						HU						
	420	Religion in American Life and Thought. (3) A		L2				HU						
	426	American Preachers and Preaching The Sermon in America. 3) N		L2				HU						
	427	American Religious Thought. (3) N						HU						H
	444	Religion in Japan. (3 F						HU					G	H
	460	Studies in Islamic Religion 3 A						HU					G	

			L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
	470	Religion in the Middle Ages. (3) A						HU						H
	471	Reformation and Modern Christianity. (3) A						HU						H
	486	Modern Critics of Religion (3) A						HU						
RUS	201	Intermediate Russian. (4) F, SS											G	
	202	Intermediate Russian. (4) S, SS											G	
	211	Basic Russian Conversation. (3) F											G	
	212	Basic Russian Conversation. (3) S											G	
	311	Russian Composition and Conversation. (3) F											G	
	312	Russian Composition and Conversation. (3) S											G	
	321	Survey of Russian Literature. (3) A		L2				HU						H
	322	Survey of Russian Literature. (3) A		L2				HU						
	323	Survey of Literature of the Soviet Era. (3) A		L2				HU					G	
	411	Advanced Composition and Conversation I (3) F											G	
	412	Advanced Composition and Conversation II. 3) S											G	
	420	Russian Poetry. (3) N		L2				HU						
	421	Pushkin. (3) N		L2				HU						
	423	Dostoyevsky. (3) N		L2				HU						
	424	Tolstoy. (3) N		L2				HU						
	425	Chekhov. (3) N		L2				HU						
	426	Literatures of the Nationalities of the Former Soviet Union. (3) N		L2				HU					G	
	430	Russian Short Story. (3) N		L2				HU						
	441	Survey of Russian Culture (3) N		L2				HU					G	H
SCM	455	Purchasing Research and Negotiation. (3) F, S		L2										
SHS	367	Language Science (3) F							SB					
	465	Speech and Language Acquisition. (3) S, SS							SB					
SOC	101	Introductory Sociology. (3) F, S, SS							SB					
	301	Principles of Sociology. (3) F, S, SS							SB					
	312	Sociology of Adolescence. (3) F, S							SB					
	315	Courtship and Marriage (3) F, S, SS							SB					
	318	Overview of Aging. (3) F							SB					
	321	Sociology of Work (3) S							SB					
	331	Environmental Sociology. (3) F							SB					
	332	Urban Sociology. (3) F, S							SB				G	
	333	Population. (3) F, S, SS							SB				G	
	340	Sociology of Deviant Behavior (3) F, S, SS							SB					
	341	Modern Social Problems. (3) F, S, SS							SB					
	352	Social Change. (3) F, S							SB				G	H
	360	Sociological Psychology. (3) F, S							SB					
	361	Variant Sexuality. (3) F							SB					
	365	The Sociology of Mass Communication. (3) F, S							SB					
	391	Sociological Research. (3) F, S, SS							SB					
	395	Social Statistics I. (3) F, S, SS				N2								
	415	The Family. (3) F, S, SS							SB					
	416	Marriage Problems in Contemporary Society. (3) S		L2					SB					
	417	Family Violence. (3) F, S							SB					
	418	Aging and the Life Course. (3) F, S							SB					
	420	Sociology of Religion. (3) S		L2					SB					
	422	Sociology of Complex Organizations. (3) F		L2					SB					
	423	Social Class and Stratification. (3) S		L2					SB					
	427	Sociology of Health and Illness. (3) F		L2					SB					
	429	Sociology of Law. (3) S							SB					
	433	Demographic Methods. (3) S							SB					
	446	Sociology of Crime (3) F							SB					
	451	Comparative Sociology (3) F							SB				G	

			L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
	455	Collective Behavior 3 S							SB					
	456	Pol tical Socio ogy 3 S							SB				G	
	464	Women's Roles 3 S		L2					SB			C		
	470	Racial and Ethn c Minorities (3 F, S, SS							SB					
	474	Afro An erican n Modern Society 3) F, S, SS		L2					SB			C		
	483	History of Social Thought (3 S, SS		L2					SB					
	485	Sociology of Knowledge (3 F		L2					SB					
	486	Contemporary Theory 3 S							SB					
SPA	201	Intermediate Spanish 4 F, S, SS											G	
	2 2	Intermediate Spanish (4 F, S, SS											G	
	203	Intermediate Spanish for B linguals. 4 F											G	
	204	Intermediate Spanish for Bilinguals (4 S											G	
	207	Spanish for International Professions II. 8 S											G	
	313	Spanish Conversation and Composition 3 F, S, SS											G	
	314	Spanish Conversation and Composition. (3 F, S, SS											G	
	319	Bus ness Correspondence and Communication (3 N											G	
	325	Introduction to Hispanic Literature. 3 F, S						HU						
	412	Advanced Conversation and Composition (3 F, S											G	
	413	Advanced Spanish Grammar. 3 F											G	
	420	Applied Spanish Linguistics 3 S		L2										
	421	Spanish in the Southwest 3 F		L2					SB			C		
	425	Spanish Literature 3 F, S						HU						
	426	Spanish Literature (3) F, S						HU						
	427	Spanish American Literature. 3 F, S		L2										
	428	Spanish American Literature 3 F, S		L2									G	
	464	Mexican American Literature (3) F						HU						
	471	Civilization of the Spanish Southwest (3) S						HU						
	472	Spanish American Civilization 3 F						HU					G	H
	473	Spanish Civilization. 3 S						HU	SB				G	
SPE	311	Orientation to Education of Exceptional Childre 3 F, S, SS							SB					
SPF	301	Culture and Schooling. 3 F, S		L2										
STE	201	Introduction to Bioengineering. 3 F Cross listed as BME 201	L1											
	208	Patterns in Nature 4 F, S Cross listed as PHS 208								S1	S2			
STP	226	Elements of Statistics 3 F, S, SS				N2								
	326	Intermediate Probability. 3 F, S				N2								
	420	Introductory Applied Statistics 3) F, S, SS				N2								
	429	Experimental Statistics. 3 S					N3							
SWU	271	Introduction to Social Work 3 F, S												H
	301	Human Behavior in the Social Environment I. 3) F, S		L2					SB					
	321	Statistics for Social Workers (3 F, S				N2								
	340	Human Behavior in the Social Environment II (3 F S							SB					
	474	Ethnic Cultural Variables in Social Work 3 F, S										C		
TCM	201	Radio Television Writing 3 F, S, SS	L1											
	315	Broadcast News Reporting. (3 F, S		L2										
THA	201	Intermediate Thai 5 F											G	
	202	Intermediate Thai II 5 S											G	
THE	100	Introduction to Theatre 3) F, S, SS						HU						
	220	Principles of Dramatic Analysis 3 F, S	L1											
	300	Film The Creative Process 3 F, S, SS						HU						
	320	History of the Theatre I 3 F						HU						H
	321	History of the Theatre II 3) S						HU						H

			L1	L2	N1	N2	N3	HU	SB	S1	S2	C	G	H
	322	History of the Theatre III. (3) F						HU						H
	401	Focus on Multiethnic Film. (3) F, S, SS						HU				C		
	420	History of the American Theatre. (3) F						HU						H
	421	History of the English Theatre. (3) S		L2				HU						
	425	History of Asian Theatre. (3) N		L2				HU						
VTN	201	Intermediate Vietnamese I. (5) F											G	
	202	Intermediate Vietnamese II. (5) S											G	
WST	100	Women and Society. (3) F, S							SB			C		
	300	Women in Contemporary Society. (3) F, S, SS							SB			C		
	373	Latina/Chicana Issues. (3) F, S							SB			C		
	375	Women and Social Change. (3) S										C		
	376	Introduction to Feminist Theory (3) F, S		L1								C		
	380	Gender, Race and Class. (3) SS							SB			C		
	413	Lesbian Culture: Images and Realities (3) S						HU				C		
	457	Women in Developing Countries. (3) F							SB				G	
	460	Women and the Body (3) F							SB			C		
	464	Voices and Visions. (3) F, S						HU				C		
	470	Women and Popular Culture. (3) S						HU				C		
	498	Pro-Seminar: Theoretical Issues in Women's Studies. (3) A		L2										

Minors, Certificates, and Interdisciplinary Studies

Interdisciplinary studies are available to students through an interdisciplinary degree, the Bachelor of Interdisciplinary Studies (see page 112), or through an extensive choice of minors or certifi cates which may be taken in conjunc tion with other majors. Since interdisciplinary studies provide skills which support employment in a rapidly chang ing work place, students are encour aged to consider these options. Consult the academic advisor in your major about the impact of enrolling in a minor or certificate program.

Minors

A minor is an approved, coherent concentration of academic study in a single discipline, involving substan tially fewer hours of credit than the cor responding major. Several ASU col leges offer undergraduate minors in addition to majors. For more informa tion about specific minors offered at ASU, refer to the individual college and department descriptions in this catalog.

Students in most majors may pursue one or more minors and, upon success ful completion of the prescribed course work, have that accomplishment offi cially recognized on the ASU transcript at graduation if (1) the college/depart ment of the minor officially certifies, through established verification proce dures, that all requirements for the mi nor have been met, and (2) the college (and, in certain colleges, the depart ment) of the student's major allows the official recognition of the minor.

A student wishing to pursue a spe cific minor should consult an academic advisor in the unit offering that minor to ensure that an appropriate set of courses is taken.

Note: Certain major and minor com binations may be deemed inappropriate either by the college or department of the major or minor. Inappropriate com binations include (but would not be limited to) ones in which an excessive number of courses in the minor are si multaneously being used to fulfill re quirements of the student's major.

Minors	Pages
College of Architecture and Environmental Design	
Environmental Resources	133
Urban Planning	133–134
College of Business	
Business (for nonbusiness majors)	143
College of Fine Arts	
Art History	250
Dance	261
Music*	
Theatre	278
College of Liberal Arts and Sciences	
Anthropology	311
Asian Languages (Chinese/Japanese)	350
Astronomy	373
Biology	316
Chemistry and Biochemistry	321
Chicana and Chicano Studies	324
Economics for Students Planning a Career in Law	325–326
English	326
Exercise Science/ Physical Education	331
Family Resources and Human Development	334
French	350
General Economics	325
Geology	341
German	350
History	343
Humanities	347
Italian	350
Mathematics	362
Microbiology	367
Philosophy	371
Physics	373
Plant Biology	378
Political Science	381
Psychology	384
Religious Studies	387
Russian	350
Sociology	390
Spanish	350
Women's Studies	395
College of Public Programs	
Communication	410
Justice Studies	417
Mass Communication	415
Recreation Management	423
Tourism	423
Interdisciplinary Programs	
Gerontology	110

* For information, contact an advisor in the School of Music.

Certificates

Students may pursue some certificate programs along with a major and other certificate programs independently. For more information, refer to the pages indicated in the table below. See page 535 for ASU West certificates.

Certificates	Pages
American Humanics, Certificate in Youth Agency Administration	422–423
American Indian Justice Studies	418
Asian Studies	307–308
East Asian Studies	307–308
Gerontology	110, 241, 284
Hazardous Materials and Waste Management	448
Health Physics	308
International Business Studies	159
Jewish Studies	308
Latin American Studies	308
Medieval and Renaissance Studies	308
Medieval Studies[1]	
Museum Studies[1, 2]	
Nonprofit Management	241
Post-Master's Family Nurse Practitioner	241
Quality Analysis	147
Renaissance Studies[1]	
Russian and East European Studies	309
Scholarly Publishing[1]	
Small Business and Entrepreneurship	147
Southeast Asian Studies	309
Translation	351
Transportation Systems[1]	
Women's Studies	309

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

[2] Contact the Department of Anthropology.

Concurrent and Dual Degrees

Graduate students have the opportunity to pursue more than one degree at the same time as part of an organized program. Refer to the "Concurrent and Dual Degrees Offered at ASU Main" table on page 111. For more information, see the *Graduate Catalog*.

Interdisciplinary Studies

Asian Studies. See pages 307–308 for information about the Certificate in Asian Studies.

Energy Studies. An expanding instructional and research involvement in energy matters exists through the following three curricular paths:

1. general studies, which emphasize energy as an elective beyond the scope of a chosen major (for more information, contact M.J. Pasqualetti, 602/965–4548);
2. specific studies in the College of Architecture and Environmental Design, for those pursuing the Master of Architecture degree and the Master of Science degree in Building Design; and
3. specific studies in the College of Engineering and Applied Sciences, usually for those seeking a degree in a branch of engineering.

Environmental Studies. The Center for Environmental Studies encourages and coordinates interdisciplinary environment-related activities in the natural and social sciences within the university. The center sponsors special courses, conferences, and workshops on environmental topics. Drawing from faculty and students throughout the university, the center participates in research and community programs relating to environmental problem areas. It does not formally offer courses or a degree program. For more information, see page 36 or call 602/965–2975.

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

Inquiries about this program should be directed to the Film Studies coordinator, Jay Boyer, at 602/965–7644.

Gerontology. The Gerontology Program brings together faculty from several disciplines to teach courses related to adult development and aging, to collaborate on gerontological research, and to participate in projects of service to older adults.

A certificate at the postbaccalaureate level and an undergraduate minor are available in Gerontology. The certificate consists of 24 semester hours—12 hours of required and 12 hours of elective course work. The minor consists of 18 semester hours—six hours of required and 12 hours of elective course work. Courses related to aging are taught throughout the university by faculty who are active contributors to research, theory, and public policy and practice. In addition, gerontology provides students with opportunities to gain practical experience in working with elderly people. A practicum, held at the Veterans Administration Hospital, is available to students who have completed some gerontology course work. Gerontology also helps students find rewarding internships in community programs for older adults. For more information, refer to the current *Student Handbook in Gerontology* or call 602/965–3225.

Islamic Studies. The art, history, geography, and religion of the Islamic world are the subjects of several courses offered by departments in the College of Fine Arts and the College of Liberal Arts and Sciences. For information, call Dr. Mark Woodward, Department of Religious Studies, at 602/965–7145.

Palm trees framed and reflected in the windows of the Student Services Building.
Priscilla Benbrook photo

Linguistics. Linguistics concentrations are offered in master's degree programs in the Departments of Anthropology, English, and Languages and Literatures through the Graduate College. Numer ous linguistics courses are offered in these and other departments. For infor mation, call Dr. Dawn Bates of the University Committee on Linguistics, at 602/965 3168.

Medieval and Renaissance Studies. An undergraduate Certificate in Medieval and Renaissance Studies is offered by the Arizona Center for Medieval and Renaissance Studies. See page 308 for more information. See the *Graduate Catalog* for information about the Cer tificate in Medieval Studies and the Certificate in Renaissance Studies, and page 33 for information about the center.

Southeast Asian Studies. See page 309 for information about the Certificate in Southeast Asian Studies.

Transportation Systems. See the *Graduate Catalog* for information on the Certificate in Transportation Sys tems.

Women's Studies. See page 309 for information about the Certificate in Women's Studies.

MILITARY OFFICER TRAINING

U.S. Air Force and U.S. Army ROTC units are active on the ASU campus. See "Department of Aerospace Studies" and "Department of Military Science," pages 310–311 and 368–370, for more information.

Defense Activity for Non-Traditional Education Support (DANTES). ASU is a participating institution with DANTES and is listed in the DANTES Directory of Independent Study. DANTES is an executive agency of the Department of Defense that provides educational support for the voluntary education programs of all services. The primary missions of DANTES are (1) to provide nationally recognized examination and certification programs as part of the voluntary education programs of military services and (2) to facilitate the availability of high quality independent institutions for service men and women.

Concurrent and Dual Degrees Offered at ASU Main

Concurrent or Dual Degrees	Administered by
Juris Doctor/Master of Health Services Administration	College of Law/School of Health Administration and Policy
Juris Doctor/Master of Science in Economics*	College of Law/Department of Economics
Juris Doctor/Doctor of Philosophy in Justice Studies	College of Law/Committee on Law and Social Sciences
Master of Business Administration/Juris Doctor	College of Business/College of Law
Master of Business Administration/Master of Accountancy	College of Business
Master of Business Administration/Master of Architecture	College of Business/School of Architecture
Master of Business Administration/Master of Health Services Administration	College of Business
Master of Business Administration/Master of International Management	College of Business/American Graduate School of International Management (Thunderbird) or Groupe Ecole Supérieure de Commerce Toulouse, France, or Universidad Carlos III de Madrid, Spain
Master of Business Administration/Master of Science in Economics	College of Business
Master of Business Administration/Master of Science in Information Management	College of Business
Master of Business Administration/Master of Taxation	College of Business
Master of Science in Engineering (Industrial Engineering)/Master of International Management of Technology	Department of Industrial and Management Engineering/American Graduate School of International Management (Thunderbird)
Master of Science in Justice Studies/Master of Arts in Anthropology	School of Justice Studies/Department of Anthropology
Master of Science in Nursing/Master of Health Services Administration	College of Nursing/School of Health Administration and Policy

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

WESTERN INTERSTATE COMMISSION FOR HIGHER EDUCATION (WICHE)

For Arizona residents who wish to attend professional schools of dentistry, veterinary medicine, occupational therapy, optometry, and osteopathy in one of the other western states, Arizona has joined with the other western states to create the Western Interstate Com mission for Higher Education. Through WICHE, qualified Arizona residents may attend schools in other western states at essentially the same expense to the students as to residents of the state in which the school is located. Stu dents must have maintained at least average grades in their preprofessional work and must have been legal resi dents of Arizona for at least the last five years. Recipients are required to return to Arizona to practice or to repay a portion of the funds expended in their behalf.

For applications and more information contact Dr. Brice W. Corder, Col lege of Liberal Arts and Sciences, 602/ 965 2365.

Bachelor of Interdisciplinary Studies

Division of Undergraduate Academic Services
602/965–4464

INTERDISCIPLINARY STUDIES—B.I.S.

The Bachelor of Interdisciplinary Studies (B.I.S.) is a university wide program intended for the student who has academic interests that might not be satisfied with existing majors Building on two academic areas of interest (emphasis areas) and an interdisciplinary core, students in the B.I.S. are expected to take an active role in creating their educational plan and defining their vocational goals The B.I.S. empha sizes versatility and problem solving, skills desired in a changing workplace environment. Self assessment and appraisal of opportunities to support academic and career goals are key ele ments in the core courses. The emphasis areas are based on approved academic minors and certificate programs and should represent academic interests which the student wishes to integrate into a meaningful program.

Students interested in pursuing the B.I.S. degree should contact Cross college Advising Services (CAS) in UASB 131, 965–4464, to attend an in formational session conducted by an academic advisor.

The combination of emphasis areas gives students greater flexibility in cre ating a unique program to accomplish individualized academic goals. Combinations created by current students il lustrate a range of possibilities:

American humanics certificate program and theatre
business and communication
business and environmental resources
communication and sociology
dance and exercise science
economics and Spanish
environmental resources and geology
justice studies and political science
psychology and women's studies
religious studies and anthropology

Basic Requirements

The B.I.S requires 120 semester hours The major is composed of a 12 hour core (see "Core Courses") and a minimum of 36 semester hours in two emphasis areas (18 hours each). Throughout the core sequence, the stu dent will assemble a portfolio including self assessment on progression toward career goals, and an evaluation of key education and personal activities that may apply.

Core Courses

BIS	301	Foundations of Interdisciplinary Studies	3
BIS	302	Interdisciplinary Studies .	3
BIS	401	Interdisciplinary Practicum	3
BIS	402	Senior Seminar	3
Total			12

Other Requirements

In addition to the basic requirements, students must also complete all univer sity requirements, including English Composition and General Studies. Early advising is recommended to fa cilitate selecting courses that may apply to both the University General Studies requirements and the emphasis areas.

Declaring the B.I.S. major. Academic advising from Cross college Advising Services is required before being approved to declare the B.I.S. In addition, the following requirements must be completed by the end of the semes ter of the request:

1. 45 semester hours of college credit;
2. cumulative G.P.A. of 2.00;
3. selection of two areas of emphasis, with a minimum of two courses (minimum grade of "C") completed or in progress in each emphasis area. Approval of each department is required; and
4. statement of purpose for seeking a B.I S degree.

All incoming students and continuing students with a minimum GPA of 2.00 who do not meet the above requirements will be placed in a pre BIS major until the requirements have been met.

Approved Emphasis Areas

Each emphasis area requires 18 se mester hours, of which 12 hours must be at the upper division. They are based on existing minors or certificate programs (see colleges for specific minors or certificate programs). Empha ses based on minors with fewer than 18 hours will have additional semester hours required. Complete information on each emphasis is available in CAS, UASB 131.

College of Architecture and Environmental Design
Environmental resources*
Urban planning*

College of Business
Business
International business studies
Small business and entrepreneurship

College of Fine Arts
Dance
Music
Theatre

College of Liberal Arts and Sciences
Anthropology
Asian languages Chinese Japanese
Asian studies
Astronomy
Biology
Chemistry and biochemistry
Chicana and Chicano studies
East Asian studies
Economics for students planning a career in law)

* Contact the department or school

English
Exercise science/physical education
Family resources and human development
French
General economics
Geology
German
History
Interdisciplinary humanities
Italian
Jewish studies
Latin American studies
Mathematics
Microbiology
Philosophy
Physics
Plant biology
Political science
Psychology
Religious studies
Russian
Russian and East European studies
Sociology
Spanish
Translation
Women's studies

College of Public Programs
American humanics/youth agency administration
American Indian justice studies
Communication
Justice studies*
Mass communication
Recreation management*
Tourism*

Interdisciplinary Programs
Gerontology

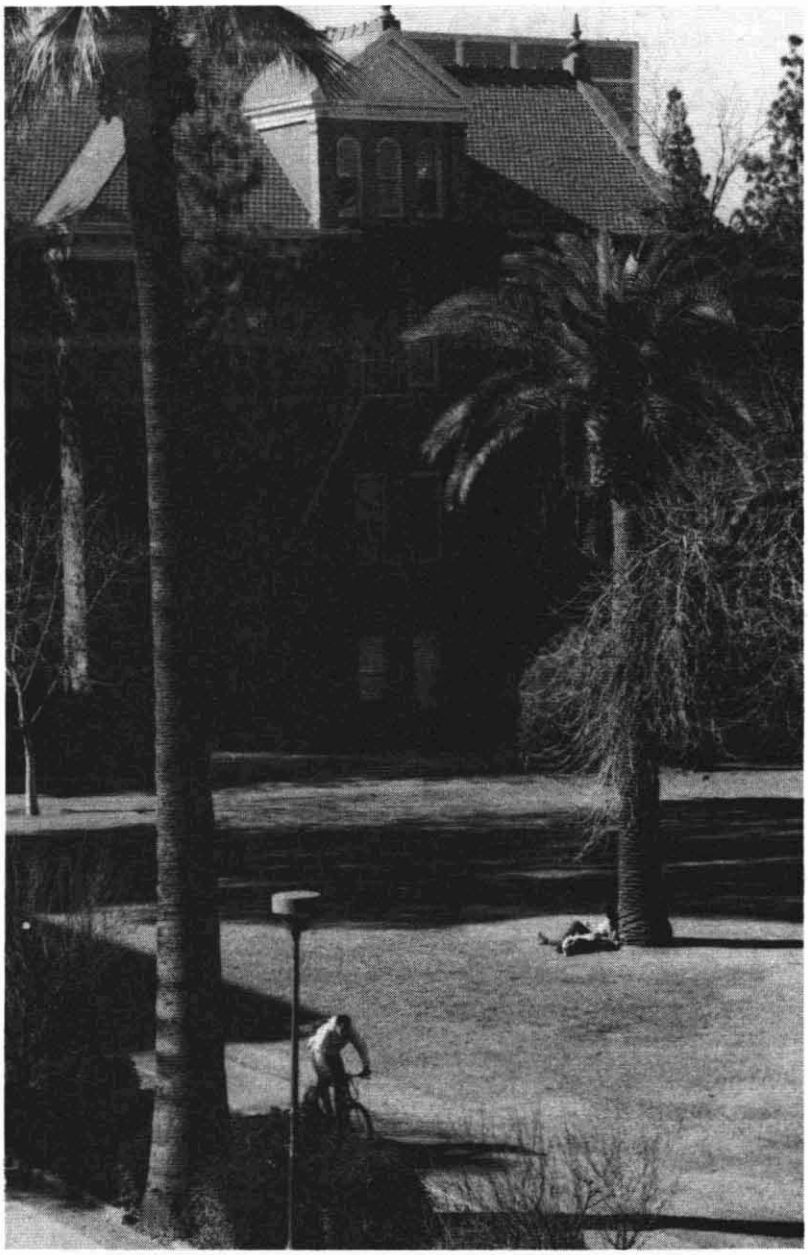
BACHELOR OF INTERDISCIPLINARY STUDIES (BIS)

BIS 301 Foundations of Interdisciplinary Studies. (3) F, S, SS
Analysis of 21st-century workplace, introduction of critical thinking skills, interdisciplinary methods. Includes autobiographical self-study and education plan. Lecture, seminar, discussion.

BIS 302 Interdisciplinary Studies. (3) F, S, SS
Development of general learning skills and interdisciplinary thinking. Lecture, seminar, discussion.

BIS 401 Interdisciplinary Practicum. (3) F, S, SS
Further development of general learning skills and interdisciplinary thinking. Lecture, seminar, discussion.

BIS 402 Senior Seminar. (3) F, S, SS
Students select capstone activity (independent research, senior thesis, internship, community service, etc.). Lecture, seminar, discussion. *General Studies: L2.*



Old Main is home to the university's ROTC programs. Tim Trumble photo

* Contact the department or school.

College of Architecture and Environmental Design

John Meunier, M.Arch.
Dean

PURPOSE

The practice of architecture and environmental design is the culturally responsible shaping of our environment from the scale of the cities in which we live to the buildings and interiors we inhabit and the artifacts and products we use. What we design must be durable, useful, beautiful, appropriate to its context, and not a waste of resources, energy, or materials. Designing our environment is an art, a technology, and a social science that has a history as long as human culture. The goals of the faculty include offering students an education that becomes the basis for life long growth and improvement as professionals, advancing the discipline in both theory and practice, and improving the quality of the environment by making the expertise and knowledge of the faculty available to other professionals and to the public

ORGANIZATION

Academic Organization. The college is composed of three academic units:

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

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

College Facilities. All the college's programs are housed in a single complex. Facilities include the Architecture and Environmental Design Library; computer laboratories; design studios; the Gallery of Design; lecture and seminar rooms; the Media Center; offices for faculty, the administration, and student organizations; the shop; the slide collection; Materials Resource Center; and technology laboratories. The bridge between the original building and the expansion places the college's review and display space at the heart of the complex.

Architecture and Environmental Design Library. As a branch of the University Libraries, the Architecture and Environmental Design Library provides easy access to more than 30,000 books, periodicals, and reference materials for students, faculty, and the professional community. The library's special collections include archives of Blaine Drake, Victor Olgyay, Calvin Straub, Will Bruder, and others, as well as research materials on Paolo Soleri and Frank Lloyd Wright. The Alternative Energy Collection and the Materials Resource Center provide additional sources for research.

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

Special Facilities. College programs are supplemented by several special laboratories, including the computer-aided design and graphics lab; the high bay research lab; the lighting lab; the solar research lab; the solar roofdeck work area, an extensive shop equipped to handle wood, plastic, and metal, the Herberger Center for Design Excellence; and the Joint Urban Design Program, which also has a studio at the ASU Downtown Center The Media Center includes traditional graphics and audiovisual equipment as well as portable gear. The slide collection, with more than 100,000 images, is available for instructional use, and the college maintains an array of materials testing equipment.

ADMISSION

Lower-Division Programs. A new or transfer student who has been admitted to the university and has selected a college major is admitted to the lower division program of his or her choice A separate application procedure is required for entry to upper division programs and graduate programs. Acceptance into lower division programs does not guarantee acceptance to upper-division programs Acceptance into lower division programs requires a TOEFL score of 500 or higher for international students whose native language is not English

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

the College of Architecture and Envi ronmental Design, or one of its program areas, requires a minimum 2 50 cumulative GPA

Upper-Division Programs. Admis sion to upper division programs is competitive. Consult requirements of each major for details Students applying to more than one program must make a separate application to each and must submit separate portfolios. Students not enrolled at ASU when they apply to upper-division programs must also make a separate application to the university. Students not admitted to the upper division are not dismissed from the university and may reapply or may transfer to other programs. Students who plan to reapply should contact a college academic advisor Transfers into upper division programs are considered only if vacancies occur, and such transfers are limited to students with equivalent course work who are competitive with continuing students Acceptance into some upper division programs requires a TOEFL score of 500 or higher for international students whose native language is not English.

ADVISING

While the college and its academic units provide academic advising, *it is ultimately the responsibility of each student to fulfill academic and program requirements.* Advising and record keeping for lower division programs are the responsibility of a college academic advisor (located in ARCH 141). Records for upper-division program students are kept in the appropriate academic units, and advising is by the faculty and the head of the academic unit. General career advising is available from all faculty members. Administration of program requirements is the responsibility of the head of the academic unit and the dean.

Appeals Procedures. Academic appeals and requests for variances are typically made first to the student's advisor and then, if necessary, to the head of the appropriate academic unit, the Governance and Grievance Committee, and, finally, the dean. A student who feels unjustly treated in academic or other matters relating to his or her career as a student may contact a college academic advisor or may take the grievance to the college ombudsperson.

DEGREES

Undergraduate. The college offers curricula for four or five year degree programs: the Bachelor of Science in Design B.S.D.) degree with majors in Architectural Studies, Graphic Design, Housing and Urban Development, Industrial Design, and Interior Design; the B.S. degree in Environmental Resources; the Bachelor of Science in Landscape Architecture degree; and the Bachelor of Science in Planning degree. Applications for the B.S.D. degree in Design Science are not being accepted at this time.

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

MINORS

The faculty in the School of Planning and Landscape Architecture offer minors in Environmental Resources and Urban Planning See pages 133 134 for more information.

GRADUATE PROGRAMS

The faculty in the College of Architecture and Environmental Design offer the National Architectural Accrediting Board (NAAB) accredited professional degree Master of Architecture (M.Arch.); Planning Accreditation Board (PAB) accredited professional degree Master of Environmental Planning (M.E.P.); M.S. degree in Building Design; Master of Science in Design (M.S D.); M.S. degree in Environmental Resources; and Ph.D. degree in Environmental Design and Planning. For more information on graduate programs in the College of Architecture and Environmental Design, see the *Graduate Catalog.*

UNIVERSITY GRADUATION REQUIREMENTS

In addition to fulfilling college and major requirements, students seeking a bachelor's degree must meet all university graduation requirements. See pages 79 83.

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 on pages 84–87. Note that all three General Studies awareness areas are required. Consult your advisor for an approved list of courses. General Studies courses are listed on pages 87 108 in the *General Catalog* following the section on General Studies, in the course descriptions, in the *Schedule of Classes,* and in the *Summer Sessions Bulletin.*

COLLEGE DEGREE REQUIREMENTS

College of Architecture and Environmental Design degree requirements supplement the General Studies requirement. Each curriculum offered by the college includes sufficient approved course work to fulfill the General Studies requirement

MAJOR REQUIREMENTS

Students seeking the Bachelor of Science in Design degree must satisfactorily complete a curriculum of 120 or 150 semester hours, depending on the major. The Bachelor of Science in Planning degree requires 120 semester hours. The Bachelor of Science in Landscape Architecture degree requires 120 semester hours. The B S. degree in Environmental Resources requires 120 semester hours.

Students majoring in Interior Design must take 150 semester hours. All other majors require 120 hours.

Special Honors at Graduation. At the time of graduation, students with academic distinction are awarded the respective designation *cum laude, magna cum laude,* or *summa cum laude.* Also see university requirements for graduation with academic recognition, page 83.

ACADEMIC STANDARDS

Lower-Division Retention Standards. A student in one of the college's lower-division programs is placed on probation when he or she fails to maintain a cumulative GPA of 2.00. Students on probation must observe rules or limitations the college imposes on their probation as a condition of retention. If, after one semester on probation, the overall GPA is not at least a 2.00 and the conditions of probation have not been met, the student is disqualified for

College of Architecture and Environmental Design
Degrees, Majors, and Concentrations

Major	Degree	Administered by
Baccalaureate Degrees		
Architectural Studies	B.S.D.	School of Architecture
Design Science[1]	B.S.D.	School of Design
Environmental Resources Concentration: natural resource management	B.S.	School of Planning and Landscape Architecture
Graphic Design	B.S.D.	School of Design
Housing and Urban Development	B.S.D.	School of Planning and Landscape Architecture
Industrial Design	B.S D.	School of Design
Interior Design[2]	B.S.D.	School of Design
Landscape Architecture	B.S.L.A.	School of Planning and Landscape Architecture
Urban Planning	B.S.P.	School of Planning and Landscape Architecture
Graduate Degrees		
Architecture	M.Arch.	School of Architecture
Building Design Concentrations: computer-aided design, energy performance and climate-responsive architecture, facilities development and management	M.S.	School of Architecture
Environmental Design in Planning Concentrations: design; history, theory, and criticism; planning	Ph.D.	College of Architecture and Environmental Design
Environmental Planning Concentration: urban planning	M.E.P.	School of Planning and Landscape Architecture
Environmental Resources	M.S.	School of Planning and Landscape Architecture
Design Concentrations: graphic design, industrial design, interior design	M.S.D.	School of Design

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

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

a minimum of two full academic semesters. Appeals may be made to the college Governance and Grievance Committee. Also see university retention standards, pages 77 78.

Upper-Division Retention Standards. Students in upper division programs are placed on probation when they fail to meet *any* of the following requirements:

1. failure, incomplete, or withdrawal from any required course;
2. a semester GPA below 3.00;
3. a grade of "D" or "E" in a design studio or a design laboratory; or
4. violation of the college *Code of Student Responsibilities* or any admission agreement.

Students on probation must observe rules or limitations that the college or academic unit places on their probation as a condition of continuation. Students may be removed from a program (but not necessarily the university) if

1. the requirements imposed are not met or the probationary semester GPA is below 3.00 after one semester on probation;
2. failures or withdrawals in required courses are not resolved at the next offering of the course;
3. failures or withdrawals from required sequential courses are not resolved; or
4. incompletes in required sequential courses are not completed before the first day of class of the next semester.

A student removed from a program is not guaranteed reinstatement in the program even if probation requirements or requirements placed on readmission are fulfilled. Appeals may be made first to the appropriate academic unit and, if necessary, to the college Governance and Grievance Committee. Also see university retention standards, pages 77 78.

Incompletes. It is the student's responsibility to contact the instructor regarding the process of requesting and fulfilling an incomplete. Tardiness in contacting the instructor may result in a failing grade. Students must obtain an official "Request for Grade of Incomplete" form from their academic units. The completed form must include a justification, a listing of requirements that have not been fulfilled, and a proposed

schedule of completion. The instructor reviews the request, proposes modifications if necessary, and submits a copy of the request to the appropriate program head (for upper-division students) or a college academic advisor (for lower-division students). An incomplete in an upper-division course that is a prerequisite for sequential courses automatically places the student on probation and denies enrollment in subsequent courses. Also see university requirements on incompletes, pages 72–73.

Withdrawals. University withdrawal regulations apply to lower-division courses. In addition, because the college's upper-division curricula are modular and sequential and because space in the programs is limited, a student is expected to progress through the curriculum with his or her class. Withdrawal from a required upper-division course automatically places a student on probation. Withdrawal from a required upper-division course in a required sequence automatically removes the student from the program beginning the subsequent semester. Also see university requirements on withdrawals, pages 73–75.

Credit/No Credit. The only courses accepted toward graduation with a grade of pass/fail or credit/no credit are internships and field studies.

Foreign Study. The College of Architecture and Environmental Design maintains active communications with several foreign institutions offering professional course work similar to the programs of the college. This opportunity is available for students who wish to pursue professional studies at a foreign institution in lieu of resident course work for up to one academic year. Any interested student is encouraged to inform the head of his or her academic unit at the earliest possible date of any intentions for foreign study.

Exchange programs currently exist with the Stuttgart University, Germany; Wageningen Agricultural University, the Netherlands; the University of Valladolid, Spain; the University of British Columbia, Canada; and the Autonomous University of Guadalajara, Mexico. Foreign study programs in France, Italy, and Spain and summer off-campus courses are offered by the School of Architecture. The School of Planning and Landscape Architecture offers a summer landscape planning course in Europe.

Students are also encouraged to consider foreign travel for either a semester or an entire academic year. A leave of absence must be requested for foreign study and foreign travel. Each academic unit reserves the right to evaluate the content and the student's competency in each of the courses completed at foreign institutions.

Internships. Upper-division students in the college are required to complete an internship program during the summer, normally between the third and fourth years of study. In the Environmental Resources degree program the internship is offered as an elective and is not required.

Attendance. Attendance is expected at all classes, laboratories, and seminars and is a criterion for evaluating performance. Absences and missing work due to absences may result in failure of a course or academic probation. A student may not be excused from attending a class except for medical reasons or other serious personal conditions beyond his or her control. Requests for special consideration must be submitted in writing to the instructor. If accepted, a student may be allowed to take a late or special examination or to submit missing work. Tardiness in contacting the instructor is cause for denying acceptance. See university policy regarding religious holidays, page 23.

Employment. It is difficult for students in professional programs to carry part-time employment while in school. Acceptance to any of the college's upper-division programs presumes a commitment of a minimum of eight hours a day for professional studies. Prior work experience is not a requirement for admission to upper-division programs.

Retention of Student Work. The college reserves the right to retain any or all projects or work submitted to meet course requirements for the college's future instructional, publication, and exhibition use.

Student Leave of Absence. Upper-division students who withdraw from classes or do not continue sequentially in enrollment must request both a leave of absence and readmission in writing from the head of the appropriate academic unit. Leaves of absence are for one-year increments and may be approved for personal reasons, travel, work, or additional study in other disciplines. A student on leave must make the written request for readmission before May 1 for the fall semester of the year of return or before November 1 for the spring semester so that a space may be reserved. Failure to request a leave of absence may result in removal from the program.

STUDENT RESPONSIBILITY

The purpose of this code is to promulgate standards of conduct for students of the College of Architecture and Environmental Design and to establish procedures for reviewing violations. Students are expected to support and maintain the highest professional standards with regard to their individual conduct and their personal and

Max Underwood, associate professor of Architecture, was recently named a National Distinguished Professor by the Association of Collegiate Schools of Architecture. Jeff Havir photo

common environments in the college. Copies of the *Code of Student Responsibilities* are available from the Office of the Dean and a college academic advisor.

SPECIAL PROGRAMS

The college and its academic units regularly sponsor lecture series, symposia, and exhibits. In addition, faculty and students attend regional and national meetings of educators and professionals. Academic units sponsor student awards programs and regularly invite professionals and critics to reviews of student projects. The college also participates with the University Honors College, offering courses accepted in that college.

GENERAL INFORMATION

Accreditation. Most states require that an individual intending to become an architect hold an accredited degree. There are two types of degrees that are accredited by the National Architectural Accrediting Board: (1) the Bachelor of Architecture, which requires a minimum of five years of study, and (2) the Master of Architecture, which requires a minimum of three years of study following an unrelated bachelor's degree or two years following a related preprofessional bachelor's degree. These professional degrees are structured to educate those who aspire to registration/licensure as architects.

The four year preprofessional degree, where offered, is not accredited by NAAB. The preprofessional degree is useful for those wishing a foundation in the field of architecture, as preparation for either continued education in a professional degree program or for employment options in architecturally related areas. See pages 18–19 for information on the accreditation of programs in the College of Architecture and Environmental Design.

Dean's List. Undergraduate students who earn 12 or more graded semester hours ("A," "B," "C," "D," or "E") during a semester in residence at ASU with a GPA of 3.50 or higher are eligible for the Dean's List. A notation of achieving the distinction of being listed on the Dean's List appears on the final grade report for that semester.

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

Council for Design Excellence. The Council for Design Excellence has been created to consolidate a partnership between the College of Architecture and Environmental Design and key community leaders who share a vital interest in the development of high quality in the built environment of the Phoenix metropolitan area. By joining together professionals, business and civic leaders, students, and faculty in a common pursuit of design excellence, the council seeks to make a profound difference in the quality of life.

Affiliations. See pages 18–21 for information on affiliations maintained by the college.

Student Professional Associations. The purpose of the student associations is to assist students with the transition into professional life and to acquaint them with the profession relating to their program of study. These include the following associations:

- American Institute of Architecture Students
- College of Architecture and Environmental Design Pre-Studies Organization
- Student Association of the College of Architecture and Environmental Design
- Student Association of Interior Designers (ASID, IALD, IFDA, IFMA, IIDA)
- Student Chapter/American Planning Association
- Student Chapter/American Society of Landscape Architects
- Student Chapter/Industrial Designers Society of America
- Student Chapter/Society of Environmental Graphic Designers
- Student Chapter/Society for Range Management
- Student Chapter/Soil and Water Conservation Society
- Student Chapter/Wildlife Society
- Women in Architecture

School of Architecture

Ron McCoy
Director
(AED 162D) 602/965-3536
www.asu.edu/caed/Architecture

REGENTS' PROFESSOR
COOK

PROFESSORS
BOYLE, EL DIASTY, McCOY, McSHEFFREY, MEUNIER, PETERSON, SCHEATZLE, UNDERHILL

RESEARCH PROFESSOR
JONES

ASSOCIATE PROFESSORS
HARTMAN, KUPPER LOOPE, McINTOSH, OZEL, SHEYDAYI, UNDERWOOD, ZYGAS

ASSISTANT PROFESSORS
BERTELSEN, SOROKA, SPELLMAN, VAN DUZER

PURPOSE

The architecture program at ASU offers an integrated curriculum of professional courses and focuses on the design laboratory. The program reflects an awareness of the complex factors affecting the quality of the built environment. The program seeks through scholarship, teaching, research, design, and community service to develop the discipline and the knowledge necessary to address the important environmental and design issues faced by society.

In addition to developing knowledge and skills in architectural design, building technology, and professional practice, students are encouraged to select electives from a broad range of approved courses both within the college and across the university. These electives may be selected to devise a minor, to further professional study, or in some other fashion to enrich the student's academic experience.

ORGANIZATION

The School of Architecture's program is organized by the faculty under the direction and administration of the director and standing committees of the faculty.

DEGREES

The faculty in the School of Architecture offer the Bachelor of Science in Design degree with a major in Architectural Studies.

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

Admission to the professional program in architecture is competitive and begins after completion of lower division requirements (see "Admission" below and "Degree Requirements," page 120). The professional program includes two years of upper division study leading to the Bachelor of Science in Design and two years of graduate study leading to the Master of Architecture (see "Upper Division Professional Program" on this page).

In cooperation with the University Honors College, the school offers a special honors curriculum for students with University Honors College standing. Consult the advising officers in the school for information.

ADMISSION

Lower-Division Program. New and transfer students who have been admitted to the university and who have selected Architectural Studies are admitted to the lower division architecture program without separate application to the School of Architecture. Completion of lower division requirements does not ensure acceptance to the upper division professional program.

Transfer credits for the lower-division program are reviewed by the college faculty. To be admissible to this curriculum, transfer courses must be equivalent in both content and level of offering. A review of samples of work is required for studio classes. Consult a college academic advisor for an appointment.

Entering lower-division students who are not prepared to enroll in some of the required courses are required to complete additional university course work. These additional prerequisite courses do not apply to the Bachelor of Science in Design degree requirements.

Upper-Division Professional Program. Admission to the upper division professional program is competitive and limited by available resources. Admission is awarded to those applicants demonstrating the highest promise for professional success, including evidence of ability and the prospect for significant public service.

Transfer students who have completed the equivalent required lower division course work may apply to the upper-division program. Prior attendance at ASU is not required for application to the upper-division program. Applicants who already hold a bachelor's degree in another field should apply to the 3+ year Master of Architecture degree program. See the *Graduate Catalog* for more information.

To be eligible for admission to the upper division program, the following is required:

1. admission to ASU (note that application and admission to ASU are separate from application and admission to the upper division program);
2. completion of lower division requirements (a minimum of 62 semester hours) or equivalents as approved by a college academic advisor and the faculty of the school,
3. a minimum university cumulative GPA of 3.00 as well as a 3.00 GPA based only on the required lower division courses or equivalents; and
4. submission of a portfolio (for detailed information about this requirement, see "Portfolio Format Requirements" on page 120).

In an unusual circumstance, when the admission standard deficiency is slight, written evidence of extenuating circumstances is convincing, and promise for success is evident, a student may be granted admission to the upper division on a *provisional* basis.

Students not admitted to the upper division program are not dismissed from the school and may reapply or may transfer to other programs. Students who intend to reapply should meet with a college academic advisor

Applications for transfer into the upper division professional program are considered only if vacancies occur. Transfer applicants must demonstrate that equivalent course work has been completed, and applicants must be academically competitive with continuing students.

Students who successfully complete the upper division requirements receive the Bachelor of Science in Design degree with a major in Architectural Studies This is not a professional degree. To complete the professional architecture program, students must attain the NAAB-accredited Master of Architecture degree. Students who receive the B S.D. are eligible to apply for the graduate program and should consult the *Graduate Catalog* for proper application procedures. This application process is competitive and based on a thorough review of a student's undergraduate preparation and performance.

Students with the four year Bachelor of Science in Design degree (with a major in Architectural Studies or an equivalent degree from another school that offers an accredited professional degree in architecture) should apply directly to the graduate program.

APPLICATION TO UPPER-DIVISION PROGRAMS

Upper-Division Application Procedures. Students should write to a college academic advisor for the application form well in advance of the application deadline. For more information on portfolios, ask for a copy of the *Portfolio Seminar* brochure from a college academic advisor. The following dates and procedures are for students applying to 1998 99 upper division programs.

Upper-Division Application Deadlines. *April 15, 1998.* Portfolio and application documents are due in the school office by 5:00 P.M.

June 5, 1998. If the spring 1998 semester includes transfer course work (i.e , course work taken at an institution other than ASU), a student must submit his or her transcripts to the school no later than June 5. These transcripts may be unofficial copies. A second set of official transcripts must be sent to the university Undergraduate Admissions office. Application is not complete until the university receives official transcripts for transfer course work.

NOTE For the General Studies requirement codes (such as L1 N3, C a d H and courses, see pages 84–108 For graduation requirements, see pages 79–83. For omnibus courses offered but not listed in this catalog see pages 56–57

For those transfer students whose academic term ends in June rather than May, this deadline may be extended upon the written request of the applicant.

July 1, 1998. Acceptance notices are mailed no later than July 1.

Return of Letter of Acceptance. A signed receipt of acceptance of admission must be received by the school by the date indicated on the Notice of Acceptance. Alternates may be accepted at a later date if space becomes available

Matriculation. An accepted student is expected to begin his or her upper division professional program at the beginning of the immediate fall term. There is no spring admission to the upper division.

Portfolio Format Requirements. Each applicant is responsible for obtaining the following documents and including them in the portfolio. Application materials are submitted at one time in a presentation binder (portfolio) with plastic sleeves (8.5 ' x 11" format only). The student's name must be affixed to the outside. Items must appear in the following order:

Page 1. The application form should be completely filled out with the first page visible. Application forms are available from the college academic advising office.

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

Page 3. Application Essay. Student's name should be written in the upper right-hand corner.

Page 4. All college transcripts for both ASU and transfer work should be included through the fall 1997 semester. Copies are acceptable. An academic advisor forwards 1998 ASU transcripts. (Applicants wishing to transfer spring semester 1998 work are responsible for submitting these transcripts by June 12 so that they may be added to their portfolios. The student is also responsible for getting an official transfer transcript sent directly to the Office of the Registrar.)

Page 5. A certificate of admission is necessary only for those students who have been newly admitted for fall 1998 and who are applying directly into an upper division program. The certificate is not required for students currently attending ASU.

Following Pages (Usually 10–20 Sheets). Students should present work sufficient to demonstrate the depth and breadth of their creative activity. This work should include (but is not limited to) examples of two- and three dimensional design and graphics. Each project should be clearly identified (course, length of project, etc.), with a concise accompanying description of the assignment.

Students are encouraged to include additional materials, written or pictorial, that provide additional evidence of skills and abilities and of the aptitude and commitment to the major. When any work submitted is not completely original, the source must be given. When work is of a team nature, the applicant's role should be clearly indicated. Original examples or slides must not be submitted. All examples must be photographs or other reproduction graphic media.

Return of Portfolios. Application documents (pages 1 through 5) remain the property of the College of Architecture and Environmental Design. However, the remaining portfolio is returned after the admissions review, provided the applicant encloses a self addressed return mailer with sufficient prepaid postage. Portfolios may be claimed in person after July 1, 1998. If the applicant provides written permission, another person may claim the portfolio. After one year, unclaimed portfolios are discarded. While care is taken in handling the portfolios, no liability for lost or damaged materials is assumed by the college or school.

ADVISING

Advising for the lower-division curriculum is through the college academic advising office. Advising for upper-division students is by assigned faculty advisors and administrative personnel from the School of Architecture.

DEGREE REQUIREMENTS

The Bachelor of Science in Design degree with a major in Architectural Studies requires a minimum of 120 hours of course work. Most lower-division students pursue option A; however, those who intend eventually to seek an advanced degree in either engineering or building science are encouraged to fulfill the requirements outlined in option B.

GENERAL STUDIES REQUIREMENT

The following curriculum includes sufficient approved course work to fulfill the General Studies requirement. See pages 84–108 for the General Studies requirement and a list of approved courses. Note that all three General Studies awareness areas are required. Consult your advisor for an approved list of courses.

GRADUATION REQUIREMENTS

In addition to fulfilling college and major requirements, students must meet all university graduation and college degree requirements. See pages 79 83.

The accredited professional degree Master of Architecture requires an additional 56 hours of approved graduate level course work. For more information, consult the *Graduate Catalog.*

Architectural Studies—B.S.D.
Lower-Division Requirements
Option A[1]

First Year

Fall

APH	100	Introduction to Environmental Design *HU, G H*	3
ENG	101	First Year Composition	3
PHI	103	Principles of Sound Reasoning *LI/HU* or ECN 112 Microeconomic Principles *SB* (3) or approved philosophy elective	3
SB elective			3
Approved electives			3
Total			15

Spring

ADE	120	Design Fundamentals I[2]	3
ENG	102	First Year Composition	3
MAT	210	Brief Calculus *N1*	3
Approved elective			6
Total			15

Second Year

Fall

ADE	221	Design Fundamentals II[2]	3
APH	200	Introduction to Architecture *HU, G*	3
PHY	111	General Physics *S1/S2*[3]	3
PHY	113	General Physics Laboratory *S1/S2*[3]	1
Approved electives			6
Total			16

Spring

ADE	222	Design Fundamentals III[2]	3
ANP	236	Introduction to Computer Modeling *N3*	3

PHY	112	General Physics *S1/S2*[4]	3
PHY	114	General Physics Laboratory *S1/S2*[4]	1
SB elective			3
Approved elective			3
Total			16
Option A lower division total			62

[1] Transfer credits are reviewed by the college and evaluated for admissibility to this curriculum. To be admissible, transfer courses must be equivalent in both content and level of offering.

[2] Portfolio review is required for transfer studio work. See a college academic advisor for an appointment.

[3] Both PHY 111 and 113 must be taken to secure S1 or S2 credit.

[4] Both PHY 112 and 114 must be taken to secure S1 or S2 credit.

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

Third Year

Fall

ADE	321	Architectural Studio I	4
APH	313	History of Western Architecture I *L2/HU**	3
ATE	353	Architectural Construction	3
AVC	301	Architectural Communication I	2
Approved elective/or L2			3
Total			15

Spring

ADE	322	Architectural Studio II	5
ANP	331	Analysis and Programming	3
APH	314	History of Western Architecture II *L2/HU**	3
ATE	361	Building Structures I	3
Total			14

Summer

ARP	484	Clinical Internship	1
Total			1

Fourth Year

Fall

ADE	421	Architectural Studio III	5
ATE	451	Building Systems I	3
ATE	462	Building Structures II	3
Professional elective			3
Total			14

Spring

ADE	422	Architectural Studio IV	5
ATE	452	Building Systems II	3
Architectural history elective			3
Professional elective			3
Total			14
Option A upper division total			58
B.S D option A minimum total			120

* These courses may be completed before admission to the upper division If already completed, a student may substitute an approved elective.

Architectural Studies—B.S.D.
Lower-Division Requirements
Option B[1]

First Year

Fall

APH	100	Introduction to Environmental Design *HU H*	3
ECE	100	Introduction to Engineering Design	4
ECN	112	Microeconomic Principles *SB* or ECN 111 Macroeconomic Principles *SB* (3)	3
ENG	101	First Year Composition	3
MAT	270	Calculus with Analytic Geometry I *N1*	4
Total			17

Spring

ADE	120	Design Fundamentals I[2]	3
ENG	102	First Year Composition	3
MAT	271	Calculus with Analytic Geometry II	4
PHY	121	University Physics I Mechanics *S1/S2*	3
PHY	122	University Physics Laboratory I *S1/S2*	1
Total			14

Second Year

Fall

ADE	221	Design Fundamentals II[2]	3
APH	200	Introduction to Architecture *HU, G*	3
ECE	210	Engineering Mechanics I: Statics	3
MAT	272	Calculus with Analytic Geometry III	4
PHY	131	University Physics II: Electricity and Magnetism *S1/S2*[2]	3
PHY	132	University Physics: Laboratory II *S1/S2*[2]	1
Total			17

Spring

ADE	222	Design Fundamentals III[2]	3
ANP	236	Introduction to Computer Modeling *N3*	3
ECE	300	Intermediate Engineering Design *LI*	3
ECE	312	Engineering Mechanics II Dynamics	3
MAT	274	Elementary Differential Equations	3
Total			15
Option B lower division total			63

[1] Transfer credits are reviewed by the college and evaluated for admissibility to this curriculum. To be admissible, transfer courses must be equivalent in both content and level of offering

[2] Portfolio review is required for transfer studio work Contact the School of Architecture for an appointment

Architectural Studies B.S.D.
Upper-Division
Professional Program Requirements
Option B

Third Year

Fall

ADE	321	Architectural Studio I	4
APH	313	History of Western Architecture I *L2/HU*[1]	3
ATE	353	Architectural Construction	3
AVC	301	Architectural Communication	2
Total			12

Spring

ADE	322	Architectural Studio II	5
ANP	331	Analysis and Programming	3
APH	314	History of Western Architecture II *L2/HU*[1]	3
ECE	313	Introduction to Deformable Solids	3
Total			14

Summer

ARP	484	Clinical Internship[2]	2
Total			2

Fourth Year

Fall

ADE	421	Architectural Studio III	5
ATE	451	Building Systems I	3
ECE	351	Engineering Materials	3
Approved SB Elective			3
Total			14

Spring

ADE	422	Architectural Studio IV	5
ATE	452	Building Systems I	3
CEE	321	Structural Analysis and Design	4

NOTE. For the General Studies requirement, codes (such as L1, N3 C and H), and courses, see pages 84 108. For graduation requirements, see pages 79–83. For omnibus courses offered but not listed in this catalog see pages 56–57

ECE	380	Probability and Statistics for Engineering Problem Solv ng *N2*	3
Total			15
Option B upper division total			57
B S D option B minimum total			120

[1] These courses may be completed before admission to the upper divis on If already completed, a student may request to sub st tute an approved elective.

[2] Internship is done over the summer be tween the third and fourth year.

Master of Architecture
Graduate Division
Professional Program Requirements

Fifth Year

Fall

ADE	521	Advanced Architectural Studio I	5
ATE	553	Building Systems III	3
ATE	563	Building Structures III	3
Professional elective			3
Total			14

Spring

AAD	551	Architectural Management I	3
ADE	522	Advanced Arch tectural Studio II	5
APH	681	Architectural Theory	3
Professional elective			3
Total			14

Sixth Year

Fall

AAD	552	Architectural Management II	3
ADE	621	Advanced Arch tectural Studio III	5
ANP	681	Pro ect Development	3
Professional elective			3
Tota			14

Spring

AAD	681	Professional Seminar, Capstone	3
ADE	622	Advanced Architectural Studio IV	5
Approved elective			3
Professional elective			3
Tota			14
Graduate divis or total			56

COURSES

Subject matter within the school is categorized in the following instruc tional areas on this page.

Architectural Administration and Management. AAD courses focus on the organizational and management as pects of architectural practice, includ ing management co ordination, adminis trative procedures, ethics, legal con straints, and the economics of practice.

Architectural Design and Technology Studios. ADE courses require the syn thesis of knowledge and understanding gained from other course work and develop an understanding of design theory and design skill through a series of comprehensive design projects Stu dents apply analytical methods, com pare alternative solutions, and devel op sophisticated technical and conceptual resu ts.

Environmental Analysis and Programming. ANP courses develop the ability to analyze and program environ mental and human factors as precondi tions for architectura design using existing and emerging methods of evaluation and ana ysis.

Architectural Philosophy and History. APH courses develop an under standing of architecture as both a deter minant and a consequence of culture, technology, needs, and behavior in the past and present. Studies are concerned with the theory as well as the rationale behind methods and results of design and construction. Case studies are both domestic and international.

Architecture Professional Studies. ARP courses provide students with off campus opportunities, educational ex perience in group and individual stud ies relative to specific student interests, and faculty expertise, including sum mer internships and field trips.

