Accreditation

The North Central Association of Colleges and Schools accreditation of ASU Main includes ASU East. In addition, ASU East programs in Aeronautical Engineering Technology, Electronics Engineering Technology, and Manufacturing Engineering Technology are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc. (TAC of ABET). For more information, call 410/347-7700, or write

TECHNOLOGY ACCREDITATION COMMISSION
OF THE ACCREDITATION BOARD FOR
ENGINEERING AND TECHNOLOGY, INC
111 MARKET PLACE, SUITE 1050
BALTIMORE MD 21202-7102

Both the professional flight and the air transportation management concentrations, in the Department of Aeronautical Management Technology, are fully accredited by the Council on Aviation Accreditation. For more information, call 334/844-2431, e-mail caa@auburn.edu, or write

COUNCIL ON AVIATION ACCREDITATION
3410 SKYWAY DRIVE
AUBURN AL 36830

The Bachelor of Science in Industrial Technology degree (including the environmental technology management, graphic information technology, and industrial technology management concentrations) is fully accredited by the National Association of Industrial Technology (NAIT). For more information, call 734/677-0720, or write

NATIONAL ASSOCIATION OF INDUSTRIAL
TECHNOLOGY
3300 WASHTENAW AVE, SUITE 220
ANN ARBOR MI 48104-4200

The B.S. degree in Nutrition with a concentration in dietetics is accredited as a Didactic Program in Dietetics (DPD) by the Commission on Accreditation for Dietetics Education of the American Dietetic Association. For more information, call 312/899-0040 or write

COMMISSION ON ACCREDITATION FOR
DIETETICS EDUCATION
AMERICAN DIETETIC ASSOCIATION
120 S RIVERSIDE PLAZA, SUITE 2000
CHICAGO IL 60606-6995

The B.S. degree in Agribusiness with a concentration in professional golf management is accredited by the Professional Golfer's Association of America. For more information, write

PGA EDUCATION DEPARTMENT
100 AVENUE OF THE CHAMPIONS
PO BOX 109601
PALM BEACH GARDENS FL 33410

ADMISSION

Nondegree Students. Nondegree students may take courses at ASU East according to the special provisions under "Undergraduate Enrollment," page 65.

Degree-Seeking Students. Degree-seeking students must meet the university admissions standards set by the Arizona Board of Regents (ABOR). Any student admitted to ASU may take courses at ASU East. To be admitted to an ASU East degree program, the student must meet undergraduate admissions requirements and the specific admission requirements of the ASU East program. A student who is admitted to an ASU East degree program is defined as an ASU East student.

For more admissions information and applications to ASU East degree programs, call 480/727-EAST (3278) or write

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

Transfer Among ASU Campuses

Degree-seeking students currently enrolled at either ASU Main or ASU West who want to relocate to an ASU East degree program should contact Student Services at ASU East, the Office of the Registrar at ASU Main, or the Admissions and Records Office at ASU West for appropriate procedures. All credit earned at any ASU campus automatically transfers to ASU East. Students should consult with their ASU East major advisor to determine how this credit applies to their major and graduation requirements. Students should be aware that certain requirements (e.g., the minimum number of upper-division semester hours to graduate) may differ among campuses.

TRANSFER CREDIT

Courses taken from Chandler-Gilbert Community College through the Partnership in Baccalaureate Education are automatically transferred to ASU East each semester. These courses and courses taken at other Arizona public community colleges transfer according to equivalencies established in the current Arizona Higher Education Course Equivalence Guide. (Transfer guides are available at www.asu.edu/provost/articulation.) The acceptability and applicability of courses transferred from other universities and community colleges is determined by ASU Main Undergraduate Admissions in consultation with the faculty or academic advisor of the student's choice of major.

PARTNERSHIP WITH CHANDLER-GILBERT COMMUNITY COLLEGE

ASU East, Chandler-Gilbert Community College (CGCC), and several other educational and research facilities share the Williams Campus in southeast Mesa. Located side by side on campus, ASU East and CGCC formed an innovative academic partnership that combines the strengths of the two institutions. ASU East students receive instruction from both institutions. Chandler-Gilbert faculty teach freshman and sophomore General Studies, general interest courses, and prerequisite courses for ASU East majors.