Architectural Technology. ATE courses develop knowledge of the tech nical determinants, resources, and pro cesses of architecture These studies focus on the science and technology of design and construction, including ma terials, building systems, acoustics, lighting, structural systems, environ mental control systems, computer ap plications to design and technology, and both passive and active solar sys tems Emphasis is on measurable and quantifiable aspects

Architectural Communication. AVC courses develop the student's under standing of communication theory as it applies t architectural design and prac tice as well as skills in drawing, graph ics, photography, presentation design, and the design process.

The courses required in the upper division and graduate levels of the professional program are not open to non majors and students not admitted to the upper division program.

GRADUATE PROGRAMS

The faculty of the school of Archi tecture offer a Master of Architecture and a M S. degree in Building Design. Also, a dual career program Master of Architecture Master of Business Ad ministration, has been established in cooperation with the College of Busi ness. For more information, see the *Graduate Cat alog*

ARCHITECTURAL ADMINISTRATION AND MANAGEMENT (AAD)

AAD 551 Architectural Management I. (3 S Organ zat ona human performance, and mar ket nf uences on arch tecture f rms and proj ects Read ngs case studies and ana ys s of manager al prob ems and so ut ons. Lecture d scuss on Prerequ s te: graduate evel stand ng Corequ s te ADE 522

AAD 552 Architectural Management II. (3) F Des gn de very coord nat on of construct on documents cost est mat ng, b dd ng and ne got at ons construct on observat on and post construct on serv ces Case stud es Lecture, d scuss on Prerequ s te AAD 551 Corequ s te ADE 621

AAD 553 Advanced Architectural Management. (3 A Current ssues n the bus ness and pract ce of arch tecture F nanc al management project management and des gn de very strateg es nc udes case stud es Lecture, d scussion Prerequ s te. AAD 551 or nstructor approva

AAD 554 Advanced Construction Contract Administration. 3 N Advanced top cs and prob ems n construct on contract adm n strat on Prerequ s te: AAD 552 or instructor approva

AAD 555 Architect as Developer. 3) A Deve opment bu d ng rea estate construc t on fund g and acqu s t on and the sources for cap ta Prerequ s te nstructor approval.

AAD 558 Advanced Specifications and Cost Analysis. (3 N Coord nat on of work ng draw ngs, construc t on spec f cat ons and cost est mates Em phas s on methods off ce procedures con tract cond t ons bonds and b dd ng proce dures Prerequ s te: nstructor approva

AAD 560 Contemporary Architectural Practice. (3) A Advanced ssues and d rections n des gn de very, f rm and project management g oba markets and expand ng cu tural respons bi t es nc udes case stud es Sem nar Prereq u s te nstructor approva

AAD 681 Professional Seminar: Capstone. 3 S Exam nat on of eth ca po t ca soc a eco nom c eco og ca and cultura ssues con front ng the pract ce of arch tecture Read ngs and case stud es Sem nar Prerequ s te AAD 552 Corequ s te ADE 622

ARCHITECTURAL DESIGN AND TECHNOLOGY STUDIOS (ADE)

ADE 120 Design Fundamentals I. (3) F, S SS
Development of v sual ıteracy Introduction to drawing and graphic representation as meth ods of see ng and problem solving Stud o Prerequisite: major n Col ege of Arch tecture and Environmental Design

ADE 221 Design Fundamentals II. (3) F
Exercises n bas c des gn, stress ng creative problem-solving methods, princ p es of com position and aesthet c eva uat on Develop ment of vocabulary for env ronmenta design Lecture, studio. Pre or corequ s te. ADE 120

ADE 222 Design Fundamentals III. (3) S
App cation of des gn fundamenta s with an emphasis on arch tectural ıssues Lecture stu d o. Prerequ site APH 200 Prerequ s te w th a grade of "C" or h gher: ADE 221.

ADE 321 Architectural Studio I. (4) F
Introductory bu ldıng design prob ems. Em phasıs on des gn process, communicat on methods, aesthetics, construct on, and tech nology Lecture stud o, field tr ps. Prerequ site adm ssıon to upper d v s on Corequ's tes: ATE 353; AVC 301

ADE 322 Architectural Studio II. (5) S
Site and bui d ng des gn prob ems Emphasis on programmatic and environmental determ nants and bui d ng ın natural and urban con texts Lecture, stud o, f e d trips Prerequ s te ADE 321. Corequ s te ANP 331

ADE 421 Architectural Studio III. (5) F
Topical design prob ems of ntermed ate com plexity, nc ud ng nterd sc p nary prob ems. Lecture, studıo, f e d trıps Prerequ sites. ADE 322 and ARP 484 for Arch tectura Stud es majors; permission of the schoo director for other majors in the co lege

ADE 422 Architectural Studio IV. (5) S
Topical design prob ems of ntermed ate com plexity, nc ud ng nterd sc p nary prob ems. Lecture, studıo, f e d trıps Prerequisite: ADE 322 for Arch tectura Stud es majors perm s sion of the schoo director for other majors n the co lege.

ADE 510 Foundation Architectural Studio. (6) SS
Fundamenta s of arch tectura des gn method ology, v sual zation and representation Lec ture stud o field tr ps. Prerequ site. admission to graduate program

ADE 511 Core Architectural Studio I. (6) F
Applicat on of design fundamenta s n arch - tectural prob ems, nc ud ng construction tech nology, programmat c and environmental de terminants Lecture stud o field trıps. Prereq uisites: ADE 510 APH 200 509 Corequıs te ATE 353

ADE 512 Core Architectural Studio II. (6) S
Applicat on of arch tectura des gn fundamen ta s to ncreasingly comp ex problems nc ud ıng specıf c s tes and activ'ties Lecture stu dıo, fie d trips Prerequisite: ADE 511.

ADE 521 Advanced Architectural Studio I. (5) F
Des gn problems emphasızing theory, aesthet ics, and tecton cs as ınf uences on arch tec tural form. Lecture, studıo f e d trıps Prerequı site: admission to graduate program

ADE 522 Advanced Architectural Studio II. (5) S
Des gn problems emphas z ng the compre hensive ntegrat on of bui d ng systems and techno og es as nfluences on arch tectura form Lecture, stud o f e d tr ps Corequ sites AAD 551· ADE 521

ADE 621 Advanced Architectural Studio III. (5) F
Des gn problems emphas z ng the urban con text, plann ng issues, and urban des gn theory as inf uences on arch tectura form. Lecture stud o fie d tr ps Corequıs tes AAD 552, ADE 522, ınstructor approval

ADE 622 Advanced Architectural Studio IV. (5) S
ndıvidual, student in tiated project reflect ng a cu mınatıng synthes s of arch tectura deas Studıo Prerequisites: ADE 621, ANP 681 Co requ'site: AAD 681

ADE 661 Bioclimatic Design Studio. (6) A
Susta nab e architectura and site synthesis at a variety of sca es emphas z ng b oc ımat c cn ter a and the use of passive and ow energy systems. Prerequ s te: profess ona degree or nstructor approva Corequ s te· ATE 558

ENVIRONMENTAL ANALYSIS AND PROGRAMMING (ANP)

ANP 236 Introduction to Computer Model ing. (3) F S
Fundamentals of computer operation geo graph c ınformat ons systems, geometric mod e ing of three d mens ona forms and render ng of l ght, mathemat ca model ng of pro cesses us ng spreadsheets. Lab. Cross l sted as DSC/PUP 236 Prerequ's te major ın the Co lege of Architecture and Env ronmental Des gn *General Studies N3*

ANP 331 Analysis and Programming. (3) S
Ana ys s of natura and human env ronmental determ nants as the bas s of the programm'ng and design of the bui t environment Lecture, stud o. Corequ s te ADE 322.

ANP 431 Architectural Programming Meth ods. (3) N
Theory and methods of arch tectural program m ng including determinants of architecture nformation gathering techn ques program preparation and methods of evaluat on. Pre requ site professıona - eve stand ng

ANP 475 Computer Programming in Archi tecture. (3) F, S
Computer programm ng for architectura prob ems and app cations Lecture, ab. Prerequ - s te CSE 183 or equivalent

ANP 477 Computer Applications to Design Problems. (3) F
Exam nat on of gener c m crocomputer soft ware n solv ng architectura des gn problems Emphasis on the log c of problem formulat on Lecture, ab Prerequ s te ınstructor approval

ANP 530 Computer Graphics in Architec ture. (3) A
Fundamentals of computer graph cs program m ng ın arch tecture, nc uding graph cs hard ware device ndependent packages, 2- and 3- d mens onal transformat ons and data struc tures 2 hours lecture, 3 hours ab Prerequ - s te ANP 475 or nstructor approval

ANP 561 Architectural Information Pro cessing Systems. (3) A
App ıcat ons of nformat on process ng sys tems to architectural problems Ana ys s of comput ng too s with respect to assumpt ons and theories Lecture ab. Prerequ sites graduate stand'ng nstructor approva

ANP 562 Information Systems for Facilities Management. (3) N
Introduct on to database des gn and ımple mentation. Assessment of fac ıty manage ment prob ems from nformation system points of vıew Sem nar ab. Prerequ s tes ANP 477 or (561), graduate stand'ng.

ANP 576 Community Housing. (3) N
H story, pract ces trends and forms of hous 'ng; nc udes growth of pub c programs, na tional and oca programs, zon ng law, housing d strıbution p ann ng princip es and pol c es, des'gn rev ew standards and private devel opment pract ce

ANP 577 Housing Environments. (3) A
Contemporary housing env ronments, housing types, and l fe sty es as determ ned by user preference density, deve opment and prop erty standards, cost commun ty and privacy, security identity, movement, and the need for open space.

ANP 581 Urban Structure and Design. (3) F
The nature and dynamics of urban zat on and ıts relat onsh p to arch tecture and urban de s gn, nc ud ng growth, decay socıa zat on, p ann ng processes and visual percept on. Case stud es. Prerequ s te· professıona - evel stand ng

ANP 681 Project Development. (3) F 1998
Defin tion and elaborat on of major 'deas for mplementation 'n ADE 622 Advanced Archı tectura Studio V n re ation to contemporary theory and pract ce. Sem nar. Prerequ site ADE 522

ARCHITECTURAL PHILOSOPHY AND HISTORY (APH)

APH 100 Introduction to Environmental De sign. (3) F, S, SS
Survey of environmenta des gn· nc udes his toric examp es and the theoret'ca social, techn ca , and environmenta forces that shape them Cross-l sted as DSC PUP 100 *General Studies HU, G, H*

APH 200 Introduction to Architecture. (3) F
Survey of ssues and polem cs affecting cur rent arch tectura theory and practice Lecture, d scuss on *General Studies. HU, G*

APH 300 World Architecture I/Western Cul tures. (3) F
H stonca and contemporary bu lt environ ments of Western c v l zat ons Mediterranean, Europe, and the Amer cas as manifestations of cultural h story and responses to env ron mental determ nants Prerequ s te nonmajor *General Studies HU, G, H*

APH 301 World Architecture II/Eastern Cul tures. (3) S
H stor ca and contemporary bu lt env ron ments of Eastern c v ızat ons· Mid-East, Cen tra Asia Far East and South Pac fic as man festations of cultura h story and responses to environmental determ nants. *General Studies: G*

NOTE For the General Studies requ rement, codes (such as L1, N3 C and H), and courses, see pages 84–108. For graduation requ rements see pages 79–83. For omn bus courses offered but not sted n th s catalog see pages 56–57.

APH 304 American Architecture. 3 N
Arch tecture n the Un ted States from earl est co on a t mes to present Prerequ s te nonmajor *Genera Stud es HU*

APH 305 Contemporary Architecture. 3 N
Europe and Amer ca from the fo ndat ons of the modern movement t the present Prereq u s te onmajor *Genera Stud es HU*

APH 313 History of Western Architecture I. 3 F
Representat ve bu d ngs and s tes w th em phas s on the r phys ca and soc a sett ngs from ant qu ty through the M dd e Ages Pre requ s te jun r stand ng or nstructor ap prova *Genera Stud es L2/HU.*

APH 314 History of Western Architecture II. 3 S
Representat ve examp es of arch tecture and urban des gn w th emphas s on the r soc a and h sto cal contexts from the M dd e Ages to the present Prerequ s te un or stand ng or structor approva *Genera Stud es· L2/HU*

APH 411 H story of Landscape Architecture. 3 F
The phys ca record of human att tudes toward the a d Se ected examp es of ancient through contemporary andscape p ann ng and des gn Cross sted as PLA 310 *Genera Stud es H*

APH 414 History of the C ty. 3 F
The c ty from ts anc e t or g ns t the present day w th emphas s n European and Amer can c t es du ng the ast f ve centur es Cross sted as PUP 412

APH 441 Ancient Arch tecture. 3 N
Ar h tecture of the anc e t Med terranean wor d w th se ect ve emphas s on major h t r ca comp exes and monumenta s tes Pre requ s te APH 313 *Genera Stud es HU*

APH 442 Preservation Planning. 3 F
Pr c p es and pract ces n p ann g for preser vat conservat on and ne ghborhood rede ve opment Emphas s on eva uat on of h stor c res urces Off campus f e d pract cum re qu ed Prerequ s te nstruct r approva

APH 443 Renaissance Architecture. 3 N
Se ected examp es of Rena ssance architec ture and urban sm w th emphas s on the r h s tor ca and cu tura sett ngs Prerequ s te APH 314 *Genera Stud es HU*

APH 444 Baroque Arch tecture. 3 N
Se ected examp es of Baroque arch tecture and urban sm w th emphas s on e at onsh ps between a ch tecture and other arts Pre equi s te APH 314 *Genera Stud es HU*

APH 446 20th-Century Architecture I. 3 F
Arch tect re n Europe and Amer ca from the foundat ons of the modern movement to the cu m nat f the nternat ona sty e Prerequ s te major n co ege *Genera Stud es HU*

APH 447 20th-Century Architecture II. 3 S
Deve opments n arch tecture s nce the nter nat ona sty e Pre equ s te APH 446 *Genera Stud es HU*

APH 509 Foundation Seminar. 3 SS
H stor ca techn ca theoret ca env ronmen ta and profess ona ssues n arch tecture Lecture sem nar, f e d t ps Prerequ s te ADE 510

APH 511 Energy Environment Theory. 3 F
So ar a d other energy sources n des gned and natura env ro ments arch tectura ur ban and reg na mp cat ons of strateg e us ng other renewab e resources

APH 681 Architectural Theory. (3) S
An exam nat on f arch tectura theory Em phas s o app cat on of theory to pract ce Sem nar Prerequ s te nstructor approva

APH 682 Arch'tectural Criticism. 3 F
An exam nat on of arch tectura cr t c sm em phas z ng spec f c methods of cr t c sm and the r app cat n for aesthet c judgment Sem nar Prerequ s te nst uct r approva

APH 683 Cr t cal Regionalism. 3 N
Cr t ca nqu ry n cu tura ground ng the def n t on of place n arch tectura theory and prac t ce Lecture, field stud es Prerequ s te: APH 446 or 447.

ARCHITECTURE PROFESSIONAL STUDIES (ARP)

ARP 451 Arch tecture Field Studies. 1–6 F S SS
Organ zed f e d study of arch tecture spec - f ed nat ona a d nternationa ocat ons Cred t/no cred t May be repeated w th ap prova of d rector

ARP 484 Clinical Internship 1 12 SS
Fu t me nternsh'p under the superv s on of pract t oners the Phoen x area or other o ca es Cred t/no cred t Prerequ s te nstructor appr va

ARP 684 Profess ona Internship. 2–6 S F
E d exper ence n an arch tectura f rm spe a z ng n an area d rect y re ated to the stu dent s advanced study tegrat on of theory and state of the art pract ces Cred t/no cred t Prerequ s te nstr ct r approva

ARCHITECTURAL TECHNOLOGY (ATE)

ATE 353 Architectural Construction. 3 F
Mater a s and methods of construct on Aes thet c code, and cost cons derat ons Lecture ab Corequ s te ADE 321

ATE 361 Building Structures I. 3 S
ntroduct on to oad d str but n on structures. Stat c ana ys s f determ nant beams, trusses arches and r g d frames Computer appl ca t ons Lecture lab Prerequ s te: admiss on to upper d v s on

ATE 451 Build ng Systems I. 3 F
Pr nc p es of so ar radiat on heat and mo s ture transfer and environmenta contro sys tems as form nf uences Energy conscious des gn ecture ab Prerequ s te adm ss on to upper d v s on.

ATE 452 Bu'lding Systems II. 3) S
Ar h tectura des gn mp cat ons of heat ng vent at on and a r cond t on ng systems Pr n c p es of ght ng day ght ng and acoust cs and the r app cat ns Lecture ab Prerequ s te. ATE 451

ATE 453 Advanced Architectural Construction. 3 N
Study of construct on mater a s assemb y and arch tectura deta g Lecture ab Prerequ - s te ATE 353

ATE 462 Building Structures I. 3 F
Strength of mater a s Stresses n beams and co mns Therma effects on structures Ana ys s, des gn and deta ng of wood structura systems Lecture, ab Prerequ s te ATE 361

ATE 501 Introduction to Solar Energy. 3) N
ntroduct on to theoretical and pract ca as pects of use of so ar rad ation and nocturna coo ng for control of bu d ng env ronments

ATE 521 Building Environmental Science. (3) F
Sc ent f c princ ples re at ng to comfort and en v ronmenta contro Heat and mo sture trans- fer So ar natura energ es for heat ng, coo ng, and ghting Lecture, ab Prerequ's te MAT 290 or equ va ent

ATE 522 Desert Habitation Technology. 3) N
Ana ys s of hab tat on approaches in nontech n og ca and techno og cal soc et es ar sing from the nature of desert areas

ATE 530 Daylighting Design. (3) S
Day ght ana ys s, ava abi ty des gn sky mea surements, model ng and s mu at on Integra t on w th pass ve heat ng, coo ng, bu d ng de- s gn and energy cons derat ons Lecture ab

ATE 533 Building Performance Simulation and Visualization. 3) S
S mu at ng ana yzing and evaluat ng bui d ng energy ght ng and acoustic systems us ng computer software packages Lecture, lab

ATE 534 Earth Sheltering. 3) S
Fundamenta s of earth atmosphere interac- t on therma and mo sture effects, so l ap pra sa underground pass ve techn ques comfort and energy eff c ency Lecture lab

ATE 550 Passive Cooling in Buildings. 3 N
Theory ana ys s and app cat on of pass ve and ow energy co l ng systems for therma comf rt n bu' d ng Prerequ'site ATE 521.

ATE 551 Pass've Heating in Buildings. (3) N
Theory analys s and app cat on of pass ve and w energy heat ng systems for therma comfort n bu d ngs. Prerequ s te ATE 521

ATE 552 Energy Parameters in Buildings. 3 N
Advanced mode ng. Trans ent and mu t d mens ona ana ys s of therma and day ght performance us ng var ab e weather data Pre- requ s te ATE 551 or nstructor approva .

ATE 553 Building Systems III. (3) F
Des gn and ntegration of bu ld ng systems, n- c uding mechan ca , e ectrica p umbing se- cur ty commun cat ons f re protect on, and transportat on Prerequ s te: adm ssion to up- per d v s on or nstructo approva

ATE 554 Building Energy Efficiency. 3) S
mpact of bui d ng des gn on energy perfor- ma ce C mate respons veness, operat ons dynam cs and subsystems ntegrat on n ther ma comfort and eff c ency. Prerequ s te ATE 452

ATE 557 Construction Documents I. (3 S
Product on of arch tectura work ng draw ngs ega status organ zat on ayout s te survey p ans sect ons e evat ons, detai s, schedu es, and coord nat on Lecture ab Prerequ s te adm ss on to upper division

ATE 558 Bioclimatic Parameters. (3) S
Theory analys s, and app cat on of energy re lated parameters of s te c mate, human com fort and bu d ng program for des gn synthe- s s

ATE 560 Building Energy Analysis. (3) F
Computer simu ation of bu lding thermal be havior. Software rev ew Deta led study of se- ected s mulat on mode s us ng case study projects Lab Prerequis tes ANP 475 (or 477) ATE 582

ATE 561 Energy Analysis Techniques. (3) F
Mathematical mode s of bu' d ng enve ope and comfort condit on ng systems as bases for op tim zat on techn ques Prerequ s te ATE 560.

ATE 562 Experimental Evaluation. (3) A
Instrumentat on measurement and computa tional techn'ques for ana ys s of bu d ng com- ponents and assessment of thermal and um - nous performance. Prerequ s te: ATE 521

ATE 563 Building Structures III. (3) F
Ana ys's, des gn, and detai ng of stee bu ld- ings and frames Lateral ana ys s of sma r g d and braced frame systems Lecture ab Pre- requ s te: ATE 462 or equ va ent

ATE 564 Advanced Structures: Concrete. (3) A
Ana ysis des gn, and detai ng of concrete systems, considering cont nu ty mult story frames and shear wa s and atera ana ys s. Computer appl cat on Prerequ s te ATE 563 or nstructor approva

ATE 565 Advanced Structures: High Rise. (3) A
Developments n h gh r se construction Ef- fects of wind and se smic forces Pre im nary ana ysis des gn, and deta ng consider ng code requ rements Lecture ab Prerequ s te ATE 563 or nstructor approva

ATE 582 Environmental Control Systems. (3) A
Heating vent lat on, and air cond t oning sys- tems Loads psychrometr cs, refr gerat on cycle a r water d stribut on controls energy performance standards and uti ty rates 2 hours lecture, 3 hours ab, f eld tr ps. Prerequ s te ATE 451 or 521

ARCHITECTURAL COMMUNICATION (AVC)

AVC 141 Design Graphics. (2) N
Orthograph c, para ne, axonometr c, and per- spect ve projection, shades and shadows and bas c descriptive geometry for des gners 1 hour lecture 4 hours stud o Prerequ s te. ma jor in the Col ege of Architecture and Env ron- mental Des gn.

AVC 161 Advanced Freehand Perspective Drawing. (2) N
ntroduct on to co or med a, and ana yt'ca and des gn drawing exercises 4 hours stud o. Pre requisite· major n the Co ege of Arch tecture and Env ronmental Des gn.

AVC 301 Architectural Communication. (2) F
Communicat on ski s for arch tecture stud os. Emphas s on graph cs, draw ng conventions media computer a ded design design of pre- sentations and ora presentat ons Lecture studio Corequ s te ADE 321

AVC 410 Architectural Presentation Techniques. (3) F, S
Spec a techniques of graph c commun cat ons as prel minary presentat on too s for the de sign professiona Prerequ s te: AVC 301 or n structor approva

AVC 411 Architectural Watercolor Presentation Techniques. (2) N
Introduction of arch tectura presentat on tech niques us ng watercolor as a pr mary med a Emphas s on co or composition and tech n que Prerequ s te AVC 301 or nstructor ap- proval

AVC 444 Architectural Photography. (2–3 N
Use of photography as a means of architec- tural study evaluation, and record. ntroduc t on to 35 mm camera and darkroom tech n ques Lecture lab Prerequisite: nstructor approva

School of Design

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PROFESSORS
KROELINGER, REZNIKOFF, WOLF

ASSOCIATE PROFESSORS
BERNARDI, BRANDT CUTLER, DETRIE, DORSA JOHNSON, McDERMOTT, N ELSEN, PATEL, RATNER, SANFT, WITT

ASSISTANT PROFESSORS
HARMON-VAUGHAN, NICKERSON RANDALL

Information about the School of De sign may also be obtained via the Web address provided or by sending elec tronic mail to robert.lee.wolf@asu.edu.

PURPOSE

The School of Design educates de signers for a professional world that needs informed and developed talent. The curricula emphasize preparation in building bridges between the academic world and the professions. The faculty believe that designers have a responsi bility to the public and the communities they serve. The student learns not only the history and theory of the profes sions and their practical application, but an understanding of systems, functions, scientific, and technical data related to public welfare, safety, and human fac tors Students integrate aesthetic values into the products and spaces they de sign and consider the aspirations of the world in which they live. The goal is to create the best design curricula possible and to develop technically accom- plished and conceptually sophisticated graduates who continue to evolve as practicing professionals With the help of an international network and a fac- ulty of active design professionals, the aim is to educate creative individuals who will achieve a comprehensive un derstanding of both products and interi ors as related to the different cultures in which they exist.

ORGANIZATION

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

DEGREES

The faculty in the School of Design offer the Bachelor of Science in Design degree with three majors: Graphic De sign, Industrial Design, and Interior Design. Applications are not being ac- cepted to the major in Design Science

Graphic Design. The Graphic Design program educates and develops stu dents for both the graphic design pro fession and graduate work. The goal of the faculty is to offer the best graphic design education, allowing the graduat ing student every option available Stu dio classroom projects are planned to strengthen and refine students' profi ciency in the language, process, and technical aspects of the profession. Projects are intended to help students think critically as individuals and in group situations. Students opting for the profession can expect to work in the areas of ad design, brand identity, broadcast graphics, corporate identity, environmental graphics, informational graphics, in house corporate design, museum informational design, publica tion design, Web site design, and oth ers. Students pursuing graduate studies can expect to be equally well prepared with critical and analytical thinking skills coupled with a diversified portfo lio. The program is dedicated to a comprehensive education in graphic de sign as it relates to the changing com munication standards of today and the future.

NOTE For the General Stud es requ'rement codes (such as L1 N3, C, and H), and courses, see pages 84–108 For graduat on requ rements see pages 79–83. For omn bus courses offered but not sted n this cata og, see pages 56–57

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

Through studio projects, students learn to visualize ideas and communicate them to others and to refine skills in freehand sketching, computer aided design, and model making. Assignments balance conceptual aspects with practical techniques. Typical projects include electronics, toys, furniture, sports equipment, and packaging. Stress is placed on the role of the designer in a team effort. Third year students perform internships in a large corporation or in a consulting design agency.

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

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

ADMISSION

Lower-Division Program. New and transfer students who have been admitted to the university and who have selected Graphic Design, Industrial Design or Interior Design as a major are admitted to the appropriate lower division program. Transfer credits for the lower division program are reviewed by the college and evaluated as admissible to this curriculum. To be admissible, transfer courses must be equivalent in both content and level of offering. A review of samples of work is required for studio classes. Consult a college academic advisor for an appointment

Entering lower division students who are not ready to take some courses in the curriculum (for example, algebra and trigonometry or a second course in computer programming) are required to take additional courses, which do not apply to the Bachelor of Science in Design degree. If these courses are needed, it may take an additional year to complete the lower division program.

Completion of lower-division requirements does not ensure acceptance to an upper division professional program.

Upper-Division Program. When students have completed the lower division curriculum requirements, they may apply for acceptance to upper division programs in Graphic Design, Industrial Design, or Interior Design. In addition to the portfolio review, the faculty in charge of the Interior Design program conduct a four hour required design charette to measure minimum competency and understanding of the design process The limited spaces available each year are awarded to applicants with the highest promise for professional success. The faculty of the School of Design retain the right to admit any meritorious student who may be deficient in a published school criterion Such admission requires an extraordinary review of the applicant by the school's admissions committee. Should the faculty choose to admit such an applicant, the student is placed automatically on a provisional admission status with stipulations as to what is required to be removed from probation. See "Application to Upper Division Programs" on this page.

Students not admitted to upper division programs are not dismissed from the university and may reapply or may transfer to other programs Students who intend to reapply should meet with a college academic advisor.

APPLICATION TO UPPER-DIVISION PROGRAMS

Upper-Division Application Procedures. Students should write to a college academic advisor for the application form well in advance of the application deadline For more information on portfolios, ask for a copy of the *Portfolio Seminar* brochure from a college academic advisor. The following dates and procedures are for students applying to 1998 99 upper division programs.

Upper-Division Application Deadlines. *April 15 1998.* Portfolio and application documents are due in the school office by 5:00 P.M In addition to the portfolio submittal, the Interior Design faculty conduct a half day *required* design charette to measure minimum competency and understanding of the design process. The date is announced when the portfolio is submitted Students who do not complete the charette are not considered for upper-division admission. Additionally, Graphic Design requires an aptitude test in addition to a portfolio submittal. Application packets can be obtained from the Academic Advising office one month before the due date.

June 5, 1998. If the spring 1998 semester includes transfer course work (i.e., course work taken at an institution other than ASU), a student must submit his or her transcripts to the school no later than June 5 These transcripts may be unofficial copies. A second set of official transcripts must be sent to the university Undergraduate Admissions office. Application is not complete until the university receives official transcripts for transfer course work. For those transfer students whose academic term ends in June rather than May, this deadline may be extended upon the written request of the applicant.

July 1 1998. Acceptance notices are mailed no later than July 1.

Return of Letter of Acceptance. A signed receipt of acceptance of admission must be received by the school by the date indicated on the Notice of Acceptance Alternates may be accepted at a later date if space becomes available.

Matriculation. An accepted student is expected to begin his or her upper division professional program at the beginning of the immediate fall term. There is no spring admission to the upper division.

Industrial and Interior Design Portfolio Format Requirements. Each applicant is responsible for obtaining the

following documents and including them in the portfolio. Application materials are submitted at one time in a presentation binder (portfolio) with plastic sleeves (8.5' x 11 format only). The student's name must be affixed to the outside. Items must appear in the following order:

Page 1. The application form should be completely filled out with the first page visible. Application forms are available from the college academic advising office.

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

Page 3. Application Essay.

Page 4. All college transcripts for both ASU and transfer work should be included through the fall 1997 semester Copies are acceptable. An academic advisor forwards 1998 ASU transcripts. (Applicants wishing to transfer spring semester 1998 work are responsible for submitting these transcripts by June 6 so that they may be added to their portfolios. The student is also responsible for getting an official transfer transcript sent directly to the Office of the Registrar.)

Page 5. A certificate of admission is necessary only for those students who have been newly admitted for fall 1998 and who are applying directly into an upper-division program The certificate is not required for students currently attending ASU.

Following Pages (Usually 10–20 Sheets). Students should present work sufficient to demonstrate the depth and breadth of their creative activity. This work should include (but is not limited to) examples of two and three dimensional design and graphics. Each project should be clearly identified (course, length of project, etc.), with a concise accompanying description of the assignment.

Students are encouraged to include additional materials, written or pictorial, that provide additional evidence of skills and abilities and of the aptitude and commitment to the major. When any work submitted is not completely original, the source must be given. When work is of a team nature, the applicant's role should be clearly indicated. Original examples or slides must not be submitted All examples must be photographs or other reproduction graphic media

Individual applicants are responsible for obtaining the Graphic Design Applications Packet by contacting the College of Architecture and Environmental Design Academic Advising Office (ARCH 141). Application materials are submitted in a portfolio organized by the individual applicant The student's name must be affixed to the outside, with completed materials appearing in the following order:

1. application to the Graphic Design upper division program;
2. "Commonly Asked Questions" form; and
3. the Graphic Design Aptitude Test The packet contains complete instructions for completing the standard test which is to be addressed by each applicant. This test requires the completion of five problems which will be reviewed by the faculty and become the portfolio of materials considered for admission to the upper division program.

Return of Portfolios. Application documents (pages 1 through 5) remain the property of the College of Architecture and Environmental Design However, the remaining portfolio is returned after the admissions review, provided the applicant encloses a self addressed return mailer with sufficient prepaid postage. Portfolios may be claimed in person after July 1, 1998. If the applicant provides written permission, another person may claim the portfolio After one year, unclaimed portfolios are discarded. While care is taken in handling the portfolios, no liability for lost or damaged materials is assumed by the college or school.

ADVISING

Advising for the lower and upper division curricula is through a college academic advisor (ARCH 141).

DEGREE REQUIREMENTS

The Bachelor of Science in Design degree requires a minimum of 120 semester hours for a major in Graphic Design and Industrial Design and a minimum of 150 semester hours for a major in Interior Design. The program includes required field trips. Students are responsible for these additional costs. Foreign study opportunities are available for honors students. An internship is a required part of the program

Graphic Design

The curriculum in Graphic Design is divided into a lower division (first year) and an upper-division program (second, third, and fourth):

Lower division program 30
Upper division program 90

The lower division curriculum balances a foundation in academic subjects such as English, numeracy, and computer technology, with departmental foundation courses which include history and theory, as well as studio courses in drawing and design fundamentals as they relate to conceptual design Students apply for entry into the professional program after fulfilling the first year School of Design core foundation courses The upper division curriculum includes studio work in graphic design and its relationship to problem solving at multiple scales. Projects are intended to educate students to think critically as individuals and as team participants in small and large corporate facilities. A formal eight-week summer internship is included in the professional program which is coordinated by the faculty Students intern in a variety of settings, including in house corporate design, publication design, ad design agencies, and others.

General Studies Requirement. The following curriculum includes sufficient approved course work to fulfill the General Studies requirement. See pages 84–108 for the General Studies requirements and a list of approved courses. Note that all three General Studies awareness areas are required. Consult your advisor for an approved list of courses.

Graduation Requirements. In addition to fulfilling college and major requirements for this professional degree, students must meet all university graduation and college degree requirements. See pages 79 83.

NOTE For the General Studies requirement codes (such as L1 N3, C, and H) and courses see pages 84 108 For graduation requirements see pages 79–83 For omnibus courses offered but not listed in this catalog, see pages 56–57.

Graphic Design—B.S.D. Lower-Division Requirements[1]

First Year

Fall

DSC	101	Design Awareness *HU, G*	3
DSC	121	Design Principles I	3
ENG	101	First Year Composition or ENG 105 Advanced First Year Composition (3 if qualified	3
N1 elective			3
N3 elective			3
Total			15

Spring

DSC	120	Design Drawing	3
DSC	122	Design Principles II	3
ENG	102	First Year Composition	3
Approved elective[2]			3
SB elective			3
Total			15
Lower division total			30

[1] Transfer credits for the lower division program must be equivalent in both content and level of offering. Samples of studio work to be accepted for credit must be provided for evaluation through appointment with the Graphic Design coordinator in AED 154.

[2] A list of courses that fulfill approved elective is available from the college academic advisor.

Graphic Design—B.S.D. Upper-Division Requirements

Second Year

Fall

GRA	283	Letterform I	3
GRA	284	Visual Communication I	3
DSC	494	ST: Finding Purpose: Survival in Design	3
L1 elective			3
SB elective			3
Total			15

Spring

GRA	286	Visual Communication II[1]	3
GRA	287	Letterform II	3
Design elective			3
HU, H elective			3
S1, S2 elective with laboratory I			4
Total			16

Third Year

Fall

GRA	318	History of Graphic Design *HU*	3
GRA	383	Typography I[1]	3
GRA	386	Visual Communication III[1]	3
Approved electives[2]			6
Total			15

Spring

DSC	483	Preinternship Seminar[1]	1
GRA	345	Design Rhetoric *L2*	3
GRA	385	Typography II	3
GRA	387	Visual Communication IV[1]	3
Approved elective[2]			3
Upper division design elective			3
Total			16

Summer

DSC	484	Internship[1]	3
Total			3

Fourth Year

Fall

GRA	481	Visual Communication V[1]	3
GRA	494	ST: Graphic Design	3
Upper division design elective			3
S1, S2 elective with laboratory II			4
Total			13

Spring

GRA	482	Visual Communication VI[1]	3
GRA	494	ST Graphic Design	3
Approved electives[2]			6
Total			12
Upper division total			90
B.S.D. minimum total			120

[1] Most studio courses and some lecture courses are sequential. They must be taken in and may be offered only during the semester noted.

[2] A list of courses that fulfill approved electives is available from the college academic advisor.

Industrial Design

The curriculum in Industrial Design is divided into a lower-division and an upper-division program:

Lower-division program	61
Upper division program	59
Total	120

The lower division curriculum balances a foundation in academic subjects such as English, algebra and trigonometry, computers, and physics with departmental courses that include history as well as studio courses in drawing, design fundamentals, human factors, and materials and processes.

The upper division curriculum includes studio and laboratory work in industrial design, graphics, material design, and professional practice. Students also take a number of approved program electives. A supervised summer internship is part of the curriculum.

Upper division studios emphasize projects that promote an interdisciplinary approach to solving problems and that develop the student's intellectual understanding of the philosophy and direction of methods and theories related to industrial design. Problems proceed from small consumer products with simple task functions to larger and more complex problems and systems. Studio projects also emphasize the design processes: problem resolution through concept ideation, dialogue with specialists in related areas, and product development, presentation, and marketing.

Graduates of the program accept entry level positions in industry and firms doing product and packaging design. Designers may focus on consumer products, transportation, electronics, medical devices, health products, recreational products, or materials application. Students may also choose to continue their education with graduate studies to enrich their design skills, to specialize, or to prepare for college-level teaching.

General Studies Requirement. The following curriculum includes sufficient approved course work to fulfill the General Studies requirement. See pages 84–108 for the General Studies requirement and a list of approved courses. Note that all three General Studies awareness areas are required. Consult your advisor for an approved list of courses.

Graduation Requirements. In addition to fulfilling college and major requirements, students must meet all university graduation and college degree requirements. See pages 79–83.

Industrial Design—B.S.D. Lower-Division Requirements[1]

First Year

Fall

DSC	101	Design Awareness *HU, G*	3
DSC	121	Design Principles I	3
DSC	236	Introduction to Computer Modeling *N3*	3
ENG	101	First Year Composition or ENG 105 Advanced First Year Composition 3) if qualified	3
MAT	117	College Algebra *N1*	3
Total			15

Spring

DSC	120	Design Drawing	3
DSC	122	Design Principles II	3
ECN	112	Microeconomic Principles[2]	3
ENG	102	First Year Composition	3

MAT	170	Precalculus *N1*	3
Total			15

Second Year

Fall

DSC	344	Human Factors in Design	3
IND	227	Visual Methods for Problem Solving	3
IND	242	Materials and Design	3
IND	260	Industrial Design I	3
IND	316	20th Century Design I *HU, H*	3
Total			15

Spring

IND	228	Imaging and Visualization	3
IND	243	Process and Design	3
IND	261	Industrial Design II	3
PGS	101	Introduction to Psychology *SB*[2]	3
PHY	111	General Physics *S1/S2*[3]	3
PHY	113	General Physics Laboratory *S1/S2*[3]	1
Total			16
Lower division total			61

[1] Transfer credits for the lower division program must be equivalent in both content and level of offering. Samples of studio work must be provided for evaluation. See a college academic advisor for an appointment

[2] TGECC satisfied

[3] Both PHY 111 and 113 must be taken to secure S1 or S2 credit.

Industrial Design—B.S.D. Upper-Division Requirements

Third Year

Fall

COM	225	Public Speaking or approved program elective *L1*	3
IND	327	Presentation Graphics	3
IND	354	Principles of Product Design	3
IND	360	Industrial Design III	5
MKT	394	Principles of Marketing	3
Total			17

Spring

GRA	328	Graphic Design	3
IND	361	Industrial Design IV	5
S1, S2 elective with approved laboratory			4
Total			12

Summer

DSC	484	Internship	2
Total			2

Fourth Year

Fall

ENG	301	Writing for the Professions *L1*	3
IND	460	Design Project I	5
IND	470	Professional Practice for Industrial Design *L2*	3
Approved HU, SB elective			3
Total			14

Spring

IND	46	Design Project II	5
IND	474	Design Seminar	3
Approved elective*			3
Elective			3
Total			14
Upper division total			59
B.S D minimum total			120

* A list of courses that fulfill approved program and technology electives is available from the college academic advisor.

Interior Design

The curriculum in Interior Design is divided into a lower-division first and second year) and an upper division program (third, fourth, and fifth years):

Lower division program	56
Upper division program	94
Total	150

The lower division curriculum balances a foundation in academic subjects such as English, algebra and trigonometry, computer technology, and physics with departmental courses that include history and theory, as well as studio courses in drawing, design fundamentals, and conceptual design.

The upper division curriculum includes studio work in interior design, furniture design, construction methods/structures, codes as related to materials and finishes, human factors, environmental control systems, as well as lecture courses in the history of interior design, decorative arts, and textiles. An eight week supervised summer internship is part of the curriculum. The fifth year is an interdisciplinary year in which students address real life environmental problems. This final year is a capstone experience which utilizes all previous learning within and outside the professional program. The student's final design project is completed in consultation with a member of the local professional community

Graduates from the program accept entry level professional positions in a variety of settings, including interior design firms, departments of space planning, architectural firms, public institutions, and industry. Students may also choose to continue their education through graduate studies, which offer greater enrichment in studio disciplines and which contribute to the possibility for postsecondary level academic appointments, giving the recipients highly sought after academic credentials.

General Studies Requirement. The following curriculum includes sufficient approved course work to fulfill the General Studies requirement. See pages 84–108 for the General Studies requirement and a list of approved courses. Note that all three General Studies awareness areas are required. Consult your advisor for an approved list of courses.

Graduation Requirements. In addition to fulfilling college and major requirements, students must meet all university graduation and college degree requirements. See pages 79–83.

Interior Design—B.S.D. Lower-Division Requirements[1]

First Year

Fall

DSC	101	Design Awareness *HU, G*	3
DSC	121	Design Principles I	3
DSC	236	Introduction to Computer Modeling *V3*	3
ENG	101	First Year Composition or ENG 105 Advanced First Year Composition if qualified	3
MAT	117	College Algebra *V1*	3
Total			5

Spring

COM	230	Small Group Communication, or approved SB elective	3
DSC	120	Design Drawing	3
DSC	122	Design Principles II	3
ENG	102	First Year Composition or HU elective if ENG 105 is taken	3
MAT	170	Precalculus	3
Total			15

NOTE For the General Studies requirement codes (such as L1, N3, C, and H) and courses see pages 84–108. For graduation requirements see pages 79–83. For omnibus courses offered but not listed in this catalog see pages 56–57

Second Year

Fall

INT	220	Media for Design Development[2]	3
INT	223	Interior Design Issues and Theories *HU*	3
INT	231	Concepts for Interior Design[2]	3
PHY	111	General Physics *S1/S2*[2]	3
PHY	113	General Physics Laboratory *S1/S2*[2]	1
Total			13

Spring

ARS	102	Art of the Western World II *HU*	3
COM	225	Public Speaking or Approved L1 elective	3
INT	235	User Needs and Behavior in Interior Design	3
S1 or S2 elective with laboratory			4
Total			13
Lower division total			56

[1] Transfer credits for the lower-division program must be equivalent in both content and level of offering. Samples of studio work must be provided for evaluation. See a college academic advisor for an appointment.

[2] Both PHY 111 and 113 must be taken to secure S1 or S2 credit.

Interior Design—B.S.D. Upper-Division Requirements

Third Year

Fall

DSC	344	Human Factors in Design	3
INT	310	History of Interior Design I *HU, H*	3
INT	340	Interior Codes: Public Welfare and Safety	3
INT	364	Interior Design Studio I	5
INT	366	Construction Methods in Interior Design	3
Total			17

Spring

DSC	483	Seminar	1
INT	311	History of Interior Design II *HU H*	3
INT	341	Interior Materials and Finishes	3
INT	365	Interior Design Studio II	5
INT	455	Environmental Control Systems	3
Total			15

Summer

DSC	484	Internship	3
Total			3

Fourth Year

Fall

ENG	301	Writing for the Professions *L1*	3
INT	412	History of Decorative Arts in Interiors *HU*	3
INT	442	Specifications and Documents for Interiors *L2*	3
INT	457	Acoustics for Interior Design	3
INT	464	Interior Design Studio III	5
Total			17

Spring

INT	413	History of Textiles in Interior Design	3
INT	458	Lighting for Interior Design	3
INT	465	Interior Design Studio IV	5
SB elective			3
Total			14

Fifth Year*

Fall

INT	422	Facilities Planning and Management I	3
INT	446	Furniture Design and Production	3
INT	466	Interior Design Studio V	5
Approved degree project elective			3
Total			14

Spring

INT	423	Facilities Planning and Management II	3
INT	467	Interior Design Studio VI	5
INT	472	Professional Practice for Interior Design	3
Approved degree project elective			3
Total			14
Upper division total			94
B S D minimum total			150

* See "Fifth Year" below.

Fifth Year. During the fifth year, the student concentrates on research related to the development of a comprehensive project. This year is self-directed in nature and prepares the student for independent thinking and creative problem solving. The fifth year experience promotes high expectations for producing professional work that represents the culmination of the major's academic experience. It should be noted that the fifth-year studio sequence is designed to draw majors from the upper-division programs of industrial design, graphic design, and architecture, thus furthering a real life interdisciplinary problem solving experience.

DESIGN (DSC)

DSC 100 Introduction to Environmental Design. (3) F, S, SS
Survey of environmental design, including historic examples and the environmental, social, technical, and theoretical forces that shape them. Cross listed as APH/PUP 100. *General Studies HU, G, H*

DSC 101 Design Awareness. (3) F, S, SS
Survey of cultural, global, and historical context for the design professions *General Studies HU, G.*

DSC 120 Design Drawing. (3) F, S, SS
Drawing as language to explore and communicate ideas. Development of drawing aptitude as language and process for design thinking. 1 hour lecture, 5 hours studio.

DSC 121 Design Principles I. (3) F, S, SS
Design as a language and process for creative thinking and realization. 1 hour lecture, 5 hours studio. Prerequisite major in the College of Architecture and Environmental Design.

DSC 122 Design Principles II. (3) F, S, SS
Continued exploration of design as a language and process for creative thinking and realization. 1 hour lecture, 5 hours studio. Prerequisite: DSC 121.

DSC 236 Introduction to Computer Modeling. (3) F, S, SS
Fundamentals of computer operation, geographic informations systems, geometric modeling of three-dimensional forms and rendering of light, mathematical modeling of processes using spreadsheets. Lab. Cross-listed as ANP/PUP 236. Prerequisite: major in the College of Architecture and Environmental Design. *General Studies N3.*

DSC 344 Human Factors in Design. (3) F
Man machine environment systems; human characteristics and behavior applied to design of products, systems, and their operating environment.

DSC 483 Preinternship Seminar. (1) S
Preparation of internship materials that produce and enhance a successful internship experience. Seminar. Prerequisite: 3rd year major in the department.

DSC 484 Internship. (1–3) SS
Full time summer internship under supervision of practitioners in the Phoenix area or other locales. Prerequisite instructor approval.

DSC 520 Contemporary Design Issues. (3) F, S
Projected applications in design production planning, and decision making processes. Lecture, seminar. Prerequisites: NT 310 and 311 *or* equivalents.

DSC 524 Illumination and Acoustics. (3) N
Research and laboratory investigation of advanced illumination and acoustics issues of facility design. Emphasis on human factors and performance aspects. Prerequisites: NT 457 and 458 *or* equivalents.

DSC 525 Design Methodologies. 3 F
Pract ca exerc ses and stud es in prob em-so v ng strateg es; prob em def n t on and sup port ng theory for the des gner Lectures, sem nars ab Prerequ site sen or or graduate stand ng.

DSC 527 Modern Design Theory. 3 S
Aesthet c po t ca econom c and soc a theo r es that have shaped modern des g ; theory as the bas s for design phi osoph es. Lectures sem nars Prerequ s te DSC 525 or equ va-lent.

DSC 529 Design Criticism. (3 F
Cr t ca methods app ed to des gn as mater a cu ture and human expression eva uat on of ach evement versus ntent on. Lecture sem nar. Prerequ s te DSC 527 or equ va ent.

DSC 544 Human Factors Systems and Documentation. (3) F
Advanced topics assoc ated w th theory and methods of human factors n des gn Ind v dua projects stress ng problem organ zation eva uat on and documentation Lectures sem nars ab Prerequ s te. DSC 344 or equ va ent

DSC 552 Computer Simulation in Design. (3) F
The use of computer graph cs as a med um to deve op and present mages of the env ron ment for ana ysis and percept on Lecture ab. Prerequ s te senior r graduate stand ng.

DSC 553 Computer Imaging and Visual Perception. (3 S
ssues and app cat ons of computer s mula t on as a tool for descnb ng and test ng human nterface with the env ronment. Lecture lab Prerequ s te sen or or graduate stand ng

DSC 558 Daylighting. 3) N
Dayl ghting as a design determ nant con cepts techn ques, methodo ogy exper ments and case stud es Lecture, stud o Prereq u s te sen or or graduate standing

DSC 580 Practicum: Methods of Teaching Design. (3 F
Background and development of des gn edu cat on theories Concepts of stud o teach ng methods Comprehens ve student project de velopment and eva uat on methods Prereq-u s te: graduate stand ng

GRAPHIC DESIGN (GRA)

GRA 283 Letterform I. (3) F
Draw ng of letterforms with focus on propor t on and structure Introduct on to etterform nomenc ature and c ass f cations 6 hours a week Prerequ sites DSC 122 acceptance nto Graph c Des gn program

GRA 284 Visual Communication I. 3 F
Theoret ca and app ed stud es n shape draw ng, and co or 6 hours a week Prereq u s te GRA 283

GRA 286 Visual Communication II. (3) S
Transit on from theoretical to app ed prob ems Emphas s on refinement of visua ski s. 6 hours a week Prerequ s tes: GRA 284; ac ceptance nto Graph c Des gn program. Co requisite. GRA 287

GRA 287 Letterform II 3 S
Continuat on of Letterform I w th an emphas s on lowercase etters bas cs of pen wr t ng and font des gn 6 hours per week Prerequ s tes GRA 284 acceptance nto Graph c Des g program. Corequis te GRA 286.

GRA 318 History of Graphic Design. 3 F
Survey of deve opment in the graph c arts n novat ve pr nt ng methods, aesthet c va ues and soc a and cultura env ronments that shape them *Genera St d es HU*

GRA 328 Graphic Design. (3 S
Packag ng app cat ons and p ann ng are n vest gated and app ied to the deve opment of an dent ty for a product ne structured as a system Lab. Prerequ s te ND 327

GRA 345 Design Rhetoric. 3 F S
Deve opment f cr t ca th k ng a d expres-sion of ideas n conc se and persuasive wr t ten and spoken form Prerequ s tes ENG 101 102 *Gerera Stud es L2*

GRA 382 Graphic Representation. 3 F
Stud o pract ce n draw ng w th an appl cat on toward graph c c mmun cat on 6 hours a week. May be repeated once for cred t Pre requ s te GRA 284

GRA 383 Typography I. 3 F
Theoret cal exerc ses n spat al and textural qua t es of type Problems n tens on act va t on, and ba ance Exerc ses n s mp e typo-graph ca app cat ons 6 hours a week Pre requ sites GRA 286 287 Corequ s te GRA 386

GRA 385 Typography II. (3 S
Problems n compos t on cho ce and comb nations of type faces, formats and the r app cat on to a var'ety of des gn projects. 6 hours a week. Prerequ s te GRA 383 Corequ s te· GRA 387

GRA 386 Visual Communicat'on III. (3) F
Prob ems n specif c des gn app cat ons such as poster packag ng, pub cat ons Emphas s on development of concepts n v ua commu-n cat ons 6 hours a week Prerequ s tes GRA 286 287 Corequis te GRA 383

GRA 387 Visual Communication IV. 3) S
C ient-or ented projects Prob ems are mu t faceted and the emphases are on cont nu ty of des gn n more than one med um and format 6 hours a week Prerequ s tes GRA 383 386 Corequ s te GRA 385

GRA 481 Visual Communication V. 3 F S
Stud o prob ems w th an emphas s on ana y s s, prob em so v ng and profess ona portfo o preparation 6 hours a week Prerequ s tes GRA 385 387

GRA 482 Visual Communication VI. (3) S
Ind v dua and group pro ects w th outs de c ents A projects culm nate n an exh b t 6 hours a week. Prerequ s te· GRA 481.

GRA 485 Graphic Design Workshop. 3 F, S, SS
Preprofess ona c ent/des gner s tuat ons from concept to pr nted work Stud o workshop and nternsh ps for se ected students. 6 hours a week May be repeated once for cred t. Pre requ s te nstructor approva

INDUSTRIAL DESIGN (IND)

IND 227 Visual Methods for Problem Solving. 3 F
Introduction to conceptua des gn act v ty based on the m nd-eye-med a feedback oop Graph c anguage used to represent conjec ture ana ys s synthes s of objects and the r contexts Sem nar stud o Prerequ site· DSC 122.

IND 228 Imag'ng and Visuallzation. 3 S
Des gn act v t es stress ng graph c anguage abstract on pract ced for presentat on. Struc ture of cr t c sm, nc ud ng descr pt on, nter-pretat on and eva uat on are d scussed Sem nar stud o Prerequ s te ND 227

IND 242 Materials and Design. 3 F
Mater a s app cat on n des gn ntroduct on to character stics and propert es of meta s and organic mater a s nc ud ng p ast cs and nor-gan c materia s

IND 243 Process and Design. 3 S
nf uen es of ndustr a process ng on des gn ntr duct on to bas c mater a s process ng and postform ng processe Emphas s on appear ance enhancement and des gn constra nts of mater al processing Prerequ s te ND 242.

IND 260 Industrial Design I. 3 F
ntroduct on to the method and process of the ndustr a des gner Determ nants necessary n sma l product des gn 1 hour lecture 2 hours stud o Prerequis te DSC 122

IND 261 Industrial Design II. 3 S
ssues of phys ca form deve opment related to product and des'gn form deve opment propert es of pape f bers, w od meta and p ast cs. 1 hour ecture, 2 hours stud o Pre requ s te. ND 260 or equ valent

IND 316 20th-Century Design I. 3) F
M dern European and Amer can des gn from 1900 to 1940 Emphas s on transportat on, product furn ture exh b t on and graph c de s gn *Genera Stud es HU H*

IND 317 20th-Century Design II. (3 S
Modern European As an and American de s gn s nce 1940 Emphas on transportat on product furn ture exh b t on, and graph c de s gn *Genera Stud es· HU H.*

IND 327 Presentation Graphics. 3 F
Methods for portfo o and profess ona product presentat on us ng graph c med a for nforma t on transfer are studied Aesthet c udgment, organ zat n, and craftsmansh p are stressed. Sem nar stud o. Prerequ s te ND 228

IND 354 Principles of Product Design. (3 F
Inf uences of phys'cal and mechan ca con cepts n product des gn; mechan sms k ne mat cs, and fasten ng systems Concepts of ana ys s for product des gn Inf uences of con cepts on aesthet cs Prerequ s tes MAT 117; PHY 111

IND 355 Plastics Design. 3) S
Mo d des gn for part requ rements mo ded ho es threads; nserts; fasten ng and jo n ng, decorat ng re nforced p ast cs Prerequ s te ND 354

IND 360 Industrial Design III. 5 F
Methods of v sua th nk ng conceptua zation a d deat on re ated to bu d ng sk eve s n profess ona des gn presentat on techn ques. 10 hours stud o Prerequ s te department ap-prova

IND 361 Industrial Design IV. 5 S
Emphas s o deve op ng deas nto a com plete funct ona product nc ud ng survey and app cat on of aesthet cs human factors ma-ter als and manufactur ng 10 hours stud o Prerequ s te ND 360

IND 460 Design Project I. (5) F
Complete ana ysis of the product un t as an e ement of mass product'on featur ng market ng, techno ogy human factors and v sual de sign Emphas s on profess onal standards 10 hours stud o Prerequ s tes DSC 484 ND 361

IND 461 Design Project II. (5) S
Product design with emphasis n systems n- teract on Cu mınat on of des gn process and technique Ind v dua project d rect on s en couraged 10 hours studio Prerequ s te: IND 361

IND 470 Professional Practice for Industrial Design. (3) F
Bus ness procedures management tech niques account ng systems, ethics and egal respons bi t es of the des gn profess ons May be repeated for cred t. Prerequ site: senior stand ng *Genera Studies L2*

IND 474 Design Seminar. (3) S
Manufacturer's ıab l ty statutes, regu ations, and common aw rules ro e of expert w t nesses, ınsurance and product safety pro grams Sem nar. Prerequ s te sen or standing

INTERIOR DESIGN (INT)

INT 220 Media for Design Development. (3) F
Graph c representat on methods used to de scribe and analyze space emphas s on qu ck presentat on techn ques 6 hours stud o Pre requ s te DSC 121

INT 223 Interior Design Issues and Theories. (3) F
ntenors ssues, theor es and ph osophies Emphas s on unique soc a and cu tura fac tors that shape 20th century des gn concepts *Genera Stud es. HU*

INT 231 Concepts for Interior Design. (3) F
Conceptua des'gn deve opment, includ ng scale and pr port on, 'ght, texture form vo ume, and spat al h erarchy, passage and re pose 1 hour lecture 4 hours ab Prerequ site. DSC 122.

INT 235 User Needs and Behavior in Interior Design. (3 S
App cat ons of conceptual design to ıssues of programming and space p ann ng user needs, and behavior 1 hour ecture 4 hours ab Prerequ s te INT 231

INT 310 History of Interior Design I. (3) F
The design of nter or spaces as an expres sion of cu tura nf uences to 1835 *Genera Stud es HU, H*

INT 311 History of Interior Design II. 3) S
Design of inter ors as an expression of cu tura nfluences from 1835 to the present Prereq u s te INT 310 or nstructor approval *General Studies HU, H*

INT 340 Interior Codes: Public Welfare and Safety. (3) F
Codes and regu ations as performance cr tena for nterior des gn Corequ site NT 366

INT 341 Interior Materials and Finishes. (3) F
General analysis of qua ty contro measures re at ng to ntenor des gn materia s fin shes and performance cr ter a Prerequ s tes NT 340, 366

INT 364 Interior Design Studio I. (5) F
Stud o prob ems n nterior des gn related to behav ora response n personal and sma group spaces 10 hours studio Prerequisite: department approva

INT 365 Interior Design Studio II. 5) S
Stud o prob ems n nter or des gn with em- phasis on ssues of pub c and private use of nter or p aces of assemb y 10 hours stud o. Prerequisite INT 364

INT 366 Construction Methods in Interior Design. (3) F
Des gn theory re ated to analys s, materia s, and bu d ng techn ques of horizonta and ver tical construct on in nter or des gn Lecture tie d tr ps Corequisite. INT 340.

INT 412 History of Decorative Arts in Interiors. (3) F
The des gn of decorat ve arts as an expres s on of cultura nfluences and as an extens on of nter or spaces Prerequ s te NT 311 or in- structor approva *Genera Studies· HU*

INT 413 History of Textiles in Interior Design. (3) S
Cu tura and h stor ca expression of text es as related to nteriors. May 'nclude f e d tr ps Prerequisite· INT 412 or nstructor approval

INT 422 Facilities Planning and Management I. (3) F
The fac l ty management process n arge scale organ zat ons Plann ng, ong range forecasting and product v ty Project manage ment methodolog es us ng m cro based soft- ware programs. Prerequ s te· sen or stand ng

INT 423 Facilities Planning and Management II. 3 S
The format on of fac ties po ic es procedures and standards The fac ities database space a ocations, and management process Eva u at on of programm ng criter a Prerequ sites NT 422 senior stand ng

INT 442 Specifications and Documents for Interiors. (3) F
Contract spec f cat ons documents sched u es, and b dd ng procedures for nter or de- s gn. Prerequ s tes: NT 341, 365. *General Stud es L2*

INT 446 Furniture Design and Production. (3) F
Design construct on, cost estimat'ng and n- sta at on n nterior furn ture and m work. 1 hour lectu e, 4 hours stud o

INT 455 Environmental Control Systems. (3) S
Survey of env ronmenta contro systems and the r app cat on in the des gn of bu ld ng nter ors. Lecture f e d tr ps. Prerequ s tes MAT 117 118 PHY 111 113 jun or stand ng

INT 457 Acoustics for Interior Design. (3) F
Phys ca propert es of sound Stud es perta n ng to sound absorbing materia s construc t ons, and room acoustics Prerequ s tes MAT 170 PHY 111 113

INT 458 Lighting for Interior Design. 3) S
Light as an aspect of inter or des'gn Eva ua- t on of ight sources for distribution co or and cost

INT 464 Interior Design Studio III. (5) F
Stud o prob ems n nter or des gn re ated to commerc a spaces 10 hours stud o. Prereq uisites. DSC 484 NT 365

INT 465 Interior Design Studio IV. (5) S
Studio prob ems 'n nterior des gn related to hea th and educational facil ties 10 hours stu dio Prerequis te NT 464

INT 466 Interior Design Studio V. (5) F
Advanced nter or design problem solving, de s gn theory and crit c sm Thes s project de ve opment based upon the major's concentra- tion 10 hours studio Prerequ site: department approval

INT 467 Interior Design Studio VI. (5) S
Advanced ser es of spec a ized projects or cont nuat on of thes s project based upon the major s concentrat on 10 hours stud o Pre- requ s te department approval.

INT 472 Professional Practice for Interior Design. (3) S
Bus ness procedures, project contro fee structures and profess onal product liabilit es

School of Planning and Landscape Architecture

Frederick Steiner
Director
(AED 158A) 602/965–7167
www.asu.edu/caed/Planning

PROFESSORS
BRADY, BROCK, KIHL, LAI, MUSCHKATEL, PIJAWKA, STEINER

ASSOCIATE PROFESSORS
COOK, GREEN, KIM, MILLER, SAN MARTIN, WHYSONG, YABES

ASSISTANT PROFESSORS
CAMERON, CREWE, EWAN, FISH-EWAN, GUHATHAKURTA, McSHERRY, WASSERMAN

PURPOSE

The faculty in the School of Planning and Landscape Architecture offer a curriculum that provides an education for careers in environmental planning, environmental resource management, housing and urban development, landscape architecture, urban and regional development, and urban design. The goal of the faculty is to advance the profession of planning through scholar ship, teaching, research, and community service

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

NOTE For the Genera Stud es requ rement, codes such as L1 N3, C and H , and courses see pages 84–108. For graduation requirements, see pages 79–83 For omnibus courses offered but not sted in th s catalog see pages 56–57

landscape architecture, and environmental resource management graduates work for both private firms and government agencies. Their work typically involves fields such as land use planning, housing, natural resource management, urban transportation, development controls, and environmental impact assessment.

For graduates from environmental resources, employment opportunities in environmental resource management, range ecology, land reclamation, and soil conservation exist with both private firms and government agencies.

ORGANIZATION

The programs are organized by the faculty of the school under the direction and administration of the program coordinators and the school director.

DEGREES

The faculty in the School of Planning and Landscape Architecture offer the B.S. degree in Environmental Resources, Bachelor of Science in Planning degree in Urban Planning, Bachelor of Science in Landscape Architecture degree, and Bachelor of Science in Design degree in Housing and Urban Development.

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

Following two years of preparatory work, students take two years of courses that include site planning, landscape architecture, urban design, comprehensive planning, socioeconomic and environmental analysis, computer and analytical methods, planning law, and public policy formulation and administration. An internship is required between the third and fourth years. Many students continue to specialize in planning at the graduate level. Students in planning are exposed to the theories, methods, and interdisciplinary approaches of the profession of planning.

Bachelor of Science in Landscape Architecture (B.S.L.A.)

This degree prepares students to be professional landscape architects. Students explore the reasons for and the techniques involved in the analysis, planning, and design of the environment, both natural and built.

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

A B S D degree with a major in Housing and Urban Development educates and trains professionals to lead in the production of high quality affordable housing, in the development of creatively designed and soundly planned neighborhoods and communities, in the revitalization of communities, and in the exemplification of social inclusiveness and environmental sensitivity in responsible land development. HUD graduates may pursue careers in the private home development industry, in publicly sponsored housing and community redevelopment, with nonprofit housing agencies, or in post graduate housing and urban development research and education The B S.D. with a major in Housing and Urban Development is offered in conjunction with the College of Extended Education

Environmental Resources—B.S.

The concentration in natural resource management is available with options in wildlife habitat management and range ecology. In addition, particular attention is given to the study of ecosystem characteristics as they relate to the use of renewable resources.

MINORS

Environmental Resources

The minor in Environmental Resources is available to students interested in environmental courses but who wish to pursue other majors. A minimum of 16 semester hours are required for the minor. The courses are designed to appeal to and inform the nonenvironmental resources student and cover a broad range of topics

All students must complete the required courses.

Required Courses

ERS	130	Soils and Environmental Quality *S1/S2*	4
ERS	246	Introduction to the Environmental Sciences *G*	3
ERS	480	Ecosystem Management and Planning	3
Total			10

Two additional courses must be selected from the optional course list.

Optional Courses

ERS	225 226	Soils/Soils Laboratory	4
ERS	333	Water Resources Management	3
ERS	360	Range Ecosystem Management	4
ERS	365	Watershed Management	3
ERS	370	Forest Ecosystem Dynamics	3
ERS	407	Range Plants and Habitats	4
ERS	410	Wildlife Habitat Relations	4
ERS	433	Riparian Ecosystem Management	3
ERS	460	Applied Systems Ecology	3
ERS	475	Wildlife and Range Animal Management	3

The minor is automatically open to students from the following majors: Architecture, Biology, Civil Engineering, Design, Geography, Landscape Architecture, Planning, Plant Biology, and Recreation Students pursuing other majors will be considered on an individual basis. In order to pursue a minor in Environmental Resources, students must have a GPA of 3.00. Students must achieve a GPA of 3 00 in minor classes in order for them to count toward the minor.

Students in nonautomatically approved majors must submit a letter of application to the School of Planning and Landscape Architecture seeking approval to enter the minor program

Urban Planning

The minor in Urban Planning is designed for students who are interested in the field but who wish to pursue other majors The course selection is designed to provide an overview of the field and offer information with broad appeal.

All students must complete a minimum of 15 semester hours from the following courses:

PUP	301	Introduction to Urban Planning *L1**	3
PUP	412	History of the City *H*	3
PUP	420	Theory of Urban Design *HL*	3
PUP	425	Urban Housing Analysis	3
PUP	432	Planning and Development Control Law	3
PUP	433	Zoning Ordinances, Subdivision Regulations, and Building Codes	3
PUP	442	Environmental Planning	3
PUP	444	Preservation Planning	3
PUP	475	Environmental Impact Assessment	3
PUP	510	Citizen Participation	3

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

The minor is automatically open to students from the following majors: Architecture, Civil Engineering, Environmental Resources, Geography, Housing and Urban Development, Landscape Architecture, and Real Estate. Students pursuing other majors will be considered on an individual basis. In order to pursue a minor in Urban Planning, students must have a GPA of 3.00. Students must achieve a GPA of 3.00 in minor classes in order for them to count toward the minor.

Students in nonautomatically approved majors must submit a letter of application to the School of Planning and Landscape Architecture seeking approval to enter the minor program.

GRADUATE PROGRAMS

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

ADMISSION

Lower-Division Program. New and transfer students who have been admitted to the university and who have selected a program in the School of Planning and Landscape Architecture are admitted to the lower division program. Transfer credits for the lower division program are reviewed by the college and evaluated for admissibility to this curriculum. To be admissible, transfer courses must be equivalent in both content and level of offering. A review of samples of work is required for studio classes. See a college academic advisor for an appointment.

Completion of lower division requirements does not ensure acceptance to the upper division professional program. Admission to the upper division is competitive and limited to the space available. Admission requires formal application and acceptance.

Upper-Division Program. Admission to the upper division programs of the School of Planning and Landscape Architecture is limited to applicants who have completed the lower-division program requirements and who are determined by the admissions committee to have the best potential for academic success. Spaces in the program are limited by available facilities, faculty, and qualified applicants. A lower division program GPA of 3.00 may be required. See "Application to Upper Division Programs" below.

Students not admitted to upper division programs are not dismissed from the university and may reapply later or may transfer to other programs. Students who plan to reapply should meet with a college academic advisor.

Applications for admission to the upper division Housing and Urban Development program are made directly to the school director. Applications must include a proposed curriculum developed in conjunction with a faculty advisor and acceptable to the department faculty.

APPLICATION TO UPPER-DIVISION PROGRAMS

Upper-Division Application Procedures. Students should write to a college academic advisor for the application form well in advance of the application deadline. For more information on portfolios, ask for a copy of the *Portfolio Seminar* brochure from a college academic advisor. The following dates and procedures are for students applying to 1998-99 upper division programs.

Upper-Division Application Deadlines. *April 15, 1998.* Portfolio and application documents are due in the school office by 5:00 P.M.

June 5, 1998. If the spring 1998 semester includes transfer course work (i.e., course work taken at an institution other than ASU), a student must submit his or her transcripts to the school no later than June 5. These transcripts may be unofficial copies. A second set of official transcripts must be sent to the university Undergraduate Admissions office. Application is not complete until the university receives official transcripts for transfer course work. For those transfer students whose academic term ends in June rather than May, this deadline may be extended upon the written request of the applicant.

July 1, 1998. Acceptance notices are mailed no later than July 1.

Return of Letter of Acceptance. A signed receipt of acceptance of admission must be received by the school by the date indicated on the Notice of Acceptance. Alternates may be accepted at a later date if space becomes available.

Matriculation. An accepted student is expected to begin his or her upper division professional program at the beginning of the immediate fall term. There is no spring admission to the upper division.

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

1. evidence of graphic and design work shown in 35mm slides or 3" x 5" or other appropriately sized photographs (20 maximum),
2. a statement of intent describing the applicant's specific background and interest in the major;
3. latest college level transcript(s). No high school transcripts are required;
4. one example of written work (e.g., a class paper);
5. samples of individual work. Team work can be included, but the contribution of the candidate must be clarified.
6. students are strongly encouraged to submit evidence of other endeavors related to the major,
7. the applicant's GPA based on required courses and cumulative GPA will be evaluated;
8. students completing the Phoenix Community College (PCC) articulation program with the B.S.D. HUD program should submit similar material from PCC.

Return of Portfolios. Application documents remain the property of the

School of Planning and Landscape Architecture. However, the remainder of the portfolio is returned after the admissions review, provided the applicant encloses a self addressed return mailer with sufficient prepaid postage. Portfolios may be claimed in person after August 15, 1998. If the applicant provides written permission, another person may claim the portfolio. After one year, unclaimed portfolios are discarded. While care is taken in handling the portfolios, no liability for lost or damaged materials is assumed by the college or school.

ADVISING

Advising for the lower division curriculum is provided through a college academic advisor. Advising for the upper-division curriculum is provided by the school director and faculty advisors.

DEGREE REQUIREMENTS

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

Bachelor of Science in Planning, Major in Urban Planning

Lower division courses	61
Upper division courses core	57
Internship	2
Total	120

General Studies Requirement. The following curriculum includes sufficient approved course work to fulfill the General Studies requirement. See pages 84–108 for the General Studies requirement and a list of approved courses. Note that all three General Studies awareness areas are required. Consult your advisor for an approved list of courses.

Graduation Requirements. In addition to fulfilling college and major requirements, students must meet all university graduation and college degree requirements. See pages 79 83.

Bachelor of Science in Planning, Major in Urban Planning Lower-Division Requirements[1]

First Year

Fall

ENG	101	First Year Composition or ENG 105 Advanced First Year Composition (3) if qualified	3
MAT	117	College Algebra *N1* or approved more advanced N1 elective	3
PUP	100	Introduction to Environmental Design *HU, G H*	3
PUP	194	Introduction to Graphics	3
Approved HU or SB elective			3
Total			15

Spring

ECN	112	Microeconomic Principles *SB*	3
ENG	102	First-Year Composition or HU elective if ENG 105 is taken	3
GPH	111	Introduction to Physical Geography *S1/S2*	4
Approved HU or SB elective			3
Approved SB elective			3
Total			16

Second Year

Fall

ADE	221	Design Fundamentals I[2]	3
BIO	319	Environmental Science *G*	3
PLA	201	Landscape Architecture and Society[2]	3
PUP	261	Urban Planning I	4
PUP	301	Introduction to Urban Planning *L1*	3
Total			16

Spring

BIO	100	The Living World *S1/S2*	4
PUP	264	Urban Planning II	4
Approved HU elective			3
Approved N2 elective			3
Total			14
Lower division minimum total			61

[1] Transfer credits are reviewed by the college and evaluated as admissible to this curriculum. To be admissible, transfer courses must be equivalent in both content and level of offering.

[2] Portfolio review is required for transfer studio work. See a college academic advisor for an appointment.

Bachelor of Science in Planning, Major in Urban Planning Upper-Division Professional Program Requirements

Third Year

Fall

PUP	322	Planning Methods Using Computers	3
PUP	361	Urban Planning III	5
PUP	412	History of the City *H*	3
PUP	424	Planning Methods	3
PUP	442	Environmental Planning	3
Minimum total			17

Spring

GCU	361	Urban Geography *SB*	3
PUP	362	Urban Planning IV	5
PUP	420	Theory of Urban Design *HU*	3
SCM	405	Urban Transportation	3
Total			14

Summer

PUP	484	Internship	2
PUP	485	International Field Studies in Planning and Landscape Architecture (optional)	1 12
Minimum total			2

Fourth Year

Fall

PUP	425	Urban Housing Analysis	3
PUP	432	Planning and Development Control Law	3
PUP	461	Urban Planning V	5
PUP	494	Environmental Planning Economics	3
PUP	498	Senior Pro Seminar	1
Total			15

Spring

PUP	452	Ethics and Professional Practice *L2*	3
PUP	462	Urban Planning VI	5
PUP	475	Environmental Impact Assessment	3
Total			11
Upper division minimum total			59
B.S.P. minimum total			120

Bachelor of Science in Landscape Architecture

Lower-division courses	61
Upper-division courses core	58
Internship	1
Total	120

General Studies Requirement. The following curriculum includes sufficient approved course work to fulfill the General Studies requirement. See pages 84–108 for the General Studies requirement and a list of approved courses. Note that all three General Studies awareness areas are required. Consult your advisor for an approved list of courses.

Graduation Requirements. In addition to fulfilling college and major requirements, students must meet all university graduation and college degree requirements. See pages 79 83

Bachelor of Science in Landscape Architecture Lower-Division Requirements[1]

First Year

Fall

ARS	101	Art of the Western World I *HU H*	3
		or approved HU or SB elective	
ENG	101	First Year Composition	3
		or ENG 105 Advanced First Year Composition	3
		if qualified	
HUD	161	Graphic Communication I	3
MAT	11	College Algebra *N1*	3
		or approved more advanced Mathematics elective	
PUP	100	Introduction to Environmental Design *HU G, H*	3
Total			15

Spring

ARS	102	Art of the Western World II	3
		or approved HU elective	
ENG	102	First Year Composition	3
		or HU elective if ENG 105 is taken	
GPH	111	Introduction to Physical Geography *S1 S2*	4
Approved HU or SB elective			3
Approved SB elective			3
Total			6

Second Year

Fall

ADE	221	Design Fundamentals II[2]	3
BIO	319	Environmental Science *G*	3
PLA	201	Landscape Architecture and Society[2]	3
PLA	261	Landscape Architecture I	4
PUP	311	Introduction to Urban Planning *L1*	3
Total			16

Spring

BIO	100	The Living World *S1/S2*	4
		or PLB 108 Concepts in Plant Biology *S1/S2*	
HIS	101	Western Civilization *SB H*	3
		or HIS 102 Western Civilization *SB G, H* or approved SB elective	
PLA	264	Landscape Architecture II	4
Approved N2 elective			3
Total			14
Lower division minimum total			61

[1] Transfer credits are reviewed by the college and evaluated as admissible to this curriculum. To be admissible, transfer courses must be equivalent in both content and level of offering

[2] Portfolio review is required for transfer studio work. See a college academic advisor for an appointment

Bachelor of Science in Landscape Architecture Upper-Division Professional Program Requirements

Third Year

Fall

PLA	310	History of Landscape Architecture *H*	3
PLA	361	Landscape Architecture III	5
PLA	442	Landscape Construction I	3
PUP	322	Planning Methods Using Computers	3
PUP	412	History of the City *H*	3
Total			17

Spring

PLA	362	Landscape Architecture IV	5
PLA	420	Theory of Urban Design *HU*	3
PLA	444	Landscape Construction II	3
PLB	362	Landscape Plants I	3
		or PLA 494 Plant Materials (3	
Minimum total			14

Summer

PLA	484	Internship	2
		or approved elective*	
PLA	485	International Field Studies in Planning and Landscape Architecture optional)	1 12
Minimum total			2

Fourth Year

Fall

PLA	363	Landscape Planting Design	3
PLA	461	Landscape Architecture V	5
PLA	498	Senior Professional Seminar	1
PUP	432	Planning and Development Control Law	3
Total			12

Spring

PLA	443	Landscape Architecture Theory and Criticism	3
PLA	462	Landscape Architecture VI	5
PUP	442	Environmental Planning	3
		or PUP 546 Urban Design Policy 3)	
PUP	452	Ethics and Professional Practice *L2*	3
Total			14
Upper division minimum total			59
B S L A. minimum total			120

* Courses that fulfill approved electives should be selected in consultation with departmental advisors

Bachelor of Science in Design, Major in Housing and Urban Development

Lower division courses	63
Upper division courses core	56
Internship	1
Total	120

General Studies Requirement. The following curriculum includes sufficient approved course work to fulfill the General Studies requirement. See pages 84–108 for the General Studies requirement and a list of approved courses Note that all three General Studies awareness areas are required. Consult your advisor for an approved list of courses.

Graduation Requirements. In addition to fulfilling college and major requirements, students must meet all university graduation and college degree requirements. See pages 79 83.

Bachelor of Science in Design, Major in Housing and Urban Development Lower-Division Requirements

First Year

Fall

ECN	111	Macroeconomics Principles *SB*	3
ENG	101	First Year Composition	3
GPH	111	Introduction to Physical Geography *S1/S2*	4
		or PHY 111 General Physics and 113 General Physics Laboratory *S1/S2* (4)[1]	
HUD	161	Graphic Communication I	3
PUP	100	Introduction to Environmental Design *HU, G, H*	3
Total			16

Spring

CSE	180	Computer Literacy *N3*	3
ECN	112	Microeconomics Principles *SB*	3
ENG	102	First-Year Composition	3
HUD	201	Introduction to Housing and Urban Development	3
MAT	117	College Algebra *N1*	3
		or MAT 170 Precalculus *N1* 3	
		or MAT 210 Brief Calculus *N1* (3	
Total			15

Second Year

Fall

ADE	221	Design Fundamentals II	3

NOTE. For the General Studies requirement codes (such as L1, N3 C and H), and courses see pages 84–108. For graduation requirements see pages 79–83 For omnibus courses offered but not listed in this catalog see pages 56–57

APH	200	Introduction to Architecture *HU, G*	3
		or APH 313 History of Western Architecture I *L2/HU* (3)[2]	
CON	252	Building Construction Methods, Materials, and Equipment	3
PLA	261	Landscape Architecture I	4
		or PUP 261 Urban Planning I (4)	
STP	226	Elements of Statistics *N2*	3
Total			16

Spring

ACC	230	Uses of Accounting Information I	3
		or ACC 394 Survey of Accounting (3)	
APH	305	Contemporary Architecture *HU*[2]	3
		or PLA 310 History of Landscape Architecture *H* (3)[2]	
BIO	100	The Living World *S1/S2*	4
		or PHY 112 General Physics and 114 General Physics Laboratory *S1/S2*[3] (4)	
PUP	301	Introduction to Urban Planning *L1*	3
REA	394	Real Estate Fundamentals	3
Total			16
Lower-division minimum total			63

[1] Both PHY 111 and 113 must be taken to secure S1 or S2 credit.

[2] For General Studies credit, APH 313 and PLA 310 are corequisites; APH 200 and APH 305 are corequisites.

[3] Both PHY 112 and 114 must be taken to secure S1 or S2 credit.

Bachelor of Science in Design, Major in Housing and Urban Development Upper-Division Requirements

Third Year

Fall

CON	383	Construction Estimating	3
HUD	301	Housing and Community Design and Development	3
		or CON 477 Residential Construction Business Practices 3)	
HUD	361	Housing and Urban Development Studio I: Residential Design and Development	2
HUD	363	Housing and Urban Development Seminar I Residential Design and Development	3
MKT	394	Marketing and Selling	3
Total			14

Spring*

CON	389	Construction Cost Accounting and Control *V3*	3
HUD	302	Housing Production Process	3
HUD	362	Housing and Urban Development Studio II. Community Design and Development	2
HUD	364	Housing and Urban Development Seminar II Community Design and Development	3
Approved elective in computers			3
Total			14

* CON 251 Microcomputer Applications for Construction is suggested.

Summer

HUD	484	Internship	1
PUP	485	International Field Studies in Planning and Landscape Architecture (optional)	1–12
Minimum total			1

Fourth Year

Fall

CON	495	Construction Planning and Scheduling *N3*	3
HUD	401	Assisted Housing	3
HUD	461	Housing and Urban Development Studio III. Comprehensive Housing Development Process	2
HUD	463	Housing and Urban Development Seminar III: Comprehensive Housing Development Process	3
PUP	433	Zoning Ordinances, Subdivision Regulations, and Building Codes	3
		or PUP 432 Planning and Development Control Law (3)	
Total			14

Spring

HUD	402	Community Revitalization: Problems and Strategies	3
HUD	403	Advanced Topics in Housing and Urban Development	3
HUD	462	Housing and Urban Development Studio IV: Neighborhood Revitalization Process	2
HUD	464	Housing and Urban Development Seminar IV Neighborhood Revitalization Process	3
PUP	452	Ethics and Professional Practice *L2*	3
Total			14
Upper division minimum total			57
B.S.D HUD total			120

Bachelor of Science in Environmental Resources

Lower division courses	61
Upper division courses core	32
Approved electives	27
Total	120

General Studies Requirement. The following curriculum includes sufficient approved course work to fulfill the General Studies requirement. See pages 84–108 for the General Studies requirement and a list of approved courses. Note that all three General Studies awareness areas are required. Consult your advisor for an approved list of courses.

Graduation Requirements. In addition to fulfilling college and major requirements, students must meet all university graduation and college degree requirements. See pages 79–83

Bachelor of Science in Environmental Resources Lower-Division Requirements

First Year

Fall

BIO	181	General Biology *S1/S2*	4
ENG	101	First Year Composition	3
		or ENG 105 Advanced First Year Composition (3)	
ERS	130	Soils and Environmental Quality *S1/S2*	4
Computer course (see advisor)			3
Total			14

Spring

BIO	182	General Biology *S2*	4
CHM	101	Introductory Chemistry *S1/S2*	4
ENG	102	First Year Composition	3
		or HU elective if ENG 105 is taken	
HU elective			3
Total			14

Second Year

Fall

BIO	320	Fundamentals of Ecology	3
ECN	111	Macroeconomic Principles *SB*	3
ERS	225	Soils	3
ERS	226	Soils Laboratory	1
ERS	350	Environmental Statistics *N2*	3
SB course			3
Total			16

Spring

CHM	231	Elementary Organic Chemistry *S1/S2*	3
CHM	235	Elementary Organic Chemistry Laboratory *S1/S2**	1
ERS	246	Introduction to the Environmental Sciences *G*	3
MAT	210	Brief Calculus *N1*	3
PLB	310	The Flora of Arizona	4
HU elective			3
Total			17
Lower-division minimum total			61

* Both CHM 231 and 235 must be taken to secure S1 or S2 credit

Bachelor of Science in Environmental Resources Upper-Division Requirements

Third Year

Fall

ENG	301	Writing for the Professions *L1*	3
ERS	360	Range Ecosystem Management	4
ERS	407	Range Plants and Habitats	4
Approved electives (see advisor)			3
Total			14

Spring

ERS	333	Water Resources Management	3
		or ERS 365 Watershed Management	3)
ERS	402	Vegetation Measurement	4
ERS	475	Wildlife and Range Animal Management	3
Approved electives (see advisor)			6
Total			16

Fourth Year

Fall

ERS	410	Wildlife Habitat Relations	4
		or ERS 460 Applied Systems Ecology (3)	
ERS	490	Recent Advances in Environmental Resources	1
Approved electives			6 or 7
HU or SB elective			3
Minimum total			14

Spring

ERS	480	Ecosystem Management and Planning	3
PUP	475	Environmental Impact Assessment	3
Approved electives			6
Approved L2 elective			3
Total			15
Upper division minimum total			59
B.S. ER total			120

INQUIRIES

For further information on the lower-division or upper division programs, contact a college academic advisor:

College of Architecture and Environmental Design
Arizona State University
PO Box 871605
Tempe AZ 85287–1605

ENVIRONMENTAL DESIGN AND PLANNING (EPD)

See the *Graduate Catalog* for the EPD courses.

ENVIRONMENTAL RESOURCES (ERS)

ERS 130 Soils and Environmental Quality. (4) F, S
Introduction to soil resources their physical and chemical properties classification, energy dynamics and the role they play in environmental quality Lecture, lab. *General Studies: S1 S2*

ERS 225 Soils. (3) F
Fundamental properties of soils and their relation to plant growth and the nutrition of man and animals Relation of soils to environmental quality. Prerequisite CHM 101 or 113 or equivalent

ERS 226 Soils Laboratory. (1) F
Selected exercises to broaden the background and understanding of basic soil principles Lab. Corequisite ERS 225

ERS 246 Introduction to the Environmental Sciences. (3) F S
A global and ecological perspective on environmental conservation and management *General Studies: G*

ERS 333 Water Resources Management. (3 S
Sources, the development and conservation in arid regions for agricultural natural resources, and urban uses Prerequisite CHM 101 or 113

ERS 350 Environmental Statistics. (3) F
Statistical methods with applications in natural resource management and the environmental sciences Use of computers and the Internet Prerequisites: CSE 180, MAT 117 *General Studies N2*

ERS 353 Wildlife Nutrition. (3) F
Principles of nutrient metabolism in wild life species, with emphasis on understanding the interaction of wild life with their environment Prerequisites: BIO 181 and 182 and CHM 101 and 230 *or* instructor approval.

ERS 360 Range Ecosystem Management. (3 F
Ecosystem management principles applied to rangelands. Herbivory as an ecological process, evaluation of range and health multiple use of range lands. Lecture recitation Prereq uisites. BIO 320 or equivalent) ERS 246

ERS 365 Watershed Management. (3) N
Hydrologic, physical, biological and ecological principles applied to watershed management. Impact of ecosystem manipulations on water yield and quality 1 weekend field trip Prerequisites ERS 225, 246

ERS 370 Forest Ecosystem Dynamics. (3) S
Dynamics of forest ecosystem with applications from landscape ecology Silvicultural principles measurements, and multiple use of forests Field trips required. Lecture lab. Prerequisites. BIO 320; ERS 246, 350.

ERS 402 Vegetation Measurement. (4) S
Vegetation sampling and inventory as related to animal-habitat relations Lecture lab, 1 weekend field trip Prerequisites CSE 180 and ERS 350 and 360 and department major *or* instructor approval

ERS 407 Range Plants and Habitats. (4) F
The distribution, ecological characteristics, identification of key plants, and values of habitats on western rangelands. Laboratory emphasis on grass identification. Lecture, lab Prerequisite PLB 310 or equivalent

ERS 410 Wildlife Habitat Relations. (4) F
Interactions among animal populations and their habitat Systems simulation of population dynamics as influenced by competition and management strategies Lecture, lab 1 weekend field trip. Prerequisite ERS 360

ERS 420 Ecological Restoration. (3) S
Techniques of ecological restoration applied for the improvement of arid and semiarid and and sensitive habitats Weekend field trips Prerequisite ERS 360.

ERS 425 Soil Classification and Management. (3) N
Principles of soil genesis morphology, and classification Management and conservation practices will be presented. Prerequisite ERS 225.

ERS 433 Riparian Ecosystem Management. 3) N
Examination of the functions and components that make up riparian ecosystems and the management of these ecosystems Lecture, field trip Prerequisite: ERS 225 or instructor approval.

ERS 446 Soil Fertility. 3) S
Ability of soils to retain and supply plant nutrients Reactions of fertilizers in soils Prerequisites ERS 225, 226

ERS 448 Soil Ecology. (3) N
Soils viewed in an ecosystem context soil plant relationships nutrient budgets, and abiotic factors that influence soil processes. Prerequisites BIO 320 and ERS 225 and 226 *or* instructor approval

ERS 452 Soil, Water, and Irrigation. (3) N
Water measurement conveyance and conservation, with emphasis on crop production and soil plant water relations. Prerequisite ERS 225.

ERS 460 Applied Systems Ecology. (3 N
The systems approach applied to analysis and management of natural resource ecosystems. Use of simulation models 2 hours lecture, 3 hours lab. Prerequisites ERS 350 or equivalent 1 course in ecology

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NOTE: For the General Studies requirement codes (such as L1, N3, C and H), and courses see pages 84–108 For graduation requirements, see pages 79–83 For omnibus courses offered but not listed in this catalog see pages 56–57

ERS 470 Land Reclamation. (3) N
Problems of reestabl sh ng vegetat on on d's turbed sites Spec a revegetat on techn ques, surface modif cat ons and government regu a- t'ons 1 weekend field tr p. Prerequ s tes ERS 407 and 420 and 446 and 448 *or* nstructor approva .

ERS 475 Wildlife and Range Animal Management. (3) S
Pr nc ples and techniques for management of domest c and nondomestic an ma s us ng range and ecosystems Emphas s on pract ca app cat ons of management Weekend fie d tr ps Prerequ s te instructor approva

ERS 477 Environmental Risk Assessment and Management. 3) S
Survey of methods re ated to dentif cation eva uation comparison and management of env ronmenta r sks Prerequ s te senior stand ng

ERS 480 Ecosystem Management and Planning. (3) S
Plann'ng for management and conservat'on of wi d and ecosystems Eco ogical econom c, and soc a constraints on ong-term sustain- ab e resource deve opment Computer tools for resource p anning Lecture 1 weekend f e d trip Prerequ s tes: ERS 402 or equiva lent; sen or stand ng

ERS 485 GIS in Natural Resources. (3) F
Pr nc p es of Geograph c Informat on Systems (GIS) uti zed in natura resource manage- ment Use of computers for spat al ana ysis of natural resources Lecture ab Prerequis te CSE 180 or equ va ent

ERS 486 Remote Sensing in Environmental Resources. 4) S
Princ'ples and app cat on of remote sens ng technologies n natura resource management Integrat on of computer zed data from aer a photography and LanSat magery n resource management Lecture ab. Prerequ site. ERS 485 or equ va ent

ERS 490 Recent Advances in Environmental Resources. (1 N
Current iterature and s gn f cant develop ments nvo v ng env ronmental resources May be repeated for cred t

ERS 533 Riparian Ecology. (3) N
Rev ew of recent iterature, deve opments and methods re ated to ripar an eco ogy Ap- pl cat ons of soi and landscape eco ogy to r par an systems Lecture d scuss on, fie d tr ps

ERS 540 Plant Responses to Environmental Stresses. 3) N
React on of p ants to env ronmental stresses aerial po utants, f re herbivores mechan cal treatments pest c des, and so l amendments 1 weekend f eld tr p Prerequ s te ERS 360 r nstructor approva

ERS 548 Plants, Soils, and Environmental Quality. 3 N
Effects of a r qua ty on plants and so s, and the r role n remov ng contam nants from the atmosphere Prerequ s te ERS 225

ERS 550 Vegetation Dynamics Studio. (4) F
Dynamics of vegetat on emphas z ng eco og - cal success on app cat ons of andscape eco ogy and G S, and ana ys s of vegetat on data F eld tr ps stud o Prerequ s te ntroduc tory stat stics course

ERS 551 Environmental Statistics Studio. (4 S
Advanced statist ca procedures for env ronmental resources Techniques for ana yz ng research data that do not meet assumpt ons. Stud o Prerequ site· ERS 350 or equ va ent

ERS 553 Advanced Animal Nutrition. (4) F
Metabo c and phys o og cal nteract ons of nu tr ents in w ld and domesticated an ma s con sum ng natural feeds Lecture lab

ERS 560 Systems Ecology. (3) N
Quant tat ve descript on and mathemat ca mode ng of ecosystem structure and function Techn ques for mode construct'on and s mu ation Lecture, ab Prerequ s tes: ERS 350 or equivalent computer programm ng· 6 hours in eco ogica studies

HOUSING AND URBAN DEVELOPMENT (HUD)

HUD 161 Graphic Communication I. 3) F, S
Development of draw ng ski s and under stand ng of the graph c commun cat on sys tems used by p ann ng homebu d'ng, and andscape arch tecture profess onals.

HUD 162 Graphic Communication II. (3) F S
Development of sketch ng techn ques and wa terco or app cat on used n concept develop- ment and f na presentation Prerequ s te HUD 161

HUD 201 Introduction to Housing and Urban Development. (3) S
Perspectives and issues concerning HUD. Guest ectures by interd sc p inary facu ty and pr vate, publ c and nonprof t pract tioners

HUD 301 Housing and Community Design and Development. (3) F
Single and mu tifami y housing res dential ne ghborhoods, and p anned commun t es Affordab l ty in owner-occupied and renta hous ng First-t me move up and adult mar- kets

HUD 302 Housing Production Process. (3) S
Deve opment feas b l ty analys s f nance, con tracts, and acqu s t on, community and perm t presentation and negotiat on, schedu ng, cost control, market ng, and sa es.

HUD 361 Housing and Urban Development Studio I: Residential Design and Development. (2 F
Affordab e resident'a des gn, deve opment and product on process Studio Pre or corequ sites HUD 301, 363· upper d v s on HUD major

HUD 362 Housing and Urban Development Studio II: Community Design and Development. (2) S
Ne ghborhood and new community des gn and deve opment process. Stud o Pre or corequis tes. HUD 301 361 363 364; upper- d v s on HUD major

HUD 363 Housing and Urban Development Seminar I: Residential Design and Development. (3) F
Affordable res dential des gn deve opment and product on process Sem nar Pre- or corequ sites HUD 301 361, upper-d v s on HUD major.

HUD 364 Housing and Urban Development Seminar II: Community Design and Development. (3) S
Ne ghborhood and new commun ty des gn and deve opment process Sem nar Pre- or corequ s tes HUD 301 361 362, 363, upper- division HUD major

HUD 401 Assisted Housing. (3) F
Pub ic y subs dized and nonprof t hous ng Pol cy imp ementation and adm nistrat on. FHA Section 8 FmHA projects and scatter s te, and tax cons derations.

HUD 402 Community Revitalization: Problems and Strategies. (3) S
Pub ic pol cy and strateg es for ne ghborhood revita zation and community renewa Preser- vation and adaptive reuse, gentrif cat on ne ghborhood safety and related socio-eco- nom c concerns

HUD 403 Advanced Topics in Housing and Urban Development. (3) F, S
Vary ng top cs such as manufactured hous- ng, homelessness mortgage and f nance in housing hous ng abroad marketing hous ng, and susta nab e community development

HUD 461 Housing and Urban Development Studio III: Comprehensive Housing Development Process. (2) F
Comprehensive deve opment process s mu a t on Feasib ity analysis f nance, des gn, com mun ty and perm t presentat on, construct on cost management, and marketing Studio Pre or corequisites. HUD 302 463 upper-di v s on HUD major

HUD 462 Housing and Urban Development Studio IV: Neighborhood Revitalization Process. 2) S
Hous ng rehab itat on, neighborhood rev ta - zat on, and urban nfi CDBG empower ment-enterprise zon ng code enforcement cit zen part c pation etc Stud o Pre or corequisites HUD 401 402, 464; upper d v s'on HUD major.

HUD 463 Housing and Urban Development Seminar III: Comprehensive Housing Development Process. (3) F
Comprehens ve deve opment process simu a- t on. Feas b ty ana ys s, finance, des gn, com- munity and perm t presentat on, construction and cost management and market ng Sem nar. Pre or coreqU s tes HUD 302, 461 up per-d vision HUD major.

HUD 464 Housing and Urban Development Seminar IV: Neighborhood Revitalization Process. (3) S
Hous ng rehab tat on, ne ghborhood rev tal zat on, and urban nf CDBG empower ment enterpr se zon ng, code enforcement, cit zen part c pat on etc Sem nar Pre or coreqU s tes HUD 401 402, 462, upper-d v - sion HUD major.

LANDSCAPE ARCHITECTURE (PLA)

PLA 201 Landscape Architecture and Society. (3) F, S
The re evance of andscape architecture to the creat on of human zed env ronments with em phas s on natura factors

PLA 261 Landscape Architecture I. (4) F
Read ng the andscape: observ ng, experienc ing and graph ca ly express ng the symbo c and aesthet c s gn f cance of natura land scapes Stud o Cross l sted as PUP 261. Pre- requisites. ADE 120· GPH 111.

PLA 264 Landscape Architecture II. (4) S
Landscape commun cat on: commun cation techn ques for urban p ann ng and andscape arch tecture communication Cross l sted as PUP 264 Prerequ s tes ADE 120 PLA/PUP 261

PLA 310 History of Landscape Architecture. 3 F
Phys ca record of human att tudes toward the and Anc ent through contemporary landscape p ann ng and des gn. Cross sted as APH 411 *General Studies H*

PLA 322 Planning Methods Using Computers. 3 F
P ann ng methods us ng database word process rs spreadsheets CAD and mapping packages on m crocomputers Lecture ab. Cross sted as PUP 322.

PLA 359 Resort Planning and Recreation Design. (3 F
nterre at onsh ps of soc a econom c, and phys ca aspects of tota tourist resort des gn; emphas s on phys ca deve opment of tourist centers and resort areas

PLA 361 Landscape Architecture III. (5) F
Site p ann ng analys s of natura and cultura features s te systems and mplicat ons for p an mak ng and des gn Stud o. Cross sted as PUP 361 Prerequ s te department major or nstructo approval

PLA 362 Landscape Architecture IV. (5) S
S te des gn s te spec f c design of configured space by the creat ve deve opment of form Stud o Cross sted as PUP 362 Prerequ s te department major or nstructor ap prova

PLA 363 Landscape Planting Design. (3) F
F nct ona and aesthet c use of p ants in arid reg on andscape des gn Des gn ph losophies are exp ored through plant ng design prob lems Stud o Prerequ s te PLA/PUP 362 or nstructor approva

PLA 420 Theory of Urban Design. (3) F
Ana ys s of the v's a and cultural aspects of urban des gn Theor es and techn ques ap pl ed t se ected study models. Cross sted as PUP 420 Prerequ s te junior stand ng. *Genera Stud es HU*

PLA 442 Landscape Construction I. (3) F
Landscape construct ons focusing on and form transformat ons Top cs include landform analys s, grad ng and earthwork Studio Prerequ s te adm ssion to department's profes s onal eve or nstructor approva

PLA 443 Landscape Architecture Theory and Criticism. (3) S
Landscape arch tecture theor es and projects are cr t ca y analyzed to evaluate val dity of des gn and contribution to society Prerequ s tes PLA 310 361, 420; PUP 412.

PLA 444 Landscape Construction II. (3) S
Character st cs of mater a s and methods used n andscape architectura construct on. Stud o Prerequ s te: PLA 442 or nstructor approva

PLA 461 Landscape Architecture V. (5) F
Landscape ecologica p ann ng co lect on and app at on of eco og ca data relevant to p anning and des gn at andscape scale. Studio Prerequ s te PLA/PUP 362 or instructor approval

PLA 462 Landscape Architecture VI. (5) S
Urban design analys s and des gn of the con temporary c'ty emphasizing cu tura and env ronmental nfluences of urban form. Prereq u s te department major or instructor approva

PLA 484 Internship. (3) F, S, SS (SS1 on y)
Fu l-time internship under the supervision of practitioners n the Phoen'x area or other lo ca es Cred t/no cred t Prerequisite: department major or nstructor approval

PLA 485 International Field Studies in Planning and Landscape Architecture. (1 12) F S SS
Organ zed field study of plann ng and and scape arch tecture n spec fied nternationa o cat ons. May be repeated for credit with department approval Study abroad Cross isted as PUP 485.

PLA 546 Urban Design Policy. (3) N
Advanced study of ocal, state, and federa urban des gn po cy Cross- sted as PUP 546 Prerequ s te PLA/PUP 420

URBAN AND ENVIRONMENTAL PLANNING (PUP)

PUP 100 Introduction to Environmental Design. (3) F S, SS
Survey of env ronmental design inc udes h s tor c examp es and the theoretical social, tech nica and environmental forces that shape them. Cross sted as APH DSC 100 *General Stud'es. HU G H.*

PUP 200 The Planned Environment. (3) F
Environmenta aesthetic, soc a econom c pol tical, and other factors nf uenc ng urban deve opment *General Studies. HU, H*

PUP 236 Introduction to Computer Modeling. (3) F S
Fundamentals of computer operat on, geo graph c informat ons systems, geometric model ng of three d mens ona forms and rendering of l ght mathematica model ng of processes us ng spreadsheets. Lab. Cross l sted as ANP DSC 236. Prerequ s te major n the Co ege of Architecture and Env ronmental Design *General Studies N3*

PUP 261 Urban Planning I. (4) F
Reading the landscape: observ ng, experienc ng, and graphical y express ng the symbo ic and aesthet c s gn f cance of natura and scapes Stud o. Cross- sted as PLA 261. Prerequ sites ADE 120; GPH 111.

PUP 264 Urban Planning II. (4) S
Plann'ng communication commun cat on techn ques for urban p ann ng and andscape architecture commun cation Cross l sted as PLA 264 Prerequ s tes: ADE 120; PLA/PUP 261

PUP 301 Introduction to Urban Planning. (3) F S, SS
Theoret ca and pract cal aspects of c ty plan n ng Interre ationsh ps among phys ca plan n ng, environment, government and soc ety *General Stud es L1*

PUP 322 Planning Methods Using Computers. (3) F
P anning methods us ng database word processors, spreadsheets CAD, and mapp ng packages on m crocomputers Lecture, ab Cross isted as PLA 322

PUP 361 Urban Planning III. (5) F
S te p ann ng ana ys s of natural and cultural features s te systems and mpl cat ons for p an mak ng and des gn Studio. Cross listed as PLA 361. Prerequ s te department major or nstructor approva

PUP 362 Urban Planning IV. (5) S
P anning elements· one or more factors ad dressed, nc ud ng and use hous'ng, env ron ment, transportat on, circulat on, open space, econom c deve opment, urban des gn. Studio. Cross isted as PLA 362. Prerequisite: depart ment major or instructor approva

PUP 412 History of the City. (3) F
The c ty from ts ancient or gins to the present day. Emphas s on European and American c t es during the ast f ve centuries. Cross- sted as APH 414 *General Studies H*

PUP 420 Theory of Urban Design. (3) S
Analys's of the visua and cultura aspects of urban design Theor es and techn ques ap p ed to se ected study models. Cross l sted as PLA 420 Prerequ s te jun or standing *Gen eral Stud es· HU.*

PUP 424 Planning Methods. (3) F
Too s usefu for urban p anning research em phas s on research design and survey meth ods. Prerequ s te PUP 301 or instructor approval

PUP 425 Urban Housing Analysis. (3) F
Nature d mens ons and prob ems of urban hous ng government pol cy environment, and under y ng economics of the hous ng market.

PUP 430 Transportation Planning and the Environment. (3) S
Overv ew of transportation plann ng from the perspect ve of and use p anning econom c deve opment env ronmental p ann ng and social needs Lecture, d scuss on Prerequisite jun or standing or instructor approva

PUP 432 Planning and Development Control Law. (3) F
Case stud es on pol ce power em nent do ma n zon ng subdivis on contro s, exc us on, preservation urban redeve opment, and aes thet c and des'gn regu ation

PUP 433 Zoning Ordinances, Subdivision Regulations, and Building Codes. (3) F, S
Analys s of zoning ord nances, subd v s on regu ations, bui d ng codes and other p an n ng mplementat on techn ques re ative to local development

PUP 442 Environmental Planning. 3) F
Env ronmenta p anning prob ems, nclud ng flood p a ns, water qua ty and quant ty, so d and hazardous waste a r qual ty landsl des and no se. Fie d tr ps. Prerequ s te: PUP 301 or nstructor approva

PUP 444 Preservation Planning. (3) S
H story theory and pr nc p es of h storic preservat on. Emphasis on ega framework and methods practiced Lecture, off-campus fie d study. Prerequis te nstructor approva

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NOTE For the Genera Stud es requ rement, codes (such as L1 N3 C, and H) and courses see pages 84 108 For graduation requ rements see pages 79–83 For omn bus courses offered but not l sted n th s cata og see pages 56–57

PUP 445 Women and Environments. (3) F
Examines the role women play in shaping the built environment; ways built/natural forms affect women's lives. Focus on contemporary U.S. examples. Prerequisite: upper division or graduate status. *General Studies: C.*

PUP 452 Ethics and Professional Practice. (3) S
Ethical problems and issues in planning, professional practice, and decision making. Prerequisite: department major or instructor approval. *General Studies: L2.*

PUP 461 Urban Planning V. (5) F
Comprehensive planning: collection and analysis of economic, social, and environmental data relevant to urban planning; development of land-use plans. Studio. Prerequisite: PLA/PUP 362 or instructor approval.

PUP 462 Urban Planning VI. (5) S
Capstone studio: project focusing on synthesis aspects of plan making. Studio. Prerequisite: PUP 461 or instructor approval.

PUP 475 Environmental Impact Assessment. (3) S
Criteria and methods for compliance with environmental laws; development of skills and techniques needed to prepare environmental impact statements/assessments.

PUP 484 Internship. (1–12) F, S, SS (SS1 only)
Full-time internship under the supervision of practitioners in the Phoenix area or other locale. Credit/no credit. Prerequisite: department major or instructor approval.

PUP 485 International Field Studies in Planning and Landscape Architecture. (1–12) F, S, SS
Organized field study of planning and landscape architecture in specified international locations. May be repeated for credit with department approval. Study abroad. Cross-listed as PLA 485.

PUP 510 Citizen Participation. (3) S
Theory and practice of citizen participation in planning. Examines and critiques participation techniques and roles of planners. Prerequisite: instructor approval.

PUP 520 Planning Theories and Processes. (3) F
Review of past and current theoretical developments related to social change perspectives, the role and ethics of planners. Prerequisite: instructor approval.

PUP 524 Planning Methods I: Planning Research Methods. (3) F
Tools useful for urban planning research; emphasis on research design and survey methods. Prerequisite: PUP 301 or instructor approval.

PUP 525 Urban Housing Analysis. (3) F
Nature, dimensions, and problems of urban housing, government policy environment, and underlying economics of the housing market.

PUP 531 Planning and Development Control Law. (3) S
Case studies on police power, eminent domain, zoning, subdivision controls, exclusion, preservation, urban redevelopment, and aesthetic and design regulation.

PUP 532 Advanced Urban Planning Law. (3) S
Advanced study on selected issues in planning law, such as urban design controls, exclusionary practices, compensable regulation, and tax policy. Prerequisite: PUP 432 or instructor approval.

PUP 544 Urban Land Use Planning. (3) F
Theory and methods of urban land use planning, including the rational planning process, comprehensive, functional, and neighborhood plans. Prerequisite: PUP 301 or instructor approval.

PUP 546 Urban Design Policy. (3) N
Advanced study of local, state, and federal urban design policy. Cross-listed as PLA 546. Prerequisite: PLA/PUP 420.

PUP 561 Urban Design Studio. (4) N
Current urban form and urban landscape design problems within the Phoenix-centered region. Studio. Prerequisite: PLA/PUP 420 or instructor approval.

PUP 572 Planning Studio I: Data Inventory and Analysis. (4) F
Comprehensive planning workshop dealing with real community problems. Focus on the data gathering and analysis steps of the planning process. Prerequisite: Master of Environmental Planning major or instructor approval.

PUP 574 Planning Studio II: Options and Implementation. (4) S
Comprehensive planning workshop dealing with real community problems. Focus on the development of options, plan making, and plan implementation. Studio. Prerequisite: PUP 572 or instructor approval.

PUP 575 Environmental Impact Assessment. (3) S
Criteria and methods for compliance with environmental laws; development of skills and techniques needed to prepare environmental impact statements/assessments.

PUP 584 Internship. (3) F, S, SS (SS1 only)
Internship under the supervision of practitioners in the Phoenix area or other locales. Credit/no credit.

PUP 622 Planning Methods II: Quantitative Planning Analysis. (3) S
Methods and models used as the basic quantitative techniques of urban, regional, and environmental planning and policy analysis. Prerequisites: PUP 424; statistics; instructor approval.

PUP 642 Land Economics. (3) F
Land use and locational impact of economic activity and the urban real property market. Prerequisite: instructor approval.

PUP 644 Public Sector Planning. (3) S
Urban fiscal problems and public goods provision in state and local governments. Prerequisites: instructor approval; 1 course in microeconomics.

Araceli Morales constructs a model of a church in the College of Architecture and Environmental Design's wood shop.

Tim Trumble photo

College of Business

Larry E. Penley, Ph.D.
Dean

PURPOSE

The mission of the College of Business is to expand the knowledge of business and to educate men and women for managerial leadership through research activities and professional educational programs. These programs address issues of importance to future managers in a world characterized by demands for continuous improvements in quality; growing sophistication of information technology, globalized markets; racial, cultural, and gender diversity in the work force; and a demand for managers with practical, realistic skills

Students have many opportunities to supplement their academic experiences. The college offers an honors program for academically talented students, an Academic Access Program to assist underrepresented students, an international component to provide a variety of international opportunities, an internship program which provides related practical experience, and 18 co curricular organizations to increase student interaction and learning.

The college is a member of the American Assembly of Collegiate Schools of Business (AACSB), the official accrediting organization in the field of business. The undergraduate and graduate programs and the School of Accountancy and Information Management are accredited by this organization.

The college is host to a chapter of Beta Gamma Sigma, a national society that recognizes high academic achievement in AACSB accredited schools. Selection to Beta Gamma Sigma is the highest scholastic honor a student in business can earn.

In addition to the regular degree curricula, other programs of study in the college are designed to meet special needs. Selected majors are available in the evening and continuing education courses are conducted for qualified persons who are regularly employed and who otherwise would be unable to enroll in college courses. Short courses and institutes on a noncredit basis are organized in cooperation with various business groups for the furtherance of in-service training of employed personnel.

The college works in partnership with the business community, and the board of the Dean's Council of 100 serves as a primary source of advice and counsel for the college. Through the various divisions of the L William Seidman Institute, the college reaches out to the business community through research and executive education. For more information, visit the college's Web site at www.cob asu.edu.

ORGANIZATION

The courses offered by the College of Business are organized into groups so that a related sequence may be established for the various subject fields. For administrative purposes, these fields are organized into the following academic units:

School of Accountancy and Information Management
Department of Business Administration
Department of Economics
Department of Finance
School of Health Administration and Policy
Department of Management
Department of Marketing

ADMISSION

The Prebusiness Program. Each student admitted to the College of Business is designated as a prebusiness student. The student follows the freshman and sophomore sequence of courses listed in the curriculum outline. Students are required to follow the recommendations of an academic advisor in completing the prescribed background and skill courses in preparation for the subsequent professional program. The skill courses follow.

ACC	230	Uses of Accounting Information I	3
ACC	240	Uses of Accounting Information II	3
CIS	200	Computer Applications and Information Technology *N3*	3
ECN	111	Macroeconomic Principles *SB*	3
ECN	112	Microeconomic Principles *SB*	3
ENG	101, 102	First Year Composition or ENG 105 Advanced First Year Composition (3	6
MAT	119	Finite Mathematics *N1*	3
MAT	210	Brief Calculus *N1*	3
QBA	221	Statistical Analysis *N2*	3
Total			30

Accountancy and Computer Information Systems majors should refer to their specific requirements on pages 149–150 which list variations in the skill courses.

Completion of lower division requirements does not ensure acceptance to the upper division professional program. Prebusiness students are not allowed to register for 300- and 400-level business courses.

The Professional Program. The junior and senior years constitute the professional program of the undergraduate curriculum. Admission to the professional program is competitive and limited by available resources. Admission is awarded to those applicants demonstrating the highest promise for professional success.

To be considered for admission to the professional program, students must obtain an application to the professional program in the Undergraduate Programs Office in the College of Business. This application contains complete information concerning academic qualifications for admission to the professional program. Students interested in beginning the professional program in summer or fall must submit a professional program application in February or May. Students interested in beginning the professional program in January must submit a professional program application in September.

Nonbusiness Students. A nonbusiness student is permitted to register for selected 300- and 400-level business courses only if, (1) at the time of registration, the student has junior standing (56 semester hours completed) and (2) the student has a minimum cumulative GPA of 2.50 at ASU and a minimum GPA of 2.50 for all business courses completed at ASU. Students who have 56 semester hours completed but have never attended ASU are given a one-semester period to register and to establish a GPA at ASU. Students must meet all prerequisites and course requirements as listed in the catalog.

Nonbusiness majors are limited to a maximum of 15 semester hours of selected upper division business courses (excluding economics [ECN] courses).

Bachelor of Interdisciplinary Studies. A business emphasis is available to Interdisciplinary Studies students who successfully complete 18 semester hours of approved course work. Students may use any one of the existing business minors or certificates as a guide for the business emphasis. Students will select additional Business minor hours to meet the minimum 18-hour requirements. Students may use only one emphasis in business toward the Bachelor of Interdisciplinary Studies. For details, refer to the Bachelor of Interdisciplinary Studies degree on pages 112–113.

Minor. A Business minor is available to nonbusiness students. To complete the minor, students must obtain the requirements from the Undergraduate Programs Office in the College of Business and complete the specified business courses with a grade of "C" or higher. Courses used in a student's major may not be used toward the Business minor. Students are advised to consult an advisor in the college of their majors to ensure the proper selection of courses for the minor. The upper-division courses for the minor are restricted to students with 56 semester hours who are in good standing. A specific program emphasizing small business is also available.

Nondegree Undergraduate and Graduate Students. A nondegree undergraduate or graduate student is permitted to enroll in selected 300- and 400-level business courses only during online registration and only if 1) the student has an ASU cumulative GPA of at least 2.50 and an ASU cumulative business GPA of at least 2.50 at the time of online registration or 2) the student has never attended ASU, in which case he or she is given a one-semester period to register during online registration and to establish a GPA at ASU. Students must meet all prerequisites and course requirements as listed in the catalog.

Nondegree undergraduate and graduate students are limited to a maximum of 15 semester hours of selected upper division business courses (excluding economics courses).

ADVISING

The student should follow the sequence of courses in the "Curriculum Outline" and the recommendations of the academic advisor in completing the prescribed background and skill courses in preparation for the subsequent professional program.

Curriculum Outline
Prebusiness Program

First Year

First Semester

ECN	111	Macroeconomic Principles *SB* or ECN 112 Microeconomic Principles *SB*	3
ENG	101	First Year Composition	3
MAT	119	Finite Mathematics *N1*	3
General Studies			3
PGS or SOC course			3
Total			15

Second Semester

COM	100	Introduction to Human Communication *SB* or COM 230 Small Group Communication *SB* or COM 259 Communication in Business and the Professions (3)	3
ECN	112	Microeconomic Principles *SB* or ECN 111 Macroeconomic Principles *SB*	3
ENG	102	First Year Composition	3
MAT	210	Brief Calculus *N1*	3
Laboratory science *S1/S2*			4
Total			16

Second Year

Third Semester

ACC	230	Uses of Accounting Information I	3
QBA	221	Statistical Analysis *N2*	3
General Studies			3
Laboratory science S1/S2			4
PGS or SOC course			3
Total			16

Fourth Semester

ACC	240	Uses of Accounting Information II	3
CIS	200	Computer Applications and Information Technology *N3*	3
General Studies			9
Total			15
Prebusiness program total			62

NOTE. For the General Studies requirement codes (such as L1, N3, C, and H) and courses, see pages 84–108. For graduation requirements, see pages 79–83. For omnibus courses offered but not listed in this catalog, see pages 56–57.