Academic Advising at ASU East

Unit	Location	Telephone	Days	Hours[1]
Agribusiness and Resource Management, Morrison School of	WANNER	480/727-1585	Mon.–Fri.	8 A.M.–5 P.M.
Barrett Honors College[2]	IRISH A121	480/965-2359	Mon.–Fri.	8 A.M.–5 P.M.
East College	SUTTON	480/727-1333	Mon.–Fri.	8 A.M.–5 P.M.
Applied Biological Sciences, Department of	WANNER	480/727-1444	Mon.–Fri.	8 A.M.–5 P.M.
Applied Psychology, Faculty of	SUTTON	480/727-1333	Mon.–Fri.	8 A.M.–5 P.M.
Business Administration, Faculty of	SUTTON	480/727-1333	Mon.–Fri.	8 A.M.–5 P.M.
Education, Faculty of	SUTTON	480/727-1454	Mon.–Fri.	8 A.M.–5 P.M.
Exercise and Wellness, Department of	EAW	480/727-1945	Mon.–Fri.	8 A.M.–5 P.M.
Human Health Studies, Faculty of	SUTTON	480/727-1333	Mon.–Fri.	8 A.M.–5 P.M.
Multimedia Writing and Technical Communication, Faculty of	SUTTON	480/727-1333	Mon.–Fri.	8 A.M.–5 P.M.
Nutrition, Department of	HSC 1345	480/727-1728	Mon.–Fri.	8 A.M.–5 P.M.
Technology and Applied Sciences, College of	CTDO	480/727-1874	Mon.–Fri.	8 A.M.–5 P.M.

[1] Walk-ins are welcome; appointments are recommended.

[2] The Barrett Honors College is located at ASU Main.

They deliver learner-centered instruction in small interactive courses that are developed in cooperation with ASU East faculty and are 100 percent equivalent to parallel ASU courses.

ASU East faculty teach all courses in the majors as well as upper-division general education and general interest courses. ASU East students are enrolled concurrently in both institutions. All transactions are handled through ASU East. Students pay combined tuition or ASU tuition, whichever is less. Through the partnership with CGCC, ASU East students can take all the courses needed to graduate with an ASU baccalaureate degree on the Williams Campus.

ADVISING

Students are encouraged to take advantage of the skill and knowledge of the advising professionals available to them in the academic units and to seek academic advising early.

For more information or to schedule an advising session, contact an academic advisor (see the "Academic Advising at ASU East" table, page 602).

ASU EXTENDED CAMPUS

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

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

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

CAMPUS AND STUDENT SERVICES

ASU East is a student-centered campus that offers many of the features of a small residential college in a suburban area while providing access to the resources of a major research university and the amenities of a large metropolitan area. The campus includes excellent educational facilities: mediated classrooms and modern laboratories, a 21st-century electronic library, and state-of-the-art computer equipment. Other amenities include a learning center, child care services, campus union, bookstore, and copy center. A shuttle service provides transportation between ASU East, Mesa Community College, and ASU Main. An additional shuttle is available for transportation from ASU Main to ASU West.

Enrollment Services

Enrollment Services provides one-stop services for admission, financial aid, business services, and registration. Conveniently located in QUAD 2, students find personnel ready to assist them with registration processes, tuition payment, financial assistance information, student employment, ASU Sun Cards (photo IDs), and parking decals.

Learning Center

In the Learning Center, undergraduate and graduate students can study, utilize computers for research and writing, and access tutoring services. Qualified undergraduate and graduate students provide tutoring to individual students or study groups by appointment or on a drop-in basis. Writing assistance is offered both face-to-face and online through the Learning Center Web site to students seeking help with any written assignment. Other services include workshops on writing, presentation and study skills, and computer-assisted instruction. Learning Center tutors also staff the

Freshman Year Experience hall study room during weekday and evening hours.

The Learning Center is located in the Academic Center Building. For more information or to schedule a tutoring appointment, call 480/727-1452, or visit the Web site at www.east.asu.edu/learningcenter.