Accountancy and Computer Information Systems majors should refer to their specific course requirements on pages 149–150 which list course requirement variations.

Students are encouraged to have College Algebra (MAT 117) proficiency before registering in ECN 111 and 112. ECN 111 and 112 may be taken during the second and third semesters without any delay in the prebusiness program.

Professional Program. Students admitted to the professional program should select the necessary upper division business courses to complete the major by consulting their departmental advising guide and faculty advisor. Professional program students must complete BUS 301 and COB 300 and 301 the first semester in the professional program.

Transfer Credit. Credit from other institutions is accepted subject to the following guidelines. Students planning to take their first two years of work at a community college or another four-year college should take only those courses in business and economics that are offered as freshman or sophomore level courses at any of the state supported Arizona universities. These lower division courses are numbered 100 through 299. *A maximum of 30 hours of business and economics courses from community colleges are accepted toward a bachelor's degree in business.*

Students may transfer a maximum of nine semester hours of approved upper-division business course work required for the business degree to ASU Main. Professional business courses taught in the junior or senior year in the state universities may not be completed at a two-year college for transfer credit in the business core or major. The introductory course in the legal, ethical, and regulatory issues in business is accepted as an exception to this policy, but only lower division credit is granted. Such courses may be utilized in the free elective category *subject to the 30 hour limitation*. Courses taught as vocational or career classes at the community colleges that are not taught in the colleges of business at any one of the state universities are not accepted for credit toward a bachelor's degree. Courses taught in the upper division business core at the state universities must be completed at the degree granting institution unless transferred from an accredited four-year school. Normally, upper division transfer credits are accepted only from AACSB accredited schools. To be accepted for credit as part of the professional program in business, all courses transferred from other institutions must carry prerequisites similar to those of the courses they are replacing at ASU.

A Transfer Partnership Degree is available to Maricopa community college students who wish to complete their first two years of course work at a Maricopa community college and transfer to the College of Business without loss of credit. Additional associate degrees are available to students who wish to complete their first two years of course work at an Arizona community college and transfer to the College of Business without loss of credit. Students should consult with an academic advisor in the Undergraduate Programs Office to plan curriculum requirements.

DEGREES

The faculty in the College of Business offer the B.S. degree in Accountancy, Computer Information Systems, Economics, Finance, Management, Marketing, Real Estate, and Supply Chain Management upon successful completion of a four-year curriculum of 120 semester hours. Students may select one of the majors shown in the "College of Business Degrees, Majors, and Concentrations" table, page 145. Each major is administered by the academic unit indicated.

GRADUATE PROGRAMS

The faculty in the College of Business offer the Master of Accountancy degree, a Master of Business Administration degree, the Master of Health Services Administration degree, the M.S. degree in Information Management, the M.S. degree in Economics, the Master of Taxation degree, the Ph.D. degree in Business Administration, and the Ph.D. degree in Economics.

Students have the opportunity to obtain dual degrees in two years with several master's degree programs in the College of Business. Some of those available are:

M.B.A./M.H.S.A.
M.B.A./M.S.I.M.
M.B.A./M.Acc.
M.B.A./M.S. in Economics
M.B.A./M.Tax.

Other concurrent degrees available are:

M.B.A./J.D.
M.B.A./Master of Architecture
M.B.A./M.I.M. with American Graduate School of International Management (Thunderbird), Glendale, AZ; ESC Toulouse, Toulouse, France; Universidad Carlos III, Madrid, Spain; and ITAM and ITESM CEM, Mexico City, Mexico.

The evening M.B.A. program offers a Technology M.B.A. in addition to the full time M.B.A. program.

The Executive M.B.A. program is available to those with significant work experience.

For more information about M.B.A. programs, refer to the *Graduate Catalog*.

UNIVERSITY GRADUATION REQUIREMENTS

In addition to fulfilling college and major requirements, students must meet all university graduation requirements. For more information, see pages 79–83.

General Studies Requirement

All students enrolled in a baccalaureate degree program must satisfy a university requirement for a minimum of 35 hours of approved course work in General Studies, as described on pages 84–87. Note that all three General Studies awareness areas are required. Consult your advisor for an approved list of courses.

General Studies courses are listed on pages 87–108 in the *General Catalog* following the section on "General Studies," in the course descriptions, in the *Schedule of Classes*, and in the *Summer Sessions Bulletin*.

First-Year Composition Requirement

Completion of both ENG 101 and 102 or ENG 105 with a grade of "C" or higher is required for graduation from ASU in any baccalaureate program. See page 79.

COLLEGE DEGREE REQUIREMENTS

College degree requirements supplement the General Studies requirement with additional course work from the list of approved courses. Business courses may not be used to fulfill college degree requirements except for ECN 111 and 112 and QBA 221.

College of Business Degrees, Majors, and Concentrations

Major	Degree	Administered by
Baccalaureate Degrees		
Accountancy	B.S.	School of Accountancy and Information Management
Computer Information Systems	B.S.	School of Accountancy and Information Management
Economics	B.S.	Department of Economics
Finance	B.S.	Department of Finance
Management	B.S.	Department of Management
Marketing	B S.	Department of Marketing
Real Estate	B.S.	Department of Business Administration
Supply Chain Management	B.S.	Department of Business Administration
Graduate Degrees		
Accountancy	M.Acc	School of Accountancy and Information Management
Business Administration	M.B.A.	College of Business
Business Administration Concentrations: accountancy, finance, health services research,[1] information management systems, management, marketing, supply chain management	Ph.D.	College of Business
Economics	M.S., Ph.D.	Department of Economics
Health Services Administration	M.H.S.A.	School of Health Administration and Policy
Information Management	M.S.	School of Accountancy and Information Management
Statistics	M.S.[2]	Committee on Statistics
Taxation	M.Tax.	School of Accountancy and Information Management

[1] Not accepting applications.

[2] This program is administered by the Graduate College See "Graduate College," on pages 282 292

A well planned program of study may enable students to complete many General Studies and college degree requirements concurrently. Students are encouraged to consult with an academic advisor in planning a program to ensure that they comply with all necessary requirements.

Specific courses from the following areas must be taken to fulfill the college degree requirement.

Social and Behavioral Sciences. College of Business students must complete ECN 111 and 112, one course with a PGS prefix, one course with an SOC prefix, and may include these courses toward the General Studies requirements.

Science and Mathematics. College of Business students must complete MAT 119 and MAT 210 (or a more advanced MAT course), QBA 221, and may include these courses toward the General Studies requirements.

Communication. All students in the College of Business except Accountancy majors must complete COM 100, 230, or 259. Accountancy majors must complete COM 100 (or 230) and 259.

Additional Courses. Additional courses, as needed to complete 60 hours, may be selected from the General Studies areas as noted on pages 87 108 or from the College of Business Policy Statement. Students are encouraged to consult with an academic advisor to ensure that they comply with all necessary requirements. Business courses may not be used to fulfill this requirement except for ECN 111 and 112 and QBA 221.

Additional Graduation Requirements

In addition to completion of courses outlined under "Major Requirements" on page 146, to be eligible for the B.S. degree in the College of Business, a student must

1. have completed at least 30 semester hours at ASU Main;
2. have attained a cumulative GPA of 2.00 or higher for all courses taken at this university, for all business courses taken at this university, and for all courses for the major taken at this university;
3. have earned a "C" or higher in each course in the business core and each course in the major;

NOTE: For the General Studies requirement codes (such as L1 N3 C and H) and courses see pages 84–108 For graduation requirements, see pages 79–83 For omnibus courses offered but not listed in this catalog see pages 56–57

4. have earned a minimum of 51 semester hours in traditional courses designed primarily for junior or senior students and completed in an accredited, four year institution; and
5. have met all university degree requirements

Exceptions. Any exception to these requirements must be approved by the Standards Committee of the College of Business.

Program of Study Requirement. A student in a professional program must complete a formal Undergraduate Program of Study during the semester in which the student completes 87 semester hours. The Program of Study guides the student in accomplishing successful completion of degree requirements in a timely manner. Students who have not met this requirement are prevented from further registration.

Pass/Fail

Business majors may not include among the credits required for graduation any courses taken at this university on a pass/fail basis. Pass/fail credits taken at another institution may be petitioned for use, but only if the student can demonstrate proof that the pass grade was equivalent to a "C" or higher.

MAJOR REQUIREMENTS

Students seeking a B.S. degree in the College of Business must satisfactorily complete a curriculum of 120 semester hours.

A major consists of a pattern of 18 24 semester hours in related courses falling primarily within a given subject field. Available majors are shown in the "College of Business Degrees, Majors, and Concentrations" table on page 145

Major Proficiency Requirements. Students must receive grades of "C" or higher in upper division courses for the major. If a student receives a grade below "C" in any course in the major, this course must be repeated. If a second grade below "C" is received in either an upper division course in the major already taken or in a different upper division course in the major, the student is no longer eligible to take additional upper division courses in that major

Business Core Requirements

To obtain an understanding of the fundamentals of business operation and to develop a broad business background, every student seeking a B.S. degree in the College of Business must complete the following courses

Lower-Division Business Core

ACC	230	Uses of Accounting Information I	3
ACC	240	Uses of Accounting Information II	3
CIS	200	Computer Applications and Information Technology *N3*	3
Lower division business core total			9

Upper-Division Business Core

BUS	301	Fundamentals of Management Communication *L1* (first semester	3
COB	300	Strategic Business Foundations *L2* first semester	3
COB	301	Business Forum first semester	1
FIN	300	Fundamentals of Finance	3
LES	3 5	Legal, Ethical, and Regulatory Issues in Business	3
MGT	301	Management and Organization Behavior	3
MKT	300	Principles of Marketing	3
OPM	301	Operations and Logistics Management	3
International business course			3
Upper division business core total			25
Business core total			34

Accountancy and Computer Information Systems majors should refer to their specific requirements on pages 149 150 which list variations in the business core courses.

Core Proficiency Requirement. Students must receive grades of "C" or higher in upper division business core courses to graduate. If a student receives a grade below "C" in any of these courses, the course must be repeated. University policy states a course may be repeated only one time.

Elective Courses

Sufficient elective courses are to be selected by the student to complete the total of 120 semester hours required for graduation.

ACADEMIC STANDARDS

Probation. All students, freshman through senior, must maintain a minimum GPA of 2.00 for all courses completed at ASU. If these standards are not maintained, the student is placed on probation.

Disqualification. A student who is on probation becomes disqualified if (1) the student obtains a semester GPA below 2.50 or receives a grade below "C" in one or more courses or if (2) the student has not returned to good standing by the end of two consecutive semesters.

Students who have been academically disqualified are not permitted to enroll in upper division business courses during summer sessions

Reinstatement and Readmission. Students seeking reinstatement (after disqualification) or readmission (after an absence from the university) should contact the Undergraduate Programs Office regarding procedures and guidance for returning to good standing

Academic Dishonesty. The faculty of the College of Business follow the guidelines in the Student Academic Integrity Policy on academic dishonesty A copy of the policy may be obtained in the Undergraduate Programs Office.

Student Appeal Procedure on Grades. The faculty of the College of Business have adopted a policy on the student appeal procedure on grades. A copy of the policy may be obtained in the Undergraduate Programs Office.

SPECIAL PROGRAMS

Academic Access Program. The primary mission of the Academic Access Program (AAP) is to help the underrepresented student populations of the College of Business successfully navigate the college's rigorous academic demands To that end, the office manages a number of programs to assist students. Some of the programs are:

- Advising
- Advising ethnic student business organizations
- Mentoring
- Ongoing seminar and workshop series on study and work issues and strategies
- Referring students to other campus support offices
- Retention
- Teaching Academic Success courses COB 294 and 394
- Tutoring

Students can visit the office in BA 122, call 602 965–4066, or visit the college's Web site at www cob asu edu/aap.

Asian Studies. Students in the College of Business may pursue a program with an emphasis in Asian studies as part of the B.S. degree requirements in business. At least 30 upper division semester hours of the program must be in Asian studies content courses. Reading knowledge of an Asian language is required. The Asian studies content program must be approved by the Center for Asian Studies (see pages 307 308). Fulfillment of the requirements is recognized on the transcript as a bachelor's degree with a designation of the Asian studies discipline. It is possible to complete the certificate program in International Business Studies and the Asian studies emphasis concurrently.

Certificate in Small Business and Entrepreneurship. A curriculum in small business and entrepreneurship is available to business majors at ASU.

The certificate requires 15 semester hours of classes of which the following six semester hours must be included:

MGT	440	Entrepreneurship	3
MGT	494	ST Business Plan Development	3

The remaining nine semester hours consist of three additional upper division courses relevant to small business. A copy of the approved electives for business majors pursuing the Certificate in Small Business and Entrepreneurship is available in the Undergraduate Programs Office. To receive the certificate, students must complete the specified business courses with a grade of "C" or higher.

Certificate in International Business Studies. See page 159 for the requirements of this certificate.

Certificate in Quality Analysis. The program of study leading to the Certificate in Quality Analysis prepares students to perform technical analyses associated with quality measurement and improvement of manufacturing and service processes. Graduates with the ability to implement these analyses are in high demand in the marketplace. This program is not a substitute for the listed areas of business specialization; rather, the courses required for the certificate add quantitative strength and implementation skills for quality tools to the student's chosen field of specialization.

Students are required to complete a bachelor's degree from any of the major fields of study at ASU and to complete a minimum of 15 semester hours of approved course work, including the following nine hours:

QBA	321	Applied Quality Analysis I *L2*	3
QBA	421	Applied Quality Analysis II	3
QBA	450	Operations and Process Analysis *L2*	3

To complete the certificate, the student selects at least six additional hours of course work related to quality analysis approved in advance by the advisor for the certificate program. The student must also complete the 15 hours of course work with a minimum GPA of 2.50.

Honors Program. College of Business students who have been admitted to the University Honors College and the professional program are eligible to participate in the Business Honors Program.

The Business Honors Program provides opportunities for academically talented undergraduate business students to interact with other leading students, faculty and business professionals inside and outside the classroom. The result is a challenging and enriched education experience that is valuable for professional career or graduate work.

To be admitted into the Business Honors Program students must meet the following criteria:

1. be enrolled in the University Honors College;
2. have a cumulative GPA of 3.40 or higher;
3. be admitted into the college's professional program; and
4. have sufficient time to complete the honors requirements.

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

COB	394	Honors Business Forum	1
COB	492	Honors Directed Study	1
COB	494	Honors Research	1
	493	Honors Thesis	3

The Business Honors Program emphasizes activities beyond the normal classroom setting in order to broaden the educational experience. Such activities include special honors scholarships, student/faculty mixers, and professional seminars and panel discussions Students are also encouraged to participate in the Mentoring Program, which allows students the opportunity to interact with local business professionals

An academic advisor is assigned strictly to assist honors students in course selection, to monitor progress toward the honors recognition, and to be actively involved in career and educational guidance upon completion of the degree.

While the program focuses on students in the professional program, freshman and sophomore honors students are offered break out sections in core classes, are invited to attend selected events, and can be assigned a junior or senior honors mentor.

For more information, call 602/965 8710 or stop by the Honors Program Office located in BAC 226. More information may be obtained by visiting the Honors College's home page at www.cob.asu.edu/HON. Interested students should also contact the University Honors College at 602/965 2359.

Internships. The college encourages students to complement their academic program with career-related work. This practical experience gives students a distinct advantage in the job market when seeking their first full time professional positions. Additional benefits include industry contacts, a deeper understanding of career options, and monetary compensation that helps students finance their education.

Formal internships and co ops offer professional work experience and experiential learning opportunities that enrich the student's academic preparation.

NOTE: For the General Studies requirement, codes (such as L1 N3, C, and H) and courses see pages 84–108 For graduation requirements see pages 79–83. For omnibus courses offered but not listed in this catalog see pages 56–57

Students may do internships in the summer or part time during semesters. Co-op positions are full-time and require a one-semester or longer break in school attendance. The college provides guidelines to companies and encourages them to sponsor internship and co-op positions that benefit both the firm and the student. This is accomplished by building positions around projects and challenging responsibilities that enable students to apply learning acquired in advanced business classes.

ASU Career Services and the College of Business work cooperatively to help students identify and obtain career-related work. The process of obtaining internships and co-ops is a learning opportunity. Students use the same job-search skills and resources that are utilized to obtain permanent career positions. Informational materials, workshops, and required class activities help students learn job-search and career-exploration skills, and locate internship and co-op opportunities.

Students may earn academic credit for internship experience. Several academic units within the college offer internship courses. Work assignments for these courses must be approved in advance by a designated faculty member and all internship courses include an academic component.

For additional information, visit the Undergraduate Internship coordinator at BA 122, call 602/965–4066, or visit the College of Business Web site at www.cob.asu.edu.

Latin American Studies. Students in the College of Business may pursue a program with an emphasis in Latin American area studies. At least 30 upper-division semester hours of the program must be in Latin American content courses, including 15 semester hours of Latin American content courses in the College of Business listed on page 159 under International Business Studies (except ECN 365) and 15 semester hours of Latin American content courses in other disciplines. A reading knowledge of either Spanish or Portuguese is required; a reading knowledge of both is recommended. The Latin American content program must be approved by the Center for Latin American Studies (see page 308). Fulfillment of the requirements is recognized on the transcript as a bachelor's degree with a designation of the Latin American studies discipline. It is possible to complete the certificate program in International Business Studies and the Latin American emphasis concurrently.

Prelaw Studies. Prelaw students may pursue a program of study in the College of Business. Courses in accounting, economics, finance, insurance, labor relations, and statistics are recommended for any student planning to enter the legal profession.

The admission requirements of colleges of law differ considerably. The student should communicate with the dean of the law school the student hopes to attend and should plan a program to meet the requirements of that school. Most law schools, including the ASU College of Law, require a baccalaureate degree for admission, although some permit admission upon completion of three years of college work.

Students who plan to complete a bachelor's degree before entering law school may follow any field of specialization in the College of Business. Within the College of Business are faculty members who are lawyers and who serve as advisors for students desiring a prelaw background.

Entering law students assemble in the College of Law's Great Hall for orientation.

Tim Trumble photo

RESEARCH CENTERS

L. William Seidman Research Institute

The College of Business has eight research centers operating under the umbrella of the L. William Seidman Research Institute. The following centers provide support for faculty research, give opportunities for advanced graduate students' involvement with faculty, and provide information and assistance to the business community on a wide variety of subjects:

- Arizona Real Estate Center
- Bank One Economic Outlook Center
- Center for Advanced Purchasing Studies
- Center for the Advancement of Small Business
- Center for Services Marketing and Management
- Center for the Study of Finance
- Joan and David Lincoln Center for Applied Ethics

The Seidman Research Institute's mission is to encourage and support applied business research by serving as a public access point to the College of Business, by transferring new knowledge to the public, by encouraging the development of education programs grounded in applied business research, and by conducting high-quality, applied business research.

The institute increases the level of funded research by adding support services to facilitate grant preparation and by facilitating the mission of research centers as liaisons between faculty and businesses. In addition, the institute provides desktop publishing services.

For more information, contact the director at the L. William Seidman Research Institute, BA 319, 602/965–5362. The institute's Web site is www.cob.asu.edu/seid.

COLLEGE OF BUSINESS (COB)

COB 300 Strategic Business Foundations. (3) F, S, SS
A strateg c, integrative foundat on of key bus - ness ssues covering a d sc p nes. Issues in- clude divers ty eth cs, g oba zat'on nterper sona sk l s and qua ty Must be taken n the f rst semester of the professional program for bus ness students Lecture, lab *General Stud ies· L2*

COB 301 Business Forum. (1) F S SS
Prov des profess ona program bus ness stu- dents w th nformation on careers nterview- ng, job hunt ng and resume sk ls Must be taken n the first semester of the profess onal program for business students Prerequ s te· profess onal program bus ness student

School of Accountancy and Information Management

Philip M.J. Reckers
Director
(BA 223) 602/965–3631
www.cob.asu.edu/acct

PROFESSORS
BOATSMAN BOYD, FLAHERTY, JOHNSON, KAPLAN, PANY, PHIL PPAKIS RECKERS, RENEAU, SCHULTZ SHRIVER, R. SMITH, STEINBART, TIDWELL, WYNDELTS

ASSOCIATE PROFESSORS
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SENIOR LECTURER
MACCRACKEN

LECTURERS
BOATSMAN, DOWLING GEIGER, HALL, TAYLOR

The School of Accountancy and Information Management houses separate undergraduate degree programs in Ac countancy and Computer Information Systems. The school also offers a dual degree program in which students complete requirements for both degree pro grams (Accountancy and Computer Information Systems) simultaneously. For more information on courses, fac ulty, and programs, visit the school's Web site

ADMISSIONS

The School of Accountancy and Information Management follows the College of Business policies and procedures for admission to its undergradu ate professional programs in Accountancy, Computer Information Systems, and the dual degree program of Ac countancy and Computer Information Systems

To be considered for admission to the Accountancy major, a student must meet the College of Business admission requirements and have a grade of "B" or higher in both ACC 230 and 240 or their equivalents

To be considered for admission to the Computer Information Systems major, a student must meet the College of Business admission requirements and have a grade of "C" or higher in CSE 100 or its equivalent

Due to resource limitations, admission to all of the school's programs is very competitive. Approximately one third of all applicants who apply to the professional programs in Accountancy and Computer Information Systems may be admitted Applicants are reviewed using a portfolio approach. Among the factors considered are: cu mulative GPA, skill course GPA, trans fer GPA and institution (if applicable), work experience, demonstrated com munity involvement and leadership skills, and responses to questions lo cated in the professional program appli cation. For current admission statistics for each program, please contact the Undergraduate Programs Office in the College of Business.

ACCOUNTANCY

The major in Accountancy includes the essential academic preparation for students

1. pursuing professional careers in public, corporate, and governmen tal accounting;
2. seeking positions in consulting; or
3. planning to operate their own businesses

The major in Accountancy consists of the following courses:

ACC	330	Accounting Information Systems *L1*	4
ACC	340	External Reporting I	4
ACC	350	Internal Reporting	4
ACC	430	Taxes and Business Decisions *L2*	4
ACC	440	External Reporting II	4
ACC	450	Principles of Auditing	4
Total			24

As part of the requirements, all Ac countancy majors must complete the following courses:

ACC	250	Introductory Accounting Lab	1
CIS	220	Programming Concepts for Accountancy Majors	3
CIS	335	Data and File Structures	3
CIS	420	Business Database Concepts	3
COM	100	Introduction to Human Communication *SB* or COM 230 Small Group Communication *SB* (3)	3
COM	259	Communication in Business and the Professions	3
ECN	306	Survey of International Economics *SB**	3
ENG	301	Writing for the Professions *L1*	3
Total			22

* This course may be counted in the busi ness core as an international business course

COMPUTER INFORMATION SYSTEMS

The major in Computer Information Systems prepares students for profes sional careers involving the analysis, configuration, programming, and data base aspects of the design and imple mentation of computerized business in formation systems. The course work prepares the student for a career in business computer information systems and for admission to graduate programs in computer information systems or management information systems.

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

ACC	330	Accounting Information Systems *L1*	4
CIS	335	Data and File Structures	3
CIS	410	Object Oriented Modeling and Programming	3
CIS	420	Business Database Concepts	3

NOTE For the Genera Stud es requirement codes (such as L1, N3 C and H), and courses, see pages 84–108. For graduation requ rements see pages 79–83 For omn bus courses offered but not isted n th s catalog see pages 56–57

CIS	430	Networks and Distributed Systems	3
CIS	440	Systems Design and Electronic Commerce	3
Total			19

All Computer Information Systems majors must complete CSE 100 Principles of Programming (N3) or a "C" or "C++" programming language course, which may be used as a college requirement, and CIS 235 Transaction and File Processing, which may be used in the business core in place of CIS 200.

MAJOR PROFICIENCY REQUIREMENTS

In addition to college and university Accountancy and Computer Information Systems majors must of "C" or higher in the division major and major courses. If a student receives below "C" in any required vision major course, it must be repeated before any ision major course can second grade below "C" ther an upper division eady taken or in a different major course, the ger eligible to take additional upper-division major courses.

GRADUATION REQUIREMENTS

In addition to fulfilling major requirements, students seeking a degree must meet all university and college requirements. See pages 79–83 for university graduation requirements and pages 144–146 for college requirements.

ACCOUNTANCY (ACC)

ACC 230 Uses of Accounting Information I. (3) F, S SS
Introduction to the uses of accounting information focusing on the evolution of the business cycle and how accounting information is used for internal and external purposes Prerequisite sophomore standing.

ACC 240 Uses of Accounting Information II. (3 F S SS
Introduction to the uses of accounting information focusing on the evolution of the business cycle and how accounting information is used for internal and external purposes Prerequisites ACC 230, sophomore standing.

ACC 250 Introductory Accounting Lab. (1) F S, SS
Procedural details of accounting for the accumulation of information and generation of reports for internal and external users Lab Prerequisites ACC 230 sophomore standing

ACC 315 Financial Accounting and Reporting. (3) F S
Accounting theory and practice related to uses of financial statements by external decision makers Prerequisites ACC 240, 250, non-Accountancy major.

ACC 316 Management Uses of Accounting. (3) F, S
Uses of accounting information for managerial decision making, budgeting, and control Prerequisites ACC 240 non Accountancy major

ACC 330 Accounting Information Systems. (4) F S, SS
Knowledge related to accounting information systems, emphasizing manager a decision-making and support transaction processing controls computer technology, and systems development 3 hours lecture, 3 hours lab. Prerequisites CIS 200 professional program business student major ng n Accountancy
General Studies L1

ACC 340 External Reporting I. (4) F S SS
Financial accounting theory and practice related to external reporting 3 hours lecture 3 hours lab Prerequisite professional program business student majoring n Accountancy Prerequisites FIN 300 professional program business student major ng n Accountancy Prerequisites with a grade of C" or higher ACC 250 330.

ACC 350 Internal Reporting. (4) F S, SS
Internal reporting systems for planning control, and decision making 3 hours lecture, 3 hours lab Prerequisite professional program business student major ng n Accountancy. Prerequisites OPM 301; professional program business student major ng n Accountancy Prerequisites with a grade of "C" or higher ACC 250, 330

ACC 430 Taxes and Business Decisions. (4) F, S SS
Federal income taxation of sole proprietors, partnerships, corporations fiduciaries, and individuals with an emphasis on tax consequences of business and investment decisions 3 hours lecture, 3 hours lab Prerequisites LES 305 professional program business student major ng in Accountancy Prerequisite with a grade of 'C or higher ACC 340 *General Studies L2*

ACC 432 Problems in Managerial Accounting. (3) N
Cases and computer applications in decision making, planning and control and capital budgeting Prerequisite professional program business student major ng in Accountancy. Prerequisite with a grade of 'C or higher ACC 350.

ACC 440 External Reporting II. (4) F S SS
Continuation of ACC 340 External Reporting I with emphasis on the recognition research, and resolution of financial reporting issues 3 hours lecture, 3 hours lab Prerequisite professional program business student major ng n Accountancy Prerequisite with a grade of 'C" or higher ACC 340

ACC 450 Principles of Auditing. (4) F S
Standards and procedures in auditing Planning, evidence gathering and accumulation, and reporting. Ethical and legal considerations 3 hours lecture, 3 hours lab Prerequisite professional program business student majoring in Accountancy Prerequisite with a grade of "C" or higher ACC 440.

ACC 452 Advanced Taxation. (3) N
Advanced problems in business and fiduciary income tax estate and gift tax, planning and research Prerequisite professional program business student majoring n Accountancy. Prerequisite with a grade of "C" or higher: ACC 430

ACC 467 Management Advisory Services. 3) N
Concepts and methods of providing advisory services with respect to accounting information systems and financial analysis. Administration of consulting practices Prerequisite professional program business student major ng n Accountancy Prerequisite with a grade of 'C' or higher ACC 330.

ACC 475 Accounting in Public-Sector Organizations. 3) N
Principles of accounting and reporting and budgeting and financial controls systems applied in governmental units and other nonbusiness organizations Prerequisite professional program business student majoring n Accountancy Prerequisite with a grade of 'C" or higher ACC 316 or 350

ACC 483 Advanced Accounting. 3) N
Accounting theory related to business combinations consolidated financial statements, foreign operations partnerships, and nonbusiness organizations. Prerequisite: professional program business student majoring n Accountancy Prerequisite with a grade of "C' or higher: ACC 440

ACC 502 Financial Accounting. (3) A
Financial accounting concepts and procedures for external reporting Prerequisite: M.B A. degree program student

ACC 503 Managerial Accounting. (3) A
Managerial accounting concepts and procedures for internal reporting Prerequisite. M B A degree program student

ACC 511 Taxes and Business Strategy. 3) A
Economic implications of selected management decisions involving application of federal income tax laws Recognition of tax hazards and tax savings Prerequisite: ACC 502 or equivalent

ACC 515 Professional Practice Seminar. (3 A
History, structure environment regulation and emerging issues of the accounting profession.

ACC 521 Tax Research. (3) A
Tax research sources materials and techniques. Application to business and investment decisions. Prerequisite ACC 430

ACC 533 EDP Auditing. (3 N
Analysis of EDP audit techniques and evaluation methods Emphasis on current topics such as distributed processing and microcomputers Prerequisite ACC 450

NOTE For the General Studies requirement, codes such as L1, N3, C and H), and courses see pages 84–108 For graduation requirements, see pages 79–83 For omnibus courses offered but not listed in this catalog see pages 56–57.

ACC 541 Strategic Cost Management and Uses of Information Technology. (3) A
Strateg c cost management emphasiz ng con temporary top cs nc ud ng activity-based cost ng and strateg'c uses of nformat on tech- no ogy systems Cooperative earning ecture Prerequ s te ACC 350 or 503.

ACC 567 Financial Models in Accounting Systems. (3) A
Deve opment and app icat on of financ a mod- e s by accountants. Analysis of dec s on sup port systems as f nancia mode ing environ ments Prerequ s te ACC 330

ACC 571 Taxation of Corporations and Shareholders. 3) A
Tax aspects of the formation operation reor- gan zation and iquidat on of corporations and the mpact on shareholders Prerequ s te ACC 430

ACC 573 Taxation of Partners and Partnerships. (3) A
Tax aspects of the def nit on formation op erat on qu dat on, and terminat on of a part nersh'p Tax p ann ng s emphas zed Prereq uisite: ACC 430

ACC 575 Estate and Gift Taxation. (3) A
Tax treatment of wea th transfers at death and dur ng ife t me w th emphasis on tax plan- ning Prerequisite. ACC 430.

ACC 577 Taxation of Real Estate Transactions. (3) A
ncome tax aspects of acqu s t on, operat on, and disposa of real estate synd cations n stal ment sa es· exchanges dea er nvestor s- sues, alternative f'nanc ng· and piann ng Pre requisite ACC 521 or nstructor approval.

ACC 582 Auditing Theory and Practice. (3 N
Funct on and respons b l ty of the auditor n modern society. Advanced top cs n aud t ng theory and methods. Contemporary issues n aud t ng Prerequ s te ACC 450

ACC 586 Shareholder Value Creation and Financial Statement Analysis. (3) N
Deve op sk ls necessary to explo t f nanc a reporting nformation in a bus ness environ ment and apprec ation of reporting ssues faced by management

ACC 587 Computerized Accounting Sys tems. (3) A
Des gn and eva uat on of computer-based ac count ng information system Development of computer based f nanc a models for p ann ng and control. Prerequ s te: ACC 330.

COMPUTER INFORMATION SYSTEMS (CIS)

CIS 200 Computer Applications and Information Technology. (3) F S, SS
ntroduct on to bus ness nformat on systems and the use of bus ness app icat on software. Prerequis te MAT 117 or higher *General Stud es N3*

CIS 220 Programming Concepts for Accountancy Majors. (3) F S, SS
ntroduct on to bus ness computer programm- ming Program languages such as C and C++ are used to fam iar ze students w th proper programm ng sty e and practice Prerequ s te: prebus ness student.

CIS 235 Transaction and File Processing. (3) F S
Development of nformation systems us'ng a fi e or ented anguage such as COBOL Intro duct on to business techno ogy and system ana ysis Prerequ s tes. CSE 100 MAT 119 or 210 or 270

CIS 300 Computers in Business. 3 N
ntroduct on to nformation systems n bus ness Use of computers for bus ness prob em so v ng Prerequ s tes C S 200; profess ona program bus ness student

CIS 307 Systems Modeling. (3) N
Procedures for invest gat ng and ana yz ng de c s on systems. Use of spec a anguages as tools of ana ys s and s mulat on. Prerequisites· CSE 100 MAT 119 or 210 or 270, profes s ona program bus ness student

CIS 335 Data and File Structures. (3) F S
Use of anguages such as C and C++ to mp ement the data structures fi e structures, and nterfaces used n bus ness nformation systems. Prerequ s tes CSE 100 and profes s ona program bus ness student major ng in Computer nformat on Systems *or* C S 220 and profess ona program bus ness student major ng n Accountancy

CIS 410 Object-Oriented Modeling and Programming. (3) F S
Object-oriented model ng of bus ness nforma tion systems Abstract data types and object or ented programm ng us ng a anguage such as C++ Prerequis tes CIS 335 profess ona program bus ness student major ng n Com- puter nformat on Systems

CIS 420 Business Database Concepts. (3) F S
Database theory des gn and app cat on in c ud ng the ent ty relat onsh p mode the re a t ona , h erarch ca and network database mode s; and query anguages Pre equisites ACC 330 C S 335, professional program bus ness student major ng n Computer Infor mat on Systems or Accountancy

CIS 430 Networks and Distributed Systems. (3) F, S
Advanced topics such as commun cations protocols d str buted systems and c ent server systems app cations based on p at- forms such as networked UN X Prerequ sites C S 335 profess ona program bus ness stu- dent majoring n Computer nformat on Sys- tems

CIS 440 Systems Design and Electronic Commerce. (3) F S
Systems des gn for organizat ona and e ec tron c commerce systems use of project man agement and systems ana ys s and des gn tools Prerequ s tes· C S 410 420 profes s ona program bus ness student majoring n Computer nformat on Systems

CIS 502 Management Information and Decision Support Systems. (3) A
Fundamenta s of computer-based manage ment nformation and decis on support sys tems. Prerequ s te M B A degree program student

CIS 505 Object-Oriented Modeling and Programming. (3) A
Object oriented mode ng of bus ness nforma- t on systems, abstract data types and object or ented programm ng us ng a v sual an guage Prerequ s te M S n nformat on Man agement or Master of Accountancy degree program student

CIS 506 Business Database Systems. (3) A
H erarchical, network, re at ona and other re cent data mode s for database systems Pro cess ng ssues such as concurrency contro query opt m zat on and d str buted process- ng Prerequ s te M S n Informat on Manage- ment or Master of Accountancy degree pro gram student

CIS 510 Systems Models and Simulation. (3) N
Design of computer based decision systems. S mulat on as a research and dec s on-mak ng too Prerequisite: M S. in Informat on Man agement or Master of Accountancy degree program student.

CIS 512 Decision Support Systems. (3) A
Def nit on, descript on construct on, and eva uat on of computer-based dec sion sys- tems Prerequisite M S n Informat on Man- agement or Master of Accountancy degree program student

CIS 515 Management Information Systems. (3 N
Systems theory concepts appl ed to the co - ect on retent on, and d ssem nat on of infor- mat on for management decision mak ng Pre- requ s te M.S. n nformat on Management or Master of Accountancy degree program stu dent

CIS 520 Systems Design and Evaluation. (3) N
Methodo og es of systems analys s and de sign. ssues 'nc ude project management, in terface organizat'ona requ rements con stra nts documentation implementat on contro , and performance eva uation Prerequ site M.S in Information Management or Master of Accountancy degree program student.

CIS 525 Artificial Intelligence in Business. 3 N
Development and appl cat on of art f c a nte l - gence approaches to bus ness problem so v ng. Prerequ s te: M.S. n Informat on Manage ment or Master of Accountancy degree pro gram student.

CIS 530 Information Systems Development. (3) A
Object or ented and nterprocess commun'ca tion and contro concepts for nformation sys tems appl cat ons based on anguages such as C++ and p atforms such as networked UN X Prerequ s te M S. n nformation Man agement or Master of Accountancy degree program student

CIS 535 Distributed Information Systems. 3) A
Introduct on to d str buted systems and the r mpact on nformation systems n business. Prerequisite· M.S in nformation Management or Master of Accountancy degree program student

CIS 591 Seminar on Selected CIS Topics. (3) A
Top cs such as the fo ow ng are offered
(a) Advanced Data and Know edge Base Systems
(b) Advanced Java Programming
c) D str buted Artif c al Intel gence
(d) Integrated Mode ng Env ronments
(e) Organ zationa Support Systems
Prerequ s'te: M.S. n nformat on Management or Master of Accountancy degree program student

Department of Business Administration

John N. Pearson
Interim Chair
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www.cob.asu.edu/ba

PROFESSORS
J. CARTER, P. CARTER, GUNTERMANN, HENDRICK, JENNINGS METCALF SMELTZER

ASSOCIATE PROFESSORS
ARANDA, BOHLMAN, BUTLER DAVIS DUNDAS, ELLRAM, LEONARD, LOCK, LYNCH, MURRANKA, PEARSON, SIFERD

ASSISTANT PROFESSOR
MALTZ

SENIOR LECTURERS
FLYNN, GE SS

The faculty in the Department of Business Administration offer courses in four separate areas: legal and ethical studies, management communication, real estate, and supply chain management.

Legal and Ethical Studies

The legal and ethical studies faculty offer the undergraduate and the Master of Business Administration (M.B.A.) core requirements in legal and ethical studies. LES 306 and LES 307 together or their equivalents are not acceptable in lieu of LES 305. In addition, the fac ulty offer specialized courses in law and ethics relating to health care, insur ance, real estate, and professional sports.

Management Communication

The management communication faculty serve the College of Business by teaching the B.S core requirement BUS 301 Fundamentals of Manage-ment Communication. In addition, the faculty teach BUS 502 Managerial Communication, a core course in the M.B.A. degree, as well as other man agement communication courses.

Supply Chain Management

The major in Supply Chain Manage ment includes the functions of plan ning, organizing, and controlling the flow of purchased materials into and out of the organization. Attention is given to analyzing and selecting suppli ers, price determination, value analysis, and investment recovery. Emphasis is also on the efficient use of transporta tion services by business management within a framework of logistics sys tems, government transportation policy relative to freight and passengers trans portation, and the management of trans-portation shipper and carrier organiza tions. Graduates are employed by industrial firms, carriers, and govern mental agencies

The major in Supply Chain Manage ment consists of the following courses:

SCM	345	Traffic and Logistics Management	3
SCM	355	Purchasing and Supplier Management	3
SCM	432	Materials Management	3
SCM	440	Productivity and Quality Management	3
SCM	455	Purchasing Research and Negotiation *L2*	3
SCM	479	Purchasing and Logistics Strategy	3
Total			18

Real Estate

The real estate faculty offer a unique one year program designed for the stu dents' last year of college. This innova tive program emphasizes student in-volvement with real estate executives on projects in the Phoenix metropolitan area. Students are organized in teams to develop their analytical, communica tion, and team skills.

The program is organized around five aspects of real estate: brokerage/ management, development, financing, investments, and market analysis. With the broad interdisciplinary perspective, emphasis on team work, and involve-ment in projects, students may pursue careers in land development, invest-ment analysis, appraisal, property man agement, brokerage, and finance.

Successful completion of the pro gram satisfies the requirements of the major based on the following courses:

LES	411	Real Estate Law	3
REA	300	Real Estate Analysis	3
REA	331	Real Estate Finance	3
REA	401	Real Estate Appraisal	3
REA	441	Real Estate Land Development	3
REA	456	Real Estate Investments	3
Total			18

Because of the emphasis on team-work, interaction with business profes sionals, and completion of all require-ments within a year, students may enter the program only in the fall semester.

MAJOR PROFICIENCY REQUIREMENTS

Students must receive grades of "C" or higher in upper division courses for the major. If a student receives a grade below "C" in any course in the major, this course must be repeated. If a sec ond grade below "C" is received in either an upper-division course in the major already taken or in a different upper division course in the major, the student is no longer eligible to take additional upper division courses in that major.

GRADUATION REQUIREMENTS

In addition to fulfilling major re quirements, students seeking a degree must meet all university and college re-quirements. See pages 79 83 for uni-versity graduation requirements and pages 144–146 for college require ments.

BUSINESS ADMINISTRATION (BUS)

BUS 301 Fundamentals of Management Communication. (3) F S, SS
ntrapersonal, nterpersona and adm n stra-t ve commun cat on with n management con texts. Prerequ s te C S 200. Prerequ site with a grade of "C" or h gher: ENG 102. *General Studies: L1*

BUS 431 Business Report Writing. (3) N
Organ zation and preparat on of reports incor porating electron c databases word process ng and graph'cs Prerequisite: BUS 301.

BUS 451 Business Research Methods. (3) N
Methods of co ecting nformat on pert nent to bus ness prob em so v ng nc ud ng design co lect on, ana ys s, nterpretation and pre sentat on of pr mary and secondary data. *General Studies L2.*

BUS 502 Managerial Communication. (1–3) F S
Ana ys's of various bus ness prob ems, s'tua t ons and development of appropr ate com-mun cation strateg es Prerequisite· MGT 502

BUS 504 Professional Report Writing. (3) A
Preparat on and presentation of professiona reports

BUS 507 Business Research Methods. (3) N
Techn ques for gathering nformat on for bus ness dec s on making Se ect on design and comp et on of a bus ness oriented research project

BUS 591 Seminar. (3) N
Selected manager'al commun cation top cs

BUS 594 Study Conference or Workshop. (3) N

BUS 700 Research Methods. 3) N

LEGAL AND ETHICAL STUDIES (LES)

LES 305 Legal, Ethical, and Regulatory Issues in Business. (3) F S
Lega theories ethica ssues and regu atory c mate affect ng bus ness po icies and dec s ons

LES 306 Business Law. (3 A
Lega and eth ca aspects of contracts, sa es commerc a paper, secured transact ons documents of t t e letters of credit, and bank depos ts and co ect ons

LES 307 Business Law. 3) A
Lega and eth ca aspects of agency partner sh ps, corporations bankruptcy ant trust se cur ties and other regu at ons of bus nesses

LES 308 Business and Legal Issues in Professional Sports. (3) N
The econom c structure of profess na sports and app cation of contract, ant trust arb tra t on, and abor laws n the ndustry.

LES 380 Consumer Perspective of Business Law. 3) F, S
Ro e of law as t affects soc ety Case stud es are used to present pr nc p es that govern bus ness and consumers Lecture telev s on Prerequ s tes. 2 00 GPA jun or stand ng

LES 411 Real Estate Law. 3) A
Legal and eth ca aspects of and ownersh ps nterests, transfer f nance deve opment and regu at ons of the rea estate ndustry

LES 532 Negotiation Agreements. 3) F S
Course develops negot at on competenc es to bu d partnersh ps and create last ng agreements with internal/external customers, supp - ers, work teams and externa const tuenc es Lecture and substant a student nteract on through team exerc ses

LES 579 Legal and Ethical Issues for Business. (3) F, S
Study of legal and eth ca components of bus ness decisions se f-regu at on and soc a responsibi ity as strateg es Prerequ s tes ACC 503; FIN 502; MGT 502, MKT 502.

REAL ESTATE (REA)

REA 251 Real Estate Principles. 3) N
Regu at on pract ces, ega aspects, and pro fess onal opportun t es of the rea estate ndustry Cannot be app ed to Rea Estate ma jor

REA 300 Real Estate Analysis. (3 A
App cation of econom c theory and ana ytica techn ques to real estate markets. Top cs in c ude aw f nance, appraisa market ana ys s, nvestments deve opment Prerequ s te pro fessiona program bus ness student

REA 331 Real Estate Finance. (3) A
Lega market and nst tut ona factors re ated to f nanc ng proposed and ex st ng propert es Emphas s on current f nanc ng techn ques and quantitat ve methods Prerequ s tes FIN 300, profess ona program bus ness student

REA 380 Real Estate Fundamentals. 3 F, S
Rea estate for the student/consumer with an emphas s on the app ed aspects of each area of rea estate spec a zat on Prerequ s tes 2 00 ASU GPA bus ness majors (non rea es tate · jun or stand ng

REA 401 Real Estate Appraisal. 3) A
Factors affect ng the va ue of real estate Theory and pract ce of appra s ng and prepa rat on of the appra sa report Appra sa techn ques. Prerequ s tes REA 300 profess na program bus ness student

REA 441 Rea Estate Land Development. (3) A
Ne ghborhood and city growth. Mun c pa p an n ng and zon ng Deve opment of res dent a , commerc a industr a and spec a purpose propert es Prerequ s tes REA 300, profes s ona program bus ness student

REA 456 Real Estate Investments. (3 A
Ana ysis of nvestment dec s ons for var ous property types Cash flow and rate of return analys s Prerequ sites F N 300, profess onal program bus ness student

REA 461 Current Real Estate Topics. 3) N
Current rea estate topics of interest are d s cussed and ana yzed Prerequ s tes REA 300 profess ona program bus ness student

REA 591 Seminar in Selected Real Estate Topics. (3) N
Top cs may be se ected from the fo owing
a) Rea Estate Deve opment
Deve opment process cover ng feas b ty s te se ect on, plann ng des gn f nanc ng and construct on Re at onsh p of and use contro s and regu ations to the private sector.
(b) Rea Estate F nance and Investments.
Bas c techn ques for ana yz ng the f nan c a feas b ty of rea estate nvestments Inc udes cash f ow, y e d and r sk ana y s s, taxat on form of ownersh p and management
(c) Real Estate Market Ana ys s
Analyt ca techn ques used n perform ng market research to assess the feas b i ty of proposed res dent al, reta , off ce and other deve opments.
(d) Real Estate Research
Rev ews current research n areas such as market stud es mortgage securement, va uat on deve opment nvestments, and government regu ation

SUPPLY CHAIN MANAGEMENT (SCM)

SCM 301 Purchasing/Materials and Logistics Management. 3) N
Exam nes the purchas ng matena s and o gist cs management areas. Techn ques for ac qu r ng, stor ng process ng and mov ng mate a nventory are presented Prerequ s te pro fess ona program bus ness student.

SCM 345 Traffic and Logistics Management. (3) F, S
Manag ng og st cs act v t es w th emphas s on ntegrat ng transportat on needs w th nven tory warehous ng faci ty ocat on customer serv ce, packag ng and mater als hand ng Prerequisites: OPM 301; profess ona program business student

SCM 355 Purchasing and Supplier Management. (3) F S
Management of the purchas ng function n c ud ng organ zat on procedures, supp er se- ect on qua ty nventory dec s ons and pr ce determ nat on Prerequ s tes OPM 301; pro fess ona program business student

SCM 405 Urban Transportation. (3) N
Econom c soc a po t cal, and bus ness as pects of passenger transportat on. Publ c po cy and government a d to urban transpor tat on deve opment Prerequis te upper d v s on stand ng or nstructor approva

SCM 432 Materials Management. (3) F, S
Study of ma ag ng the product ve f ow of ma ter a s n organ zations nc ud ng MRP I JIT, qua ty fac ty p ann ng and job des gn. Pre requ sites OPM 301; professiona program bus ness student

SCM 440 Productivity and Quality Management. 3) F, S
Productivity concepts at the nat ona , organ zat ona and nd v dua evels Qua ity man agement and ts relat onsh p to productiv ty in a l organ zat ons. Prerequ s te profess ona program b siness student

SCM 455 Purchasing Research and Negotiation. 3 F S
Current ph osophy methods, and techn ques used to conduct both strateg c and operat ons purchas ng research and negot at on. Includes negot at on s mu at ons. Prerequ s tes OPM 301 SCM 432 profess ona program bus ness student Prerequ s te w th a grade of "C" or h gher SCM 355 *General Studies L2.*

SCM 460 Carrier Management. (3 N
Analys s of carr er econom cs, regu at on management and rate mak ng pract ce eval uat on of pub c po cy ssues re ated to carr er transportat on Prerequ s te upper d v sion stand ng or nstructor approva

SCM 463 International Transportation and Logistics. (3) A
Log stics act v ties n nternat ona bus ness w th spec a emphas s on transportat on g o ba sourc ng customs ssues and fac ty loca t on n nternat ona env ronment Prerequisite: SCM 345 or nstructor approval

SCM 479 Purchasing and Logistics Strategy. 3) F S
Synthes s of purchas ng, product on, transpor tat on to prov de a systems perspect ve of ma ter a s management Deve opment of strate g es. Prerequ s tes SCM 345 432 profes s ona program bus ness student Prerequisite w th a grade of 'C' or h gher SCM 355

SCM 532 Supply Chain Design and Development Strategies. 3) F
A strateg c o entat on toward the des gn and deve opment of the s pply cha n for purchas- ng, mater a s, a d og st cs systems

SCM 541 Supply Chain Management and Control. 3) S
Management and contro of purchas ng and g st cs management systems Tota Qual ty Management to asse s and assure customer sat sfact on G oba strateg es

SCM 545 Supply Chain Continuous Improvement Strategies. (3 S
Lead ng edge strateg es such as reengineer ng h gh performance teams and expert sys tems for cont nuous mprovement of the sup ply cha n Sem nar

SCM 591 Seminar. (3) N
Top cs such as the fo owing are offered·
(a Log st cs and Transportation
b Purchas ng

NOTE For the Genera Stud es requ rement codes (such as L1, N3 C and H) and courses, see pages 84 108 For graduat on requ rements see pages 79–83 For omn bus courses offered but not sted n th s cata og see pages 56–57

SCM 791 Doctoral Seminar. (3) A
Top cs may be selected from the fol ow ng:
(a) Logist cs Transportat on, and Physical D str but on Management
(b) Purchas ng and Materials Management

Department of Economics

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Chair
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PROFESSORS
BLAKEMORE, BOYES, BRADA, BURDICK, BURGESS, DeSERPA FAITH, GOODING, HAPPEL, HOFFMAN, HOGAN KAZMIER K NGSTON, LOW, MAYER, McDOWELL McPHETERS MELV N, MÉNDEZ, ORMISTON, SCHLAGENHAUF, SCHLEE

ASSOCIATE PROFESSORS
AHN, MANELLI, REFFETT, REISER, WILSON WINKELMAN

ASSISTANT PROFESSORS
CHADE, DATTA, HENDRICKS

SENIOR LECTURER
ROBERTS

The study of economics affords an opportunity for the student to acquire a general knowledge of the methods by which goods and services are allocated and incomes are generated and why prices, employment, money, and finan cial markets behave as they do. Some knowledge of economics is crucial not only for those intending to participate in the business world, but for those intending to pursue graduate education in law or other business fields or to work in the world of journalism and commu nications.

Economists obtain positions at universities and in government, financial institutions, brokerage houses, private nonfinancial corporations, and international organizations such as the Interna tional Monetary Fund and the World Bank, and as financial journalists and as marketing and management specialists in domestic and international firms.

Economics majors are required to earn a minimum grade of "C" in MAT 210 Brief Calculus before taking upper division courses in economics While MAT 210 meets the minimum math ematics requirement to major in Economics, all Economics majors who an ticipate going on to graduate school in economics or in business or to law school are encouraged to take MAT 270 Calculus with Analytic Geometry I. Majors are encouraged to pursue fur ther course work in mathematics. MAT 270 may be taken in lieu of MAT 210 in the science and mathematics area of the requirements described in the *Ad vising Handbook*.

The major in Economics consists of 18 semester hours of upper division courses in economics. The following six hours must be included:

ECN	313	Intermediate Macroeconomic Theory *SB*	3
ECN	314	Intermediate Microeconomic Theory *SB* .	3

ECN 313 and 314 should be taken before other upper division courses in economics Students must earn a mini mum grade of "C" in ECN 313 and 314. Concurrent enrollment in ECN 313 and 314 is permitted. Concurrent enrollment in ECN 313 or 314 and other upper division courses in economics is subject to the approval of the faculty advisor.

MAJOR PROFICIENCY REQUIREMENTS

Students must receive grades of "C" or higher in upper division courses for the major. If a student receives a grade below "C" in any course in the major, this course must be repeated. If a sec ond grade below "C" is received in ei ther an upper-division course in the ma jor already taken or in a different upper division course in the major, the student is no longer eligible to take additional upper division courses in the major.

Other Economics Programs. For in formation on majoring in Economics in the College of Liberal Arts and Sci ences, see pages 325 326.

For information on the minor in Gen eral Economics and on the minor in Economics for Students Planning a Ca reer in Law, see pages 325 326.

GRADUATION REQUIREMENTS

In addition to fulfilling major re quirements, students seeking a degree must meet all university and college re quirements. See pages 79 83 for university graduation requirements and pages 144–146 for college require ments

ECONOMICS (ECN)

ECN 111 Macroeconomic Principles. (3) F S, SS
Basic macroeconom c ana ysis. Econom c n- st tut ons and factors determ n ng 'ncome lev- e s, pr ce eve s, and employment evels *Gen- era Studies SB*

ECN 112 Microeconomic Principles. (3) F S
Bas c microeconom c ana ysis Theory of ex change and product on nc uding the theory of the f rm *General Stud es SB*

ECN 304 Current Issues in Economics and Politics. (3) A
App ication of bas c econom'c princ p es to contemporary ssues such as cr me the env - ronment d scr m nat on, hea th care, and the nat onal debt. Not for Econom cs majors Lec ture student projects d scuss on. Prerequ - s tes ECN 111 or 112; 2.00 ASU GPA jun or standing *General Studies L1 SB*

ECN 306 Survey of International Economics. (3 A
Survey of international trade issues, commer c a po cy trade theory, customs un ons, and nternat ona monetary top cs Not for Eco nom cs majors Lecture d scuss on. Cross- l sted as IBS 306 Prerequisites ECN 111 or 112; 2 00 ASU GPA jun or stand ng *General Stud es· SB*

ECN 313 Intermediate Macroeconomic Theory. (3) F S
Determ nants of aggregate eve s of employ ment, output and ncome of an economy Pre- requis tes ECN 111 112. Prerequ s te with a grade of C" or higher MAT 210. *General Studies. SB*

ECN 314 Intermediate Microeconomic Theory. 3) F S
Ro e of the pr ce system n organ z ng econ- nom c act v ty under vary ng degrees of com- pet tion. Prerequ sites. ECN 111 112. Prereq u s te w th a grade of 'C" or h gher: MAT 210 *General Studies SB*

ECN 315 Money and Banking. (3) SS
Funct ons of money. Monetary systems cred t functions bank ng pract ces and centra banking pol cy. Th s course cannot be app ed to the Econom cs major Prerequ s te: ECN 111

ECN 331 Comparative Economic Systems. (3 N
A ternat ve nst tutions, past and present for organizing the soc a d vision of labor Prop- erty r ghts nformat on, and ncent ves n n- dustr a soc et es. Prerequ s te. ECN 111 or 112 *General Studies. SB, G*

ECN 360 Economic Development. (3) N
Theories of econom c growth and deve op- ment Ro e of capita formation, techno og ca nnovat on, popu at on and resource deve op ment n economic growth Prerequ site: ECN 111 or 112 *General Studies SB G*

ECN 365 Economics of Russia and Eastern Europe. (3) A
Or g ns and ana ysis of contemporary nst tu t ons Comparat ve deve opment and differen- t at on n the 20th century Prerequ s te· ECN 111 or 112. *General Studies SB, G.*

ECN 394 Special Topics. (3) N
Current top cs of domestic or nternat onal n terest Ana ytical emphas s may be macro, m cro, or both See current *Schedu e of Classes* for offer ngs. Not for Econom cs majors Pre requ s te ECN 111 or 112.

ECN 404 History of Economic Thought. 3) N
Development of economic doctr nes, theories of mercant l sm phys ocracy, c assicism neo c ass c sm Marx sm and contemporary economics. Prerequ s te ECN 314 or nstructor approval. *General Studies SB*

ECN 421 Earnings and Employment. (3) A
Analys s of earn ngs, emp oyment, unemploy ment, tra ning, educat on, and re ated top cs Pol cy ssues are emphasized Prerequisite: ECN 314 or nstructor approva *General Stud ies L2/SB*

ECN 436 International Trade Theory. (3) A
The comparat ve advantage doctrine, nclud ing practices under varying commerc a pol cy approaches The econom c mpact of nterna t ona disequ l brium Prerequ s te ECN 314 or nstructor approva . *General Studies SB G*

ECN 438 International Monetary Economics. (3) A
History theory and po cy of nternat ona monetary econom cs Ba ance of payments and exchange rates. Internat ona f nancial markets including Eurocurrency markets Prerequ s te ECN 313 or instructor approval *General Stud es SB G*

ECN 441 Public Finance. (3) A
Publ c goods externa it es vot ng mode s, public expend tures taxat on and budget for mat on w th emphas s on the federa government Prerequ site: ECN 314 or nstructor ap proval. *General Studies L2/SB*

ECN 450 Law and Economics. (3) A
Econom cs of the egal system includ ng analys s of property, contracts, torts commer cial law and other topics D scuss on analysis Prerequ s te. ECN 314 *General Studies· L2*

ECN 453 Government and Business. (3) A
Development of pub c po c es toward bus ness. Ant trust act v ty Econom c effects of government po cies. Prerequisite· ECN 314 or nstructor approva

ECN 480 Introduction to Econometrics. (3) A
E ements of regress on ana ys s· est mation hypothes s tests, predict on. Emphas's s on use of econometric resu ts n assessment of economic theor es Prerequ s te: nstructor ap proval. *General Studies N2*

ECN 484 Economics Internship. 3) F, S, SS
Academic cred t for profess ona work orga n zed through the Internship Program. Prereq u s tes: ECN 313, 314 outstand ng academ c record.

ECN 485 Mathematical Economics. (3) A
Integrat on of economic analysis and mathemat ca methods nto a comprehensive body of know edge w th n contemporary economic theory Prerequ s te nstructor approva .

ECN 494 Special Topics. (3 N
Current economic top cs of domest c or internat ona interest Ana ytical emphas s may be macro, m cro or both See current *Schedule of Classes* for offer ngs Prerequ sites ECN 313 and 314 *or* instructor approval

ECN 498 Pro-Seminar. (3 A
Topic chosen from current area of nterest Prerequ s tes ECN 313 and 314 *or* nstructor approva

ECN 502 Managerial Economics. (3) F, S
App cat on of microeconom c ana ys s to managena dec s on making n areas of de mand production cost, and pr c ng. Eva ua tion of compet t ve strateg es Prerequis'te: MBA degree program student

ECN 503 Global Economics for Managers. (3) F S
Macroeconomic ana ys s of ssues re ated to econom'c growth nflat on nterest rates be havior, unemployment exchange rate deter m'nat on, and g oba competitiveness

ECN 504 History of Economic Thought. 3) S
H stor ca deve opment of econom c theory Emphas s on the deve opment of econom c ana ysis from prec ass cal economics through Keynes. Prerequ s te· ECN 510 or nstructor approva

ECN 509 Macroeconomic Theory and Applications. (3 F
Theory of ncome output emp oyment, and price evel. Influence on bus ness and eco nom c env ronment Prerequisites: ECN 111 and calculus *or* nstructor approva

ECN 510 Microeconomic Theory and Applications. (3) F S
App cation of econom c theory to product on, consumer demand, exchange and pric ng n a market economy Prerequ s tes ECN 112 and ca cu us *or* nstructor approva

ECN 511 Macroeconomic Analysis I. 3 F
Current theor es of output, employment inf a tion and asset prices as wel as major aggregates. Introduction to dynam c optim zat on techn ques Prerequ sites ECN 313 and cal cu us *or* nstructor approval

ECN 512 Microeconomic Analysis I. (3) F
Theory of production, consumer demand re source use and pricing n a market economy Prerequ sites ECN 314 and calcu us *or* n structor approva

ECN 513 Macroeconomic Analysis II. (3) F
Focus on growth theory, dynam c genera equ br um models monetary theory, open economy ssues. Prerequ s te ECN 511 or in structor approva

ECN 514 Microeconomic Analysis II. (3) S
General equ brium, we fare economics pro duction and capita theory. Prerequ s te ECN 512 or nstructor approva .

ECN 515 Advanced Macroeconomic Analysis. (3) F
Focus on current research areas n macroeco nomics and monetary theory w th emphas s on methods n econom c dynamics and nu mer ca techn ques Prerequ s te ECN 511 or nstructor approval.

ECN 516 Economics of Uncertainty, Information, and Strategic Behavior. (3) F
Econom c behavior under uncerta nty; mar kets and contracts under asymmetr c nforma t on, the theory of games w th incomp ete n format on and appi cat ons. Prerequ s te ECN 512 or nstructor approva .

ECN 517 Monetary Theory. 3) F
Trad t ona and post Keynes an monetary theory nterest rate determ nation the demand and supp y of money Prerequ s te ECN 511 or nstructor approva

ECN 521 Labor Economics I. (3) F
Deve opment of bas c theoret ca models for ana yz ng labor market 'ssues Prerequis'te: ECN 510 or nstructor approva .

ECN 522 Labor Economics II. (3) N
Extensions/cr t cisms of abor market theories Appl cat ons to a var ety of po cy ssues. Pre requ s te ECN 521

ECN 525 Econometrics I. (3 S
Prob ems in the formulat on of econometric mode s Emphas s on estimat on, hypothes s test ng and forecast of genera near mode s Prerequ s te. 6 hours of stat st cs or nstructor approval

ECN 526 Econometrics II. (3) F
Est mat on and nference of qua tat ve and m ted dependent var ab e mode s as wel as general mult ple equat on mode s Prereq u s te ECN 525 or instructor approva

ECN 527 Econometrics III. 3 S
Genera zed method of moment est mat on, est mat on w th censored and truncated samples non near models pane -data mode s, econometr cs of nonstationar t es. Prereq u s te ECN 526 or instructor approva

ECN 531 Comparative Economic Systems. (3) F
Ph osophical foundat ons of major econom c systems and of propert es of pr nc pa system mode s Compar son of a ternative nst tut ons and system components of contemporary economies. Prerequ sites: ECN 509 and 510 *or* nstructor approva .

ECN 536 International Trade Theory. (3) S
Theor es of comparat ve advantage and the r emp r ca verif cation Theory and po t ca economy of commerc'al po cy. Resource transfers and the ro e of the mu tinat ona corporation Prerequ s tes. ECN 509 and 510 *or* nstructor approva

ECN 538 International Monetary Theory and Policy. 3) F
The fore gn exchange market ba ance of pay ments and nternat ona f nancial nstitutions and arrangements theory and app icat ons Prerequ's tes: ECN 509 and 510 *or* instructor approva .

ECN 541 Public Economics. 3) S
Econom cs of co ect ve act on public spend ng taxat on and po it cs mpact of centra governmenta act v ty on resource a ocat on and income distr but on Prerequ s te ECN 510 or nstructor approva

ECN 553 Industrial Organization. (3) S
Ana ys s of structure, conduct, and perfor mance n ndustr a markets, the econom cs of organ zat ons Prerequ s te ECN 510 or n structor approval

ECN 560 Economics of Growth and Development. (3) F
Econom c problems, issues and po icy dec s ons facing the deve op ng nat ons of the wor d Prerequ s tes· ECN 509 and 510 *or* in structor approval

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NOTE: For the Genera Stud es requ rement codes (such as L1 N3, C, and H) and courses, see pages 84–108 For graduat on requ rements, see pages 79–83 For omn bus courses offered but not 'sted n th s cata og see pages 56–57

ECN 584 Economics Internship. (1 3) SS
Academ c cred t for profess ona work orga n zed through the Internsh p Program Prereq- u sites ECN 510 and 511 *or* nstructor ap prova .

ECN 585 Mathematics for Economists. (3) F
Survey of mathemat ca deas encountered n econom cs and econometr cs: non near pro gramm ng the Kuhn-Tucker theorem, con- cave programm ng, opt mizat on over t me. Prerequisite. ca cu us or nstructor approva

ECN 591 Economics Seminar. (1 3) F, S SS
Presentat ons by outs de speakers, depart ment faculty and graduate students of work n progress. Prerequ s te: nstructor approva .

ECN 593 Applied Projects. 3) F
Preparat on of a superv sed app ed project typ ca y in conjunct on w th an nternsh p. Pre requ s tes. ECN 510, 511.

ECN 594 Conference and Workshop in Economics. (1 12 F, S, SS
Top cs such as the fol ow ng are offered
(a) Econom c Ana ysis Workshop
ntroduct on to Econom c Analys s Pre requ site: Ph D degree program student
(b) Macroeconom c Topics Workshop.
ssues n macroeconom c theory Prereq- u s te ECN 513 or instructor approva
(c M croeconom c Top cs Workshop
ssues n microeconom c theory Prereq u s te ECN 514 or instructor approva

ECN 598 Special Topics. (3) N
Advanced topics in econom cs. Consu t the *Schedule of Classes* for ffer ngs. Prereq u s te nstructor approval

QUANTITATIVE BUSINESS ANALYSIS (QBA)

For addit onal QBA courses see 'Department of Management" page 164

QBA 221 Statistical Analysis. (3) F, S
Methods of stat stical descr ption. App cat on of probabi ty theory and statist ca nference n bus ness Prerequ s te MAT 119 *Genera Stud es: N2.*

QBA 321 Applied Quality Analysis I. (3) A
App cat ons of stat st cal tools emp oyed in emp r cal stud es related to qua ty ana ysis Appl cat ons focus on serv ce processes Pre requ s te QBA 221. *General Stud es. L2*

QBA 391 Management Science. (3) N
Study of mathemat ca mode s and so ut on techn ques wh ch can be used to a d dec s on makers. Prerequ s tes. MAT 119 210, 242· QBA 221, professiona program bus ness stu dent *Genera Stud es N2*

QBA 410 Applied Business Forecasting. (3) N
Appl cat on of forecast ng techn ques n bus ness and nstitut ona env ronments Prereq u s te. QBA 321.

QBA 421 Applied Quality Analysis II. (3) A
Appl cat ons of stat st ca too s emp oyed n manufactur ng and exper menta research Ap- p cat ons focus on des gn and mprovement of processes Prerequ s te QBA 321

QBA 505 Management Science. (3) N
Quantitative approaches to dec sion making including near programm ng and s mu at on w th an emphas s on business app cat ons Prerequ s tes MAT 210, QBA 502

QBA 511 Sampling Techniques in Business. (3 N
Plann ng execut on and ana ysis of surveys n bus ness research Prerequ s te QBA 502.

QBA 525 Applied Regression Models. 3) A
Simp e l near regress on, mult p e regress on ind cator var ables and og st c regress on Emphas s on bus ness and econom c app ca t ons Prerequis te· MAT 210

QBA 527 Categorical Data Analysis. (3) A
D screte data ana ysis n bus ness research Mult d mens ona cont ngency tables and other d screte mode s Prerequ s te. QBA 525

QBA 530 Experimental Design. 3) A
Exper menta designs used n bus ness re- search Balanced and unba anced factor a des gns repeated measures des gns and mult var ate analys s of var ance Prerequ s te: QBA 525 or equ va ent

QBA 535 Multivariate Methods. 3) A
Advanced stat st ca methods used n bus' ness research Mu t var ate ana ys s of asso- c ation and nterdependence. Prerequ s te QBA 525

QBA 540 Forecasting. (3 N
Foundation of stat st ca forecasts and fore cast ntervals app cat on of c ass ca and computer ass sted forecast ng methods to bus ness forecast ng prob ems Prerequ s tes MAT 210, QBA 502

QBA 550 Intermediate Decision Analysis (3) N
Quant tat ve dec s on ana ys s methods for bus ness decision mak ng under uncerta nty, nc ud ng dec s on d agrams subject ve prob- abi t es, and preference assessment. Prereq- u s tes. MAT 210 QBA 502

QBA 552 Statistical Decision Theory. (3) N
Stat st ca dec s on methods for bus ness dec - s on making under uncerta nty nclud ng Bayes an nference, opt ma stat st ca dec s ons, and va ue of nformat on assessment Prerequ s tes MAT 210 QBA 550.

QBA 560 Probabilistic Models. 3) N
Deve opment and app cat on of probabi st c mode s for quantitat ve bus ness ana ys's Prerequ s tes: MAT 210 QBA 502

QBA 561 Mathematical Programming. 3 N
Techniques for so v ng mathemat cal program- ming mode s of bus ness problems Prerequi s tes MAT 210, 242

QBA 562 Network Flow Models. (3) N
ntroduct on to network structure app cat ons and a gorithms, deve opment of data struc tures for network a gor thms app ed to bus ness prob ems Prerequ s tes. QBA 561 or MAT 242 and QBA 505

QBA 564 Nonlinear Optimization. 3) N
Bas c propert es of so ut ons and a gor thms for constra ned and unconstra ned m n m za t on bas c descent methods, and barr er methods Prerequ s tes: QBA 561 (or MAT 242) and QBA 505

Department of Finance

Herbert M. Kaufman
Chair
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www.cob.asu.edu/fin

PROFESSORS
BOOTH, COLES, JOEHNK
KAUFMAN POE, SUSHKA
ASSOCIATE PROFESSORS
BESSEMB NDER, CESTA,
CHAN GALL NGER, HERTZEL,
HOFFME STER, MARTIN WILT
ASSISTANT PROFESSORS
GR FFIN LEMMON
LECTURER
OAKES

The study of finance prepares students to understand the financial implications inherent in virtually all business decisions. Students majoring in Finance are prepared for entry level careers in corporate management, depository institutions, investment management, and financial services The finance curricu lum emphasizes financial markets, evaluation of investments, and efficient allocation of resources.

The major in Finance consists of the following courses:

ACC	315	Financial Accounting and Reporting	3
FIN	331	Financial Markets and Inst tutions	3
FIN	361	Manager al Finance	3
FIN	421	Security Analysis and Portfolio Management	3
Two additional 400 level FIN courses			6
Total			18

As part of the requirements, all Fi nance majors must complete ACC 250 Introductory Accounting Lab Finance majors are strongly advised to take ACC 316 Management Uses of Ac counting

ACC 250 must be completed before taking ACC 315. ACC 315 must be completed before taking 400 level FIN courses.

NOTE For the General Studies requ rement, codes (such as L1 N3 C, and H) and courses, see pages 84 108 F r graduat on requ rements, see pages 79–83. For omn bus courses offered but not sted n th's cata og see pages 56–57

MAJOR PROFICIENCY REQUIREMENTS

Students must receive grades of "C" or higher in upper division courses for the major. If a student receives a grade below "C" in any course in the major, this course must be repeated before taking any further courses for which this course is a prerequisite. If a second grade below "C" is received in either an upper division course in the major already taken or in a different upper division course in the major, the student is no longer eligible to take additional upper division courses in that major

GRADUATION REQUIREMENTS

In addition to fulfilling major requirements, students seeking a degree must meet all university and college requirements. See pages 79–83 for university graduation requirements and pages 144–146 for college requirements.

FINANCE (FIN)

FIN 300 Fundamentals of Finance. (3 F, S, SS
Theory and problems in financial management of business enterprises Prerequisites ACC 240; ECN 112; QBA 221

FIN 331 Financial Markets and Institutions. (3) F, S
Analysis of financial markets and intermediaries Theory of financial intermediation interest rate theory money and capital market instruments and government regulation Prerequisite with a grade of C" or higher FIN 300

FIN 361 Managerial Finance. 3) F, S
Theories and problems in resource allocation cost of capital, CAPM and capital budgeting asset valuation capital structure, and financing policy Prerequisite with a grade of 'C" or higher: F N 300

FIN 380 Personal Financial Management. (3) F, S
Dynamic analysis of personal financial planning including time value of money, stock and bond investment, and retirement and estate planning Prerequisites minimum cumulative GPA of 2.00, junior standing non Finance major

FIN 421 Security Analysis and Portfolio Management. 3) F, S
Security analysis theory and practice Selection and management of financial asset portfolios. Securities markets and portfolio risk return analysis Lecture, discussion Prerequisite professional program business student Prerequisites with a grade of 'C or higher ACC 315 F N 331, 361.

FIN 427 Derivative Financial Securities. 3 A
Study of stock options index options, convertible securities, financial futures, warrants subscription rights and arbitrage pricing theory Lecture discussion. Prerequisites. F N 421, professional program business student

FIN 431 Management of Financial Institutions. 3 A
Asset/liability and capital management in financial institutions influence of market factors and regulatory agencies Emphasis on commercial banks Lecture discussion Prerequisite professional program business student Prerequisites with a grade of "C or higher ACC 315, F N 331, 361.

FIN 451 Working Capital Management. (3) N
Analysis of short term profitability and liquidity Emphasis on managing cash accounts receivable inventory, and current liabilities Lecture discussion. Prerequisite professional program business student Prerequisites with a grade of 'C or higher ACC 315' F N 331, 361

FIN 456 International Financial Management. 3) A
Exchange rate determination, financial markets managing multinational corporations capital budgeting, and hedging currency risk exposure from an international perspective Prerequisite professional program business student. Prerequisites with a grade of C" or higher ACC 315 F N 331 361

FIN 461 Financial Cases and Modeling. (3) A
Case oriented capstone course in managerial finance Contemporary issues of quality management capital budgeting capital structure, and financial strategy Lecture discussion group work Prerequisite: professional program business student Prerequisites with a grade of 'C or higher: ACC 315; F N 331 361 *General Studies L2*

FIN 481 Honors Seminar in Finance. (3 A
Honors course covering topics that include theory and applications concerning management finance, investments and financial institutions Lecture discussion Prerequisites professional program business student honors student or senior Finance major with minimum 3 40 GPA Prerequisites with a grade of C" or higher ACC 315 F N 331, 361

FIN 502 Managerial Finance. (3) A
Theory and practice of financial decision making, including risk analysis, valuation, capital budgeting cost of capital and working capital management Prerequisites: ACC 502; ECN 502 QBA 502

FIN 521 Investment Management. (3) A
Valuation of equities fixed incomes and options/financial futures in an individual security and portfolio context mathematical asset allocation approaches. Lecture, discussion Prerequisite F N 502

FIN 527 Derivative Financial Securities. (3) S
Analysis of forwards futures and option contracts on bonds commodities equities and foreign exchange Design of speculative and hedging strategies Lecture, discussion Prerequisites FIN 502 521

FIN 531 Capital Markets and Institutions. (3) A
Recent theoretical and operational developments in economic sectors affecting capital markets and institutions Lecture discussion Prerequisite FIN 502

FIN 551 Financial Statement Analysis. (3) A
Analysis of corporations' financial statements to ascertain their financial strength and default risk Emphasis on studying cash flows Lecture cases. Prerequisites ACC 502 F N 502.

FIN 556 International Financial Management. (3) A
Behavior of real and nominal currency exchange rates management of international investment portfolios corporate exchange exposure and hedging exchange risk. Lecture, discussion. Prerequisite F N 502

FIN 561 Financial Management Cases. (3) N
Case oriented course in applications of finance theory to management issues Acquisition, allocation and management of funds within the business enterprise Working capital management capital budgeting capital structure and financial strategy Lecture, discussion presentation Prerequisite: FIN 502.

FIN 581 Applied Corporate Finance. (3) A
Application of theories in corporate finance. Market efficiency, capital structure, "principal agent" theory corporate control dividend policy and capital budgeting. Prerequisite FIN 502

FIN 781 Theory of Finance. (3) A
Fundamental tools of financial economics, asset pricing arbitrage option pricing, capital structure dividend policy asymmetric information and transaction-cost economics Prerequisites. FIN 502 521, 531.

FIN 791 Doctoral Seminar in Finance. (3) A
(a) Financial Institutions and Markets
Economic and monetary theory applied to financial markets and institutions implications of finance structure for market performance and efficiency Prerequisite: F N 581.
(b) Financial Management
Financial theory pertaining to capital structure dividend policy, valuation, cost of capital, and capital budgeting Prerequisite: FIN 581.
(c) Investments.
Investments and market theory; efficient markets hypothesis option and commodity markets. Prerequisite F N 581

School of Health Administration and Policy

Eugene S. Schneller
Director
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www.cob.asu.edu/hap

PROFESSORS

FORSYTH, JOHNSON, KIRKMAN-LIFF, KRONENFELD, SCHNELLER, WESBURY, WILLIAMS

GRADUATE PROGRAMS

The faculty in the School of Health Administration and Policy offer the Master of Health Services Administration (M.H.S.A.) degree. The M.H.S.A. program is accredited by the Accrediting Commission on Education for

Health Services Administration. Students enrolled in the school may earn concurrent M.H.S.A /M.B.A. degrees. The school also collaborates with the College of Law to allow students to earn concurrently the M.H S.A./J.D degrees, and the College of Nursing to allow students to earn concurrently the M.H.S.A. degree and the M.S. degree in Nursing with a concentration in nurs ing administration

Through the Arizona Graduate Pro gram in Public Health, the school fac ulty administer a health administration and policy concentration that leads to a Master of Public Health (M.P.H.) de gree granted by the University of Ari zona The M P H. is accredited by the Council on Education for Public Health. Courses pertaining to the M P H. program include

HSA	598	Biostatistics 3
HSA	598	Epidemiology 3
HSA	598	Health Care Finance 3
HSA	598	Health Care Organization and Systems 3
HSA	598	Health Services Administration and Policy . 3
HSA	598	Policy Issues in Healthcare 3
HSA	598	Principles of Health Economics . 3

Undergraduates may register in the above courses with permission of the instructor using the HSA 498 designation.

For more information on programs, see the *Graduate Catalog*

HEALTH SERVICES ADMINISTRATION (HSA)

HSA 473 Comparative Health Systems. (3) A
Compar son of health care f nancing and de ivery n industria zed countries covers nsur ance hosp ta management and physician payment Lecture d scuss on. Cross- isted as HSA 573

HSA 494 Special Topics in Health Administration. (3) A
Sem nar topics nc ud ng comparat ve hea th care systems ambu atory care adm n strat on, behav ora hea th long term care, and hea th econom cs Prerequis'te: nstructor approva

HSA 498 Biostatistics. (3) F
Aspects of descr pt ve statist cs and stat stical inference most re evant to hea th ssues, n c ud ng data rates and conf dence interva s Cross sted as HSA 561.

HSA 498 Health Care Finance. (3) S
Overv ew of the acqu s tion a location and management of f nancia resources by hea th care prov ders Focuses on econom c finan cia , and account ng princ ples Cross-l sted as HSA 564

HSA 498 Health Economics. (3) S
ntroduction to concepts and methods used to direct and understand product on and d stribu t on of health care serv ces Cross sted as HSA 563

HSA 498 Health Services Administration and Policy. (3) F
ntroduct on to organ zat onal theory and man agement of complex organizat on w th n the h storical and contemporary contexts of the U.S pub c hea th Cross l sted as HSA 560

HSA 498 Policy Issues in Health Care. (3 F
Current po cy ssues n hea th through con cepts of access, cost and qual ty ssues re at ng to d sease trends and po cy formu ation Cross- sted as HSA 565.

HSA 502 Health Care Organization. (3) A
Concepts, structures funct ons, and va ues which character ze contemporary hea th care systems n the Un ted States

HSA 505 Community Health Care Perspectives. 3) A
Epidemiolog ca soc o og ca and po t ca per spect ves and techn ques for analyz ng hea th prob ems and respond ng to health care needs n commun t es Prerequ site HSA 502

HSA 512 Health Care Economics. (3) A
Economics of product on and d str bution of hea th care services, w th spec a emphas s on the impact of regu at on compet tion and eco nom c ncent ves Prerequ s te HSA 502

HSA 520 Health Care Organizational Structure and Policy. (3) A
Functiona re at onsh ps among managena e ements of hea th care nstitutions with major focus on hosp tal governance and po cy dy namics Cross l sted as HSA 562. Prerequ s te. HSA 502

HSA 522 Health Care Management Systems. (3 A
Systems concepts quant tat ve methods and nformat on systems app ed to management prob ems n hea th nst tut ons and community hea th p ann ng Prerequis tes HSA 505 QBA 502

HSA 532 Financial Management of Health Services. (3) A
Acquisit on a ocat on, and management of f nanc al resources w thin the hea th care enter prise Budget ng cost ana ysis, f nancial p an n ng and nterna controls Prerequis tes: ACC 503, FIN 502 HSA 502

HSA 542 Health Care Jurisprudence. (3) A
Lega aspects of hea th care de very for hos pita and hea th serv ces admin strat on Lega respons b t es of the hosp tal adm n strator and staff Prerequ s tes HSA 505 520

HSA 560 Health Services Administration and Policy. (3) F
ntroduct on to organ zat ona theory and man agement of comp ex organ zat on with n the h stor ca and contemporary contexts of the U S pub c hea th. Cross sted as HSA 498

HSA 561 Biostatistics. (3) F
Aspects of descr pt ve stat st cs and stat stica nference most relevant to hea th ssues, n cluding data, rates, and confidence ntervals Cross isted as HSA 498

HSA 562 Health Care Organization and Systems. 3) F
Funct onal relat onships among manager a el ements of health care nstitutions with major focus on hosp tal governance and pol cy dy nam cs Cross listed as HSA 520.

HSA 563 Health Economics. (3) S
Introduction to concepts and methods used to direct and understand product on and d stribu t on of health care serv ces. Cross- sted as HSA 498

HSA 564 Health Care Finance. (3) S
Overv ew of the acqu s t on, al ocat on, and management of f nanc a resources by health care providers Focuses on economic f nan c a and account ng pr nc p es Cross-l sted as HSA 498

HSA 565 Policy Issues in Health Care. (3) F
Current po cy issues n hea th through con cepts of access, cost and qua ty issues re ating to d sease trends and po cy formu ation Cross isted as HSA 498.

HSA 571 Ambulatory Care Management. (3) A
The evo ut on p ann ng, and management of multispec a ty group pract ces, health ma nte nance organ zat ons, and other a ternat ve de very systems Prerequ s te HSA 502.

HSA 573 Comparative Health Systems. (3) A
Comparison of health care f nanc ng and de very n ndustria ized countries covers nsur ance hospita management and physician payment Lecture d scussion. Cross- isted as HSA 473

HSA 575 Chronic Care Administration. (3) A
Management of long term care serv ces and fac it es, nc ud ng behav oral hea th and reha b itation programs.

HSA 589 Integrative Seminar. (3) A
Capstone assessment of current po c es, prob ems, and controvers es across the broad spectrum of hea th serv ces admin stration. Prerequ sites HSA 505, 520 522 532

HSA 591 Seminar. (3) A
Seminar topics such as the fol ow ng may be offered
(a) Behav oral Hea th
(b Chron c Care Adm n strat on
(c) Comparative Hea th Care Systems
(d) Cost Conta nment and Quality Assurance
(e) Health Care Economics
(f) Health Care Labor Law
(g) Human Resources Management
(h) Manag ng Phys c ans
(i) Mu t hosp tal Systems
(j) Top cs n Health Services Research

HSA 593 Applied Project. (3) F, S SS
Optiona on site exper ence n advanced de velopment of managerial sk ls n hea th ser vices adm n'stration and pol cy Min mum of 10 weeks. Prerequ s tes 18 hours of credit to ward program of study; d rector approval.

HSA 598 Special Topics. (3) A
Spec al top cs such as the fo lowing may be offered
(a) Ep dem o ogy

International Business Studies

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Director
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www.cob.asu.edu/up/aap.html

Certificate in International Business Studies

The program of study leading to the Certificate in International Business Studies is designed to prepare students for positions with multinational firms, banks, government agencies, and international organizations. This program is not a substitute for the listed areas of business specialization; rather, the courses required for the certificate add an international dimension to the student's chosen major.

Requirements for the certificate are designed to provide an understanding of international business environments, principles and operations, to provide an awareness of global social processes and a sensitivity to foreign cultures, and to develop competence in a foreign language. These objectives are met in the following ways: international business principles and operations, global and area studies, foreign language, and GPA proficiency

International Business Principles and Operations. At least 15 semester hours of approved courses in international business are required. Students must take either IBS 300 Principles of International Business or ECN/IBS 306 Survey of International Economics and the international course in their major. Other international business courses from which the remaining hours are selected include:

ECN	331	Comparative Economic Systems *SB, G**	3
ECN	360	Economic Development *SB G**	3
ECN	365	Economics of Russia and Eastern Europe *SB G**	3
ECN	436	International Trade Theory *SB, G**	3
ECN	438	International Monetary Economics *SB, G**	3
ECN	494	ST Multinational Firm in the World Economy	3
FIN	456	International Financial Management	3
IBS	394 494	ST Regional Business Environment of Southeast Asia or IBS 494 ST: Regional Business	3
IBS	400	Cultural Factors in International Business *G*	3
IBS	494	Independent Study of International Business	3
MGT	459	International Management	3
MGT	494	ST: International Management	3
MKT	435	International Marketing	3
MKT	494	ST: International Marketing	3
SCM	463	International Transportation and Logistics	3

* College of Business students may not use this course to fulfill General Studies SB requirements

Honors students who select an international topic for their thesis may use that as part of the 15 hours of international course work for the certificate.

Global and Area Studies. This requirement can be satisfied either by means of course work or through participation in approved College of Business exchange programs with foreign schools of business, or by some combination of the two. The course work option requires at least 15 semester hours of approved electives in international and area studies. A minimum of six semester hours must be in courses that provide a cross cultural perspective from the global point of view of one or more disciplines. A minimum of nine semester hours must be in courses that provide an understanding of one region of the world.

Students who participate in an approved College of Business exchange program with a foreign business school for two semesters are deemed to have fulfilled the global and area studies requirements of the Certificate in International Business upon the successful completion of this exchange program Students who participate in such an exchange program for one semester are deemed to have satisfied the required nine hours of area studies courses. Students who participate in a business seminar need only complete six hours of area studies courses to meet the requirements of the certificate.

Foreign Language. Evidence of competence in a foreign language equivalent to one year of college study is required

GPA Proficiency. Applicants for the Certificate in International Business must earn a "C" or higher in each of the courses selected for the certificate, have at least a 2.50 GPA for all course work applied to the certificate, and complete at least 50% of the course work at ASU Main.

Advising. When planning and selecting courses to meet the requirements for the certificate and to take advantage of opportunities for participation in exchanges with foreign schools of business, students should consult with an international business faculty advisor or Adela Gasca, Coordinator of International Programs, BA 122, 602/965 4066, or visit the Web site.

INTERNATIONAL BUSINESS STUDIES (IBS)

IBS 300 Principles of International Business. (3) A
Multidisciplinary analysis of international economic and financial environment Operations of multinational firms and their interaction with home and host societies Prerequisite ECN 112 *General Studies G*

IBS 306 Survey of International Economics. 3 A
Survey of international trade issues commercial policy trade theory, customs unions and international monetary topics Not for Economics majors Lecture discussion Cross listed as ECN 306 Prerequisites ECN 111 or 112 2 00 ASU GPA junior standing *General Studies SB*

IBS 400 Cultural Factors in International Business. (3) S
Anthropological perspectives on international business relations; applied principles of cross cultural communication and management; regional approaches to culture and business. Cross listed as ASB 400. *General Studies: G.*

Department of Management

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PROFESSORS
BOHLANDER, CARDY, DOOLEY, GLICK, GOMEZ-MEJIA, HERSHAUER, HOM, KINICKI, KIRKWOOD, KULIK, PENLEY, REIF, RUCH

ASSOCIATE PROFESSORS
ASHFORTH, BRENENSTUHL, BROOKS, CALLARMAN, COOK, KEATS, KEEFER, KELLER, MOORHEAD, OLIVAS, OSTROFF, ROBERSON, D. SMITH-DANIELS, V. SMITH-DANIELS, VAN HOOK, VERDINI

ASSISTANT PROFESSORS
AMUNDSON, BLANCERO, BOYD, WISEMAN

SENIOR LECTURERS
CALCATERRA, DORAN, KREITNER, LEA

Widely recognized for their work in the areas of strategic management, organizational behavior, human resource management, operations management, and management science, the faculty in ASU's Department of Management emphasize high tech management, quality, process and project management, decision and risk analysis, globalization, diversity, small business and entrepreneurship, change management, systems dynamics, organizational identity, corporate governance, and human resource management practices in their research, consulting, and teaching.

Department of Management faculty take great pride in their teaching excellence and have been very active in continuous improvement of collaborative teaching techniques. Six management faculty and teaching assistants have won recent college- or university-level awards for their excellence in teaching effectiveness.

MAJOR IN MANAGEMENT: A SKILLS EMPHASIS

Understanding of theory and concepts of management are enhanced by experiencing and testing these concepts in skill-based exercises and cases throughout the curriculum. After analyzing surveys of graduates, their employers, and members of the Dean's Council of 100, the department concluded that the major should have a strong emphasis on measurable, competency-based skills. Based on the survey data, we identified major skill areas that encompass the most important competencies, including

- Administrative
  - conflict management
  - diversity awareness/management
  - project management
- Analytical
  - creativity/innovation
  - critical analysis skills
  - planning/decision-making skills
- Coaching/Facilitating
  - employee motivation
  - employee training/development
  - mentoring
- Communication
  - persuasion and negotiation
  - verbal
  - written
- Team Orientation
  - delegation and empowerment
  - develop and maintain teamwork
  - relationship building

The faculty focus on both understanding theory and developing competency in these specific skills in all management courses, particularly the three courses taken by all management majors, MGT 311 Human Resource Management, MGT 352 Human Behavior in Organizations, and MGT 463 Strategic Management. The emphasis is on special participative exercises and assignments to practice the skills. Some of these skills, such as communication, team building, and critical analysis are also emphasized in college core classes (MGT 301 Management and Organization Behavior and OPM 301 Operations and Logistics Management). Further, all undergraduate management classes emphasize skill development exercises for appropriate course topics. Management majors can choose their electives in one of four tracks: general management, managing human resources, small business and entrepreneurship, or managing business processes.

GENERAL MANAGEMENT

The central purpose of the Management major is to prepare men and women for managerial leadership in a world characterized by demands for continuous improvements in quality; growing technological sophistication; racial, cultural, and gender diversity in the work force; and expanding globalized markets. This emphasis is on accomplishing the organization's goals in a changing environment by successfully coordinating all available resources. As technological change and global markets create new opportunities for modern organizations, there are increasingly complex challenges to be met by the contemporary manager.

To prepare students to meet these challenges, the general management track curriculum is designed to provide exercises and cases that focus on devel-

Numerous fountains enhance the Main Campus, including these located by the Business Administration buildings and the Memorial Union. Tim Trumble photo

oping competency based skills. Appli cations orientations in classroom set tings will promote the development of administrative, analytic, and communi cation skills; coaching and facilitating skills; and a team orientation. This pragmatic focus is developed in both internal and external contexts.

1. legal environment of management activity;
2. the range of human behavior en countered in organizational set tings;
3. the interrelation of the component functions of a business;
4. the responsibilities of a firm in con temporary society;
5. the challenges to an organization active in an international arena; and
6. the role of the entrepreneur in the growth of businesses.

The following courses must be taken to complete this track.

MGT	311	Human Resource Management 3
MGT	352	Human Behavior in Organizations 3
MGT	434	Social Responsibility of Management 3
MGT	459	International Management .. 3
MGT	463	Strategic Management *L2* 3
MGT elective		3
Total		18

This generalist perspective addresses such current issues as diversity in the workplace, global involvement, total quality management, ethics, and other managerial emphases that promote success. An interactive, cooperative learning environment is stressed.

As the preferred track for the individual wanting a general grounding in the management discipline, students find a broad range of opportunities available upon graduation. Service and manufacturing firms, for profit and not for-profit organizations, and large and small organizations will immediately benefit from the preparation of these graduates and recruit them for challenging trainee positions or entry level management positions.

MANAGING HUMAN RESOURCES

People are the common denominator in all organizations. The efficient and effective management of people is central to the success of the organization. Management has been defined as "the process of getting things done through people." The human resource management track in the Management major introduces students to the spectrum of knowledge necessary to the effective management of people.

This track is designed to train and familiarize future employees, general managers, and human resource specialists with the human resource functional areas, such as performance appraisal, dismissal, and the legal environment surrounding the employment relationship.

Students in this track develop key skills in work force diversity, team building, and negotiation. Focus in this track is on developing skills in managing people. Students are involved in class activities such as cases and experiential exercises, which develop skills in preventing and solving human resource problems.

The following courses must be taken to complete this track:

MGT	311	Human Resource Management 3
MGT	352	Human Behavior in Organizations 3
MGT	413	Compensation Management . 3
MGT	423	Employee Management Relations 3
MGT	463	Strategic Management *L2* ... 3
MGT elective		3
Total		18

Large corporations in manufacturing and service, as well as small businesses and consulting firms, hire students in this track.

SMALL BUSINESS AND ENTREPRENEURSHIP

Managing, growing, developing, and starting small businesses is one of the most vital and challenging segments of the economy. Most new innovations spring from small to midsize firms. New venture opportunities emerge each day. Smaller firms constitute the job creation engine of the nation. The potential for individual wealth creation largely resides among entrepreneurial firms. And in an era of downsizing, many current and former corporate employees are looking toward self employment as a long term career option. The sequence of courses in the small business and entrepreneurship track does not limit student ability to seek employment in the corporate environment. Rather, it provides an enhanced skill set many firms will value, and it offers alternative career options.

The small business and entrepreneurship course sequence provides a broad-based understanding of the entrepreneurial process and the unique problems and challenges faced by smaller firms. In addition, students gain an opportunity to develop their own potential venture concepts.

The following courses must be taken to complete this track:

MGT	311	Human Resource Management 3
MGT	352	Human Behavior in Organizations 3
MGT	440	Entrepreneurship 3
MGT	463	Strategic Management *L2* 3
MGT	494	ST: Business Plan Development ..... 3 or MGT 494 ST Small Business Planning (3)
MGT elective		3
Total		18

Note that MGT 494 ST: Business Plan Development (BPD) and MGT 494 ST. Small Business Planning (SBP) will have some overlapping sessions. All students will learn about developing business plans and working in small business. Students in the BPD course will prepare a full-scale business plan. Students in the SBP class will complete a "small business experience." Students may not get credit for both classes.

Students completing the small business and entrepreneurship track are most likely to work in small businesses or new ventures within larger corporations. Students in this track (or other business majors) may also be interested in the Certificate in Small Business and Entrepreneurship described on page 147.

NOTE. For the General Studies requirement codes (such as L1, N3, C, and H), and courses, see pages 84–108. For graduation requirements see pages 79–83. For common business courses offered but not listed in this catalog see pages 56–57.

MANAGING BUSINESS PROCESSES

Processes are central to all organiza tions. Designing and manufacturing a product involves a series of steps in a transformation process starting with raw materials acquisition and continu ing through product production, deliv ery, and use. Determining and deliver ing a service involves a series of steps in setting service characteristics and providing the service. Specific theories and tools for managing, changing, and continuously improving business pro cesses have been developed and are key ingredients to successfully managing businesses in our global economy.

Students in this track develop key skills in communications and working with people, particularly in planning and managing process changes. The fo cus in this track is on understanding key aspects of process design and analysis. Students are involved in case studies and industry projects dealing with actual process issues. Students in this track focus on developing knowledge and skills in product/service design and management, process improvement and problem solving, analysis of process costs, change management, team approaches to solving process problems, and project management skills.

The following courses must be taken to complete this track:

MGT	311	Human Resource Management	3
MGT	352	Human Behavior in Organizations	3
MGT	433	Management Decision Analysis or MGT 468 Management Systems 3) or MGT 480 Team Management Skills 3) or MGT 494 ST: Total Quality Management and Human Resource Management (3	3
MGT	463	Strategic Management *L2*	3
QBA	321	Applied Quality Analysis I *L2* or ECE 394 Manufacturing Processes 3) or QBA 391 Management Science *N2* 3) or SCM 432 Materials Management (3	3
QBA	450	Operations and Process Analysis	3
Total			18

Because managing and controlling the quality of processes is a key issue in process management, students electing this track are strongly urged to also complete the Certificate in Quality Analysis described on page 147 of this catalog.

Although large corporate manufac turing and service firms will hire stu dents in this new track, there will also be special opportunities for these stu dents to have a strong positive impact in the many start-up and medium size businesses in Arizona. Many management consulting firms that recruit col lege graduates are very interested in students from this track.

Approved Electives for Management. The following electives have been ap proved for the management tracks.

ACC	316	Management Uses of Accounting	3
MGT	413	Compensation Management	3
MGT	422	Training and Development	3
MGT	423	Employee Management Relations	3
MGT	424	Employee Selection and Appraisal	3
MGT	433	Management Decision Analysis	3
MGT	434	Social Responsibility of Management	3
MGT	440	Entrepreneurship	3
MGT	442	Small Business Management	3
MGT	459	International Management	3
MGT	468	Management Systems	3
MGT	480	Team Management Skil s	3
MGT	494	ST: Business Plan Development	3
MGT	494	ST: Small Business Planning	3
MKT	302	Fundamentals of Marketing Management	3
QBA	450	Operations and Process Analysis	3

Hot Links to Major in Management. Further information, hot links to courses and current faculty, and any updates on the undergraduate major in Management can be found at www.cob.asu.edu/mgt

MAJOR PROFICIENCY REQUIREMENTS

Students must receive grades of "C" or higher in upper division courses for the major. If a student receives a grade below "C" in any course in the major, this course must be repeated If a sec ond grade below "C" is received in ei ther an upper division course in the ma jor already taken or in a different up per division course in the major, the student is no longer eligible to take ad ditional upper division courses in that major.

GRADUATION REQUIREMENTS

In addition to fulfilling major re quirements, students seeking a degree must meet all university and college re quirements. See pages 79 83 for uni versity graduation requirements and pages 144–146 for college require ments for undergraduate students.

GRADUATE PROGRAMS

The Department of Management par ticipates actively in several masters and Ph.D. programs, particularly the tech nology M.B.A., executive M.B.A., evening M.B.A., and day M.B.A. pro grams. These programs are described more fully in the *Graduate Catalog*. Areas of concentration offered by the Department of Management for tech nology, evening, and executive M.B.A. students include: process management in high technology organizations; globalization and diversity management; entrepreneurship and small business development; and management consulting.

The Department of Management has adopted a modular approach to Ph.D. education to improve our ability to deliver focused, high quality seminars, give students more flexibility in defining their areas of expertise, increase their rate of quality publications, and enhance the quality of Ph.D. placements.

Hot Links to Graduate Programs. Further information, hot links to courses and current faculty, and any updates on the Department of Management areas of concentration for the M.B.A. programs can be found at www.cob.asu.edu/mgt.

General information on the M.B.A. programs can be found at www.cob.asu.edu/mba.

Further information, application procedures, hot links to current faculty, and any updates on the Ph.D. program in Management can be found at www.cob asu.edu/mgt/degree/phdmainpg.htm

MANAGEMENT (MGT)

MGT 301 Management and Organization Behavior. (3) F, S, SS
Adm n strat've organ zat ona and behav oral theories and funct ons of management contr but ng to the effective and eff c'ent accomp shment of organ zat ona object ves Prereq uis'tes: 1 psycho ogy (soc a and behav ora) course and 1 soc o ogy course.

MGT 311 Human Resource Management. (3) F, S, SS
Human resource p ann ng, staffing tra n ng and deve opment compensat on appra sa , and abor relat ons Prerequ s te MGT 301

MGT 352 Human Behavior in Organizations. (3) F, S SS
Human aspects of business as d st nguished from economic and technical aspects and how they nfluence eff c ency mora e, and man agement pract'ce. Prerequ s te MGT 301

MGT 380 Management and Strategy for Nonmajors. (3) F
ntroduction to the funct ons and app cat ons of management in organ zat ons, ncluding contro ing dec's on mak ng, leadership mot vat on, plann ng and soc a respons b ty

MGT 394 Special Topics. 3) F, S SS
Current top cs 'n management primari y de s gned for nonbusiness majors See the *Schedule of Classes* for current offerings
Some of the fol ow ng may be offered
a) Bus ness Plan Development for Nonmajors
(b) Sma Bus ness and Entrepreneursh p for Nonmajors
(c) Sma Bus ness P ann ng for Nonmajors
Note that students may not get cred t for both Smal Bus ness P ann ng and Bus ness Plan Deve opment.

MGT 413 Compensation Management. (3) F S
Estab ish'ng base and 'ncent ve pay with job ana ysis job eva uation and wage surveys performance appra sa conformance to com pensation aws. Prerequ sites: MGT 311 pro fess onal program bus ness student.

MGT 422 Training and Development. (3) F S
Learn ng theory or'entation and bas c evel tra n ng, management deve opment resource mater a s and methods Prerequ sites MGT 311 profess ona program bus ness student.

MGT 423 Employee-Management Relations. (3) F S
Emp oyment re ationsh p in un on/nonunion sett'ng. Emp oyee management r ghts/respon sib it es, complaint adm n strat on, negotia t ons, union structure, and mock government negotiat ons.

MGT 424 Employee Selection and Appraisal. (3) F S
Concepts and methods of personnel se ect on and performance appra sa ncludes job ana ysis measurement and lega ssues. Exper entia exerc'ses emphas zed Prerequ's te· MGT 311.

MGT 433 Management Decision Analysis. 3) F S
Dec s on mak ng concepts and methods n the private and pub c sectors and their app cat on to organizat onal problems Understand ng of nd v dua and group dec s on making Prereq u s tes MGT 301 profess ona program bus ness student

MGT 434 Social Responsibility of Management. (3) F S SS
Re at onsh p of business to the soc a system and ts env ronment Cr ter a for appra s ng management decis ons Managers as change agents Prerequ sites MGT 301, profess onal program bus ness student

MGT 440 Entrepreneurship. (3 F S SS
Opportun t es, r sks and prob ems assoc ated w th smal bus ness deve opment and opera t on

MGT 441 Venture Design and Development. (3) N
Analys s design and deve opment of a busi ness p an for a new venture Prerequ s te. ACC 240

MGT 442 Small Business Management. (3) N
Students, acting as management consu tants apply bus ness princ p es and make recommendat ons to sma l bus nesses wh e earn ng to manage sma f rms. Prerequ s te: bus ness core except MGT 463.

MGT 459 International Management. (3) F S, SS
Concepts and practices of mu t nationa and fore gn f rms. Object ves strateg es, po icies and organizational structures for operating n var ous environments Prerequ s te MGT 301

MGT 463 Strategic Management. 3) F, S, SS
Strategic formu at on and adm'nistrat on of the tota organ zat on, 'ncluding ntegrat ve analy s s and strateg c plann ng To be taken ast se mester of sen or year Prerequis tes. comple t on of 108 hours inc ud ng al other bus ness admin stration core requ rements; profess onal program bus ness student *General Stud es L2*

MGT 468 Management Systems. (3) F S
Systems theory and practice app ied to organ zat on process and research. Organ zations seen as open systems interacting w th chang ing env ronments. Prerequ s te MGT 301

MGT 480 Team Management Skills. (3) F S
A cooperative education class teach ng team sk ls n active stening conf ct reso ution dec s on making effect ve meetings norm ng and team ro es Cooperat ve learn ng

MGT 494 Special Topics. (3) N
Current top cs n management, primarily de s gned for bus ness majors. See the *Schedule of Classes* for current offer ngs.
Some of the fo lowing may be offered:
(a) Bus ness Plan Deve opment
(b) Sma l Business Plann'ng
(c) Tota Qual ty Management and Human Resource Management
Note that students may not get cred t for both Smal Bus ness Planning and Business P an Development.

MGT 502 Organization Theory and Behavior. (3) A
mportant concepts and appl cat ons n man agement, ncluding communicat on, dec s on mak ng, group dynamics eadership, mot vation organ zation change, and organ zat on design Prerequis tes computer l teracy, graduate degree program student.

MGT 589 Strategic Management. (3) F, S
Formu ation of strategy and po icy in the orga n zat on, emphas z ng the ntegration of dec sions n the funct ona areas Prerequ s te: complet on or concurrent enrol ment n a l other core courses in the M B A program

MGT 591 Seminar. (3) N
Topics such as the fo lowing offered
(a) Bus ness P an Competit on
(b) Entrepreneursh p
(c) Human Resource Activ ty and the Management of D versity
(d) nternationa Management
(e) Management Consu ting
(f) Organizat onal Change and Business Process Consult'ng

MGT 593 Applied Projects. (3) A
Cross-funct ona teams 'nit'ate (possibly mp ement) organ zationa change w th n a lo cal firm Lecture, d scuss on, experient al learn ng. Prerequ s te comp etion or concur rent enrol ment n a l core courses n the M.B.A program.

MGT 598 Special Topics. (3) N
Graduate spec al top cs chosen from human resources, strategic management and nter national management nc ud ng spec al top cs in nternat ona management in As a or Eu rope Prerequis te nstructor approva .

MGT 791 Seminar: Doctoral Seminar in Management. (1) A
Short modu e sem nars such as
(a) Causal Mode ng
(b) Change and Coping
(c) Cogn tion Micro and Macro Perspect'ves
(d) Economic Theor es of the F rm
(e) Motivat on and Att tudes
(f) Organ zat onal Identity and Identif cation
(g) Organ'zat onal Learn ng and Organ zat onal Identity
(h) Organizat onal Performance and Reward Systems
( ) Organ'zat'onal Strategy and Cu ture
(j) Organ'zat onal Structure, Techno ogy and Information Systems
(k) Organ zational Withdrawa
( ) Performance Appra sa
(m) Power and Organ zat ona Change
(n) Se ect on
(o) Teams, Groups and Leadersh p
(p) The Craft of Research

OPERATIONS AND PRODUCTION MANAGEMENT (OPM)

OPM 301 Operations and Logistics Management. (3) F S SS
dentification and ntegrat on of major compo nents of operat ons and logist cs management and the r impact on organizational product v ty and performance Lecture lab Prerequ site QBA 221

OPM 394 Special Topics. (3) N
Current top cs in operations and product on management, pr mar y des gned for nonbusiness majors See the *Schedu e of Classes* for current offer ngs, wh ch may for examp e inc ude Operations and Log st cs Management for nonmajors.

OPM 502 Operations Management. (3) A
Contemporary management ssues, including environmenta project and supp y cha n management new product deve opment qual ty control, TQM Prerequisites computer teracy graduate degree program student

OPM 540 Quality and Productivity Management. (3) N
Organizat ona factors inf uenc ng qual ty and product v ty n the production of goods and serv ces Qua ty and product vity strateg es, mprovement programs, and measurement systems Prerequ site: OPM 502 or nstructor approval

OPM 582 Capacity Management and Scheduling. (3) A
Decis ons regard ng management of techno - ogy for manufactur ng and serv ce firms Fa c lt es locat on, ayout, process des gn and se ect'on, and manufactur ng strategy Prerequi s te. QBA 561 or nstructor approval

OPM 585 Facilities Design and Management of Technology. (3) A
Decisions regard ng management of faci t es and techno ogy for manufacturing and serv ce firms. Fac l ties locat on layout process de s gn and select on Prerequ s te QBA 561.

OPM 587 Project Management. (3) A
P anning schedu ng and contro ng of proj ects n R & D, manufactur ng, construct'on and serv ces. Project se ect on, f nanc a con siderat ons and resource management. Prerequis te: QBA 502

OPM 591 Seminar. 3) A
Top cs such as the fo lowing offered
(a) H gh Performance Management Systems
(b) Manufactur ng Strategy
(c) New Product and Process Development

OPM 593 Applied Projects. (3) A
Cross functional teams nit ate (possib y implement) organ zationa change w th n a o- ca f rm Lecture d scuss on, experient a earn ng Prerequ s te comp etion or concur rent enro ment n a l core courses n the M B A program

OPM 791 Doctoral Seminars in Operations and Production Management. (1) N
Short module sem nars such as
(a) Management of Techno ogy
(b) Manufacturing Strategy
(c) Operat ons Management
(d Project Management

QUANTITATIVE BUSINESS ANALYSIS (QBA)

For addit onal QBA courses see "Department of Economics " page 156

QBA 450 Operations and Process Analysis. (3) A
mplementat on of quant tat ve techn ques for the ana ys s of qua ty problems re ated to operations and process analys s Prerequ sites OPM 301 QBA 221 *General Stud es· L2*

QBA 502 Managerial Decision Analysis. (3) F S
Fundamenta s of quant tat ve analys s to a d management dec s'on mak ng under uncer ta nty Prerequ s'tes. MAT 210 computer t eracy graduate degree program student.

QBA 591 Seminar. (3) F, S
Current top cs n Quantitative Business Ana y sis pr mar y des gned for technology even ng and execut ve M B A. students E ective courses for these programs may nc ude
(a) Dec s on Mode s.
b) Management Prob em So v ng
(c) Product and Service Innovation
(d) Strateg c Dec s on Ana ys s

QBA 791 Doctoral Seminars in Quantitative Business Analysis. (1) N
The Department of Management has adopted a modular approach to Ph D educat on Top ics such as the fo ow ng may be offered:
(a) Chaos Theory
(b) R sk Analysis
(c) Strateg c Dec s on Mak ng
(d) Systems Dynamics

Department of Marketing

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PROFESSORS
BITNER, BROWN, GWINNER, HUTT, JACKSON KUMAR, LASTOVICKA, MOKWA L. OSTROM, REINGEN, SCHLACTER WARD, WOOD

ASSOCIATE PROFESSORS
BLASKO, SINHA, STEPHENS, WALKER

ASSISTANT PROFESSORS
NOWLIS, A. OSTROM, ROUNDTREE

SENIOR LECTURER
SPIERS

Study in the field of marketing involves analysis of how organizations plan, organize, deploy, and control their resources to achieve market objectives. Focus is placed on market forces, growth, and the deployment of firms in competitive markets and on the market ing strategy and tactics of the firm. Through the proper selection of courses, a student may prepare for a career in

1. advertising and promotion management,
2. business to business marketing,
3. international marketing,
4. market research and planning,
5. selling and sales management,
6. services marketing,
7. general marketing management, or
8. retail management.

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

MKT	302	Fundamentals of Marketing Management	3
MKT	304	Consumer Behavior	3
MKT	451	Marketing Research	3
MKT	460	Strategic Marketing *L2*	3
Total			12

To complete the major, students, in consultation with their faculty advisors, select six additional hours from among the following list of courses:

MKT	301	Principles of Advertising	3
MKT	310	Principles of Selling	3
MKT	311	Creative Strategy in Marketing	3
MKT	411	Sales Management	3
MKT	412	Promotion Management	3
MKT	424	Retail Management	3
MKT	430	Marketing for Service Industries	3
MKT	434	Industrial Marketing	3
MKT	435	International Marketing	3
MKT	484	Internship	3

MAJOR PROFICIENCY REQUIREMENTS

Students must receive grades of "C" or higher in upper division courses for the major. If a student receives a grade below "C" in any course in the major, this course must be repeated. If a second grade below "C" is received in either an upper-division course in the major already taken or in a different upper division course in the major, the student is no longer eligible to take additional upper division courses in the major

GRADUATION REQUIREMENTS

In addition to fulfilling major requirements, students seeking a degree must meet all university and college requirements. See pages 79 83 for university graduation requirements and pages 144–146 for college requirements.

NOTE For the General Studies requ rement codes (such as L1 N3, C, and H), and courses, see pages 84–108. For graduat on requ rements see pages 79–83. For omn bus courses offered but not sted n this cata og, see pages 56–57

GRADUATE PROGRAMS

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

MARKETING (MKT)

MKT 300 Principles of Marketing. (3) F, S, SS
Role and process of marketing within the society, economy, and business organization. Prerequisite: ECN 112.

MKT 301 Principles of Advertising. (3) F, S, SS
Advertising as a communications tool in marketing and business management. Survey of market segmentation, creative strategy, media, and effectiveness measures. Prerequisite: MKT 300.

MKT 302 Fundamentals of Marketing Management. (3) F, S, SS
Marketing planning, implementation, and control by organizations, with special emphasis on identifying market opportunities and developing marketing programs. Prerequisite: MKT 300.

MKT 304 Consumer Behavior. (3) F, S, SS
Application of behavioral concepts in the analysis of consumer behavior and the use of behavioral analysis in marketing strategy formulation. Prerequisite: MKT 300.

MKT 310 Principles of Selling. (3) A
Basic principles underlying the selling process and their practical application in the sale of industrial goods, consumer goods, and intangibles. Prerequisite: MKT 300.

MKT 311 Creative Strategy in Marketing. (3) A
Discussion, application and evaluation of creative concepts and strategies. Creation of a portfolio addressing distinctive advertising/marketing problems and opportunities. Prerequisites: MKT 301; nonbusiness majors must obtain department approval.

MKT 382 Advertising and Marketing Communication (3) F, S
Introduction for nonbusiness majors to the communication process within marketing and advertising. Creation and presentation of an ad campaign. Not open to business majors. Prerequisites: junior or senior standing; 2.00 ASU GPA.

MKT 411 Sales Management. (3) N, F, S
Application of management concepts to the administration of the sales operation. Prerequisite: MKT 302.

MKT 412 Promotion Management. (3) A
Integration of the promotional activities of the firm including advertising, personal selling, public relations, and sales promotion. Prerequisite: MKT 302.

MKT 424 Retail Management. (3) A
Role of retailing in marketing. Problems and functions of retail managers within various retail institutions. Prerequisite: MKT 300.

MKT 430 Marketing For Service Industries. (3) A
Concepts and strategies for addressing distinctive marketing problems and opportunities in service industries. Current issues and trends in the service sector. Prerequisites: MKT 300, professional program business student.

MKT 434 Industrial Marketing. (3) A
Strategies for marketing products and services to industrial, commercial, and governmental markets. Changing industry and market structures. Prerequisite: MKT 302 or instructor approval.

MKT 435 International Marketing. (3) S
Analysis of marketing strategies developed by international firms to enter foreign markets and to adapt to changing international environments. Prerequisites: MKT 302 or instructor approval; professional program business student.

MKT 451 Marketing Research. (3) F, S, SS
Integrated treatment of methods of market research and analysis of market factors affecting decisions in the organization. Prerequisites with a grade of "C" or higher: MKT 302 and QBA 221.

MKT 460 Strategic Marketing. (3) F, S, SS
Policy formulation and decision making by the marketing executive. Integration of marketing programs and consideration of contemporary marketing issues. Prerequisite: professional program business student. Prerequisites with a grade of "C" or higher: MKT 302, 304, 451. *General Studies: L2.*

MKT 502 Marketing Management. (3) F, S, SS
Managing the marketing function; market and environmental analysis; marketing planning, strategy, and control concepts. Development and management of marketing programs. Prerequisite: ECN 502.