Library Services

Strong resources and personal service define the ASU East Library. As a primarily electronic research library, it is designed to take maximum advantage of new technology. Electronic indexes, catalogs, and journals support study and research in many fields, with an emphasis on the majors offered at ASU East. While the library acquires materials in all formats, by intention it prefers electronic text. Thousands of periodicals are available digitally in all subjects, while those that remain in print form can be obtained by the library quickly. Documents in electronic form can be delivered directly to students' computers. Librarians and staff pursue service customized to individual students' needs, cultivating a small college atmosphere. The library's Web address is eastlib.east.asu.edu.

Computing Services

With more than 300 workstations in five classrooms, three computing sites, and a Computing Commons, Information Technology (IT) at ASU East provides general computing services that include e-mail and general purpose computing. The IT East department provides specialized software and systems to meet the particular needs of the ASU East programs. In addition, IT East provides more than 28 mediated classrooms and audiovisual materials to support e-learning initiatives. IT East has a staff of support personnel to aid the campus community's diverse computing needs, including Web development, academic computing, and administrative computing.

Food Services

ASU East has a variety of food service options on campus to serve student, faculty, staff, and visitor needs. Services include a coffee bar, sub shop, and a full-service dining facility in the Student Union. Catering services are also available. Food can be purchased on a cash basis; a meal plan can be selected to suit individual preferences. For more information about food service at ASU East, call 480/727-1439.

Student Health Services

Health services for ASU East students are provided by the Veteran's Administration Medical Center located at the Williams Campus. Services include primary assessment and treatment of health problems and injuries, physical examinations and immunizations, women's health care, diagnostic tests, laboratory tests/X-rays, and a pharmacy. Student registration fees cover the cost of office visits for full-time ASU East students. Part-time students pay a nominal fee. Some office procedures and laboratory tests require additional charges. Health insurance is not required to use the health services; however, it is strongly advised for all students and is required for international students. For more information, call 602/222-6568.

Student Counseling

Confidential professional counseling services are available to help ASU East students achieve their academic goals by addressing a variety of problems and issues often faced in college. Professional help is offered in the following areas: psychological issues, personal concerns, relationship issues, career/life decision making, and crisis intervention. Individual, couples, and group sessions are available at no cost. Students may schedule an appointment by calling 480/727-1255. Appointments may also be made in person at Student Counseling Services in QUAD 4.

Career Preparation Center

Professional career counselors are available to meet with ASU East students. They provide individual career advising, group workshops, assistance in researching job and internship possibilities, résumé and cover letter critiques, preparation for employment interviews, and career resources in print and online. For more information, call 480/727-1411, or access the Web site at www.east.asu.edu/sta/career.html.

Student Union

The Student Union is in the center of campus and serves as a common gathering place for students, faculty, staff, and guests. The union has meeting space, study rooms, private computer rooms, a TV lounge, dining facilities, a game room, a bookstore, and a ballroom. Programs and services that complement the academic experience and enhance campus life include a film series, dances, live performances, resources for student organizations, cultural awareness activities, leadership workshops, community service information, and holiday celebrations. The union is staffed primarily by students, providing them the opportunity to develop valuable leadership skills and work experience. For more information, call 480/727-1098.

Recreational Facilities and Services

ASU East and Chandler-Gilbert Community College are partners in providing recreation, intramural, and group fitness opportunities on the Williams Campus. A $30 per semester fitness membership provides access to the Physical Activity Center (PAC) and the Chandler-Gilbert Physical Education Center. Facilities include:

1. a fitness center with state-of-the-art strength training and cardiovascular equipment;
2. two aerobic studios and equipment for step aerobics, fitness cycling, and kickboxing;
3. a martial arts and yoga studio featuring a fully padded floor;
4. racquetball courts;
5. a gymnasium for intramural and open recreation;
6. an all-weather quarter mile track with an infield for soccer, ultimate Frisbee, and flag football;
7. four newly resurfaced tennis courts with lights for evening play; and

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

8. a seasonal swimming pool (May–September) with lights.

At the fitness center, trained exercise and wellness professionals are available to perform assessments, develop programs, and provide expert advice and personal training assistance.

In addition to the facilities, the PAC operates group fitness programs that are free of charge with the paid fitness membership. Classes are offered Monday through Thursday and include fitness cycling, yoga, aerobic fitstep, aerobic kickboxing, water aerobics (in season), strength and conditioning, and cultural dance classes. A full schedule of intramural programs and special events are also offered at the PAC. Times for open recreation, such as pick-up games, are scheduled at the facilities.

ASU East students have developed clubs that work closely with the recreation programs to offer unique recreation experiences, including hiking, West African dance, flamenco dancing, and sunrise yoga.

For more information, access the PAC Web site at www.east.asu.edu/pac, or call 480/727-1972. The Chandler-Gilbert Fitness Center can be reached at 480/988-8400.

Child Care

Child care programs on campus are offered through Head Start and Early Head Start and the Boys & Girls Club of the East Valley, Williams Campus Branch. Head Start and Early Head Start offer child care programs on campus for individuals who meet certain income criteria. The Boys & Girls Club offers after-school programs for children ages 6 to 18.

For more information, call the Williams Campus Child Development Center at 480/988-3644, the Boys & Girls Club at 480/279-1406, or Head Start at 480/988-9389.

Williams Campus Housing and Residential Life

Living on campus at ASU East provides students with the best opportunity to make the most of their college experience. No matter which housing option a student chooses, the residential life program offers social, academic, and recreational activities that are designed to support and enrich the student's campus life experience. Residential students benefit from easy access to campus resources such as the library, learning center, fitness center, and campus union.

ASU East's unique residential environment offers housing options for Williams Campus students throughout their undergraduate and graduate education. This includes residence halls, houses, and special residential communities. Residential students can also take advantage of such amenities as outdoor swimming, sand volleyball, tennis, and picnic areas.

For more information, call the Williams Campus Housing Office at 480/727-1700, or access the Web site at www.east.asu.edu/sta/u-life/housing.

Residence Halls. Undergraduate and graduate students are eligible for residence halls with a large private room, featuring a private bath and a shared kitchenette. Students may, if they prefer, elect to share a room with another student. Each room includes basic furnishings; the kitchenette includes a refrigerator, microwave, and, in some cases, stoves.

Houses. A large number of two- to four-bedroom houses are available for students with families or for groups of single undergraduate or graduate students. Each house includes basic appliances.

Freshman Year Experience. Freshmen begin their residential experience on campus in a dedicated freshman residence hall that includes the Freshman Year Experience (FYE) program. The FYE program helps freshmen achieve scholastic and personal success by providing academic support services and enhanced opportunities for learning, campus involvement, and out of class interaction with faculty. Research has consistently shown that freshmen participating in living-learning communities, such as FYE, achieve greater academic success. For more information about the FYE program, send e-mail to eastfye@asu.edu.

The FYE hall offers two bedroom suites with a shared bath, to house two to four students. Each room is equipped with local phone service, basic cable, and two computer ports. The FYE hall features a computer lab, quiet study, group study/tutoring room, and community lounge. Residents can select a meal plan from several options offered by Campus Dining Services. For more information, access the Web site at www.east.asu.edu/fye.

Faculty Fellows. The Faculty Fellows program provides opportunities for faculty to interact with students outside of the classroom and to build academic community on campus. Fellows join students for meals in the dining hall, participate in special events, such as the Leadership Conference, and help plan a variety of activities, including field trips, the Faculty Film Series, and community service projects. Through these informal meetings faculty enhance students' opportunities for learning outside of the classroom, and develop mentoring relationships, which help students make the most of their college experience. For more information about this program, call 480/727-1452.

Morrison School of Agribusiness and Resource Management

www.east.asu.edu/msabr **Raymond A. Marquardt, Ph.D, Dean**

PURPOSE

The Morrison School of Agribusiness and Resource Management provides a variety of academic programs in Agribusiness. Agribusiness is the business of food and fiber production and the technology necessary to change a raw material (a commodity) or an idea into a new product or business for the world's consumers. Producing, financing, marketing, and providing food and fiber for the world amounts to more than one-half of the earth's global economy.