MKT 520 Strategic Perspectives of Buyer Behavior. (3) N
Concepts and theories from the behavioral sciences as they relate to marketing strategy formulation. Prerequisite: MKT 502 or equivalent *or* instructor approval.

MKT 522 Marketing Information. (3) N
Marketing research, marketing information systems, and modern statistical techniques in marketing decision making. Prerequisite: MKT 502.

MKT 524 Services Marketing. (3) A
Strategies for marketing services emphasizing the distinctive challenges and approaches that make marketing of services different from marketing manufactured goods. Prerequisite: MKT 502 or equivalent.

MKT 563 Marketing Strategy. (3) A
Planning and control concepts and methods for developing and evaluating strategic policy from a marketing perspective. Prerequisite: MKT 502.

MKT 591 Seminar. (3) A
Topics such as the following will be offered:
(a) Competitive Analysis and Strategy for Service Organizations
(b) Consumer Behavior in Service Environment
(c) Customer Satisfaction and Service Quality Management
(d) Service Production
(e) Services Marketing and Management

Palm Walk provides a picturesque north-south passageway across campus.
Tim Trumble photo

College of Education

David C. Berliner, Ph.D.
Dean

PURPOSE

For students, choosing a professional college is an important step because it establishes the foundation on which a career will be built. The College of Education provides a stimulating, challenging forum wherein scholars and practitioners interact in the discovery and mastery of the science and art of educational endeavors. This balanced approach, in which research and practice are viewed as essential and complementary, enables the college to produce superior educators.

The purposes of the faculty of the College of Education are as follows:

1. to engage in the scholarly, scientific, and professional study of education;
2. to prepare competent professionals who will serve in a variety of critical educational roles;
3. to develop productive scholars who will make significant contributions to the educational literature and to the quality of educational practice; and
4. to serve the education profession at the local, national, and international levels.

In accord with these purposes, the College of Education is committed to producing quality scholarship and research and to excellence in teaching.

Information about the college can be found on the Web at tikkun.ed asu.edu/coe.

ORGANIZATION

The College of Education is organized into three divisions. These divisions and their academic program areas are listed below:

Division of Curriculum and Instruction
- Early Childhood Education
- Educational Media and Computers
- Elementary Education
- Multicultural Education
- Reading and Library Science
- Secondary Education
- Special Education

Division of Educational Leadership and Policy Studies
- Education Policy Studies
- Educational Administration and Supervision
- Higher and Postsecondary Education

Division of Psychology in Education
- Counseling Psychology
- Counselor Education
- Learning and Instructional Technology
- Lifespan Developmental Psychology
- Measurement, Statistics, and Methodological Studies
- School Psychology

Services to students and the community are provided through the centers and offices described below

Center for Bilingual Education and Research. The Center for Bilingual Education and Research conducts interdisciplinary research on classroom interaction, language development, and cognitive development. The focus of these research efforts is bilingual and bicultural students in Arizona.

Center for Indian Education. The Center for Indian Education serves as a service agency to Native American communities, school districts, and students attending ASU. The center also conducts research on Indian education in Arizona and other states with American Indian populations.

Office of Student Affairs. The Office of Student Affairs assists individuals interested in teacher preparation programs through advising, admission, and retention activities and certification assistance. Other services include program of study validation, petition review, student communications, and high school and community college articulation relations.

Office of Professional Field Experiences. The Office of Professional Field Experiences places all teacher preparation students in public schools and similar institutions for internships and student teaching, monitors students' progress in their field experiences, sponsors courses for mentor teachers, and conducts research on student performance in the field.

Office of Diversity, Recruitment, and Support Programs. The Office of Diversity, Recruitment, and Support Programs counsels students regarding College of Education scholarships and provides recruitment and support services for students wishing to enter the Professional Teacher Preparation Program (PTPP).

Center for Academic Precocity. The Center for Academic Precocity pro vides academic services to intellectu ally advanced students in grades pre K through 11 These services include in dividual assessment, talent identifica tion, and a variety of courses

Counselor Training Center. The Counselor Training Center provides counseling for ASU students, staff, and the community at large in personal and career development, stress manage ment, and marriage and family issues. Counseling is conducted by graduate students in counseling and counseling psychology under the supervision of certified psychologists.

Other Units. Other units within the college offering specialized research and educational services include the College of Education Preschool, Ari zona Educational Information System, and Technology Based Learning and Research.

Teacher Education

Programs that prepare students for teacher certification by the state are available to both the undergraduate pursuing a first degree and the indi vidual with a college degree in a non education field.

Undergraduate students interested in teacher certification in art, music, dance, or theatre enroll through pro grams offered by the College of Fine Arts These students must also meet the same eligibility requirements for ad mission to the Professional Teacher Preparation Program (PTPP

Undergraduate programs leading to the Bachelor of Arts in Education de gree are described in the text that fol lows. Descriptions of graduate degree programs can be found in the *Graduate Catalog*

ADMISSION

Preprofessional Admission

Students admitted to ASU during their freshman and sophomore years may also be admitted to the College of Education with preprofessional status Preprofessional students should seek advising within the College of Educa tion through its Office of Student Af fairs, EDB 7.

Admission to ASU with preprofes sional status in the College of Educa tion does not guarantee admission to the PTPP. Admission to the PTPP is a separate process.

Professional Program Admission

Students are eligible for consider ation for admission to the PTPP if they meet the following criteria:

1. admission to ASU as a classified student,
2. a minimum cumulative GPA of 2.50;
3. completion of at least 56 semester hours by the time of PTPP admis sion;
4. submission of scores from either the American College Test (ACT) or Pre Professional Skills Test (PPST) a minimum score is not re quired, an applicant may be re ferred for additional skill develop ment while matriculating through the program of study);
5. completion of ENG 101 and 102 and General Studies L1 or S1 and N1 requirements with a grade of "C" or higher (courses in progress do not satisfy this requirement), and
6. a special application with addi tional supporting materials (great emphasis is placed on prior experi ence, paid or volunteer, working with the age or group of the certifi cation area sought .

Admission is competitive and not guaranteed to all who satisfy the mini mum admission criteria. Emphasis is placed on prior volunteer or paid expe rience working with the age or group of the certification area sought.

Some academic units have additional requirements. Students seeking admis sion to K 12 or secondary education programs should consult the Office of Student Affairs in the College of Edu cation (602/965 3877) to determine if there are additional admission require ments for their teaching fields

PTPP application deadlines are Feb ruary 15 for fall admission and Septem ber 15 for spring admission. Applicants should contact the Office of Student Affairs for an application.

Because PPST or ACT scores must be included for an application to be complete, applicants should plan to take the test *well in advance* of applica tion deadlines.

Transfer Students

To be considered for admission to the PTPP, transfer students must first be formally admitted to ASU (see pages 62–64). Transfer students must also meet all PTPP admission require ments and should contact the Office of Student Affairs within the College of Education for admission procedures and advising. ASU Undergraduate Ad missions should receive the application for admission to ASU, transcripts, ap plicable test scores, and other required information at least three months be fore the PTPP application deadline date for the desired PTPP admission semes ter

Students completing their first two years of course work at a community college or at a four year institution in Arizona other than ASU should consult an advisor in Cross college Advising Services for advice in planning a se quence of courses that will meet the ASU General Studies requirements

Program of Study

A program of study must be filed during the first semester of enrollment in the PTPP. Preprofessional students completing 87 hours (the university limit for registering without a program of study) who have not been admitted to the PTPP are provided a registration waiver by the College of Education. See pages 79 83 for "University Grad uation Requirements."

ADVISING

All students pursuing teaching cer tificates should seek early advising from the Office of Student Affairs in the College of Education, 602/965 3877. Careful planning and early advis ing in developing an approved program of study are essential if teacher candi dates are to complete certification and graduation requirements within the typical 120 semester hour undergradu ate degree program.

NOTE For the Genera Studies requ rement, codes (such as L1, N3 C and H), and courses, see pages 84–108 For graduation requ rements see pages 79–83 For omn bus courses offered but not l sted 'n th s catalog see pages 56–57

Mandatory Advising. Transfer students are required to meet with an academic advisor before registering for their first semester classes. Freshmen must meet with an advisor before registering for each of their first two semesters.

DEGREES

Bachelor of Arts in Education

The faculty in the College of Education offer the Bachelor of Arts in Education (B A E) degree Candidates for the Bachelor of Arts in Education degree must complete the PTPP offered by the College of Education. Graduates of this program are able to demonstrate proficiency in specified knowledge areas or skills, including the following:

1 principles and application of effective instruction;
2. classroom organization and management;
3. content or subject matter;
4. specific curriculum and teaching strategies,
5. interrelationship of culture and schooling in a multicultural society,
6. human development;
7. communication skills;
8. theories of learning and motivation;
9. assessment and evaluation; and
10. computer literacy.

Each student in the PTPP selects one of five major areas that provide specialized instruction and preparation. The program areas are

1. Bilingual/ESL Education,
2. Early Childhood Education (birth third grade),
3. Elementary Education,
4. Secondary Education, and
5. Special Education.

Students in Secondary Education may be certified for grades 7 12 in a specific academic specialization. Students in art, foreign languages, music, or physical education complete a K 12 endorsement in their field. Special Education majors may be certified for grades K 12 in mental retardation (MR), emotionally disabled (ED), or learning disabilities (LD).

PTPP Areas and Options or Endorsements

Early Childhood Education
Elementary Education
  bilingual education
  English as a second language
Secondary Education
  certification in specific academic specializations
  K 12 endorsements in art, music, or physical education
Special Education
  emotionally disabled
  learning disabilities
  mental retardation

PTPP students in areas other than Special Education complete a common core of courses as well as courses specific to the area or option selected. Early Childhood Education and Elementary Education prepare students for certification by the state in grades K–8. Students who select these majors develop the knowledge and skills needed to teach children from a variety of language, cultural, and developmental backgrounds The Early Childhood Education concentration prepares students to work in infant programs, preschools, and grades K 3. The Elementary Education bilingual education/English as a second language (ESL) concentration prepares students to work in bilingual/ESL settings in grades K 8. The Special Education major prepares students to teach mildly handicapped students in diverse settings and for certification in grades K 12 in MR, ED, or LD Students completing the Elementary Education major must also complete the human development requirements and an academic specialization

Secondary Education offers programs that prepare students for certification by the state in specific academic subjects in grades 7 12. Students with teaching majors in the College of Fine Arts earn the appropriate bachelor's degree from that college.

Courses for the academic specialization are determined by the faculty in the academic discipline. Therefore, students with majors in Secondary Education in the College of Fine Arts have two academic advisors: one in the college and department of the academic specialization and one in the Office of Student Affairs in the College of Education. For more information, refer to the following section titled, "Academic Specialization," page 170.

UNIVERSITY GRADUATION REQUIREMENTS

In addition to fulfilling college and major requirements, students must meet all university graduation requirements. For more information, see pages 79–83.

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 on pages 84–87. Note that all three General Studies awareness areas are required. Consult your advisor for an approved list of courses General Studies courses are listed on pages 87 108 in the *General Catalog* following the section on "General Studies," in the course descriptions, in the *Schedule of Classes,* and in the *Summer Sessions Bulletin.*

Preprofessional students should complete as many of the General Studies courses as possible before admission to the PTPP. Students are encouraged to consult with an academic advisor to ensure they comply with all necessary requirements

COLLEGE DEGREE REQUIREMENTS

A minimum of 120 semester hours are required for the B.A.E. degree in these categories:

1. academic specialization;
2 human development (Bilingual/English as a Second Language Education, Early Childhood Education, Elementary Education, and Secondary Education majors only); and
3. PTPP.

The College of Education expects its degree candidates to meet individual course assessment standards, field-experience observation criteria, courses required for teacher certification, and

NOTE For the General Studies requirement codes (such as L1 N3, C, and H), and courses, see pages 84–108 For graduation requirements, see pages 79–83. For omnibus courses offered but not listed in this catalog see pages 56–57

College of Education Degrees, Majors, and Concentrations

Major	Degree	Administered by
Baccalaureate Degrees		
Early Childhood Education	B.A.E.	Division of Curriculum and Instruction
Elementary Education	B.A.E.	Division of Curriculum and Instruction
Concentration: bilingual education/English as a second language		
Secondary Education	B.A.E.	Division of Curriculum and Instruction
Academic specializations: biological sciences; business education; chemistry; Chinese; communication; economics; English; family resources and human development (home economics); French; geography, German, history; Japanese; journalism; mathematics, mathematics/chemistry; mathematics/physics, physical education; physics; physics/chemistry; political science, Russian; social studies; Spanish		
Selected Studies in Education[1]	B.A.E.	College of Education
Special Education	B.A E	Division of Curriculum and Instruction
Graduate Degrees		
Counseling	M.C.	Division of Psychology in Education
Counseling Psychology	Ph.D.	Division of Psychology in Education
Counselor Education	M.Ed.	Division of Psychology in Education
Concentration: counseling and student personnel		
Curriculum and Instruction	M.A., M.Ed.	Division of Curriculum and Instruction
Concentrations: bilingual education, communication arts, early childhood education, elementary education, English as a second language, Indian education, mathematics education, multicultural education,[1] reading education, science education, secondary education, social studies education		
Curriculum and Instruction	Ed.D.	Division of Curriculum and Instruction
Concentrations: bilingual education, communication arts, curriculum studies, early childhood education, elementary education, English as a second language, Indian education, mathematics education, multicultural education,[1] reading education, science education, secondary education, social studies education		
Curriculum and Instruction	Ph.D.[2]	Interdisciplinary Committee on Curriculum and Instruction
Concentrations: curriculum studies, early childhood education, educational media and computers, elementary education, English education, exercise and wellness education, music education, physical education, reading education, science education, special education		
Educational Administration and Supervision	M.Ed., Ed.D.	Division of Educational Leadership and Policy Studies
Educational Leadership and Policy Studies	Ph.D.	Division of Educational Leadership and Policy Studies
Educational Media and Computers	M.Ed.	Division of Curriculum and Instruction
Concentration: business education		
Educational Psychology	M.A., M.Ed	Division of Psychology in Education
Educational Psychology	Ph.D.	Division of Psychology in Education
Concentrations: lifespan developmental psychology; measurement, statistics, and methodological studies; school psychology		

[1] Applications are not being accepted at this time.

[2] This program is administered jointly by the College of Education and the Graduate College. See the "Graduate College" section on pages 282 292.

Major	Degree	Administered by
Higher and Postsecondary Education Concentration: higher education	M.Ed., Ed.D.	Division of Educational Leadership and Policy Studies
Learning and Instructional Technology	M.A., M.Ed.	Division of Psychology in Education
Learning and Instructional Technology Concentrations: instructional technology, learning	Ph.D.	Division of Psychology in Education
Social and Philosophical Foundations of Education	M.A.	Division of Educational Leadership and Policy Studies
Special Education	M.A.	Division of Curriculum and Instruction
Special Education Concentrations: gifted, mildly handicapped, multiculturally exceptional, severely/multiply handicapped	M.Ed.	Division of Curriculum and Instruction

other proficiency standards and performance criteria required to demonstrate knowledge and skill in the areas listed under the Bachelor of Arts in Education description on page 168.

Program Requirements

Progress toward the B.A.E. degree involves meeting university, college, and division requirements. The degree program also includes courses and academic content required for teacher certification by the State of Arizona. Students seeking certification in one of the fine arts must complete degree requirements in the College of Fine Arts and specified courses through the PTPP.

MAJOR REQUIREMENTS

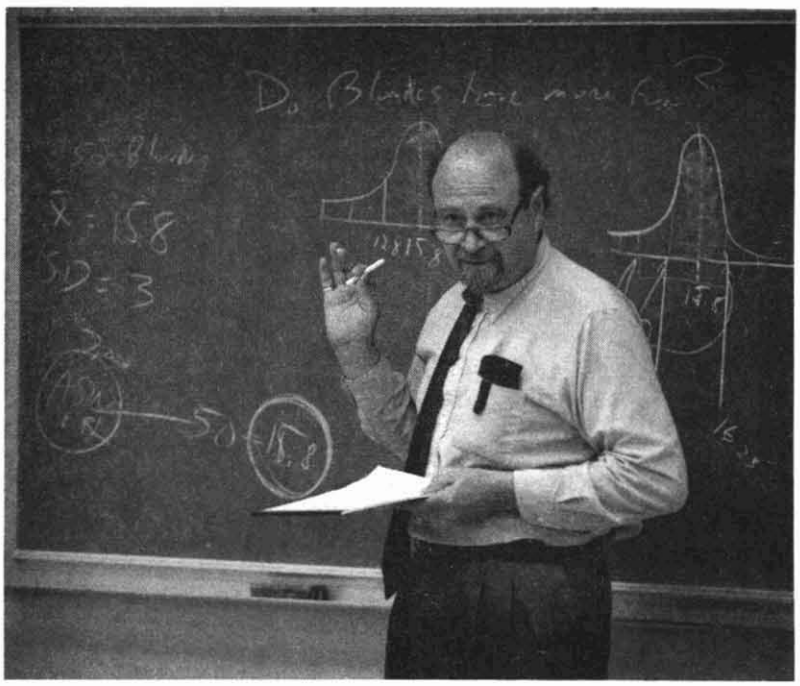
Academic Specialization

Courses in the academic specialization give students a greater depth of knowledge in one academic area. Elementary Education majors complete 18 hours in a single academic subject. A Secondary Education major completes 36 to 60 hours, depending upon the area, in the subject in which the student wishes to be certified; fine arts may require more. Teacher candidates should confer with the Office of Student Affairs regarding acceptable academic specializations. Refer to the pages shown for descriptions of the academic specializations in the following table:

Academic Specialization	Page(s)
Art education[1]	251
Biological sciences	316
Business education	See advisor.
Chemistry	321
Chinese	351
Communication	410
Dance education[1]	260
Economics	See advisor.
English	326–327
French	351
Geography	338
German	351
History	343
Home economics (family studies/child development)	335
Japanese	351
Journalism	414
Mathematics	362
Mathematics/chemistry	362
Mathematics/physics	362
Music[2]	264–265
Physical education	331
Physics	373–374
Physics/chemistry	373–374
Political science	381
Russian	351
Social studies	390
Spanish	351
Theatre education[1]	278

[1] Art education, dance education, and theatre education concentrations are under corresponding B.F.A. majors.

[2] Students focus on either the choral-general music or instrumental music concentration under the B.M. degree.



Regents' professor and College of Education Dean David Berliner emphasizes a point during a research methods lecture. Jeff Havir photo

Human Development

The programs that prepare students for teacher certification by the state in elementary and early childhood education require students to complete 15 credits selected from specific human development courses pertinent to the teaching area. Teacher candidates

should confer with an academic advisor in the Office of Student Affairs regarding course selection

Professional Teacher Preparation Program (PTPP)

The PTPP is a four semester sequential program consisting of 35 to 44 semester hours. Ranging from 10 to 14 hours per semester, the courses for one semester must be completed before enrolling in the next semester. In other words, courses for one semester may not be taken at the same time as those scheduled for another semester. In addition to the PTPP courses, students continue completing the General Studies requirement and human development and academic specialization requirements through the third semester of the program.

Four-Semester Requirements Professional Teacher Preparation Program

Elementary Education (K–8) Major

Semester I

DCI	396	Field Experience I	0
EED	433	Language Arts Methods, Management, and Assessment in the Elementary School	3
EED	455	Social Studies Methods, Management, and Assessment in the Elementary School	3
EMC	300	Computers in Education	1
SPF	301	Culture and Schooling *L2*	3
Total			10

Semester II

DCI	397	Field Experience II	0
EED	420	Science Methods, Management, and Assessment in the Elementary School	3
EED	480	Mathematical Methods, Management, and Assessment in the Elementary School	3
SPE	394	ST: Quality Practices in the Collaborative Classroom	3
Total			9

Semester III

EED	444	Organizing the Classroom Culture	1
EED	496	Field Experience	0
RDG	481	Practicum. Elementary Reading	3
RDG	494	ST. Reading/Decoding	3
Total			7

Semester IV

EED	478	Student Teaching in the Elementary School	10–12
SPF	401	Theory and Practice in Education	1
Total			11 13

Elementary Education (K–8) Major with a Concentration in Bilingual Education/English as a Second Language

Semester I

DCI	396	Field Experience I	0
EDP	301	Learning and Motivation in Education	2
EDP	303	Human Development *L2*	3
SPF	301	Culture and Schooling *L2*	3
Total			8

Semester II

BLE	400	Principles of Instruction in Language Minority Education	3
DCI	397	Field Experience II	0
ECD	315	Classroom Organization and Guidance in the Early Years	2
EDP	302	Assessment and Evaluation in Education	1
EMC	300	Computers in Education	1
Total			7

Semester III

BLE	401	Teaching Science and Social Studies to Children	4
BLE	402	Teaching Strategies in Mathematics	2
BLE	405	Teaching Reading in BLE/ESL	3
BLE	406	Reading Practicum	3
BLE	407	Language Arts	2
BLE	496	Field Experience	0
Total			14

Semester IV

BLE	478	Student Teaching in the Elementary School	12
SPF	401	Theory and Practice in Education	2
Total			14

Early Childhood Education Major with K–8 Teacher Certification

Semester I

ECD	300	Principles of Interprofessional Collaboration	3
ECD	400	Inquiry into Teaching and Learning	3
ECD	403	Educational Environments Preschool/Kindergarten/ Primary Grades	3
ECD	496	Field Experience	0
EMC	300	Computers in Education	1
SHS	394	ST Communication and Language Development in Early Years	3
Total			13

Semester II

ECD	401	Integrated Curriculum and Assessment Social Studies and Creative Arts	3
ECD	404	Language Arts	2
ECD	496	Field Experience	0
ECD	498	PS: Guidance in the Early Years	2
MCE	498	PS: Diverse Families Community or SOC 415 The Family (3)	3
Total			10

Semester III

ECD	402	Integrated Curriculum and Assessment Math and Science	3
ECD	496	Field Experience	0
ECD	498	PS: Interprofessional Practicum	
RDG	401	The Teaching of Reading	3
RDG	402	Reading Practicum	3
SPF	394	ST: Quality Practice in College Classrooms	3
Total			13

Semester IV

EED	478	Student Teaching	10–12
SPF	401	Theory and Practice in Education	1
Total			11 13

Secondary Education (7–12) Major

Semester I

DCI	396	Field Experience I	0
EDP	301	Learning and Motivation in Education	2
EDP	303	Human Development *L2*	3
SPF	301	Culture and Schooling	3
Total			8

Semester II

DCI	397	Field Experience II	0
EDP	302	Assessment and Evaluation in Education	1
EMC	300	Computers in Education	1
RDG	301	Literacy and Instruction in the Content Areas	3
SED	400	Principles of Effective Instruction in Secondary Education	3
Total			8

Semester III

SED	403	Principles, Curricula, and Methods	3
SED	496	Field Experience	0

NOTE. For the General Studies requirement, codes (such as L1 N3, C, and H) and courses see pages 84–108 For graduation requirements see pages 79–83. For omnibus courses offered but not listed in this catalog see pages 56–57.

Methods course in academic specialization 3

Total 6

Semester IV

SED 478 Student Teaching in the Secondary Schools . . . 12

SPF 401 Theory and Practice in Education 2

Total 14

Special Education (K–12) Major

Semester I

SPE 311 Orientation to Education of Exceptional Children *SB* 3

SPE 314 Introduction to Bilingual/ Multicultural Special Education 3

SPE 361 Introduction to Learning Disabilities 3

SPE 394 ST Basic Special Education Curriculum 3

SPE 498 PS: Field Experience 1

SPF 301 Culture and Schooling *L2* 3

Total 16

Semester II

SPE 312 Mental Retardation . 3

SPE 336 Behavioral and Emotional Problems in Children 3

SPE 412 Evaluating Exceptional Children 3

SPE 413 Methods in Language, Reading, and Arithmetic for Exceptional Children . . . 3

SPE 498 PS: Field Experience 3

Total 15

Semester III

SPE 411 Parent Involvement and Regulatory Issues 3

SPE 414 Methods and Strategies in Behavior Management 3

SPE 415 Social Behavior Problems of Exceptional Children 3

SPE 494 ST Instruction in Content Areas: Science/Social Studies 3

SPE 498 PS Field Experience 3

Total 15

Semester IV

SPE 478 Student Teaching in Special Education . . . . . 12 one certification area

Total 12

SPE 311, 312, 314, 336, and 361 may be taken before formal PTPP admission. Satisfactory completion of these courses does not guarantee admission to the PTPP.

Field Experience Requirements

In addition to course work, students admitted to the PTPP are required to participate in directed field experiences during each of the four semesters of the program. The field experiences progress from short term observation and participation to long-term supervised practice teaching

Students should expect these field experiences to be above and beyond the class times listed in the *Schedule of Classes* for each semester. Such field experiences typically take place in public schools throughout the greater Phoenix area. Regular attendance is required during all field experiences. Students should plan extra travel time and expect to confer with placement teachers and field facilitators before or after scheduled field experiences. To meet field experience requirements, students must plan to have their own transportation and *be available during regular school hours.*

Teaching is a highly demanding and extraordinarily complex profession Students desiring to become teachers must maintain academic standards and demonstrate requisite qualifications for successful teaching, including effective interpersonal skills, basic communication skills, appropriate professional conduct, and satisfactory performance during field experience assignments.

Observation and participation assignments in the schools during first, second, and third semester field experience placements are designed to prepare students for the highly demanding performance-based student teaching during semester four

Student Teaching. The culminating field experience, called *student teaching,* occurs in the fourth semester of the PTPP and is a full day, full semester obligation Student teaching is possible only during fall and spring semesters

Admission to Student Teaching (Semester IV). To be admitted to student teaching, a student must have attained a high level of professional standards in previous field experience assignments and meet the following requirements:

1. be in good standing as defined in this policy,
2. have no incompletes in PTPP courses;
3. complete all PTPP courses, with the exception of SPF 401; and
4. have an approved program of study on file

There are additional requirements for certain programs:

1. Secondary Education majors may have no more than two required courses remaining in the academic specialization and have no more than two courses to complete in General Studies. Students must also receive approval from their specialization advisor
2. Elementary and Special Education majors must have completed all human development courses, all methods courses, and may only have two additional courses to complete.

Students must complete the application procedure and approval to student teach from the Office of Professional Field Experiences at least 10 weeks before the beginning of the student teaching term. Student teachers must adhere to the calendar, regulations, and philosophy of the schools in which they are placed. Beginning and ending dates for student teaching are determined by the Office of Professional Field Experiences in cooperation with the placement schools. Because student teaching is on a full-day schedule, 8:00 A.M. to 4:00 P.M. Monday through Friday for 15 consecutive weeks, student teachers are strongly encouraged to avoid extra activities and course work that would interfere with the heavy demands placed upon them while student teaching.

ACADEMIC STANDARDS

Preprofessional Status

Students admitted to the College of Education on *preprofessional status* are subject to the general standards of academic good standing of the university. However, students who maintain standards of academic good standing during their freshman and sophomore years do not necessarily qualify for admission to any teacher preparation program offered by the College of Education.

NOTE For the General Studies requirement codes such as L1, N3, C and H), and courses see pages 84–108 For graduation requirements see pages 79–83 For omnibus courses offered but not listed in this catalog see pages 56–57

Professional Program Status

Students admitted to the PTPP within the College of Education must maintain academic standards and demonstrate requisite qualifications for successful teaching, including sound physical and mental health, interpersonal skills, basic communication skills, a positive attitude, appropriate professional conduct, and satisfactory performance in field experiences. Because PTPP standards are higher than those for the university, a student who is suspended from the PTPP may still be eligible to enroll in other non-PTPP courses.

A copy of the Retention and Disqualification Policy for the PTPP may be secured in the Office of Student Affairs, EDB 7

Students demonstrating behaviors or characteristics that make it questionable whether they can succeed in the teaching profession are reviewed by the director of the Office of Professional Field Experiences and the director of the Division of Curriculum and Instruction. If necessary, a review panel composed of faculty members who have had direct involvement with the student is convened. Following this review, the student may be referred to the Division of Curriculum and Instruction Standards and Appeals Committee. The committee's review may result in a decision to disqualify the student or the specification of conditions under which continued participation is permitted, i.e , probation.

Students who wish to appeal decisions of the Division of Curriculum and Instruction Standards and Appeals Committee may do so in writing to the dean of the college or the Main Campus Standards Committee. Any exceptions to the retention and disqualification policies and procedures must be approved by the Division of Curriculum and Instruction Standards and Appeals Committee and the dean of the College of Education.

Postbaccalaureate Programs for Initial Teacher Certification

Postbaccalaureate programs that prepare students for initial teacher certification by the state are designed for those who hold a bachelor's degree in an area other than education. The college offers postbaccalaureate programs in early childhood education, elementary education, secondary education, and special education. Special education students must qualify for and be concurrently admitted to a master's degree program in special education. Information on postbaccalaureate programs is available through the Office of Student Affairs, EDB 7. The office provides academic advising and information regarding requirements. procedures, and deadline dates.

A student who wishes to be considered for entry must meet the College of Education admission requirements for postbaccalaureate programs:

1. an earned bachelor's degree from an accredited institution;
2. a cumulative GPA of 2.50 or higher for the last 60 semester hours of credit earned;
3 submission of a completed application form and supporting materials by the appropriate deadline dates during the semester before admission; and
4. completion of an academic specialization for secondary education (consult the Office of Student Affairs, EDB 7).

Admission to postbaccalaureate programs is selective. Not all students who meet the minimum requirements are admitted to the program.

A student who also wishes to pursue a master's degree in conjunction with teacher certification by the state should contact the program area office in the intended area of study. The master's degree student must meet the admission requirements of both the College of Education and the Graduate College. *No more than nine semester hours of graduate credit earned before formal admission to the Graduate College and a master s degree program can be included in a candidate's master's degree program of study.*

Student Teaching

Students in a postbaccalaureate program for initial teacher certification must file student teaching applications early in the semester before the student teaching term. Application deadlines are October 15 for spring semester and February 15 for fall semester. To be accepted for student teaching, students must

1. attain a cumulative GPA of 2.50 or higher in required professional education course work;
2. complete all required professional education course work other than one preapproved course that can be taken concurrently with student teaching (Secondary Education students must also receive approval from their academic specialization advisors);
3 remove all academic deficiencies such as grades of "D," "E," or "I" before placement; and
4 obtain a final approval from the Office of Professional Field Experiences (this review considers performance in field settings and academic achievement).

Certification for Teaching

The curricula for both the undergraduate and postbaccalaureate teacher education programs meet the requirements for teacher certification in the State of Arizona.

In addition to the course requirements specified in this catalog, there are other requirements for teacher certification mandated by the State of Arizona including the U S Constitution and Arizona Constitution requirement. Some teaching areas have specific math, science, and fine arts requirements.

Because these requirements vary over program areas and may be changed at any time, students are encouraged to maintain close contact with the Office of Student Affairs regarding the most current state certification requirements.

The College of Education is approved by the Arizona Department of Education for the preparation of elementary, secondary, and special education teachers. Students who complete an approved program of study and meet all graduation requirements of the university and the college are recommended for certification to the Arizona Department of Education. The Office of Student Affairs maintains information about current certification requirements in Arizona and other states.

The College of Education also offers courses for certified teachers leading to special endorsements by the Arizona Department of Education. Of special interest are endorsements in the areas of bilingual education, English as a second language (ESL), middle school education, reading, and school library science. The bilingual education endorsement is required of all teachers specifically responsible for providing bilingual instruction. The ESL endorsement is required of all teachers specifically responsible for providing ESL instruction. Students should contact the Office of Student Affairs for information and advising regarding teaching concentrations or special teaching endorsements.

Independent Learning Course Work for Credit

It is the general policy of the College of Education not to accept course credit for *courses in education* taken through independent learning. Exceptions to this policy may be approved if the independent learning course work has been approved in advance of enrollment in the course by the student's advisor, respective program coordinator, and division director. In all such cases, an appropriate rationale must be submitted with the request to enroll.

COLLEGE OF EDUCATION (COE)

See the *Graduate Catalog* for the COE courses.

Division of Curriculum and Instruction

Nicholas Appleton
Director
(ED 409) 602/965–1644
tikkun.ed.asu.edu/coe/candi

PROFESSORS
BARONE, BITTER, CHRISTIE, EDELSKY, FAAS, FALTIS, GREATHOUSE, GRYDER, HUDELSON, McISAAC, PRIETO, RAY, RUTHERFORD, SEARFOSS, STAHL, STALEY, ZUCKER

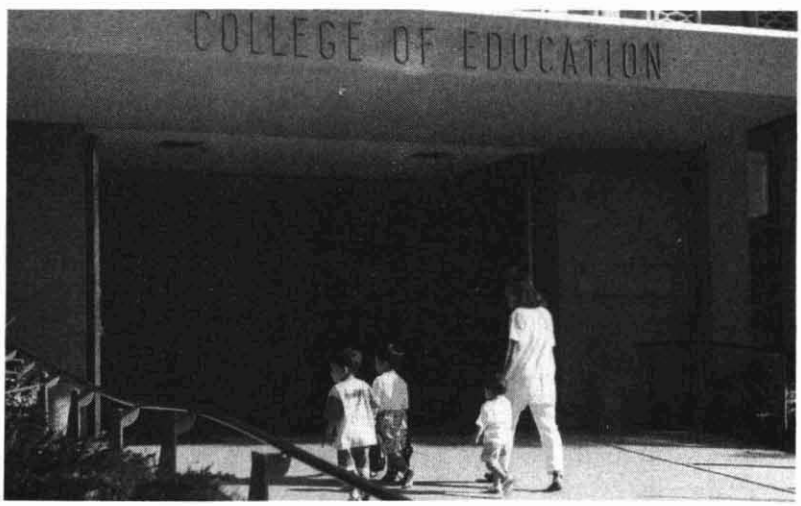
ASSOCIATE PROFESSORS
ANDERSON, ARIAS, BAKER, BENAVIDES, BLUMENFELD-JONES, COHEN, COHN, Di GANGI, FLORES, GOMEZ, GUZZETTI, HATFIELD, KNAUPP, McCOY, McGOWAN, J. NELSON, J. R. NELSON, PIBURN, RADER, SANTOS, SURBECK, VALLEJO

ASSISTANT PROFESSORS
FLEMISTER, MIDDLETON, TRUJILLO

Program Areas

Early Childhood Education
Educational Media and Computers
Elementary Education
Multicultural Education
Reading and Library Science*
Secondary Education
Special Education

* Applications are not being accepted in Library Science.



The Hiram B. Farmer Education Building at Forest and Orange malls. Tim Trumble photo

Degrees: B.A.E., M.A., M.Ed., Ed.D., Ph.D.

DEGREES

Bachelor of Arts in Education—B.A.E.

The faculty in the Division of Curriculum and Instruction offer several undergraduate academic programs. The undergraduate programs are designed to prepare persons to teach effectively in early childhood, elementary, secondary, and special education settings. Concentrations available at the undergraduate level include bilingual education, English as a second language (ESL), Indian education, and multicultural education. Programs in special education lead to Arizona teacher certification in the mentally handicapped, emotionally disabled, learning disabilities, and early childhood education for the handicapped areas. Programs of study leading to special endorsements by the Arizona Department of Education are bilingual education, ESL, middle school education, reading, and school library science.

GRADUATE PROGRAMS

The faculty in the Division of Curriculum and Instruction offer several graduate degrees in a number of majors.

For more information on courses, faculty, and programs, see the *Graduate Catalog.*

CURRICULUM AND INSTRUCTION (DCI)

DCI 302 Principles and Applications of Effective Instruction. (3) F, S
Principles of teaching identified by research on teaching effectiveness. Application of principles to classroom practice. Prerequisites: EDP 303; education major.

DCI 396 Field Experience I. (0) F, S
First-semester PTPP. Observation and limited participation in a school setting. Focus on observation of development, learning, management, instruction, assessment, and motivation. 4 hours required per week. Corequisite: semester I of the PTPP.

DCI 397 Field Experience II. (0) F
Second-semester PTPP. Observation and limited participation in a school setting. Focus on observation of development, learning, management, instruction, assessment, and motivation. 6 hours required per week. Corequisite: semester II of the PTPP.

DCI 510 Teacher as Researcher. (3) F S SS
Introduces teacher research as a new re search genre, offers teachers guidance on p anning and conduct ng research on the r pract ce. Lecture, workshop

DCI 701 Curriculum Theory and Practice. (3) F, S
Curr cu um theory and pract ce as a f eld of study ts current or entat ons and app ica t ons, modes of inqu ry, and commun ty of scho ars and pract t oners Sem nar Corequ - s te master's eve curr cu um course

Early Childhood Education Program Area

EARLY CHILDHOOD EDUCATION (ECD)

ECD 300 Principles of Interprofessional Collaboration. (3) F S
Focuses on the d sposit ons, experiences, know edge, and sk s necessary for nterpro fessiona col aborat on des gned for young ch dren and the r fam es Prerequisite· ad m ss on to the Profess ona Teacher Prepara t on Program (PTPP

ECD 310 Educational Environments: Infants/Toddlers. (3) F, S SS
Organ z ng, plann ng and mp ement ng de- ve opmental y appropr ate educational prac t ces to prov de opt ma earn ng env ronments for nfants and todd ers n group sett ngs.

ECD 314 The Developing Child. (3 F S, SS
Prov des a base for understand ng and work ng w th young ch ldren Exam nes a aspects of development of ch dren b rth through age eight, w th mp cat ons for teachers and par ents

ECD 315 Classroom Organization and Guidance in the Early Years. (2) F S
Deve ops understand ng and app cat on f c assroom organizat on and management pr nc p es, strateg es, and procedures Prereq u sites· EDP 301 303 SPF 301 educat on major.

ECD 322 Communication Arts in Early Childhood Education. (3) F
Factors affect ng anguage development Set ting condit ons for learn ng n l sten ng, speak ng read ng, and wr t ng. Prerequ s tes ENG 213 or equiva ent; postbacca aureate cert f ca tion program adm ss on

ECD 378 Practicum in Early Childhood Development. (3) F S
Prov des a f e d based exper ence n se ected ear y ch ldhood sett ngs outside the pub c schoo s before student teach ng Prerequ s te ECD 314

ECD 400 Inquiry Into Teaching and Learning. (3 F S
Foundat ona bas s of the ear y ch dhood field, nc ud ng histor ca roots current pract ces ethics mode s of teach ng and app cation n early ch dhood sett ngs Prerequ s te. post- bacca aureate certif cat on program adm s s on

ECD 401 Integrated Curriculum and Assessment: Social Studies and Creative Arts. (3) F, S
Presents mater a s techn ques and resources for a balanced program of soc a stud es and aesthet c express on appropr ate for ch dren n preschoo through 3rd grade with emphas s on the ntegrated curr cu um Corequ s tes ECD 402, 496, RDG 401 402.

ECD 402 Integrated Curriculum and Assessment: Math and Science. 3 F S
Emphas zes deve opmenta y appropr ate edu cat ona strateg es and nstruct ona tech n ques n teach ng mathemat cs and sc ence to chi dren preschoo through 3rd grade) w th n an ntegrated curr cu m approach Prereq u s tes B O 100 MAT 114 or 117 or equ v a ent MTE 180 or equ valent, PHS 110 or equ valent Corequisites ECD 401, 496 RDG 401 402.

ECD 403 Educational Environments: Preschool/Kindergarten/Primary Grades. (3 F, S
A focus on interact ons between young earn ers and the phys ca and soc a env ronments encountered n preschoo k ndergarten and pr mary sett ngs

ECD 404 Language Arts. 2 F, S
Presents theory on the socia nature of ora and written anguage and congruent c ass room pract ces Prerequ s tes: DC 396 EDP 301 303 SPF 301 Corequ s tes DC 397; ECD 315 EDP 302 EMC 300

ECD 414 Interprofessional Practicum. (3) F, S
Invest gat on of serv ces and agenc es ava ab e n the oca commun ty to parents of ch - dren w th spec al needs. Pract ca exper ences w th an nterm ttent seminar format Dispos t ons, know edge, experiences and sk s nec essary for nterprofessiona col aborat on across mult ple agenc es and programs

ECD 496 Field Experience. 0 F S
Appl cat on f course content n a preschoo through 3rd grade sett ng Emphas s n ob servat on focus on ch d centered curr cu um plann ng and de iver ng nstruct on, and as sessment. Corequis tes: ECD 401, 402 RDG 401 402

ECD 501 Interprofessional Collaboration. (3 F
Dispos t ons know edge exper ences and sk l s necessary for nterprofessiona col abo rat on requ red of profess ona s who work w th mu t need fam ies w th young ch ldren Pre- pares students to mp ement effective strate g es and workab e plans to support nterpro fess ona co aborat on for prov d ng ntegrat ve serv ces to young ch dren and the r fam es

ECD 521 Primary/Elementary Communication Arts in Bilingual Education. (3) S
Examinat on of b l ngual/b iterate deve op- ment of e ementary schoo chi dren, bring ng together nat ve and second anguage, ora language, and l teracy deve opment f nd ngs with educat ona pract ces. Cross sted as BLE 521 Prerequis te: BLE 511.

ECD 522 Developmental Social Experiences in Early Childhood Education. (3) F
Materials techn ques, aesthetic express on, creat ve activit es, and va ues in the ntegrated curricu um

ECD 525 Communication Arts in Early Childhood Education. (3) S
Problems and trends of current programs and oral anguage deve opment Effort to bring to- gether anguage acqu s tion findings with edu cat ona practices Opportunity for self di rected earn ng/study. Prerequ site: ECD 322 or equ valent.

ECD 527 Mathematics in Early Childhood Education. (3) F
Theory and pract ce n the use of man pu ative mater a s for teach ng mathemat cs to pre- schoo and primary grade ch ldren. Prerequi s te ECD 402 or EED 380 or 402 or equ va- ent

ECD 544 Play Education. (3) S SS
Theor es of p ay and the educat ona mp ca tions of each Pract ca applicat ons at the early chi dhood evel.

ECD 555 Modern Practices in Early Childhood Education. (3) F SS
Trends and pract ces nstruct onal and re source mater a s and methods and tech n ques n ear y ch ldhood education

ECD 601 Theories and Issues in Early Childhood Education. (3) F, SS
Current theor es and ssues n early chi dhood educat on Presents ssues of early ch ldhood best pract ces po cy, theory, research and evaluat on that are of s gnif cance to the early ch dhood profess ona . H gh ghts bui d ng on the ch d development conceptua framework as re ated to theory and practice

ECD 733 Social and Emotional Development. (3) A
Inqu ry nto the soc a and emot onal develop- ment dynam cs in ch dren, such as peer re a t onsh ps, se f-concept, and parent ng pro cesses with imp ications for teachers.

ECD 744 Evaluative Procedures: Young Children. (3) S
A crit ca exam nat on and use of deve opmen ta ly appropr ate evaluative procedures for ch dren from b rth through age eight

NOTE. For the Genera Stud es requ rement codes such as L1 N3, C and H) and cou ses see pages 84–108 For graduat on requ rements, see pages 79–83 For omn bus courses offered but not sted n th s cata og see pages 56–57

Educational Media and Computers Program Area

EDUCATIONAL MEDIA AND COMPUTERS (EMC)

EMC 300 Computers in Education. (1 F, S
An ntroduct on to word process ng data-
bases, spreadsheets teacher ut ty programs
and eva uation of educat onal software Re
qu red for majors n the Co lege of Educat on

EMC 321 Computer L teracy. (3) F, S, SS
Survey of the role of computers n bus ness
and educat on Laboratory exper ence n us ng
word process ng database and spreadsheet
software. 2 hours lecture, 2 hours ab *General Studies N3*

EMC 323 Computer Applications. (3) F S
ntroduct on to computer app cat'ons such as
HyperCard Te ecommun cat ons Authoring
Languages and Expert Systems Lecture ab.
Genera Stud es N3

EMC 405 Presentation Technology for Multimedia. (3) F
An exp orat on of mu timed a hardware and
software used n creat ng presentat ons for
educat ona , corporate, and commerc'a app -
cations

EMC 406 Computer Graphics and Animation. (3) S
The study and app cat on of design and an
mat on techn ques for use n v deo or com
puter based presentat ons

EMC 455 Animation and Special Effects. (3) F
An exam nat on of the art, sc ence and impact
of an mat on and other spec a effects used n
f m

EMC 503 Current Issues and Problems in Media/Computer Education. (3) F
ntroduct on to current theory and pract ce in
nstruct ona med a and computers. Overv ew
of production areas

EMC 505 Presentation Techniques for Multimedia. (3) F
An exp oration of mult media hardware and
software used n creat ng presentat ons for
educational corporate, and commercial app
cat ons Lecture ab

EMC 506 Computer Graphics and Animation. (3) S
The study and app cat on of des gn and an
mat on techn ques for use n v deo or com
puter-based presentations Lecture, ab.

EMC 507 Computers in Educational Administration. (3) F S
Survey of computer use and appl cat ons 'n
educat onal adm n stration Lecture, ab
Cross l sted as EDA 507

EMC 511 Computer Applications in Education. (3) F SS
Use and eva uat on of computers for word pro
cess ng, nformat on management, graphics
and author ng instruct on in educationa set
t ngs

EMC 513 Introduction to Multimedia. (3) F
ntroduct on to mu t med a emphas z ng app
cat ons for bus ness ndustry, and pub c and
h gher educat on.

EMC 521 Instructional Media Design. (3) F S
Prepar ng specif cat ons for instruct ona te e
v sion f m s de tape programs, and com
puter based nstruction CD ROM Prerequ
s te: EMC 511 or nstructor approval.

EMC 522 Evaluating Computer Materials. (3 S, SS
Select on ut lizat on des gn and eva uat on of
nstruct'ona computer mater a Focus on
earn ng theory criteria for evaluating educa
t ona software. Prerequ s te. EMC 521 or in-
structor approval

EMC 523 Telecommunication for Instruction. (3 F
Introduct on to Internet resources for educa
tors nstruct ona app cations of d stance
earn ng techno og es

EMC 524 Imaging Technology. (3) F
Use of opt ca scann ng and d gita data ma
n pu ation of photographs for use n educa
t'ona presentat ons and publ cat ons.

EMC 525 Presentation Graphics. (3) S
Des gn, production and d sp ay of computer
graph cs for group presentat ons Prerequ s te:
EMC 521 or instructor approva

EMC 527 Instructional Television. (3 F
Des gn and product on of nstruct onal pro-
grams for te ev s on Lecture lab Prerequi-
s te EMC 521 or nstructor approval

EMC 528 Photomedia Production. (3) S
Des gn and product on of mu t med a pro-
grams Emphas s on s de tape format Pre
requisites EMC 521 and 524 and 525 *or* n
structor approva

EMC 530 Development of Computer-Based Instruction. (3 S
The systematic des gn deve opment and for
mat ve eva uat on of computer based nstruc
t on. Prerequ s te: EMC 511 or nstructor ap
proval

EMC 531 Hypermedia. 3) F
The appl cat on of HyperCard and other sup
port software n the des gn and product on of
nstruct ona computer based mater a for bus
ness, ndustry, and pub ic and h gher educa-
t'on Lecture, ab

EMC 532 Desktop Publishing. (3 F, SS
Design and product on of educat ona mater'
a s us ng computer based word process ng,
graph cs and page ayout programs Lecture
ab

EMC 535 Interactive Video. (3) S
The use of various author ng systems and
support programs to ass st n the des gn and
product on of regu ar and repurposed nterac-
tive v deo Lecture ab

EMC 584 Educational Media Internship. (1 6) F, S SS
Prerequ s tes. EMC 521, LNT 502 nstructor
approva

EMC 637 Computers in Elementary School Curriculum. (3) SS
Exper ences w th educat ona uses of comput
ers computer awareness, fam y soc eta m
pact c assroom appl cat ons/software and
curr cu um deve opment.

EMC 701 Advanced Technologies in Education. (3 S
Exam ning the role and mpact of artif cial n-
te igence, expert systems and re ated ad-
vanced techno og es n educat on

EMC 702 Research in Technology-Based Education. (3) F
Cr t ca exposure to theor es, research, and
methods n techno ogy based education

EMC 703 Research in Educational Telecommunications. (3) S
Sem nar w th emphas s on research n te e
communicat ons and distance educat on Pre
requ s te EMC 523 or nstructor approva .

Elementary Education Program Area

ELEMENTARY EDUCATION (EED)

EED 320 Teaching Science to Children. 3) F S, SS
Deve ops students' personal ph osoph es of
the nature of e ementary school sc ence; why
teach sc ence and how ch ldren earn sc ence
Know edge and sk' s in p anning nstruction
us ng instruct ona models ntegrat ng the cur
r cu um emp oy ng current science programs
and mater als and evaluat ng chi dren s earn-
ng L m ted to students adm tted to the post-
bacca aureate cert f cat on program Prerequ -
site: a basic b o og ca and physica sc ence
course.

EED 333 Communication Arts in the Elementary School. (3) F S SS
Factors affect ng anguage growth Sett ng
cond t ons for teaching ora and wr tten an
guage L mited to students adm tted to the
postbacca aureate cert f cat on program

EED 334 Children's Literature and Elementary School Curriculum. (3) F S
Se ect ng and us ng ch dren's 'terature n
var ous curr cu um areas in e ementary schoo
c assrooms w th d verse student popula ons
Lecture d scuss on, ab Cross l sted as RDG
334

EED 344 Elementary School Organization and Management. (3 F S, SS
Overal program of the e ementary schoo .
Pract ca approaches to d sc p ne and to plan-
ning organ z ng, and manag ng the c ass-
room. Lim ted to students adm tted to the
postbacca aureate cert f cat on program

EED 355 Social Studies in the Elementary School. (3) F S SS
Methods and mater als for teaching Social
Stud es n the e ementary grades L m ted to
students adm tted to the postbaccalaureate
certif cat on program

NOTE For the Genera Studies requ rement codes (such as L1 N3 C, and H) and courses see pages 84–108. For graduat on requirements, see pages 79–83. For omn bus courses offered but not isted n th s cata og, see pages 56–57

EED 380 The Teaching of Mathematics in the Elementary School. (3 F S, SS
A beginning course n methods and mater a s used. Laboratory exper ences and computer app ications w th curricu um materials Class room observat on required L mited to stu dents admitted to the postbacca aureate certi ficat on program Prerequisite: MTE 180 or equ va ent.

EED 400 Principles of Effective Instruction in Elementary Education. (3) F, S, SS
Princip es and mode s of teach ng identif ed by research on instruct ona effect veness. Appl cation of principles to classroom pract ce in e - ementary schoo s. Prerequ s te PTPP adm s- s on

EED 401 Teaching Science and Social Studies to Children. (4) F S
Exam nes core functions processes, con cepts mater als goals object ves scope and sequence un t and esson plann'ng and mod els of instruction Corequ s'tes· EED 402, 404, 496; RDG 401 402

EED 402 Teaching Mathematics in the Elementary School. (2) F S
A beg nn ng course n the teaching of math ematics n grades K–8. Laboratory experi- ences use of techno ogy, prob em so v ng n- tegrat on w th other subjects, nstruct'onal strateg es, app icat on of earn ng theor es, current research and trends Classroom ob servat on and part c pation requ red Prerequ s tes. MAT 114 or 117 or equivalent; MTE 180 or equ'va ent

EED 404 Language Arts. (2) F, S
Presents theory on the soc a nature of ora and written language and congruent c ass room practices Corequ sites EED 401 402, 496, RDG 401 402

EED 420 Science Methods, Management, and Assessment in the Elementary School. (3) F S
Exam nes ph losoph es of sc ence and how these relate to the mp ementat on, manage ment and assessment of sc ence teach ng. Lecture, d scuss on, ab. Prerequ s tes one phys ca sc ence and one b ofogica science course Contact the Co ege of Education Stu dent Affa rs Off ce for the approved st of courses. Corequ s tes EED 397 480

EED 433 Language Arts Methods, Management, and Assessment in the Elementary School. (3) F S
Theory on the soc a nature of ora and written language and congruent teach ng, manage- ment, and assessment practices Lecture, d s cussion lab Corequ s tes EED 396 455.

EED 444 Organizing the Classroom Culture. (1) F, S
Exam nes how teachers can create and ma n- ta'n a c assroom learn ng commun ty w th n the context of an elementary school program. D scuss on workshop lab Prerequ s tes: EED 420 433, 455 480 Corequ sites: EED 496; RDG 414, 481

EED 455 Social Studies Methods, Management, and Assessment in the Elementary School. (3) F, S
Teach ng methods, c assroom management strateg es, and assessment techn ques for so c al stud es nstruct on in the elementary grades Lecture, discuss on, lab. Corequisites: EED 396 433

EED 478 Student Teaching in the Elementary School. 3–15) F S
Supervised teach ng n the area of spec a za t on. A synthes zed experience n curr cu um, instruct on and c assroom management Pre requisites· 2 50 GPA; comp et on of profes- s ona course sequence approva f Off ce f Profess'ona F e d Experiences

EED 480 Mathematics Methods, Management, and Assessment in the Elementary School. (3) F, S
A beg nn ng course in the teach ng, manage ment and assessment of mathemat cs n grades K–8 Lecture d scuss on ab Pre requ s te MTE 180 or equ va ent
Corequ s tes: EED 397, 420

EED 496 Field Experience. (0 F, S
Applicat on of course content 'n a (K–8 schoo c assroom. Emphas s on observat on pup management plann ng and del very of instruct'on and assessment Corequ s tes EED 401 402 404 RDG 401 402

EED 511 Principles of Curriculum Development. 3) F, S SS
Contemporary curr'cu um theor es Curricu um as an interrelated ent ty Pr nc ples of conce v ng and effect ng change

EED 526 Communication Arts in the Elementary School. (3) S SS
A critical examinat on of schoo anguage arts teaching focus ng on theoret ca assumpt ons regard ng ora and written ang age deve op- ment

EED 528 Social Studies in the Elementary School. (3) F SS
Prob ems and trends of current programs De ve opment of a balanced and art cu ated pro gram of soc al stud es Prerequ site EED 355 or equ valent

EED 529 Science in the Elementary School. (3) S
Prob ems and trends of current programs De- ve opment of a ba anced and art cu ated sc - ence program Prerequ's te: EED 320 or equ valent

EED 530 Outdoor/Environmental Education. (3) SS
Use of var ous outdoor sett ngs as aborato r es for classroom-related exper ence study, observat on nqu ry research and ec eat on. nc udes strateg es and materia s for deve op ing environmenta teracy

EED 537 Mathematics in the Elementary School. (3) F SS
Contemporary mathemat cs teach ng. Con tent, materia s, and approaches to nstruction Prerequ s te· EED 380 or 402 or equ va ent

EED 578 Student Teaching in the Elementary School. (9–15 F, S
Superv sed teach ng for postbacca aureate students, synthes zed exper ence n curr cu- um instruct on, and c assroom management Prerequisites complet on of 21 hours of den t f ed course work from an approved program of study, a GPA of 2 50 (postbaccalaureate nondegree) or 3 00 (postbaccalaureate de gree) approval of the Office of Profess ona Field Exper ences

EED 581 Diagnostic Practices in Mathematics. (3) F S
Spec fic ski ls n d agnos ng/treat ng chi dren s earning d ff cu t es n mathemat cs ncludes practicum exper ences both on and off cam pus, in dent fy ng strengths/weaknesses and nit a remed at on Prerequ site· EED 380 or 402 or nstructor approva .

EED 720 Language in Education. 3 A
Soc ngu st c sem'nar on anguage ssues n educat on nc ud ng anguage acqu s t on c assroom nteract on anguage att tudes re- at on anguage and c ass gender ethn c ty

Multicultural Education Program Area

BILINGUAL EDUCATION (BLE)

BLE 400 Principles of Instruct'on in Language Minority Education. (3 F S
H story, theory, and pract ce of educat ng b n gua and ESL students Addresses second anguage acqu s t on program mode s meth odology pub c po cy research, and ng st c d vers ty Lecture d scuss n Prerequ s te PTPP adm ss on

BLE 401 Teaching Science and Social Studies to Ch ldren. 4 F S
ntroduct on of teach ng strategies to be ut zed n work ng n b ngua ESL c assr m sett ngs Corequ s tes BLE 402 405, 406 407 496

BLE 402 Teaching Strategies 'n Mathematics. (2 F S
ntroduct on and mp ementat on concepts for teach ng mathemat cs to m nor ty language popu at ons Prerequ s tes MAT 114 or 117 or equ va ent MTE 180 or equ va ent Corequ' s tes BLE 401, 405 406 407, 496

BLE 405 Teaching Reading in BLE/ESL. 3) F, S
Teach ng reading n BLE/ESL sett ngs An n tegrated c ass oom curric um and terature based nstruct on w l be emphas zed Strate g'es fo teach ng decod ng phon cs), vocabu ary, comprehens on study sk s and area read ng are a so nc uded Prerequ s te ENG 213 or equ va ent Corequ s te BLE 406

BLE 406 Reading Practicum. 3 F S
Superv sed schoo based exper ence 'n tea h ng read ng to b ngua ESL students. Pre requ site ENG 213 o eq va ent Corequ s te BLE 405

BLE 407 Language Arts. (2 F, S
Theory f the s c a nature of oral and wr tten anguage and congruent c assr om pract ces for students prepar ng to teach b ngua and ESL students Corequ s tes BLE 401 402, 405 406 496

BLE 478 Student Teaching in the Elementary School. 3–15) F, S
Superv sed tea h ng n the area of spec a za t on A synthes zed exper ence n curr cu um nstruct on and c assr om management in a bi ngua educat on ESL sett ng Prerequ s tes 2 50 GPA comp etion of professiona course sequence approva of Off ce of Profess ona F e d Exper ences

BLE 496 Field Experience. (0 F, S
App cat on of course content 'n a b ngua ESL schoo sett ng Emphas s on observat on pup management p ann ng and de ver ng n struct on, and assessment. Corequ s tes· BLE 401, 402 405 406, 407

BLE 511 Introduction to Language Minority Education. 3 A
H sto ca ph osoph ca theoret ca and ped agog ca f undat ns of anguage m nor ty ed at on n the Un ted States

BLE 514 Bil ngual/Multicultural Aspects of Special Education. (3 S
Theor es and ssues re ated to the educat'on of b ngua and cu tura y d verse except onal ch dren

BLE 515 Instructional Methods for Bilingual Students. 3 F
An ntroduct on to genera dua anguage teach ng approaches and assessment strate- g es F cu es on the effect ve teach ng of l m- ted Eng sh prof c ent popu at ons. Prerequ s te B E 511

BLE 520 ESL For Children. (3) S
Exam nes approaches to second anguage deve opment and assessment for ch dren congruent w th recent research n second an guage a qu s t n n ch dren Prerequ s te. BLE 511

BLE 521 Primary/Elementary Communication Arts in Bil ngual Education. 3) S
Exam nat on of b ngua /b terate deve op- ment of e ementary schoo ch dren bring ng together nat ve a d second anguage, ora anguage and teracy deve opment f nd ngs w th educat ona pract ces Cross sted as ECD 521. P erequ s te BLE 511

BLE 522 Literacy/Biliteracy Development. 3 F
A qua nts teachers w th f rst and second an guage teracy research pract ce and assess me t n e ementary schoo sett ngs Span sh Eng sh emphas s Lecture, d scuss on Cross sted as RDG 522 Prerequ s te BLE 511

BLE 524 Secondary Sheltered ESL Content Teaching. 3 F
Teach ng and assess ng ESL adolescents n the content areas w th an emphas s on nte grating anguage acqu s t on pr nc p es w th co tent earn ng Lecture, sma group work Corequ s te BLE 541

BLE 528 Social Studies for Bilingual/ESL Teachers. 3 S
Prov des anguage and nstruct ona method o og es and assessment strateg es re evant to b ngua mu t cu tura students n soc a stud es c ntent de vered n Span sh and Eng sh. Prerequ s te BLE 511

BLE 533 Literacy in Secondary BLE/ESL Settings. 3 F S
Exam nes f rst and se nd anguage teracy e earch pract ce a d assessment across content areas n secondary schoo sett ngs Lecture d s uss on Cr ss sted as RDG 533 Prereq s te BLE 511

BLE 535 Soc olinguistic Issues in Bilingual Educat on. 3 F
Survey of ma or theoret ca ssues e g , an- gu ge s tuat ons commun cat ve competence anguage att tudes nterre at ng anguage, so c a processes, and b ngua educat on Pre requ s te BLE 511

BLE 541 Nature of Bilingualism/Second Language Acquisition. (3 A
B ngua and second anguage acqu sit on w th emphas s on ch dren and adolescents. Cogn t ve, soc a and cu tura aspects are stressed P erequ s te BLE 511

BLE 543 Bilingual Education Models. 3) A
B ngua education programs in other coun tr es, ana ys s of po t ca soc a econom c, and educational mp cat ons pract ce n p an- n ng b ngual educat on curricu a See a so of fer ngs under MCE SED SPE, and SPF Pre requ site: BLE 511

BLE 561 Parent Involvement in Language Minor'ty Education Programs. (3) F, S
Exam nes issues approaches, and strateg es for mprov ng parental and commun'ty nvo ve ment n the school ng of anguage m'nor ty ch ldren and youth Prerequ s te BLE 511

BLE 565 Literature for Hispanic Youth/ Literatura para Jóvenes Hispanoparlantes. 3 S
Se ect ng analyz ng and ut zing terature for H span c and Span sh speak ng ch dren and ado escents Cross sted as LIS 565

BLE 580 Practicum. (1–6 F S
Provides for pract ca app cat on n schoo set t ngs of pr nc p es of bi ngua educat on or Eng sh as a Second Language. Spec a per mission requ red.

INDIAN EDUCATION (IED)

IED 411 Foundations of Indian Education. 3 F S
H stor'cal deve opment of Ind an affairs and Ind an educat on nc ud ng contemporary educat ona ssues, trad t ona nd an concepts of educat on and nd an cu tures

IED 422 Methods of Teaching Indian Students. (3 F
Ph osoph'es methodo og es, and mater a s used n nd'an educat on Exam nat on of oca and tr ba c assroom materia s Exper menta- t on w th new teach ng concepts Prerequ s te ED 411

IED 433 Counseling the Indian Student. (3) A
Techn ques and methods used n counsel ng, w th emphas s on understand ng nd an cu - tures and va ues Exper mentat on w th new counsel ng concepts Prerequ s te. ED 411

IED 498 PS: Navajo Language. (3) F S
Course s des gned for Navajo and non Na vajo speak ng students that have tt e or no know edge of the Navajo anguage n its wr t- ten form Emphas s on development of read ng, writ ng, and speak ng ski s.

IED 500 Administration and Management of Indian Education Programs. 3 A
Emphas s on educationa eadersh p research and pract ce n the schoo ng of Amer can n d an students. Effect ve pract ces wi be ex am ned

IED 594 Workshop in Indian Education. (6) SS
Curr cu um pedagogy, community nvo ve ment current ssues, and research w be ex- am ned

MULTICULTURAL EDUCATION (MCE)

MCE 446 Understanding the Culturally Diverse Chi d. 3) A
Survey of cu tura and ngu st c d vers ty in American educat on, nc ud ng educat on eq u ty p urai sm, earn ng styles and roles of schoo s n a mu t ethn c soc ety *General Stud es C*

Reading and Library Science Program Area

LIBRARY SCIENCE (LIS)

LIS 410 Children's Literature. 3) F, S SS
Se ecting ana yzing and us ng modern and c ass c terature with young readers.

LIS 510 Computers and Technology in the School Library. 3) F
Library uses of techno ogy and computers Fundamenta concepts and ssues in brary med a centers. Prerequ s tes LIS 571 and 581 *or* instructor approva

LIS 533 Current Library Problems. (3) F
Crit ca ana ys s of current practices and prob- ems in schoo brar anship Prerequ s tes L S 540 and 561 and 571 and 581 *or* nstructor approval

LIS 540 Classification and Cataloging. (3) F
Descr pt ve cata ogng and Dewey Dec mal C ass f cat on of pr nt and nonpr nt brary ma ter a s

LIS 561 Selection of Library Materials. (3) F
Pr nc p es and procedures used n the se ec t on of materia s for the schoo l brary

LIS 563 Children's Literature. (3) F, S, SS
Select ng and usng chi dren s terature and re ated nonpr nt med a to support the e emen tary school curr culum Cross sted as RDG 563

LIS 565 Literature for Hispanic Youth/Literatura para Jóvenes Hispanoparlantes. (3) S
Se ect ng analyz ng, and ut izing terature for H spanic and Span sh speak'ng chi dren and adolescents Cross sted as BLE 565

LIS 571 Basic Reference Resources. (3) S
Prov d' g reference serv ce n the school brary Content and use of bas c resources

LIS 581 School Library Administration. (3) S
Adm n strat on of K 12 brar es and med a centers

LIS 584 School Library Internship. (1–6) F S
Prerequ s tes LIS 410 540 561, 571, 581, n- structor approva

READING EDUCATION (RDG)

RDG 301 Literacy and Instruction in the Content Areas. (3 F S, SS
Requ red course for all Secondary Educat on candidates ntroduces theory and nstruc t onal strateg es for earn ng wr tten and oral texts across academ c d sc p nes

RDG 314 Introduction to Teaching of Reading. 3) F S SS
For e ementary teachers n training Survey course prov des bas c teacher sk l s (nc uding decod ng/phon cs), eva uat on c assroom en vironments and read ng methods. Lim ted to students adm tted to the postbacca aureate cert f cat on program Prerequisite· ENG 213 or equ va ent

RDG 315 Integrated, Holistic Approaches to Reading Instruction. (3 F, S, SS
Emphas zes terature based ntegrated, and ho istic approaches to read ng instruction L mited to students adm tted to the postbacca- aureate certif cate program May be taken concurrent y w th RDG 481 Prerequ s te RDG 314

RDG 334 Children's Literature and Elementary School Curriculum. (3) F S
Se ect'ng and us ng ch ldren's l terature in various curricu um areas n e ementary schoo c assrooms w th d verse student popu ations. Lecture, d scuss on lab Cross- sted as EED 334

RDG 401 The Teaching of Reading. (3) F S
Teach ng reading as part of an ntegrated classroom curriculum and iterature based n struction w l be emphas zed Strateg es and ski s for teach ng decod ng (phon cs) vocabu- ary, comprehension study sk' ls and content area read ng are a so included. Prerequ s te ENG 213 or equ valent. Corequ s tes: DC 396 and EDP 303 and EMC 300 *or* ECD 401 402, 496 *or* EED 401 and 402 and 404 and 496 and RDG 402

RDG 402 Reading Practicum. (3) F, S
Appl cat on of concepts from RDG 401 The Teach ng of Read ng n c assroom sett ngs Students w l demonstrate teach ng strateg es under supervision Requ red for E ementary Early Chi dhood, and Special Educat on cand dates Corequ s tes DC 396 and EDP 303 and EMC 300 *or* ECD 401 and 402 and 496 *or* EED 401 and 402 and 404 and 496 and RDG 401.

RDG 481 Practicum: Elementary Reading. (3) F S, SS
Practicum experience through superv sed tu- tor ng of K–8 pub c school students experi enc ng read ng difficulty. Conducted n pub c school setting L'm ted to students adm tted to postbaccalaureate program May be taken concurrently w th RDG 315. Prerequisite: RDG 314

RDG 494 ST: Reading/Decoding. (3) F, S

RDG 505 Developmental Reading. (3) F, S, SS
For classroom and spec al read ng teachers Specific profess ona sk ls n decoding com prehens on and eva uat on Requ red for Spe c a Reading Endorsement. Prerequ s te teach ng cert ficate

RDG 507 Content Area Literacy. (3) F S, SS
Theory, teach ng strategies, and pract ca ap p ication concern ng earn ng from text across subject matter d scip nes.

RDG 522 Literacy/Biliteracy Development. (3) S
Acquaints teachers w th f rst and second an guage literacy research pract ce and assess ment n e ementary schoo sett ngs (Span sh Eng sh emphasis). Lecture, d scuss on. Cross-l sted as BLE 522 Prerequ s te· BLE 511

RDG 533 Literacy in Secondary BLE/ESL Settings. (3) F S
Examines f rst and second language l teracy research pract'ce and assessment across content areas n secondary schoo settings. Lecture discuss on Cross- sted as BLE 533 Prerequ s te BLE 511

RDG 544 Secondary Reading Programs. (3) S
Examines rat ona e for secondary read'ng pro grams (grades 7 12), teach ng strateg es re search, and program assessment. Prerequ s te: RDG 507.

RDG 550 Practicum Experiences in Reading. 3 F S SS
Pract cum exper ence ut l z ng assessment and nstruct ona techn ques for c assroom sett ngs (See RDG 557 for State of Arizona read'ng endorsement.) Prerequ s te: RDG 505 or equ valent.

RDG 556 Assessment Procedures in Reading. (3) F S
Techniques for classroom and c n ca read'ng assessment and instruct on Emphasis on cont nuous assessment May be taken con- current y with RDG 557 Recommended for State of Ar zona read ng endorsement. Pre- requ site: RDG 505

RDG 557 Advanced Reading Practicum. (3 F, S
Advanced pract'cum experience ut iz ng spe- c a ized reading and other assessment and n struct on techn ques for classroom and c n c settings Lab sections Recommended for State of Ar zona read ng endorsement. May be taken concurrent y with RDG 556. Prereq u s tes: RDG 505; nstructor approva .

RDG 563 Children's Literature. (3) F, S, SS
Se ect ng and us ng ch dren's terature and re ated nonprint media to support the elemen tary school curricu um. Cross-l sted as LIS 563.

RDG 581 Literature-Based Reading Programs. (3) F, S, SS
For c assroom and specia reading teachers The ro e of iterature 'n the acqu s tion and de velopment of l teracy. Specific suggest ons for helping students earn to read and/or expand the r read ng ab ity with l terature ntroduct on to l terature stud es Prerequ site teaching cert f cate

RDG 582 Practicum: Literature Studies. (3) S
Pract ca app ication of terature study group pr nc p es n f e d s tes or through on-campus s'mu at ons. Lecture superv sed practice Pre requis te: RDG 581 or nstructor approva

RDG 596 Gender, Culture, and Literacies. (3) S
nf uence of gender and cu ture on wr tten, ora , and post typographical texts Seminar

RDG 630 Research in Reading. (3) F
For advanced graduate students nterested n app ied research prob ems, l terature of read- ing nstruction, and major ssues related to read'ng research Prerequis'te: nstructor ap prova

Secondary Education Program Area

BUSINESS EDUCATION (BUE)

BUE 480 Teaching Business Subjects. (3) S
Organ zat on and presentat on of appropriate content for business subjects in the secondary schoo .

BUE 501 Principles of Business Education. (3) F
History, ph' osophy princ ples and objectives of bus'ness and d stribut ve educat on

BUE 502 Organization and Management of Cooperative Programs. (3) F
Work-study programs for bus ness occupa t ons n high schoo s and commun ty co leges.

BUE 503 Competency-Based Business and Vocational Education. (3) S
Deve opment and adm nistrat'on of compe tency based nd v dua zed programs n busi- ness and vocat'ona education

BUE 505 Current Literature in Business and Vocational Education. (3) S
Cr tical ana yses, general zat ons, and trends n bus ness and vocat onal education

BUE 506 Information Processing for Business and Vocational Teachers. (3) SS
Development of curriculum and strateg es for teach ng nformat on process ng, hardware software evaluat on and equ pment acqu s tion techn ques n bus ness and vocat ona educa tion

BUE 512 Technology in Business and Vocational Education. (3) SS
Emerging curricu a and nstructiona techno ogy n bus ness and vocat ona educat on

SECONDARY EDUCATION (SED)

SED 400 Principles of Effective Instruction in Secondary Education. 3) F S SS
D fferent models of educat on are examined Appropr ate teaching pract ces for each model are developed and app ed to secondary school c assrooms. Lecture, d'scussion Pre requis te PTPP admiss on.

SED 403 Principles, Curricula, and Methods. (3) F S SS
Advanced evel of deve opment of know edge and sk lls of nstruct onal p ann'ng and meth ods of teach ng and evaluat ng 'n the second ary schoo Observation/part'c pat on requ red. Corequis te: SED 496.

SED 478 Student Teaching in Secondary Schools. (3–12) F, S
The pract ce of teaching The relat onship of theory and practice in teach ng Prerequ site two comp ete semesters of block or equiva lent.

SED 480 Special Methods of Teaching Social Studies. (3) F, S
nterd sc pl nary approaches, production and co ection of materia s

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NOTE· For the Genera Stud es requ rement codes (such as L1, N3 C and H , and courses, see pages 84–108 For graduation requirements, see pages 79–83 For omn bus courses offered but not i sted in th s cata og see pages 56–57

SED 496 Field Experience. (0) F S
Applicat on of course content n a secondary schoo sett ng Emphas s on observat on, pup l management p ann ng and de verng nstruc tion and assessment. Corequisite SED 403

SED 501 Introduction to Effective Instruction. (6) F, S SS
ntroductory course for postbacca aureate certificat on program n secondary educat on. Emphas s upon deve op ng bas c c assroom management nstruct on and evaluat on In c udes a f e d ass gnment of at east 120 hours. Prerequis te. adm ss on to postbaccaaureate cert f cat on program

SED 522 Secondary School Curriculum Development. (3) F S SS
Social processes ssues princ ples patterns and procedures n curricu um deve opment

SED 533 Improving Instruction in Secondary Schools. (3) F S SS
Ana yses of procedures methods techn ques and exper ments 'n teaching n secondary schoo s Prerequ sites SED 478 578

SED 577 Issues and Trends in Secondary Education. 3) N
Analyses of tay and profess ona reports prob ems and ssues in Amer can secondary educat on Prerequ s tes SED 478, 578

SED 578 Student Teaching in the Secondary Schools. (3–12) F S
The practice of teach ng The re at onsh p of theory and pract ce n teach ng Postbacca aureate students on y Prerequ s tes: complet on of approved postbacca aureate program a m n mum 2 50 GPA approva of the Off ce of Profess ona! F e d Experiences

SED 588 Human Relations in the Secondary Schools. (3 A
Prob ems n human re at ons nherent in the interact on of pup s teachers adm n strators nonprofess ona! staff, and laymen Prerequ sites. SED 478 578

SED 711 Secondary Curriculum Development. (3) S SS
Theor es and processes of developing curricu lum evaluat on of research Prerequisites SED 478, 522 (or equ va ent), 578

SED 722 Improvement of Instruction in the Secondary School. 3 F
Eva uat'on of the research ssues and theor es re ated to the mprovement of instruct on Prerequ s te SED 533

Special Education Program Area

SPECIAL EDUCATION (SPE)

SPE 311 Orientation to Education of Exceptional Children. (3) F S SS
Inc udes g fted m d y hand capped severe y handicapped and the b ngual mu t cu tura except ona ch d *General Stud es SB*

SPE 312 Mental Retardation. (3) F S SS
Character st cs and assessment spec f c to mental retardat on Terminology, deve op ment, educat ona programm ng, and thera peutic procedures w i be emphasized Pre requ s te SPE 311

SPE 314 Introduction to Bilingual/ Multicultural Special Education. (3) F S SS
Theoretica background and pract ca app ca t on of general ssues regard ng the educat on of b ingual/mu ticultura hand capped ch dren Prerequ s te· SPE 311

SPE 336 Behavioral and Emotional Problems in Children. (3) F S, SS
Characterist cs and assessment spec f c to emot ona ly and behav ora ly d sturbed ch · dren Terminology, deve opment and educa t onal programm ng emphasized. Prerequ s te SPE 311

SPE 361 Introduction to Learning Disabilities. (3) F, S SS
Character st cs and assessment spec f c to earn ng disab l t es Term no ogy deve p ment and educat ona programm'ng empha s zed Prerequisite SPE 311

SPE 394 Special Topics. (3) F S
(a) Bas c Spec a Educat on Curr culum
(b) Qua ty Pract ces in the Co laborat ve C assroom

SPE 411 Parent Involvement and Regulatory Issues. (3) F S
Emphas s on parent and schoo re ations through effect ve commun cat on and state and federa regu ations 'mpact ng serv ces for the hand capped Prerequ s tes SPE 311, ma jors on y

SPE 412 Evaluating Exceptional Children. 3 F, S
Normative and cnter on referenced d agnost c techn ques, nc ud ng format ve eva uat on Emphasis upon app cation Da y pract cum requ red Prerequ sites DCI 396; EDP 303 EED 404· EMC 300, RDG 401 SPE 311 Corequ s tes· EED 402· SPE 413 496

SPE 413 Methods in Language, Reading, and Arithmetic for Exceptional Children. (3) F S
Methods techn ques, and matena s for use n prescr ptive teach ng Da y pract cum re quired Prerequ s tes DCI 396 EDP 303, EED 404 EMC 300 RDG 401 SPE 311 Corequ s tes EED 402 SPE 412 496

SPE 414 Methods and Strategies in Behavior Management. (3) F S
The organ zat on and de ivery of instruct on including format ve evaluat on techn ques Techn ques of behav or management Da y pract cum required Prerequ s tes: RDG 401, 402 SPE 412, 413 Corequ s tes: SPE 415 496.

SPE 415 Social Behavior Problems of Exceptional Children. (3) F, S
Ana ys s and ntervention nto soc a behav or problems of except onal populat ons Da y practicum requ red Prerequis tes. RDG 401 402· SPE 412 413. Corequ s tes SPE 414 496.

SPE 455 Early Childhood and the Handicapped. (3 F
Ear y ch ldhood educat on as t appl es to the hand capped ch d.

SPE 478 Student Teaching in Special Education. (3–15) F S
Y" grade on y Prerequ s tes approva of spec a educat on program coord nator, complet on of Spec al Education prerequ s tes

SPE 496 Field Experience. (0) N
App 'cat on of course content n a specia edu cat on setting Emphas s on observation pupil management p ann ng and de vering nstruct on and assessment Corequisites SPE 411 (or 413) 412 414, 415

SPE 498 PS: Field Experience. (1–3) F S
App cat on of course content in a spec al educat on sett ng. Emphas s on observat on pup ma agement p ann'ng and del ver ng instruc t on and assessment Corequ s tes SPE 411 or 413), 412 414 415

SPE 511 The Exceptional Child. (3) F S SS
Educat onal needs of exceptiona chi dren and adu ts. Not recommended for students who have completed SPE 311

SPE 512 Individuals with Mental Retardation. (3) F, S SS
Et o ogy, d agnos s, and management of nd' vidua s w th menta retardation Current trends n prevent on programming and teacher preparat on Not recommended for students who have comp eted SPE 312

SPE 514 Bilingual/Multicultural Aspects of Special Education. (3 F S SS
Theor es and ssues re ated to the educat on of b ngua and cu tura y d verse except ona ch ldren

SPE 515 Methods for the Remediation of Learning Problems of Exceptional Children. (3 S
Methods and materials for remediat ng the ba s c academ c prob ems of exceptiona ch l dre Prerequ s'tes SPE 511; a methods course n the teach ng of read ng and mathemat cs

SPE 522 Academic Assessment of Exceptional Children. (3) F
Normat ve and cr ter on referenced assessment of earning prob ems in except ona ch l dren Formative eva uat on ncluded Pract cum requ red. Lecture practicum Prerequi s tes SPE 311 or 511 e ementary methods courses program approva

SPE 523 Prescriptive Teaching with Exceptional Children. 3) F
Language read ng, and arithmet c methods techn ques, and mater a s used in nd v dual zed nstruction Pract cum requ red Lecture, pract cum Prerequ sites e ementary methods courses SPE 311 or 511), 522 (or concurrent and program approva).

SPE 524 Effective Classroom Behavior Management. (3) S
Organ zat on and de very of nstruct on nc ud ng format ve eva uat on and techn ques of academ c behavior management for excep t ona ch dren Pract cum required Lecture pract cum Prerequ sites SPE 311 (or 511) 522, 523, program approva

NOTE: For the Genera Studies requ rement, codes (such as L1 N3, C, and H) and courses, see pages 84 108 For graduat on requ rements see pages 79–83 For omnibus courses offered but not sted n th s cata og see pages 56–57

SPE 525 Social Behavior Interventions. (3) S
Analysis and intervention into social behavior problems of exceptional students. Focus on strategies to change maladaptive social behavior. Practicum required. Prerequisites: SPE 311 or 511 or 522 or 523; program approval.

SPE 531 Behavior Management Approaches with Exceptional Children. (3) F, SS
Behavior management approaches for classroom behavior of exceptional children. Prerequisite: SPE 511 or equivalent.

SPE 536 Characteristics of Children with Behavioral Disorders. (3) F, S1, SS
Variables contributing to behavior patterns of behaviorally disordered children.

SPE 551 Teaching Young Children with Special Needs. (3) S
Methods, materials, and curriculum for preschool and primary-aged children with special needs. Prerequisites: SPE 455 and 511 *or* equivalents.

SPE 552 Management of Individuals with Severe Handicaps. (3) S
Instruction and management of school-aged and adult individuals with severe, physical, or multiple handicaps. Prerequisites: SPE 511 or equivalent; instructor approval.

SPE 553 Developmental/Functional Assessment. (3) F
Teacher-focused developmental/functional assessment of preschool and severely, physically, and multiply handicapped individuals. Field experience required. Prerequisites: SPE 511 and 512 and 574 *or* equivalents.

SPE 554 The Parent/School Partnership. (3) S
Includes knowledge and procedures for involvement and training of parents and caregivers of preschool and severely handicapped individuals. Field experience required. Prerequisites: SPE 455 and 511 *or* equivalents.

SPE 561 Characteristics/Diagnosis of Learning Disabilities. (3) F, S1, SS
Theories related to learning disabilities, including identification and characteristics.

SPE 562 Methods of Teaching Students with Learning Disabilities. (3) N
Various methods and intervention strategies for remediating learning disabilities of children and youth. Prerequisite: SPE 361 or 561.

SPE 574 Educational Evaluation of Exceptional Children. (3) F
Design and statistical considerations of normative and criterion-referenced tests. Collection, recording, and analysis of data from formative evaluation. Prerequisites: SPE 511 or equivalent; a methods course in the teaching of reading and mathematics.

SPE 575 Current Issues in the Education of Exceptional Children. (3) F
Mainstreaming, noncategorical, financing, legal diagnostic, labeling, legislative, and other critical and controversial issues related to the education of exceptional children.

SPE 577 Mainstreaming Methods. (3) S
Successful mainstreaming methods, practical problem-solving sessions related to teacher's classroom needs, and individual contracts focusing on mainstreaming issues are addressed. General educators encouraged.

SPE 578 Student Teaching in Special Education. (9–15) F, S
"Y" grade only. Prerequisites: completion of specified courses; approval by the special education program coordinator.

SPE 582 Classroom Research with Exceptional Children. (3) S
Introduction to interpreting research. Specific research techniques with primary emphasis on classroom research, including applied behavior analysis.

SPE 585 Creativity: Research and Development. (3) S
Nature of creativity explored in terms of philosophical underpinnings, empirical evidence, human development, self-actualization, and the ecology surrounding the creative event.

SPE 586 Advising the Gifted Child. (3) A
Focus on educational planning and guidance, social and emotional development, and family problem solving regarding needs of gifted children.

SPE 587 Controversies in Educating the Gifted. (3) F
In-depth analysis of major controversies in educating the gifted, including nature/nurture, the role of mental tests, and sex differences.

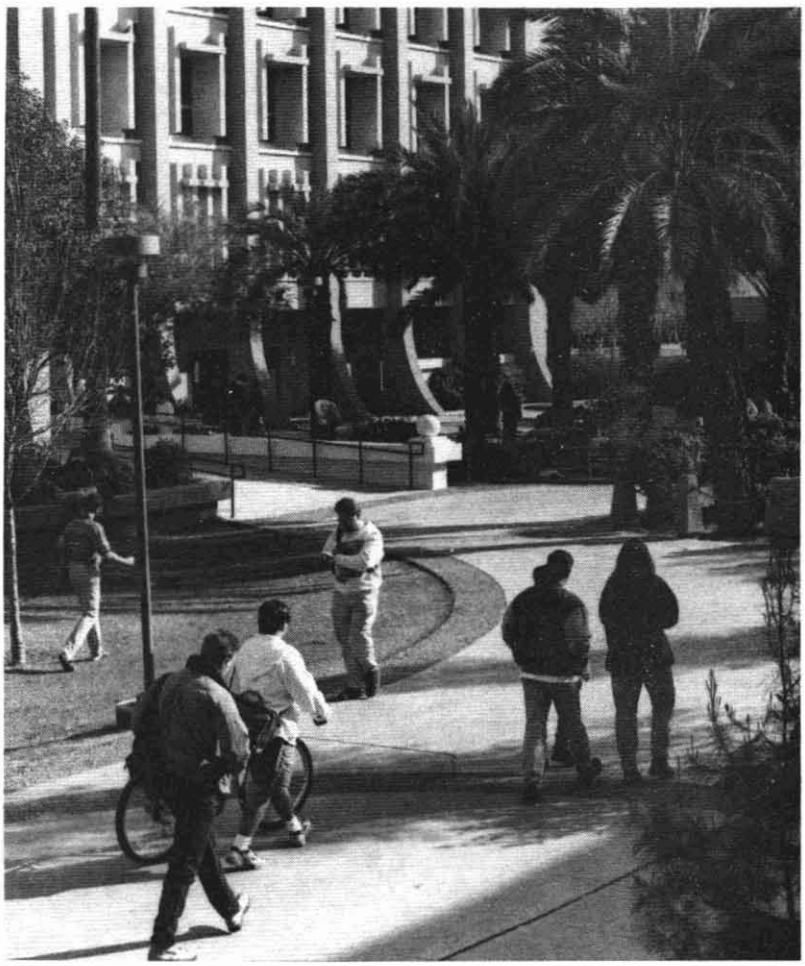
SPE 588 The Gifted Child. (3) F, SS
Gifted children's characteristics, identification, needs, school and home environments, definitions, and misunderstandings. Research by Pressey, Stanley, Terman, and others.

SPE 589 Methods in Teaching the Gifted. (3) S, SS
Methods in teaching elementary and secondary school gifted children, including individualized and computer-assisted instruction, team teaching. Prerequisite: SPE 588.

SPE 774 Characteristics and Causation of Exceptionality. (3) F
In-depth analysis of literature pertaining to causes of exceptionality and learning, educational, personal-social, and cognitive characteristics. Lecture, discussion.

SPE 775 Evaluation and Intervention in Special Education. (3) S
In-depth analysis of research and literature on evaluation procedures and intervention approaches for exceptional individuals at all age levels. Lecture, discussion.

SPE 781 Research and Evaluation in Special Education. (3) S
Issues and problems in conducting research and/or evaluation programs involving exceptional children.



The campus is laid out in broad pedestrian malls that are surrounded by desert and tropical landscaping. Tim Trumble photo

Division of Educational Leadership and Policy Studies

Thomas H. Metos
Director
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tikkun.ed.asu.edu/elps

REGENTS' PROFESSOR
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CASANOVA, HARTWELL-HUNNICUTT, LEVAN, WILKINSON

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MARGOLIS, PEÑA

Program Areas

Education Policy Studies
Educational Administration and Supervision
Higher and Postsecondary Education

Degrees: M.A., M.Ed., Ed.D., Ph.D.

GRADUATE PROGRAMS

The faculty in the Division of Educational Leadership and Policy Studies offer several graduate degrees in a number of majors.

For more information on courses, faculty, and programs, contact the division office or see the *Graduate Catalog*.

EDUCATIONAL ADMINISTRATION AND SUPERVISION (EDA)

See the *Graduate Catalog* for the EDA courses.

HIGHER AND POSTSECONDARY EDUCATION (HED)

See the *Graduate Catalog* for the HED courses.

EDUCATIONAL POLICY STUDIES (SPF)

SPF 111 Exploration of Education. (3) F, S
Education as an instrument in the development of the individual and society, and its significance as an American institution.

SPF 301 Culture and Schooling. (3) F, S
For the professional teacher preparation program: an overview of the cultural, social, and political milieus in which formal schooling takes place in the United States. For education majors only. *General Studies: L2.*

SPF 401 Theory and Practice in Education. (1–2) F, S
For the professional teacher preparation program. The analysis and interpretation of classroom behavior from perspectives derived from philosophy, social science, and law. Prerequisite: education major.

SPF 510 Introduction to Organization and Administration of American Public Schools. (3) F, S
Organizational structure and administration of public education are explored through the application of legal and ethical concepts and relevant information of the social sciences. Cross-listed as EDA 510.

SPF 511 School and Society. (3) F, S, SS
Interrelationship of school and society and the role of education in social change.

SPF 515 Education of Women. (3) N
Analysis of roles and status of women, educational practices, and alternatives.

SPF 520 Cultural Diversity in Education. (3) S
Philosophic and sociological investigation of cultural diversity in the United States and how it relates to education.

SPF 533 Comparative Education in the Western World. (3) N
Educational practices and traditions in the leading nations of Europe and the Soviet Union.

SPF 544 Philosophical Foundations of Education. (3) F
Theories of education in ancient, medieval, and modern classical and contemporary philosophies.

SPF 566 History of Education. (3) S
Development of educational institutions and ideas in the Western World, from ancient times to the 20th century.

SPF 612 Evaluation Theory. (3) F
Explores the major theories of evaluation (inquiry leading to value judgments) in educational policy through examination of cases.

SPF 622 Theory of Educational Organizations. (3) S
An investigation of how educational organizations function and the implications of these views on role definition and performance of administrators as they design organizational processes. Cross-listed as HED 688.

SPF 711 Social and Historical Foundations of Education. (3) N
Problems of American education and their sociohistorical context.

Division of Psychology in Education

Raymond Kulhavy
Interim Director
(EDB 301) 602/965–3384
seamonkey.ed.asu.edu/~gail/division/divintro.htm

REGENTS' PROFESSORS
BERLINER, KULHAVY

PROFESSORS
BARONA, BERNSTEIN, CABIANCA, CLAIBORN, FREEMAN, GLASS, HACKETT, HARRIS, HORAN, B. KERR, N. KERR, KLEIN, KRUS, KURPIUS, McWHIRTER, NELSEN, SMITH, STROM, SULLIVAN, ZIMILES

ASSOCIATE PROFESSORS
ARCINIEGA, BEHRENS, BETZ, BLANCHARD, BROWN, COHN, HOOD, KINNIER, MOORE, SANTOS DE BARONA, SAVENYE, SHELL

ASSISTANT PROFESSORS
FISHER, MATTHEWS, NAKAGAWA, ROBERTS, STAFFORD

Program Areas

Counseling Psychology
Counselor Education
Learning and Instructional Technology
Lifespan Development Psychology
Measurement, Statistics, and Methodological Studies
School Psychology

Degrees: M.A., M.C., M.Ed., Ed.D., Ph.D.

GRADUATE PROGRAMS

The faculty in the Division of Psychology in Education offer graduate degrees in a number of majors.

For more information on courses, faculty, and programs, contact the division office or see the *Graduate Catalog*.

COUNSELOR EDUCATION (CED)

See the *Graduate Catalog* for the CED courses.

COUNSELING PSYCHOLOGY (CPY)

See the *Graduate Catalog* for the CPY courses.

EDUCATIONAL PSYCHOLOGY (EDP)

EDP 301 Learning and Motivation in Education. (2) F, S
Using a case format, learning and motivation principles are applied to education contexts. Prerequisite: educational major.

EDP 302 Assessment and Evaluation in Education. 1 F, S
Using a case format, assessment and evaluation principles are applied to educational contexts. Prerequisite: educational major.

EDP 303 Human Development. 3 F, S
Selected aspects of child and adolescent development. Emphasis on possible effects for influence by teachers and parents. Prerequisites: CDE 232 or equivalent; educational major. *General Studies L2*

EDP 310 Educational Psychology. (1–6) F S SS
Human behavior in educational situations presented through instructional modules. Students may register for credit to a total of 6 hours. *General Studies SB*

EDP 313 Childhood and Adolescence. 3) F, S, SS
Principles underlying total development of preand early-adolescent children. Emphasis on physical, intellectual, social, and emotional development with practical implications for teachers grades 5–9. Prerequisite: EDP 303 or admission to College of Education postbaccalaureate program.

EDP 454 Statistical Data Analysis in Education. (3) F S SS
The role of data analysis in research and decision making. Elements of exploratory data analysis, descriptive indexes, and statistical inference. Lecture, lab. Prerequisite: MAT 117. *General Studies N2*

EDP 502 Introduction to Quantitative Methods. (3) F S SS
Topics in statistical analysis, measurement and research design. Exploratory data analysis, estimation theory, and statistical inference. Use of computers for data analysis. Cross-listed as COE 502.

EDP 503 Introduction to Qualitative Research. (3 F S SS
Terminology, historical development, approaches (including ethnography, ethnomethodology, critical theory, grounded theory and hermeneutics), and qualitative versus quantitative social sciences methods of inquiry. Cross-listed as COE 503.

EDP 504 Learning and Instruction. (3 F S SS
Introduction to psychology of learning and instruction. Includes the foundations of learning theories and their application to educational practice. Cross-listed as COE 504.

EDP 510 Essentials of Classroom Learning. (3 F S SS
Theoretical and empirical foundations of learning in the classroom. Critical exposure to research and methodology in instructional psychology. Cross-listed as LNT 510.

EDP 513 Child Development. (3) F S SS
Examination of problems and achievements experienced by children growing up in a technological society. Emphasis on discovering the child's perspective.

EDP 514 Psychology of the Adolescent. (3) F, S, SS
Cognitive, physical, and social development of adolescents in contemporary society. Impact of family, school, and workplace on adolescent development. Prerequisite: EDP 310 or PGS 100 or equivalent.

EDP 530 Theoretical Issues and Research in Human Development. (3) F
Psychological theories, research, and methods relevant to human development emphasizing the relations between early development and later performance.

EDP 534 Principles of Behavior Modification. (3) F
Principles of conditioning as applied to behavior modification; current research on the experimental analysis of behavior in educational psychology.

EDP 540 Theoretical Views of Learning. (3 F S
Classical and cognitive theories of learning, up-to-recent orientations. Illustrative experimental and rational foundations, implications for educational practice. Cross-listed as LNT 540.

EDP 542 The Psychology of Learning and Instruction. 3) S
Critical review and evaluation of research on learning, variables relevant to acquisition and retention of instructional materials. Lab. Cross-listed as LNT 542.

EDP 550 Introduction to Measurement in Education. (3) F, S
Nature and types of educational measures. Critiquing and selecting appropriate measuring devices. Constructing measuring devices. Social controversies about tests. Lecture, lab. Prerequisite: EDP 502 or instructor approval.

EDP 552 Quantitative Data Analysis in Education I. (3 F S SS
Continued treatment of statistical estimation, testing, and research synthesis. Inferential techniques including ANOVA and multiple regression with computers. Lecture, lab. Prerequisite: EDP 502 or instructor approval.

EDP 554 Quantitative Data Analysis in Education II. (3 F, S SS
Advanced issues in applied multiple regression and ANOVA. Introduction to ANCOVA. Use of computers for data analysis. Lecture, lab. Prerequisite: EDP 552 or instructor approval.

EDP 556 Data Processing Techniques in Measurement and Research. 3) A
Use of statistical packages for data analysis. Emphasis on data management, data structures, and related statistical procedures. Lecture, lab. Prerequisite: EDP 552. Pre- or corequisite: EDP 554 or instructor approval.

EDP 560 Individual Intellectual Assessment. 1–6 F, S
Experience in administering and interpreting individual tests. Theoretical bases for ability testing, ethical considerations and diagnostic use of test results. Initial enrollment 3 hours minimum. Lab experience. Prerequisites: EDP 454 and admission to a program in professional psychology *or* instructor approval.

EDP 562 School Psychology: Theory and Practice. 3 F
Development and present status of school psychology, including an overview of assessment and intervention strategies and professional issues.

EDP 563 Interventions in School Psychology. 3) F
Examination of case based consultation and consultation research relevant to school psychology practice. Field experience. Prerequisite: school psychology program or instructor approval.

EDP 566 Diagnosis of Learning Difficulties. (3) S
Clinical diagnosis of learning difficulties, emphasizing specific academic problems. Use and interpretation of diagnostic instruments. Practical school situations. Prerequisites: EDP 560 and 562 *or* equivalents, instructor approval.

EDP 567 School Psychological Services to Minority Students. 3 S
Historical perspectives and major issues in psychological and academic assessment and intervention with minority school children.

EDP 651 Methods and Practices of Qualitative Research. 3 S
Advanced course for students familiar with theory and extant work. Topics include data collection, analysis, reporting, and an extensive fieldwork project. Prerequisite: COE 503.

EDP 652 Multivariate Procedures in Data Analysis I. 3 F
Introduction to matrix algebra. Application of MANOVA, MANCOVA, power analysis, effect size, discriminant and repeated measures analysis with computers. Lecture, lab. Prerequisite: EDP 554 or instructor approval.

EDP 654 Multivariate Procedures in Data Analysis II. (3) S
Treatment of applied multivariate multiple regression, canonical correlation, factor analysis, loglinear models and structural equation models with computers. Lecture, lab. Prerequisite: EDP 652 or instructor approval.

LEARNING AND INSTRUCTIONAL TECHNOLOGY (LNT)

See the *Graduate Catalog* for the LNT courses.

College of Engineering and Applied Sciences

Peter E. Crouch, Ph.D.
Dean

PURPOSE

The purpose of the College of Engi neering and Applied Sciences is to pro vide students with a range of educational opportunities by which they may achieve competence in the major branches of engineering, in computer science, and construction. Consider able effort is spent on the development and delivery of well-rounded programs that enhance student preparation for professional careers, lifelong learning, and responsible participation as a member of society.

For more information, visit the college's Web site at www.eas.asu.edu.

ORGANIZATION

The College of Engineering and Ap plied Sciences is composed of the fol lowing academic and service units:

Del E. Webb School of Construction

School of Engineering

- Department of Chemical, Bio, and Materials Engineering
- Department of Civil and Environmental Engineering
- Department of Computer Science and Engineering
- Department of Electrical Engineering
- Department of Industrial and Management Systems Engineering
- Department of Mechanical and Aerospace Engineering

Research Centers. The college is committed to the development of research programs of national promi nence and to the concept that research is an important part of its educational role The college encourages the par ticipation of both qualified undergradu ate students and graduate students in various research activities. Most of the faculty are involved in government or industry sponsored research programs in a wide variety of topics. A partial list of these topics includes aerodynam ics, biotechnology, computer design, computer integrated manufacturing, environmental fluid dynamics, innovative engineering education, microelectron ics manufacturing, power systems, semiconductor materials and devices, signal processing, solar energy, solid state electronic devices, structural dy namics, telecommunications, thermo sciences, and transportation systems. This research is carried out in the departments and schools listed above and in the following interdisciplinary research centers

- Center for Innovation in Engineering Education
- Center for Low Power Electronics
- Center for Research in Engineering and Applied Sciences
- Center for Solid State Electronics Research
- Manufacturing Institute
- Center for System Science and Engineering Research
- Telecommunications Research Center

Center for Professional Development. The Center for Professional De velopment, often in cooperation with the college's academic units and re search centers, provides a variety of technical conferences, seminars, short courses, and televised and satellite transmitted programs to enable engi neers, scientists, and managers to con tinue the life-long learning that is so necessary in a constantly changing world.

Programs may be conducted on campus, at various off campus locations, or at company sites upon request For more information, contact the Center for Professional Development, located in EC G148, at 602/965 1740, by e mail at asu cpd@asu.edu, or visit the center's Web site at www.eas.asu.edu/cpd

ADMISSION

Individuals wishing to be admitted to freshman standing in the College of Engineering and Applied Sciences should have completed certain second ary-school units. These units are identi fied in the requirements for each of the two schools in the college. If these conditions are not met, additional uni versity course work, possibly unaccept able for degree credit, may be required.

Students who are not admissible to programs in this college and who enroll in another college at ASU may not reg ister for any 300 or 400-level courses in this college unless they are required in their degree programs and the stu dents have the proper course prerequi sites.

Entrance requirements of this col lege may differ from those of other ASU academic units. Students may be admitted under one of two different

classifications, professional or prepro fessional.

Professional Status. For admission to *professional status,* Arizona residents must meet one of the requirements as listed in the table, "Professional Status Requirements for Residents," and a nonresident must meet one of the re quirements as listed in the table, "Pro fessional Status Requirements for Non residents" on this page. In addition, an international student must satisfy mini mum TOEFL score requirements as shown in the table.

Students admitted to the university after successful completion of the Gen eral Education Development (GED) examination are admitted as preprofes sional students within their major Pro fessional status is attained by meeting the minimum ACT or SAT score re quired for admission as listed in the table, "Professional Status Require ments."

Preprofessional Status. A student not admissible to professional status within the college but otherwise regularly ad missible to ASU as stated on page 60, "Undergraduate Admission," may be admitted as a *preprofessional* student to any one of the academic programs of the college. International students whose TOEFL scores do not meet the required minimum shown in the tables below may also be admitted to prepro-fessional status. A student admitted into this classification follows the freshman sophomore sequence of courses as required by the chosen ma jor. Courses are selected with the assis-tance of an academic advisor After completing a minimum of 30 semester hours of required or approved elective courses *with a cumulative GPA equiva lent to that required of transfer students and corresponding to the chosen major,* students may apply for admission to professional status. *International students must also submit a TOEFL score equivalent to that required for admis sion to professional status* (refer to the table below). Preprofessional students are not permitted to register for 300 and 400 level courses in the College of Engineering and Applied Sciences until their status is changed to the profes sional classification.

Readmission. Students applying for readmission to professional status for any program in this college must have a cumulative GPA for all college course work equal to that of the transfer ad mission requirements shown in the table, "Professional Status Require ments for Transfer Students," on page 186

Transfer into and within the College. Students transferring between academic programs within the college or from other colleges within the university must meet both the cumulative GPA re quirement and the catalog requirements of the desired program in effect at the time of transfer. Students who are transferring from an Arizona commu nity college and have been in continu ous residence may continue under the catalog in effect at the time of their en trance into the community college.

Transfer Students. A student who contemplates transferring into this col lege from another institution, whether a community college or four year institu-tion, should carefully study the catalog material pertaining to the particular program and consult an advisor in this college before enrolling in the other in stitution. These steps assure a smooth transition at the time of transfer. Trans fer students may request admission to either preprofessional or professional status in any of the programs offered by this college.

The minimum requirements for ad-mission of resident, nonresident, and international transfer students to the professional program are listed in the table, "Professional Status Require ments for Transfer Students," on this page. The academic units may impose additional admission and graduation re quirements beyond the minimum speci fied by the college.

Credit is granted for transferred courses deemed equivalent to corre sponding courses in the selected pro gram of study, subject to grade and ASU resident credit requirements. No grades lower than "C" are accepted as transfer credit to meet the graduation requirements of this college. Credits transferred from a community college or two year institution are applied only as lower division credits. Prospective Arizona community college transfer students should consult their advisors and refer to the annual *Arizona Higher Education Course Equivalency Guide* (CEG) for a listing of the acceptable courses transferable to the various col lege degree programs.

It should be noted that some courses taken in other co leges of this univer sity or other universities may be accept able for general university credit but may not be acceptable toward the de gree requirements of this college. De termination of those particular courses acceptable to a specific degree program is made within the appropriate aca demic unit with the approval of the dean.

Cooperative Education. The co op program is a work study plan of educa tion that alternates periods of academic study with periods of employment in business, industry, or government. Stu dents who choose this program ideally complete 12 months of employment and graduate with both the academic background and practical experience gained from working with professionals in a chosen field.

Professional Status Requirements for Residents

		Minimum Scores	
School	High School Rank	ACT	SAT
Construction	Upper 25%	23	1140
Engineering	Upper 25%	23	1140

Professional Status Requirements for Nonresidents

		Minimum Scores		
School	High School Rank	ACT	SAT	TOEFL*
Construction	Upper 25%	24	1140	550
Engineering	Upper 25%	24	1140	550

* For international students see page 64).

Professional Status Requirements for Transfer Students

School	Transfer GPA[1]		
	Resident	Nonresident	TOEFL[2]
Construction	2.25	2.50	550
Engineering	2.50	2.50	550

[1] The cumulative GPA is calculated using all credits from ASU as well as those from other colleges and universities

[2] For international students (see page 64).

A student in the college is eligible to apply to the co op program upon completion of 45 or more hours of classes required for the selected major. Transfer students are required to complete at least one semester at ASU before beginning work. All student applicants must have a GPA of at least 2.50 and the approval of an advisor.

To maintain continuous student status in the university, each co-op student must be enrolled in ASE 399 Cooperative Work Experience for one semester hour during each work session Such credit cannot be applied toward degree requirements. For more information, contact the director of Student Academic Services at 602/965 1750 (EC G102) or the Career Services office at 602/965 2350 (SSV C359).

ADVISING

For assistance and counseling in planning a program of study, each student in this college is assigned a faculty advisor who is familiar with the chosen field of specialization and who must be consulted before registering each semester. The student should inform the advisor of any outside work or activity so that course loads may be adjusted accordingly.

Most students attending college find it necessary to obtain part time employment; consequently, it is suggested that a careful balance of work and class requirements be considered in order to avoid academic problems.

Students enrolled in this college may register for a maximum of 19 semester hours each semester. Any student wanting to register for more than the maximum must petition the CEAS Standards Committee and must have an approval on file before registering for the overload

DEGREES

The faculty in the College of Engineering and Applied Sciences offer programs leading to the B.S and B.S.E degrees with majors in the subjects shown in the "College of Engineering and Applied Sciences Degrees, Majors, and Concentrations" table, pages 187 188. Each major is administered by the academic unit indicated.

Integrated B.S.E. M.S. Program. To provide greater program flexibility, qualified students of the School of Engineering may undertake a program with an integrated fourth and fifth year sequence of study in one of several fields of specialization in engineering. This program provides an opportunity to meet the increasing demands of the profession for graduates who can begin their engineering careers at an advanced level.

Students admitted to this program are assigned a faculty committee that supervises a program of study in which there is a progression in the course work and in which earlier work is given application in the later engineering courses for both the bachelor's and master's degrees. Entry into the integrated program requires an application submitted to the dean through the faculty advisor and the department chair. Applications are reviewed by a school committee that recommends the appropriate action to the dean The application may be submitted in the fifth semester.

GRADUATE PROGRAMS

The faculty in the College of Engineering and Applied Sciences offer a Master of Computer Science (M.C S) degree; a Master of Science (M.S.) degree with majors in Computer Science, Construction, and Engineering Science; a Master of Science in Engineering (M.S.E.) degree; and a Ph.D. degree in Engineering or Computer Science The faculty in the Department of Industrial and Management Engineering also participate with the American Graduate School of International Management (Thunderbird) to offer the Master of Science in Engineering (Industrial Engineering) Master of International Management of Technology.

For more information on courses, faculty, and programs, see the *Graduate Catalog*.

DEGREE REQUIREMENTS

For detailed information on the degree requirements of a major in the College of Engineering and Applied Sciences, refer to that department's or school's individual description on the following pages.

UNIVERSITY GRADUATION REQUIREMENTS

In addition to department and school requirements, students must meet all university graduation requirements (see pages 79 83). A well planned program of study enables students to meet all requirements in a timely fashion. Students are encouraged to consult with an academic advisor in planning a program to ensure that they comply with all necessary requirements

General Studies Requirement

All students enrolled in a baccalaureate degree program must satisfy a university requirement of a minimum of 35 hours of approved course work in General Studies, as described on pages 84–87 General Studies courses are listed on pages 87 108 in the *General Catalog*, in the course descriptions, in the *Schedule of Classes*, and in the *Summer Sessions Bulletin*. Note that all three General Studies awareness areas are required. Consult your advisor for an approved list of courses.

First-Year Composition Requirement

As a minimum, completion of ENG 101 and 102, or ENG 107 and 108, or ENG 105 with grades of "C" or higher is required for graduation from ASU in any baccalaureate program. See "First Year Composition Requirement," page 79. Any student whose written or spoken English in any course is unsatisfactory may be required by the appropriate director or department chair to take additional course work

College of Engineering and Applied Sciences
Degrees, Majors, and Concentrations

Major	Degree	Administered by
Baccalaureate Degrees		
Del E. Webb School of Construction		
Construction[1] Options: general building construction, heavy construction, residential construction, specialty construction	B.S.	Del E. Webb School of Construction
School of Engineering		
Aerospace Engineering Emphases: aerodynamics, aerospace materials, aerospace structures, computer methods, design, mechanical, propulsion, system dynamics and control	B.S.E.	Department of Mechanical and Aerospace Engineering
Bioengineering[1] Emphases: biochemical engineering, bioelectrical engineering, biomaterials engineering, biomechanical engineering, biomedical imaging engineering, biosystems engineering, molecular and cellular bioengineering, premedical engineering	B.S.E	Department of Chemical, Bio, and Materials Engineering
Chemical Engineering[1] Emphases: biochemical, biomedical, environmental, materials, premedical, process engineering, semiconductor processing	B.S.E.	Department of Chemical, Bio, and Materials Engineering
Civil Engineering[1] Option: environmental engineering	B.S.E.	Department of Civil and Environmental Engineering
Computer Science[1]	B.S.	Department of Computer Science and Engineering
Computer Systems Engineering[1]	B.S.E.	Department of Computer Science and Engineering
Electrical Engineering[1]	B.S E	Department of Electrical Engineering
Engineering Interdisciplinary Studies[2]	B.S.	School of Engineering
Engineering Special Studies[1] Options: manufacturing engineering premedical engineering	B.S.E. 	 School of Engineering Department of Industrial and Management Systems Engineering
Industrial Engineering[1]	B S.E.	Department of Industrial and Management Systems Engineering
Materials Science and Engineering[1] Emphases: biomaterials, ceramic materials, energy systems, integrated circuit materials, manufacturing and materials processing, mechanical metallurgy, metallic materials systems, polymers and composites	B.S.E.	Department of Chemical, Bio, and Materials Engineering
Mechanical Engineering Emphases: aerospace; biomechanical; computer methods; control and dynamic systems; design; energy systems; engineering mechanics; manufacturing; stress analysis, failure prevention, and materials; thermosciences	B.S E.	Department of Mechanical and Aerospace Engineering

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

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

Major	Degree	Administered by
Graduate Degrees		
Del E. Webb School of Construction		
Construction Concentrations: construction science, facilities, management	M.S.	Del E. Webb School of Construction
School of Engineering		
Aerospace Engineering	M S., M.S.E., Ph D.	Department of Mechanical and Aerospace Engineering
Bioengineering	M.S., Ph.D.	Department of Chemical, Bio, and Materials Engineering
Chemical Engineering Concentrations: biomedical and clinical engineering, chemical process engineering, chemical reactor engineering, energy and materials conversion, environmental control, solid state processing, transport phenomena	M.S., M.S.E., Ph.D.	Department of Chemical, Bio, and Materials Engineering
Civil Engineering Concentrations: environmental/sanitary, geotechnical/soil mechanics, structures, transportation, water resources/hydraulics	M.S., M.S.E , Ph.D.	Department of Civil and Environmental Engineering
Computer Science	M.C.S., M.S., Ph.D.	Department of Computer Science and Engineering
Electrical Engineering	M.S., M.S.E., Ph.D.	Department of Electrical Engineering
Engineering Science	M.S., M.S.E., Ph.D.	School of Engineering
Industrial Engineering	M.S., M.S.E., Ph D	Department of Industrial and Management Systems Engineering
Mechanical Engineering	M.S., M.S.E., Ph.D.	Department of Mechanical and Aerospace Engineering
Science and Engineering of Materials Concentrations: high-resolution nanostructure analysis, solid-state device materials design	Ph.D.[3]	Committee on the Science and Engineering of Materials

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

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

[3] This program is administered by the Graduate College. See "Graduate College," pages 282 292

COLLEGE DEGREE REQUIREMENTS

Pass/Fail Grades

Students enrolled in the College of Engineering and Applied Sciences do not receive degree credit for pass/fail courses taken at this institution In addition, no course in this college is offered for pass/fail credit Students requesting credit for pass/fail courses taken at another institution must file a Petition for Adjustment to Curriculum Requirements. Each request is judged on its particular merits.

Entry into Upper-Division Courses

Before enrolling in courses at the 300 level and above, students must be in good academic standing in professional program status and have the approval of their advisors. A student who is not in good academic standing must secure approval from his or her advisor and the college's Student Academic Services. Students whose grades in 300 level courses are unsatisfactory may be required to retake one or more courses for which credit has previously been granted.

The departments and schools have certain additional requirements that must be met in addition to the above college requirements and students should consult them for details.

Course Work Currency

Courses taken more than five years before admission to degree programs in this college are not normally accepted for transfer credit at the option of the department in which the applicant wishes to enroll. Courses completed within the five years preceding admission are judged as to their applicability to the student's curriculum.

MAJOR REQUIREMENTS

For detailed information on the degree requirements of a major in the College of Engineering and Applied Sciences, refer to that department's or school's individual description on the following pages.

ACADEMIC STANDARDS

Retention. A student is expected to make satisfactory progress toward completion of degree requirements in order to continue enrollment in the College of Engineering and Applied Sciences. Any one of the following condi

tions is considered unsatisfactory prog ress and results in the student being placed on probationary status:

1. a semester or summer session with a GPA less than or equal to 1.50;
2. two successive semesters with GPAs less than 2 00, or
3. an ASU cumulative GPA less than 2.00.

Students on probation are subject to disqualification if (1) they do not attain a semester GPA of 2.25; (2) their cu mulative GPA is below 2.00 at the end of the probationary semester; or (3) they are placed on probation for two consecutive semesters.

Courses completed during the sum mer sessions may not be used to reeval uate a student's fall semester probation ary status.

Students on academic probation are not allowed to register for more than 13 semester hours of course work. Proba tionary students may not register for the next semester without a special permit from an advisor in Student Academic Services. Special permits are not given until grades are recorded by the regis trar for the current semester.

Disqualification. During a semester on academic probation, a student who fails to meet the retention standards specified above is disqualified. Stu dents may request a review of their dis qualification status by contacting the associate director of Student Academic Services in EC G102. Any disqualified student who is accepted by another col lege at ASU may not register for courses in this college unless the courses are required for the new major. Disqualified students who do register for courses in this college may be withdrawn from these courses any time dur ing that semester Furthermore, stu dents at the university who have been disqualified academically by this col lege are not eligible to enroll in sum mer session courses in this college until the disqualification period has expired and they have been reinstated.