Agribusiness courses in the Morrison School are designed to prepare students for a wide range of employment opportunities in agribusiness and business. More than 20 percent of all jobs in the United States are agribusiness-related, and the industry is even more important internationally, with more than half of all jobs in developing countries related to food and fiber products. Population increases worldwide have led forecasters to predict that more than nine billion food and fiber consumers will be part of the global agribusiness system by the year 2050. Forecasts also estimate that, at that time, more than 20,000 agribusiness jobs will go unfilled due to a lack of skilled professionals.

The academic programs in Agribusiness are especially designed to meet the needs of the urban student who has little or no previous agriculture experience. An interest in plants, animals, or food can be the starting point for career development in agricultural industries or resource management. The undergraduate programs also provide the necessary training for students preparing to enter graduate degree programs.

The Morrison School is strategically positioned to offer some unique programs. The concentration in professional golf management provides a student with the opportunity to qualify for the Professional Golfers' Association certification program in addition to majoring in Agribusiness. Similarly, for individuals more interested in the development and management of golf and other turf facilities, the golf and facilities management concentration is well suited.

Food, its marketing and safety, is of paramount importance today and in the future. The Morrison School offers specific concentrations in both of these areas. Food and agribusiness marketing is one of the signature academic concentrations in the school. Food science and safety are emphases stressed in the food and agribusiness marketing concentration.

The B.S. degree in Agribusiness with a concentration in professional golf management is accredited by the Professional Golfer's Association of America. For more information, write

PGA EDUCATION DEPARTMENT
100 AVENUE OF THE CHAMPIONS
PO BOX 109601
PALM BEACH GARDENS FL 33410

NATIONAL FOOD AND AGRICULTURAL POLICY PROJECT

The National Food and Agricultural Policy Project (NFAPP) constructs a 10-year baseline forecast for the fruit and vegetable produce industry and specific commodities, responds to congressional inquiries concerning policies affecting the fruit and vegetable industry, and publishes a monthly newsletter highlighting research efforts. Areas of study include domestic and international promotion of fruits and vegetables, trade and the impact of trade agreements, and crop insurance and risk management. For more information, call the director at 480/727-1124.

DEGREE PROGRAMS

The Morrison School offers a B.S. degree in Agribusiness with the following concentrations: agribusiness finance, food and agribusiness marketing, food science, general agribusiness, golf and facilities management, international agribusiness, management of agribusiness, professional golf management, resource management, e-commerce, and pre-veterinary medicine.

For students holding an A.A.S. degree, the school offers the Bachelor of Applied Science degree with concentrations in consumer products technology, food retailing, and resource team specialist. See the "Morrison School of Agribusiness and Resource Management Baccalaureate Degrees and Majors" table, page 606.

The school also offers the M.S. degree in Agribusiness with concentrations in agribusiness management and marketing, and food quality assurance. Students may select either a research-oriented program, which leads to the completion of a supervised thesis, or a program consisting of course work only (nonthesis option). All M.S. candidates in Agribusiness must complete a minimum of 36 semester hours.

ADMISSION

The Morrison School admits students to the B.S. degree programs who meet the undergraduate admission require-

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

Morrison School of Agribusiness and Resource Management Baccalaureate Degrees and Majors

Major	Degree	Concentration*	Administered By
Agribusiness	B.S.	Agribusiness finance, e-commerce, food and agribusiness marketing, food science, general agribusiness, golf and facilities management, international agribusiness, management of agribusiness, preveterinary medicine, professional golf management, or resource management	Morrison School of Agribusiness and Resource Management
Applied Science	B.A.S.	Consumer products technology, food retailing, or resource team specialist	Morrison School of Agribusiness and Resource Management

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

ments of Arizona State University; see "Undergraduate Admission," page 65. Admission to the B.A.S. degree program is restricted to students holding an A.A.S. degree from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and 2.50 for nonresident applicants.

GRADUATION REQUIREMENTS

Agribusiness—B.S.