Reinstatement. The College of Engi neering and Applied Sciences does not accept an application for reinstatement until the disqualified student has re mained out of this college for at least a 12 month period. Merely having re mained in a disqualified status for this period of time does not, in itself, con stitute a basis for reinstatement. Proof of ability to do satisfactory college work in the chosen discipline is re quired, for example, completing at least 15 semester hours of pertinent courses in the discipline at a community college with higher than average grades, and a cumulative GPA of 2.50 or higher for all courses completed

STUDENT RESPONSIBILITIES

Course Prerequisites. Students should consult the *Schedule of Classes* and the catalog for course prerequisites. Stu dents who register for courses without the designated prerequisites may be withdrawn without the student's con sent at any time before the final examination Such withdrawal may be initi ated by the instructor, the chair of the department offering the course, the director of Student Academic Services, or the dean of the college. In such cases, students will not receive monetary re imbursement. However, such with drawal is considered to be unrestricted as described on page 73 and does not count against the number of restricted withdrawals allowed.

SPECIAL PROGRAMS

Foundation Coalition. ASU is a member of the Foundation Coalition, a National Science Foundation funded group of seven institutions of higher learning across the U.S that is working to improve engineering education. Foundation Coalition programs are in tended to

1 demonstrate and promote the inter relationships of subject matter within the curriculum;
2. improve the interpersonal skills of students and the understanding of concepts through the use of more teaming and cooperative learning environments;
3 increase the use of technology in the curriculum; and
4 assess and evaluate intended im provements

Such changes address the desires of employers, increase the numbers of baccalaureate degrees earned by mem bers of currently underrepresented groups, and promote curriculum im provement. Foundation Coalition im-provements are presently available to all freshmen and sophomores except those in Chem cal, Bio, and Materials Engineering, and to juniors and seniors in Electrical Engineering and Industrial and Management Systems Engineering.

Foundation Coalition programs offer students a more hands on, team based, computer intensive approach to the curriculum. The freshman programs pro vide an important opportunity for new students to get to know a small group of students, making a large university seem less overwhelming. The pro grams also involve more interactions with faculty and access to special tu tors All students will get a team based, computer intensive education in ECE 100, Introduction to Engineering Design, but the Foundation Coalition program extends this experience to many more subjects and courses.

Freshmen Foundation Coalition pro grams offer both an integrated set of courses which include engineering, cal culus, physics, and English in both the first and second semesters, and smaller integration packages that include engi neering and English. In these pack ages, the same set of students take all of the courses in the package in high tech, team promoting classrooms while the faculty work together to deliver a unified set of courses Sophomore pro grams presently involve courses in mathematics, mechanics, and electrical circuits.

Students interested in these programs should see their department advisor or inquire in the office of the Center for Innovation in Engineering Education in room EC G205 or call 602/965 5350, or visit our Web site at www eas asu edu/ asufc.

Minority Engineering Program. The staff of the Minority Engineering Pro gram (MEP) is available to assist the academic and professional develop ment of prospective, newly admitted, and continuing students through a vari ety of support services In addition, ad vice on financial aid, scholarships, and employment is provided Visit the MEP office located in room EC G307 or call 602 965 8275, or visit our Web site at www.eas.asu.edu/~omep.

Women in Applied Sciences and Engineering Program. The Women in Applied Sciences and Engineering (WISE) Program hosts seminars and workshops, and provides outreach pro grams to high school and community college students WISE offers a profes sional development course, STE 194 Engineering for Undecided, to acquaint

students with a variety of technical ca reers. The WISE Center, located in room EC G214, is open for study groups, tutoring, and informal discus sions. The phone number is 602/965 6882 The Web address is www.eas. asu.edu/ wise.

Student Academic Services. The dean's office of the College of Engineering and Applied Sciences main tains a special office staffed to assist students in various matters. This office coordinates the work of the College Admissions and Standards Committee and administers the probation, disquali fication, and readmission processes for students who are academically defi cient.

Academic Honors. Students complet ing baccalaureate degree requirements receive the appropriate honors designations on their diplomas consistent with the requirements specified by the university.

Students in the College of Engineering and Applied Sciences are encour aged to seek information concerning entry into those honor societies for which they may qualify. Membership in such organizations enhances the student's professional stature. The follow ing honor societies are active within the college·

- Alpha Pi Mu Industrial Engineering Honor Society
- Chi Epsilon—Civil Engineering Honor Society
- Eta Kappa Nu Electrical Engineering Honor Society
- Pi Tau Sigma Mechanical Engineering Honor Society
- Sigma Gamma Tau Aerospace Engineering Honor Society
- Sigma Lambda Chi—Construction Honor Society
- Tau Beta Pi National Engineering Honor Society
- Upsilon Pi Epsilon National Computer Science Honor Society

Information on any of these organizations may be obtained from the respective department or school offices.

University Honors College. The College of Engineering and Applied Sciences participates in the programs of the University Honors College, which provides enhanced educational experiences to academically superior undergraduate students. Participating students can major in any academic program. A description of the requirements and the opportunities offered by the University Honors College can be found on pages 293 295.

Scholarships. Information and applications for academic scholarships for continuing students may be obtained by contacting the college's Student Academic Services or the various department or school offices. Other scholarships may be available through the university Student Financial Assistance Office.

ASU 3+2 Programs. Students desiring to earn a baccalaureate degree from Grand Canyon University (Phoenix, Arizona) in Mathematics, Chemistry, Construction, or Physics or from Southwestern University (Georgetown, Texas) in Physical Science and a baccalaureate degree in one of the engineering majors or the Construction major from ASU can take advantage of a 3+2 program approved by these institutions. Such students complete the first three years of study at their respective college or university and the last two years of study at ASU. At the end of the fourth or fifth year, assuming all degree requirements have been met, the baccalaureate degree is awarded by the student's respective college or university and the appropriate engineering or construction baccalaureate degree is awarded by ASU.

A similar 3+2 program is available to qualified students from Long Island University/C.W. Post Campus, College of Arts and Sciences, who wish to earn both a B.S. degree from C.W. Post in Mathematics or Physics and a Bachelor of Science in Engineering degree from ASU in Civil, Chemical, Electrical, Industrial, or Mechanical Engineering.

More information can be obtained by writing to one of the following offices:

Office of the Administrative Vice President
Grand Canyon University
3300 W Camelback Rd
Phoenix AZ 85017–1097

Provost and Dean of the Brown College of Arts and Sciences
Southwestern University
Georgetown TX 78626

Dean, College of Arts and Sciences
C.W. Post Campus
Long Island University
Brookville NY 11548

Office of the Dean
College of Engineering and Applied Sciences
Arizona State University
PO Box 875506
Tempe AZ 85287–5506

ROTC Students. Students pursuing a commission through either the Air Force or Army ROTC programs are required to take from 12 to 20 hours in the Department of Aerospace Studies or Department of Military Science. To preclude excessive overloads, these students should plan on at least one additional semester to complete degree requirements. Because of accreditation requirements, aerospace studies (AES) or military science (MIS) courses are not acceptable for degree credit in engineering as social and behavioral science or humanities and fine arts under General Studies. ROTC students must also meet all other degree requirements of this college.

GENERAL INFORMATION

Definition of Terms. The terms used in this college to describe offerings are defined below for purposes of clarity.

Program of Study. This broad term describes the complete array of courses included in the study leading to a degree.

Major This term describes a specialized group of courses contained within the program of study. Example: program of study—engineering; major Civil Engineering.

Area of Emphasis (Technical Electives), Option, or Concentration. Each of these terms describes a selection of courses within a major or among one or more majors. The number of technical electives varies from curriculum to curriculum. In a number of the majors, the technical electives must be chosen from preselected groups For this reason the choice of specific technical electives for an area of emphasis should be done with the advice and counsel of an advisor. Example: major Mechanical Engineering, area of emphasis thermo sciences

Del E. Webb School of Construction

William W. Badger
Director
(JWS 268) 602/965–3615
www.eas.asu.edu/dewsc

PROFESSORS
BADGER MULLIGAN

ASSOCIATE PROFESSORS
BASHFORD, ERNZEN, WEBER

ASSISTANT PROFESSORS
CHASEY, KASHIWAGI, WALSH, WIEZEL

VISITING EMINENT SCHOLAR
SCHEXNAYDER

PURPOSE

Construction careers are so broadly diversified that no single curriculum prepares the student for universal entry into all fields As an example, heavy construction contractors usually place more emphasis on technical and engi neering science skills than do residen tial contractors/developers, who usually prefer a greater depth of knowledge in management and construction. To en sure a balanced understanding of the technical, professional, and philosophi cal standards that distinguish modern day constructors, advisory groups rep resenting leading associations of contractors and builders provide coun sel in curriculum development. Con struction has a common core of engi-neering science, management, and behavioral courses on which students may build defined options to suit indi vidual backgrounds, aptitudes, and ob jectives. These options are not absolute but generally match major divisions of the construction industry.

DEGREES

Bachelor of Science (B.S.) Degree. The faculty in the Del E. Webb School of Construction offer the B.S. degree in Construction. Four options are avail able: general building heavy construc tion, residential construction, and spe cialty construction

Each option is arranged to accent requisite technical skills and to develop management, leadership, and competi tive qualities in the student Prescribed are a combination of General Studies, technical courses basic to engineering and construction, and a broad range of applied management subjects funda mental to the business of construction contracting.

Master of Science (M.S.) Degree. The Del E. Webb School of Construc tion also offers the M.S. degree in Con struction. Additional details for this degree are found in the *Graduate Cata log*

Professional Accreditation and Affiliations. The Del E. Webb School of Construction is a member of the Asso ciated Schools of Construction, an or ganization dedicated to the develop ment and advancement of construction education. The construction program is accredited by the American Council for Construction Education ACCE).

SPECIAL PROGRAMS

The Del E Webb School of Construc tion maintains a cooperative agreement with community colleges within Ari zona and also with selected out of state colleges and universities to structure courses that are directly transferable into the construction program at ASU

ASU 3+2 Program. The Del E Webb School of Construction also participates in the ASU 3+2 program with Grand Canyon University and Southwestern University. See page 190 for details.

Student Organizations. The school has a chapter of Sigma Lambda Chi (SLC), a nationa honor society that recognizes high academic achievement in accepted construction programs The school is also host to the Associ-ated General Contractors of America AGC) student chapter, the National Association of Home Builders (NAHB) student chapter, and the National Asso ciation of Women in Construction NAWIC student chapter.

Scholarships. Apart from those given by the university, a number of scholar ships from the construction industry are awarded to students registered in the construction program The scholar ships are awarded on the basis of aca demic achievement and participation in activities of the construction program.

ADMISSION

See pages 59 78, 184–185, and 188 189 for information regarding require ments for admission, transfer, retention, qualification, and reinstatement. A preprofess onal category is available for applicants deficient in regular ad mission requirements. Vocational and craft oriented courses taught at the community colleges are not accepted for credit toward a bachelor's degree in Construction.

BASIC REQUIREMENTS

Students complete the following ba-sic requirements before registering for advanced courses: 1) all first semester, first year courses and the university First Year Composition requirement (see page 79) must be completed by the time the student has accumulated 48 se-mester hours of program requirements, and (2) all second semester, first year courses must be completed by the time the student has completed 64 semester hours of program requirements. Trans fer students are given a one semester waiver.

Any student not making satisfactory progress is permitted to register for only those courses required to correct any deficiencies.

DEGREE REQUIREMENTS

A minimum of 128 semester hours with at least 50 hours at the upper divi sion evel is required for graduation in the general building construction. heavy construction, residential con-struction, and specialty construction options. Students in all options are re-quired to complete a construction core of science based engineering, construc tion, and management courses.

GRADUATION REQUIREMENTS

In addition to fulfilling school and major requirements majors must sat isfy the General Studies requirements as noted on pages 84–87 and all univer sity graduation requirements as noted on pages 79 83. Note that all three Genera Studies awareness areas are re quired. Consult your advisor for an ap proved list of courses

NOTE For the Genera Stud es requ rement, codes such as L1 N3, C, and H and courses see pages 84 108 For grad at on requ rements see pages 79–83 For omn bus courses offered but not l sted n th s cata og, see pages 56–57

SCHOOL COURSE REQUIREMENTS

The school requires that the General Studies requirement be satisfied in the following manner:

Humanities and Fine Arts/ Social and Behavioral Sciences

CON	101	Construction and Culture: A Built Environment *HU, G H*	3
ECN	111	Macroeconomic Principles *SB*	3
ECN	112	Microeconomic Principles *SB*	3
HU, SB, and awareness area courses as needed			6
Total			15

Literacy and Critical Inquiry

COM	225	Public Speaking *L1*	3
ECE	400	Engineering Communications *L2* or ETC 400 Technical Communications *L2* (3)	3
Total			6

Natural Sciences

PHY	111	General Physics *S1/S2*[1]	3
PHY	112	General Physics *S1/S2*[2]	3
PHY	113	General Physics Laboratory *S1/S2*[1]	1
PHY	114	General Physics Laboratory *S1/S2*[2]	1
Natural Sciences total			8

Numeracy

MAT	270	Calculus with Analytic Geometry I *N1*	4
STP	226	Elements of Statistics *N2*	3
Total			7
General Studies/school requirements total[3]			36

[1] Both PHY 111 and 113 must be taken to secure S1 or S2 credit.

[2] Both PHY 112 and 114 must be taken to secure S1 or S2 credit.

[3] Because of the school's requirement for MAT 270, the total semester hours exceed the General Studies requirement of 35.

Construction Major Requirements Common to *All* Options (Except as Noted)

ACC	394	ST: Financial Analysis and Accounting for Small Businesses	3
CEE	310	Testing of Materials for Construction	3
CEE	340	Hydraulics and Hydrology	3
CEE	450	Soil Mechanics in Construction	3
CON	221	Applied Engineering Mechanics: Statics	3
CON	243	Heavy Construction Equipment, Methods, and Materials	3
CON	251	Microcomputer Applications for Construction	3
CON	252	Building Construction Methods, Materials, and Equipment	3
CON	273	Electrical Construction Fundamentals	3
CON	323	Strength of Materials	3
CON	341	Surveying	3
CON	345	Mechanical Systems	3
CON	371	Construction Management and Safety	3
CON	383	Construction Estimating	3
CON	389	Construction Cost Accounting and Control *N3*	3
CON	424	Structural Design	3
CON	453	Construction Labor Management	3
CON	463	Foundations	3
CON	495	Construction Planning and Scheduling *N3*	3
CON	496	Construction Contract Administration *L2*	3
ECE	100	Introduction to Engineering Design *N3*	4
LES	306	Business Law	3
Science elective with lab			4
Total common to all options			71

Advisor-approved alternates/transfer credits for these courses may vary from the total required semester hours indicated. Such variances do not reduce the minimum of 128 semester hours required for the degree.

The course work for the first two years is the same for the general building, heavy, residential, and speciality construction options.

First Semester

CON	101	Construction and Culture: A Built Environment *HU, G, H*	3
ECN	111	Macroeconomic Principles *SB*	3
ENG	101	First Year Composition	3
MAT	270	Calculus with Analytic Geometry I *N1*	4
PHY	111	General Physics *S1/S2*[1]	3
PHY	113	General Physics Laboratory *S1/S2*[1]	1
Total			17

Second Semester

ECE	100	Introduction to Engineering Design *N3*	4
ECN	112	Microeconomic Principles *SB*	3
ENG	102	First Year Composition	3
PHY	112	General Physics *S1/S2*[2]	3
PHY	114	General Physics Laboratory *S1/S2*[2]	1
HU elective			3
Total			17

Third Semester

CON	221	Applied Engineering Mechanics: Statics	3
CON	243	Heavy Construction Equipment, Methods, and Materials	3
CON	251	Microcomputer Applications for Construction	3
STP	226	Elements of Statistics *N2*	3
Basic science elective with lab			4
Total			16

Fourth Semester

ACC	394	ST: Financial Analysis and Accounting for Small Businesses	3
COM	225	Public Speaking *L1*	3
CON	252	Building Construction Methods, Materials, and Equipment	3
CON	273	Electrical Construction Fundamentals	3
CON	323	Strength of Materials	3
Total			15

[1] Both PHY 111 and 113 must be taken to secure S1 or S2 credit.

[2] Both PHY 112 and 114 must be taken to secure S1 or S2 credit

Option in General Building Construction

The general building construction option provides a foundation for students who wish to pursue careers as estimators, project managers, project engineers, and, eventually, owners of firms engaged in the construction of residential, commercial, and institutional structures. Educational focus is on building systems required for the mass development and production of large-scale projects. General building construction is addressed as an integrated process from conception through delivery of completed facilities to users.

NOTE: For the General Studies requirement, codes (such as L1, N3, C and H), and courses, see pages 84–108. For graduation requirements, see pages 79–83. For omnibus courses offered but not listed in this catalog see pages 56–57.

Requirements

CON	472	Development Feasibility Reports *L2*	3
CON	483	Advanced Building Estimating	3
PUP	432	Planning and Development Control Law	3
		or PUP 433 Zoning Ordinances, Subdivision Regulations, and Building Codes 3)	
REA	394	Real Estate Fundamentals	3
Upper Division Technical Elective			3
Total			15

Option in Heavy Construction

The heavy construction option prepares students for careers related to the public works discipline. Typical projects in which they are involved are highways, railroads, airports, power plants, rapid transit systems, process plants, harbor and waterfront facilities, pipelines, dams, tunnels, bridges, canals, sewerage and water works, and mass earthwork.

Requirements

CON	344	Route Surveying	3
CON	486	Heavy Construction Estimating	3
Upper division technical elective			9
Total			15

Option in Residential Construction

The residential construction option prepares students for careers in the residential sector of the industry. This option covers the specific methods and processes during the planning, production, marketing and business related activities, common to residential construction.

Requirements

CON	377	Residentia Construction Production Procedures	3
CON	477	Residential Construction Business Practices	3
MKT	300	Principles of Marketing	3
PUP	432	Planning and Development Control Law	3
		or PUP 433 Zoning Ordinances, Subdivision Regulations, and Building Codes (3)	
Internship			3
Total			15

Option in Specialty Construction

The specialty construction option prepares students for careers with specialty constructors, such as mechanical and electrical construction firms. It emphasizes the construction process at the subcontractor level

Requirements

CON	455	Construction Office Methods	3
CON	468	Mechan cal and E ectrical Est mating	3
Upper division techn cal electives			9
Total			15

CONSTRUCTION (CON)

CON 101 Construction and Culture: A Built Environment. (3) F S
An ana ys s of the cu tural context of construc tion emphas z ng ts centra ity in the evo ution and expans on of bui t environments as ex press ons of ethical and h stor ca va ue sys tems Lecture, speakers, f e d tr ps *General Stud es HU G, H*

CON 221 Applied Engineering Mechanics: Statics. (3) F S
Vectors forces and moments force systems, equ br um, ana ys s of bas c structures and structural components fr ction centroids and moments of nert a Prerequ s tes MAT 270 PHY 111 113.

CON 243 Heavy Construction Equipment, Methods, and Materials. 3) F S
Emphas s on Hor zonta construction Fleet operat ons ma ntenance programs methods, and procedures to construct tunne s roads, dams, and the excavation of bu ld ngs Lab fie d trips

CON 251 Microcomputer Applications for Construction. (3) F S
App cations of the m crocomputer as a prob em solving too for the constructor Use of spreadsheets, nformat on management and mu t med a software Prerequ site ECE 100

CON 252 Building Construction Methods, Materials, and Equipment. (3) F, S
Emphasis on "Vert ca " construct on Methods, mater a s, codes and equ pment used in bui d ng construction correspond ng to the 16 d v s on 'Master Format." Lecture lab

CON 273 Electrical Construction Fundamentals. (3) F S
Circu ts and machinery Power transm ssion and distribution, with emphas s on secondary d stribut on systems Measurements and in strumentation Lecture fie d tr ps. Prerequi s tes. MAT 270 or equ va ent PHY 112 114

CON 323 Strength of Materials. (3 F, S
Ana ys s of strength and r gidity of structura members n resist ng app ed forces. Stress stra n, shear moment deflect ons, comb ned stresses connect ons and moment d str bu tion Both US and SI un ts of measurement Prerequisite. CON 221

CON 341 Surveying. (3 F, S
Theory and fie d work n construction and land surveys. Lecture, ab Prerequ s te. MAT 170.

CON 344 Route Surveying. (3) S
S mple compound, and trans t on curves, n clud ng reconna ssance prel m nary and oca t on surveys. Calculat on of earthwork Dimen sional contro for construct on projects Lecture ab. Prerequ s tes CON 243, 341.

CON 345 Mechanical Systems. 3) F, S
Design parameters and equ pment related to heating and coo ng systems for mechanica construct on Computer aided ca cu at ons Lecture f e d trips Prerequisites CON 252, PHY 111 113

CON 371 Construction Management and Safety. (3) F S
Organ zation and management theory appl ed to the construct on process. Leadersh p funct ons. Safety procedures and equipment OSHA requ rement for construct on Prerequ site: jun or standing.

CON 377 Residential Construction Production Procedures. (3) F
The process used n residential construct on. How a house is bu t: des gn, perm ts sched u ing codes, contracting site management, mechanical/e ectr ca . Prerequ s te CON 252

CON 383 Construction Estimating. (3) F, S
Draw ngs and specif cat ons. Methods and techn ques used in construct on estimat ng procedures ntroduct'on to computer software used n ndustry Lecture, project workshops Prerequisites: CON 243 and 251 and 252 and 273 and Construct on major *or* instructor approva .

CON 389 Construction Cost Accounting and Control. (3) F, S
Nature of construction cost. Deprec ation and tax theory and var able equ pment costs. Cash f ow theory, nvestment mode s, profitab' ity, and ana ys s. Computer app ication ons Funding sources and arrangements Bu lder's nsur ance. Prerequ s tes ACC 394 ST Survey of Account ng, CON 251. *General Studies. N3.*

CON 424 Structural Design. (3) F S
Econom c use of concrete, stee and wood n bu lding and engineered structures. Design of beams columns concrete formwork, and con nect ons Lecture, f e d trips Prerequisite: CEE 310

CON 453 Construction Labor Management. (3) F, S
Labor and management h story, un on, and open shop organization of bu ld ng and construct on workers appl cable aws and govern ment regu at ons; goals, economic power, ju risdict onal d'sputes, and grievance procedures. Lecture lab Prerequisites CON 371 ECN 112

CON 455 Construction Office Methods. (3) F S
Adm n strat ve systems and procedures for the construct on company office, nc ud ng meth ods improvement and work simp if cation, pol cy and procedures. Pre- or corequisite: CON 389.

CON 463 Foundations. (3) F, S
Subsurface construction theory and practice for descript on, excavat ons exploration foundations pavements and s opes Evaluation of specif cations and plans of work Lecture, reci tat on, field trips. Prerequ s tes CEE 450, CON 424

CON 468 Mechanical and Electrical Estimating. (3) F
Ana ys s and organ zation of perform ng a cost est mate for both mechan ca and electr ca construct on projects. Computer usage Prerequ s tes CON 273 and 345 and 383 *or* n structor approva .

CON 472 Development Feasibility Reports. (3) F, S
Integrat on of economic ocation theory development cost data market research data, and f nanc a analys s into a feas'bi ity report Computer or entation Prerequ s te REA 394 ST Real Estate Fundamentals *General Studies L2*

CON 477 Residential Construction Business Practices. (3 F, S
Top cs addressed w l nc ude deve opment market ng f nanc ng egal ssues and sales Prerequ s te CON 377 or 'nstructor approva

CON 483 Advanced Building Estimating. (3) S
Concepts of pricing and markup deve opment of histor c costs fe cyc e costing change or der and conceptua est mat ng and emphasiz ing m crocomputer methods. Prerequ s te CON 383

CON 486 Heavy Construction Estimating. (3) F
Methods analysis and cost est mation for con struct on of h ghways, bridges tunne s, dams and other eng neering works. Lecture fie d tr ps Prerequ s te CON 383 Pre- or corequ s te CON 344

CON 495 Construction Planning and Scheduling. 3) F, S
Var ous network methods of project schedu ng such as AOA AON Pert, bar-charting ne of ba ance, and VPM techn ques Micro computers used for schedu ing resource a lo cat on and t'me cost ana ysis Lecture ab Prerequ s tes. CON 383; STP 226 Pre or corequ s te CON 389 *General Stud es: N3*

CON 496 Construction Contract Admin'stration. 3) F, S
Survey administrat've procedures of genera and subcontractors Study documentat on, claims, arb trat on, t gat on bonding nsurance, and indemn f cat on D scuss eth cal pract ces Lecture fie d tr ps Prerequ s tes ECE 400 or ETC 400 senior standing Pre- or corequ s te CON 371 *General Studies L2*

CON 533 Strategies of Estimating and Bidding. (3 F
Course w exp ore advanced concepts of the est mating process, such as mode ng and sta t st cal ana ys s to mprove bid accurac es. Prerequ s te CON 483 or 486 or nstructor ap prova

CON 540 Construction Productivity. (3) F
Product v ty concepts Data co ection Ana y- s s of product v ty data and factors affect ng product v ty Means for mproving product on and study of product v ty mprovement programs. Pre- or corequisite: CON 495

CON 543 Construction Equipment Engineering. (3) S
Ana ys s of heavy construct on equ pment product v ty us ng case stud es Appl es eng neer ing fundamentals to the p anning se ect on, and uti zation of equ pment Lecture case stud es

CON 545 Construction Project Management. 3) S
Theory and practice of construct on project management Ro es of des gner owner, gen era contractor, and construction manager Lecture, f e d tr ps. Pre or corequ s te CON 495

CON 547 Strategic Planning. (3) S
The bus ness p ann ng process of the con struct on enterpr se D fferences between pub- c y he d and c ose y he d bus nesses and the r exposure

CON 561 International Construction. (3) S
An nvest gat on of the cultural, soc a econom c po t cal, and management ssues re ated to construction n fore gn countr es and remote regions

CON 577 Construction Systems Engineering. (3) F
Systems theory as app ied to the construct on process Alternates for structuring nformat on f ows and the contro of projects Prerequ s te EE 476 or equiva ent

CON 589 Construction Company Financial Control. (3) F
F nanc a account ng and cost control at the company eve in construct on compan es Account ng systems Construct on project prof t ca cu at ons F nancia ana ys s Lecture case studies

School of Engineering

Daniel F. Jankowski
Director
(EC G104) 602/965–1726

PURPOSE

A large percentage of all engineering degree holders are found in leadership positions in a wide variety of industrial settings. Although an education in engineering is generally considered to be one of the best technical educations, it also provides an opportunity for the development of many additional attributes, including ethical and professional characteristics. In this era of rapid technological change, an engineering education serves our society well as a truly liberal education Society's needs in the decades ahead call for engineering contributions on a scale not previously experienced. The well being of our civilization as we know it may depend upon how effectively this resource is developed.

Students studying engineering at ASU are expected to acquire a thorough understanding of the fundamentals of mathematics and the sciences and their applications to the solution of problems in the various engineering fields. The program is designed to develop a balance between science and engineering and an understanding of the economic and social consequences of engineering activity. The goals include the promotion of the general welfare of the engineering profession

The courses offered are designed to meet the needs of the following students

1. those who wish to pursue a career in engineering;
2 those who wish to do graduate work in engineering;
3 those who wish to have one or two years of training in mathematics, applied science, and engineering in preparation for some other technical career;
4. those who desire pre-engineering for the purpose of deciding which program to undertake or those who desire to transfer to another college or university, and
5 those who wish to take certain elective in engineering while pursuing another program in the university.

ADMISSION

See pages 59 78, 184–185, and 188 189 for information regarding requirements for admission, transfer, retention, disqualification, and reinstatement.

Individuals who are beginning their initial college work in the School of Engineering should have completed certain secondary school units in addition to the minimum university requirements. Four units are required in mathematics A course with trigonometry should be included. The laboratory sciences chosen must include at least one unit in physics and one unit in chemistry. Calculus, biology, and computer programming are recommended. Students who do not meet the college's subject matter requirements may be required to complete additional university course work that may not apply toward an engineering degree One or more of the courses—CHM 113 General Chemistry, CSE 181 Applied Problem Solving with BASIC, MAT 170 Precalculus, and PHY 105 Basic Physics may be required to satisfy omissions or deficiencies.

DEGREES

The Bachelor of Science in Engineering (B.S.E.) degree consists of three parts:

1. university requirements (e.g., General Studies, First Year Composition),

NOTE: For the Genera Stud es requ rement, codes (such as L1 N3 C, and H) and courses, see pages 84–108 For graduat on requ rements see pages 79–83 For omn bus courses offered but not sted n this cata og see pages 56–57

2. an engineering core; and
3. a major.

The courses identified for each of these parts are intended to meet requirements imposed by the university and by the professional accrediting agency, Accreditation Board for Engineering and Technology, Inc. (ABET), for programs in engineering.

The B.S. degree in Computer Science consists of two parts:

1. university requirements (e.g., General Studies, First-Year Composition); and
2. a major.

The courses identified for each of these parts are intended to meet requirements imposed by the university and by the professional accrediting agency, the Computer Science Accreditation Board (CSAB), for programs in computing science.

In addition to First-Year Composition, the university requires, under the heading of General Studies, courses in literacy and critical inquiry, humanities and fine arts, social and behavioral sciences, numeracy, and natural sciences (see pages 84–87). There are also requirements in historical awareness, global awareness, and cultural diversity in the United States. ABET and CSAB impose additional requirements, particularly in mathematics and the basic sciences and in the courses for the major.

The engineering core is an organized body of knowledge that serves as a foundation to engineering and for further specialized studies in a particular engineering major.

The courses included in the engineering core are taught in such a manner that they serve as basic background material: (1) for all engineering students who will be taking subsequent work in the same and related subject areas; and (2) for those students who may not desire to pursue additional studies in a particular subject area. Thus, subjects within the engineering core are taught with an integrity and quality appropriately relevant to the particular discipline but always with an attitude and concern for both engineering in general and for the particular major(s).

The majors available are of two types: (1) those associated with a particular department within the School of Engineering (for example, Electrical Engineering and Civil Engineering) and (2) those offered as options in Engineering Special Studies (for example, manufacturing engineering and premedical engineering). With the exception of the Computer Science major, all curricula are extensions beyond the engineering core and cover a wide variety of subject areas within each field. Some of the credits in the major are reserved for the student's use as an area of emphasis. These credits are traditionally referred to as *technical electives.*

Majors and areas of emphasis are offered by the six departments: Chemical, Bio, and Materials Engineering; Civil and Environmental Engineering; Computer Science and Engineering; Electrical Engineering; Industrial and Management Systems Engineering; and Mechanical and Aerospace Engineering. The major in Engineering Special Studies is administered by the Office of the Dean. Engineering Special Studies makes use of the general structure of the engineering curricula noted above and provides students with an opportunity for study in engineering options not available in the traditional engineering curricula at ASU.

The first two years of study are concerned primarily with general education requirements, English proficiency, and the engineering core. The final two years of study are concerned with the engineering core and the major, with a considerable part of the time being spent on the major.

The semester-by-semester selection of courses may vary from one field to another, particularly at the upper-division level, and is determined by the student in consultation with a faculty advisor. An example of a typical full-time freshman schedule is shown below; depending on a particular student's circumstances, many other examples are possible.

Typical Freshman Year

First Semester

CHM	114	General Chemistry for Engineers *S1/S2*	4
ECE	100	Introduction to Engineering Design *N3*	4
ECN	111	Macroeconomic Principles *SB*	3
		or ECN 112 Microeconomic Principles *SB* (3)	
ENG	101	First-Year Composition	3
ENG	102	First-Year Composition	3
MAT	270	Calculus with Analytic Geometry I *N1*	4
MAT	271	Calculus with Analytic Geometry II	4
PHY	121	University Physics I: Mechanics *S1/S2**	3
PHY	122	University Physics Laboratory I *S1/S2**	1
HU, SB, and awareness area course			3
Total			32

* Both PHY 121 and 122 must be taken to secure S1 or S2 credit.

Well-prepared students who have no outside commitments can usually complete the program of study leading

Under direction from regents' professor John Spence (center), Uwe Weierstall (left) and research assistant J.M. Zuo work on silicon surface reconstruction.

Tim Trumble photo

to an undergraduate degree in engineering in four years (eight semesters at 16 semester hours per semester). Many students, however, find it advantageous or necessary to devote more than four years to the undergraduate program by pursuing, in any semester, fewer studies than are regularly prescribed. Where omissions or deficiencies exist, e.g., in chemistry, computer programming, English, mathematics, and physics, the student must complete more than the minimum of 128 semester hours. Therefore, in cases of inadequate secondary preparation, poor health, or financial necessity requiring considerable time for outside work, the undergraduate program is extended beyond four years.

DEGREE REQUIREMENTS

The degree programs in engineering at ASU are intended to develop habits of quantitative thought having equal utility for both the practice of engineering and other professional fields. In response to the opportunities provided by changing technology, educational research, and industrial input, possible improvements of various aspects of these programs are routinely considered. It is the intent of the faculty that all students be appropriately prepared in the four areas described below.

1. *Oral and written English.* Communication skills are an essential component of an engineering education. All engineering students must complete the university First Year Composition requirement (see page 79) and the literacy and critical inquiry component (see page 85) of the General Studies requirement, which involves two courses beyond First Year Composition.
2. *Selected nonengineering topics.* This area ensures that the engineering student acquires a satisfactory level of basic knowledge in the humanities and fine arts, social and behavioral sciences, numeracy, and the natural sciences. Courses in these subjects give engineers an increased awareness of their social responsibilities, provide an understanding of related factors in the decision-making process, and also provide a foundation for the study of engineering. Required courses go toward fulfilling the General Studies requirement. Additional courses in mathematics and the basic sciences are selected to meet ABET requirements.

   Because of accreditation requirements, aerospace studies (AES) and military science (MIS) courses are not acceptable for engineering degree credit in fulfilling the humanities and fine arts and social and behavioral science portions of the General Studies requirement.
3. *Selected engineering topics.* This area involves courses in engineering science and engineering design. The courses further develop the foundation for the study of engineering and provide the base for specialized studies in a particular engineering discipline. The specific courses are included in the engineering core and in the major. While some departmental choices are allowed, all students are required to take ECE 100 Introduction to Engineering Design and ECE 300 Intermediate Engineering Design as part of the engineering core. These courses, together with other experiences in the engineering core and in the major, serve to integrate the study of design, the "process of devising a system, component, or process to meet desired needs" (ABET), throughout the engineering curricula.
4. *Specific engineering discipline.* This area provides a depth of understanding of a more definitive body of knowledge that is appropriate for a specific engineering discipline. Courses build upon the background provided by the earlier completed portions of the curriculum and include a major design experience as well as technical electives that may be selected by the student with the assistance of an advisor. The catalog material for the individual engineering majors describes specific departmental requirements.

COURSE REQUIREMENTS

A summary of the degree requirements is as follows:

First Year Composition	3–6
General Studies/School Requirements	58
Engineering core	15–19
Major (including area of emphasis)	45–49
The requirements for each of the majors offered are described on the following pages	
Total	128

The specific course requirements for the B.S. and B.S.E. degrees follow.

First-Year Composition

ENG	101, 102	First-Year Composition	6
		or ENG 105 Advanced First Year Composition (3) or ENG 107, 108 English for Foreign Students 6)	
Total			6

General Studies/School Requirements

Humanities and Fine Arts/ Social and Behavioral Sciences

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

ECN	111	Macroeconomic Principles *SB*	3
		or ECN 112 Microeconomic Principles *SB* 3)	
HU course(s)			6 or 10
SB course(s)			7 or 3
Total			16

Literacy and Critical Inquiry

ECE	300	Intermediate Engineering Design *L1*	3
ECE	400	Engineering Communications *L2*	3
		or approved department L2 course 3)	
Total			6

Natural Sciences/Basic Sciences

CHM	114	General Chemistry for Engineers *S1/S2*	4
		or CHM 116 General Chemistry *S1/S2* (4	
PHY	121	University Physics I Mechanics *S1/S2*[1]	3
PHY	122	University Physics Laboratory I *S1/S2*[1]	1
PHY	131	University Physics II: Electricity and Magnetism *S1/S2*[2]	3
PHY	132	University Physics Laboratory II *S1/S2*[2]	1

NOTE For the General Studies requirement codes (such as L1 N3, C, and H), and courses, see pages 84–108. For graduation requirements see pages 79–83. For omnibus courses offered but not listed in this catalog, see pages 56–57.

Department basic science elective 3

Total 15

Numeracy/Mathematics

ECE 100 Introduction to Engineering Design *N3* 4
MAT 270 Calculus with Analytic Geometry I *N1* 4
MAT 271 Calculus with Analytic Geometry II 4
MAT 272 Calculus with Analytic Geometry III 4
MAT 274 Elementary Differential Equations 3
Department mathematics elective 2

Total 21
General Studies/school requirements total 58

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[1] Both PHY 121 and 122 must be taken to secure S1 or S2 credit

[2] Both PHY 131 and 132 must be taken to secure S1 or S2 credit.

Engineering Core

A minimum of five of the following eight courses are required, totaling 15 to 19 semester hours. Courses selected are subject to departmental approval See department requirements

ECE 210 Engineering Mechanics I Statics 3
ECE 301 Electrical Networks I 4
ECE 312 Engineering Mechanics II: Dynamics 3
ECE 313 Introduction to Deformable Solids 3
ECE 334 Electronic Devices and Instrumentation 4
ECE 340 Thermodynamics 3
or CHM 441 General Physical Chemistry (3)
or MSE 430 Thermodynamics of Materials (3)
ECE 350 Structure and Properties of Materials 3
or CHM 442 General Physical Chemistry (3)
or ECE 351 Engineering Materials (3)
or ECE 352 Properties of Electronic Materials (4)
Choose from one of the microcomputer/microprocessor courses below 3–4
BME 470 Microcomputer Applications in Bioengineering (4)
CHE 461 Process Control *N3* (4)
CSE/EEE 225 Assembly Language Programming and Microprocessors (Motorola) (4
CSE/EEE 226 Assembly Language Programming and Microprocessors (Intel) (4)
IEE 463 Computer-Aided Manufacturing and Control *N3* (3)

Engineering core minimum total 15

GRADUATION REQUIREMENTS

To qualify for graduation from the School of Engineering, a student must have a minimum cumulative GPA of 2.00 in addition to having a GPA of at least 2.00 for the courses in the major field.

PROFESSIONAL ACCREDITATION

The undergraduate programs in Aerospace Engineering, Bioengineering, Chemical Engineering, Civil Engineering, Computer Systems Engineering, Electrical Engineering, Industrial Engineering, Mechanical Engineering, and Engineering Special Studies are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc. (ABET), 111 Market Place, Suite 1050, Baltimore, MD 21202–4012, 410/347 7700. The Bachelor of Science program in Computer Science is accredited by the Computer Science Accreditation Commission (CSAC) of the Computing Sciences Accreditation Board (CSAB).

ANALYSIS AND SYSTEMS (ASE)

ASE 100 College Adjustment and Survival. (2) F, S
Exploration of career goals and majors Emphasis on organization and development of study skills, including time management, stress management and use of the library.

ASE 399 Cooperative Work Experience. (1) F, S SS
Usually involves two six month work periods with industrial firms or government agencies alternated with full-time semester and summer sessions studies Not open to students from other colleges on campus May be repeated for credit Prerequisites: at least 45 hours completed in major area with minimum 2.50 GPA; instructor approval.

ASE 485 Engineering Statistics. (3) F S, SS
Designing statistical studies for solutions to engineering problems Methods include regression design and analysis of experiments, and other statistical topics. Prerequisite ECE 380 *General Studies: N2.*

ASE 490 Project in Design and Development. (2–3) F, S SS
Individual project in creative design and synthesis. Course may be repeated Prerequisite: senior standing

ASE 496 Professional Seminar. (0) F S
Topics of interest to students in the engineering special and interdisciplinary studies

ASE 500 Research Methods: Engineering Statistics. (3) F, S SS
Design ng statistical studies for solutions to engineering problems. Methods include regression, design and analysis of experiments and other statistical topics. Prerequisite. ECE 380

ASE 582 Linear Algebra in Engineering. (3) F
Development and solution of systems of linear algebraic equations Applications from mechanical structural, and electrical fields of engineering. Prerequisite: MAT 242 or equivalent.

ASE 586 Partial Differential Equations in Engineering. (3) S
Development and solution of partial differential equations in engineering. Applications in solid mechanics, vibrations and heat transfer. Prerequisites. ECE 386· MAT 242, 274.

ENGINEERING CORE (ECE)

ECE 100 Introduction to Engineering Design. (4) F, S
Introduction to engineering design philosophy and methodology· computer modeling of systems processes, and components design for customer satisfaction, profitability, quality and manufacturing, economic analysis, flow charting; sketching CAD; and teaming A term design project is included. Prerequisites: high school computing and physics and algebra courses *or* equivalents. *General Studies: N3.*

ECE 210 Engineering Mechanics I: Statics. (3) F, S, SS
Force systems, resultants, equilibrium, distributed forces, area moments, fluid statics internal stresses, friction energy criterion for equilibrium and stability Lecture recitation Prerequisites ECE 100, MAT 271 (or 291) PHY 121, 122

ECE 300 Intermediate Engineering Design. (3) F S, SS
Engineering design process concentrating on increasing the student's ability to prepare well written technical communication and to define problems and generate and evaluate ideas. Teaming skills enhanced Prerequisites. ECE 100; ENG 102 (or 105 or 108); at least two other engineering core courses *General Studies· L1.*

ECE 301 Electrical Networks I. (4) F, S SS
Introduction to electrical networks. Component models, transient, and steady-state analysis Lecture lab. Prerequisite: ECE 100 Pre- or corequisites· MAT 274; PHY 131, 132.

ECE 312 Engineering Mechanics II: Dynamics. (3) F, S SS
Kinematics and kinetics of particles, translating and rotating coordinate systems rigid body kinematics, dynamics of systems of particles and rigid bodies, and energy and momentum principles Lecture, recitation Prerequisites: ECE 210 MAT 274.

ECE 313 Introduction to Deformable Solids. (3) F, S, SS
Equilibrium, strain displacement relations, and stress-strain-temperature relations. Applications to force transmission and deformations in axial torsional, and bending of bars. Combined loadings. Lecture, recitation. Prerequisites ECE 210, MAT 274.

ECE 314 Engineering Mechanics. 4) F, S SS
Force systems resu tants, moments and equ - l br um K nematics and k'net cs of partic es systems of part c es and r g d bod es Energy and momentum pr nc p es Lecture rec tat on. Prerequ sites. ECE 100 MAT 274 PHY 121 122

ECE 334 Electronic Devices and Instrumentation. (4) F S, SS
Appl cat on of e ectr c network theory to sem - conductor circu ts. D odes/trans stors/ampl fi ers/opamps/d g ta og c gates, and e ectronic nstruments Lecture, ab Prerequ's'te· ECE 301

ECE 340 Thermodynamics. (3 F, S, SS
Work, heat and energy transformat ons and re at onsh ps between propert es, aws concepts, and modes of ana ys s common to al app ications of thermodynam cs n eng neer ng Lecture, rec tat on Prerequ sites. CHM 114 or 116) ECE 210; PHY 131 Pre or co-requ s te: MAT 274

ECE 350 Structure and Properties of Materials. (3) F S SS
Basic concepts of mater a structure and ts re ation to propert es App cation to eng neer ng prob ems. Prerequ s tes CHM 114 (or 116) PHY 121

ECE 351 Engineering Materials. (3) F, S
Structure and behav or of civi eng neer ng mater a s Laboratory nvest gat ons and test cnter a Lecture ab. Prerequ s te ECE 313

ECE 352 Properties of Electronic Materials. (4) F S SS
Schrod nger s wave equat on, potent a barr er problems bonds of crysta s, the band theory of so ds, semiconductors, superconductor d - e ectric and magnetic propert es Prerequi s tes: MAT 274 PHY 241.

ECE 380 Probability and Statistics for Engineering Problem Solving. (3) F, S
App cat ons oriented course with computer based exper ence us ng stat st ca software for formu at ng and so v ng eng neer ng prob ems 2 hours lecture 2 hours ab Prerequisite: MAT 271. *General Stud es N2*

ECE 384 Numerical Analysis for Engineers I. (2) F S
Numerical so ut on of a gebra c and transcen denta equations and systems of l near equa t ons Numer cal ntegrat on. Curve fitting Er-ror bounds and error propagat on Emphas s on use of d g ta computer. Prerequ s te MAT 272 or 291

ECE 385 Numerical Analysis for Engineers II. 2) S
Cont nuat on of ECE 384 Numerical so ut on of part a d fferent a equat ons and m'xed equat on systems Introduct on to experimen tal design and optim zat on techn ques Pre requ s te ECE 384

ECE 386 Partial Differential Equations for Engineers. (2) F, S
Boundary value problems separat on of van ab es, and Fourier ser es as appl ed to n t a boundary value problems Prerequ site: MAT 274

ECE 400 Engineering Communications. 3) F, S, SS
P ann ng and prepar ng eng neer ng pub ca tions and oral presentations, based on d rected brary research re ated to current eng - neering top cs Prerequ s tes ENG 102 or 105 or 108), comp et on of General Stud es L1 requirement (or ECE 300), sen or stand ng n an eng neer ng major *Genera Stud es L2*

SOCIETY, VALUES, AND TECHNOLOGY (STE)

STE 201 Introduction to Bioengineering. (3 F
mpact of bioeng neer ng on soc'ety. Deve op ng an awareness of the contr butions of bioeng neering to so ve medica and bio ogica prob ems Cross l sted as BME 201 Prereq-u site: ENG 102 or 105 or 108 *General Stud ies L1.*

STE 208 Patterns in Nature. (4) F, S
Project-or ented sc ence course w th computer training to deve op cr t cal think ng and techni ca sk' s for student or ented sc ence lessons K 12. Lecture, ab Cross l sted as PHS 208 Prerequ s te co ege leve sc ence cou se or nstructor approval. *Genera Studies· S1 S2.*

Department of Chemical, Bio, and Materials Engineering

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Chair
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The faculty in the Department of Chemical, Bio, and Materials Engineer ing offer the B.S. degree in three excit ing disciplines· chemical engineering, bioengineering, and materials science and engineering. Each of these majors builds on a broad base of knowledge within the basic and mathematical sci ences and the engineering core. Each offers excellent career opportunities.

Chemical engineers design and oper ate processes that may include chemi cal change They combine the science of chemistry with the discipline of en gineering in order to solve complex prob ems in a wide variety of indus tries Challenging job opportunities ex ist not only in the chemical and petro-leum industries, but also in the plastics, electronics, computer, metals, space, food, drug, and health care industries. In these industries, chemical engineers practice in a wide variety of occupa tions including environmental control, surface treatments, energy and materi als transformation, biomedical applica tions, fermentation, protein recovery, extractive metallurgy, and separations. In the environmental area, chemical en gineers develop methods to reduce the pollution created in manufacturing pro cesses, devise techniques to recover us able materials from wastes, design waste storage and treatment facilities, and design pollution control strategies.

Bioengineering (synonyms: biomedi-cal engineering or medical engineering) is the discipline of engineering that ap plies principles and methods from engi neering, the life sciences, and the medi cal sciences to understand, define, and solve problems in medicine, physiol ogy, and biology. Bioengineering stu dents typically pursue either a career in the medical device/biotechnology in dustry or a career in bioengineering, medical or biotechnology research or enter a postgraduate program in clinical or veterinary medicine or dentistry. The practicing bioengineer uses engineering principles and technology to develop instrumentation, biomaterials, diagnos tic and therapeutic devices, artificial or gans, and other equipment needed in medicine and biology They also dis cover new fundamental principles re garding the functioning and structure of living systems.

Materials science and engineering uses fundamental knowledge in chem istry and physics to correlate relation ships between the structure and pro-cessing of materials and their proper ties. Students educated in this disci pline decide how to optimize existing materials or how to develop new ad vanced materials and processing tech niques. Students who major in materi als science and engineering will find employment opportunities in a variety of industries and research facilities which include aerospace, electronics, energy conversion, manufacturing, medical devices, semiconductors, and transportation.

The following sections describe the curriculum requirements for the Bach-elor of Science in Engineering degree in each of these disciplines. Faculty within the department also participate

in the Engineering Special Studies program in premedical engineering which is described separately on page 238.

CHEMICAL ENGINEERING—B.S.E.

PROFESSORS
BERMAN CALE GUILBEAU, KUESTER RAUPP SATER ZWIEBEL

ASSOCIATE PROFESSORS
BECKMAN, BELLAMY, BURROWS, GARC A RIVERA TORREST

ASSISTANT PROFESSOR
S BEAUDOIN

LECTURER
D. BEAUDO N

Chemical engineers are generally concerned with transfer within and between liquid, gas, and solid phases and the chemical changes that may also occur. They design and operate processes that accommodate such changes, including the chemical activation of materials. Typically this involves complex multicomponent systems wherein the interactions between species have to be considered and analyzed The new challenge in chemical engineering is to apply the principles of fluid dynamics, mass transfer, solution thermodynamics, reaction kinetics, and separation techniques to technological endeavors such as pollution control within manufacturing and the environment, integrated circuit design, solid state surface treatments, and materials processing.

Consequently, in addition to the chemical and petroleum industries, chemical engineers find challenging opportunities in the plastics, solid state, electronics, computer, metals, space, food, drug, and health care industries, where they practice in a wide variety of occupations, such as environmental control, surface treatments, energy and materials transformations, biomedical applications, fermentation, protein recovery, extractive metal lurgy, and separations. While a large percentage of the industrial positions are filled by graduates with bachelor's degrees, there are lucrative and creative opportunities in research and development for those who acquire post graduate education

Subspecializations have developed within the profession. However, the same broad body of knowledge is generally expected of all chemical engineers for maximum flexibility in industrial positions. The preparation for chemical engineering is accomplished by a blend of classroom instruction and laboratory experience

DEGREE REQUIREMENTS

A minimum of 128 semester hours is necessary for the B.S E. degree in Chemical Engineering. A minimum of 50 upper division semester hours is required

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

First-Year Composition

ENG	1 , 10	First Year Composition	6
		or ENG 105 Advanced First Year Composition	3
		or ENG 107, 108 English for Foreign Students	6
Total			6

General Studies School Requirements

Humanities and Fine Arts Social and Behavioral Sciences

ECN	111	Macroeconomic Principles *SB*	3
		or ECN 112 Microeconomic Principles *SB*	3
SB, HU, and awareness area course			13
Total			16

Literature and Critical Inquiry

CHE	352	Transport Laboratories *L2*	3
ECE	300	Intermediate Engineering Design *L1*	3
Total			6

Natural Sciences/Basic Sciences

CHM	113	General Chemistry *S1/S2*	4
CHM	116	General Chemistry *S1 S2*	4
CHM	331	General Organic Chemistry	3
CHM	335	General Organic Chemistry Laboratory	1
PHY	12	University Physics I Mechanics *S1/S2*[2]	3
PHY	122	University Physics Laboratory *S1 S2*[2]	
Total			16

Numerary Mathematics

ECE	100	Introduction to Engineering Design *S2*	4
ECE	384	Numerical Analysis for Engineers I	3
MAT	270	Calculus with Analytic Geometry I *M1*	4
MAT	71	Calculus with Analytic Geometry II	4
MAT	272	Calculus with Analytic Geometry III	4
MAT	344	Elementary Differential Equations	3
Total			21

General Studies science requirements total 59

Engineering Core

CHE	342	Applied Chemical Thermodynamics	4
CHE	461	Process Control *W3*	4
ECE	394	ST Conservation Principles	4
ECE	394	ST Properties that Matter	4
ECE	394	ST Engineering Systems	4
Total			20

Major

CHE	311	Introduction to Chemical Processing	3
CHE	331	Transport Phenomena I Fluids	3
CHE	332	Transport Phenomena II Energy Transfer	3
CHE	333	Transport Phenomena III: Mass Transfer	3
CHE	432	Principles of Chemical Engineering Design	3
CHE	442	Chemical Reactor Design	3
CHE	451	Chemical Engineering Laboratory	2
CHE	462	Process Design	3
CHM	337	General Organic Chemistry	3
ECE	380	Probability and Statistics for Engineering Problem Solving *S2*	3
ECE	385	Numerical Analysis for Engineers II	2
Technical electives			2
Total			43

Engineering students may not use aerospace studies AES or military science MIS courses to fulfill HU or SB requirements See page 95

[2] Both PHY 121 and 122 must be taken to receive S1 or S2 credit

Consult with your department academic advisor to ensure that all requirements are met

The technical elective courses must be selected from upper division courses with advisor's approval and must include the following two three semester hour chemistry courses, a three semester hour natural science or materials course; and a three semester hour chemical engineering course.

To fulfill accreditation requirements and to prepare adequately for the advanced chemistry courses, Chemical Engineering majors are required to take the CHM 113 and 116 introductory chemistry sequence (CHM 117 and 118 are acceptable substitutes). Other freshman chemistry courses are *not acceptable*, and transfer students who have taken another chemistry course may be required to enroll in CHM 113 and 116.

The faculty in the Department of Chemical, Bio, and Materials Engineering also offer graduate programs leading to the M.S.E., M.S., and Ph.D. degrees. These programs provide a blend of classroom instruction and research. A wide variety of topical and relevant research projects are available for the SIS topics. Students interested in these programs should contact the department for up-to-date descriptive literature.

Chemical Engineering Areas of Emphasis

Students who wish to specialize may develop an area of interest through the use of technical electives and selective substitutions for required courses. Substitutions must be approved by the advisor and the Department Standards Committee and must be consistent with ABET accreditation criteria. No substitution of CHE 462 is allowed. The following are possible elective areas of emphasis with suggested courses. A student may choose electives within the general department guidelines and does not have to select one of the areas listed.

Biochemical. Students wishing to prepare for a career in biotechnology, fermentation, food processing, pharmaceuticals, and other areas within biochemical engineering should select from the following:

Chemistry Electives

CHM	361	Principles of Biochemistry	3
CHM	461	General Biochemistry	3
CHM	462	General Biochemistry	3

Technical Electives

AGB	423	Food and Industrial Microbiology	3
AGB	424	Food and Industrial Fermentations	4
AGB	425	Food Safety	3
AGB	426	Food Chemistry	4
CHE	475	Biochemical Engineering	3
CHE	476	Bioreaction Engineering	3
CHE	477	Bioseparation Processes	3

Biomedical. Students who are interested in biomedical engineering but wish to maintain a strong, broad chemical engineering base should select from the following:

Chemistry Electives

CHM	361	Principles of Biochemistry	3
CHM	461	General Biochemistry	3
CHM	462	General Biochemistry	3

Technical Electives

BME	318	Biomaterials	3
BME	411	Biomedical Engineering I	3
BME	412	Biomedical Engineering II	3
BME	413	Biomedical Instrumentation *L2*	3
BME	435	Physiology for Engineers	4

Environmental. ASU does not offer a B.S.E. degree in Environmental Engineering, but students with this interest are encouraged to pursue a B.S.E. degree in Chemical Engineering with this area of emphasis. Students interested in the management of hazardous wastes and air and water pollution should select from the following:

Chemistry Electives

CHM	302	Environmental Chemistry	3
CHM	361	Principles of Biochemistry	3
CHM	461	General Biochemistry	3
CHM	481	Geochemistry	3

Technical Electives

CEE	361	Introduction to Environmental Engineering	4
CEE	362	Environmental Engineering	3
CEE	561	Physical Chemical Treatment of Water and Waste	3
CEE	563	Environmental Chemistry Laboratory	3
CHE	474	Chemical Engineering Design for the Environment	3
CHE	478	Industrial Water Quality Engineering	3
CHE	479	Air Quality Control	3
CHE	533	Transport Processes I	3

Materials. Students interested in the development and production of new materials such as alloys, ceramics, composites, polymers, semiconductors, and superconductors should select from the following:

Chemistry Electives

CHM	441	General Physical Chemistry	3
CHM	442	General Physical Chemistry	3
CHM	453	Inorganic Chemistry	3
CHM	471	Solid State Chemistry	3

Technical Electives

BME	318	Biomaterials	3
CHE	458	Semiconductor Material Processing	3
ECE	352	Properties of Electronic Materials	4
MSE	353	Introduction to Materials Processing and Synthesis	3
MSE	354	Experiments in Materials Synthesis and Processing I	2
MSE	431	Corrosion and Corrosion Control	3
MSE	453	Experiments in Materials Synthesis and Processing II	2
MSE	454	Advanced Materials Processing and Synthesis	3
MSE	470	Polymers and Composites	3

Premedical. Students planning to attend medical school should select courses from those listed under the biomedical emphasis. In addition, BIO 181, 182, and CHM 336 must be taken to satisfy medical-school requirements but are not counted toward the Chemical Engineering bachelor's degree.

Process Engineering. The engineering core and required chemical engineering courses serve as a suitable background for students intending to enter the traditional petrochemical and chemical process industries. Students can build on this background by selecting courses with the approval of their advisor. Examples of these courses are as follows:

Energy Conversion and Conservation

CHE	528	Process Optimization Techniques	3
CHE	554	New Energy Technology	3
CHE	556	Separation Processes	3
MAE	436	Combustion	3
MAE	437	Direct Energy Conversion	3

Plant Administration and Management

CHE	479	Air Quality Control	3
CHE	528	Process Optimization Techniques	3
IEE	300	Economic Analysis for Engineers	3
IEE	431	Engineering Administration	3

Simulation, Control, and Design

CHE	494	Special Topics	1–4
CHE	527	Advanced Applied Mathematical Analysis in Chemical Engineering	3

NOTE. For the General Studies requirement, codes (such as L1, N3, C, and H) and courses see pages 84–108. For graduation requirements, see pages 79–83. For omnibus courses offered but not listed in this catalog, see pages 56–57