The completion of a minimum of 120 semester hours—including First-Year Composition, General Studies (see "General Studies," page 91), and the school and concentration requirements—leads to the B.S. degree. Note that all three General Studies awareness areas are required. An overall GPA of 2.00 is required for graduation and students must have completed a minimum of 45 semester hours of upper-division credit. Also see special graduation requirements under "Preveterinary Medicine," page 609.

Prerequisite Courses. Students who select the concentrations in agribusiness finance, food and agribusiness marketing, food science, general agribusiness, golf and facilities management, international agribusiness, management of agribusiness, or professional golf management, must complete the following courses, some of which can also be used to meet university General Studies requirements:

ACC 230 Uses of Accounting Information I.....3
ACC 240 Uses of Accounting Information II[2].....3
BIO 100 The Living World *SQ*.....4
CHM 101 Introductory Chemistry *SQ*[1].....4
ECN 111 Macroeconomic Principles *SB*[3].....3
ECN 112 Microeconomic Principles *SB*.....3
ENG 301 Writing for the Professions *L*.....3
MAT 210 Brief Calculus *MA*[2].....3
Total.....26

[1] This course is not required for the professional golf management concentration.
[2] These courses are not required for the golf and facilities management concentration.
[3] This course is not required for the golf and facilities management or professional golf management concentration.

Core Requirements. Agribusiness employers require their employees to possess a wide range of skills and competencies. Rapid changes in information technology and the increasingly competitive food production and distribution sector mean that agribusiness needs graduates equipped to deal with these changes. The agribusiness core, required of all the concentrations, is designed to give students these skills. The core consists of courses in business principles—management, marketing, and finance—as well as in the fundamentals of agribusiness operations management.

AGB 100 Introduction to Agribusiness.....3
AGB 161 Computer Applications for Agribusiness Industries *CS*.....3
AGB 310 Agribusiness Management I.....3
AGB 320 Agribusiness Marketing I.....3
AGB 321 Agribusiness Marketing II[1].....3
AGB 332 Agribusiness Finance I.....3
AGB 333 Agribusiness Finance II[2].....3
AGB 360 Agribusiness Statistics *CS*.....3
AGB 364 Agribusiness Technologies I.....3
AGB 365 Agribusiness Technologies II[1].....3
AGB 410 Agribusiness Management II.....3
AGB 414 Agribusiness Analysis *L*.....3
Core total.....36

[1] This course is not required for the professional golf management, golf and facilities management, or resource management concentrations.
[2] This course is not required for the golf and facilities management concentration.

Concentrations

After completing the required agribusiness core, students select a concentration in their area of interest. A concentration allows a student to select a series of courses that complement the agribusiness core, supplement the student's desire to master another area of interest, and broaden career opportunities.

E-commerce Concentration. The extraordinary growth of e-commerce in the business and agribusiness venues provides significant opportunities for students prepared to work in this medium. A student following this concentration builds on the prerequisite core and the agribusiness core to prepare for this field. The opportunities for personal development, advancement, and success are present domestically and internationally.

E-commerce
AGB 436 Entrepreneurship and Financial Management of E-commerce.....3
AGB 463 Electronic Commerce Applications.....3
AGB electives.....8

Agribusiness core	36
Agribusiness prerequisite courses	26
Web site design course	3
Total	79

Agribusiness Finance Concentration. Agribusiness finance concentration graduates are expected to possess a broad knowledge of financial theory and practice as it pertains to the agribusiness sector. This will involve applying quantitative and computer-based analytical techniques to real-world agribusiness problems. Specific course content includes topics in financial management, financial markets, risk management, and the evaluation of financial assets and business alternatives.

Agribusiness Finance

AGB 334 Agricultural Commodities	3
AGB 431 Intermediate Agribusiness Financial Management	3
AGB 434 Agricultural Risk Management and Insurance	3
AGB electives	8
Agribusiness core	36
Agribusiness prerequisite courses	26
Total	79

Management of Agribusiness Concentration. Agribusiness managers encounter many problems and opportunities on a daily basis that are unique to the agribusiness sector. Students choosing this concentration develop skills in managing people, internal resources, and external relationships in an increasingly dynamic environment.

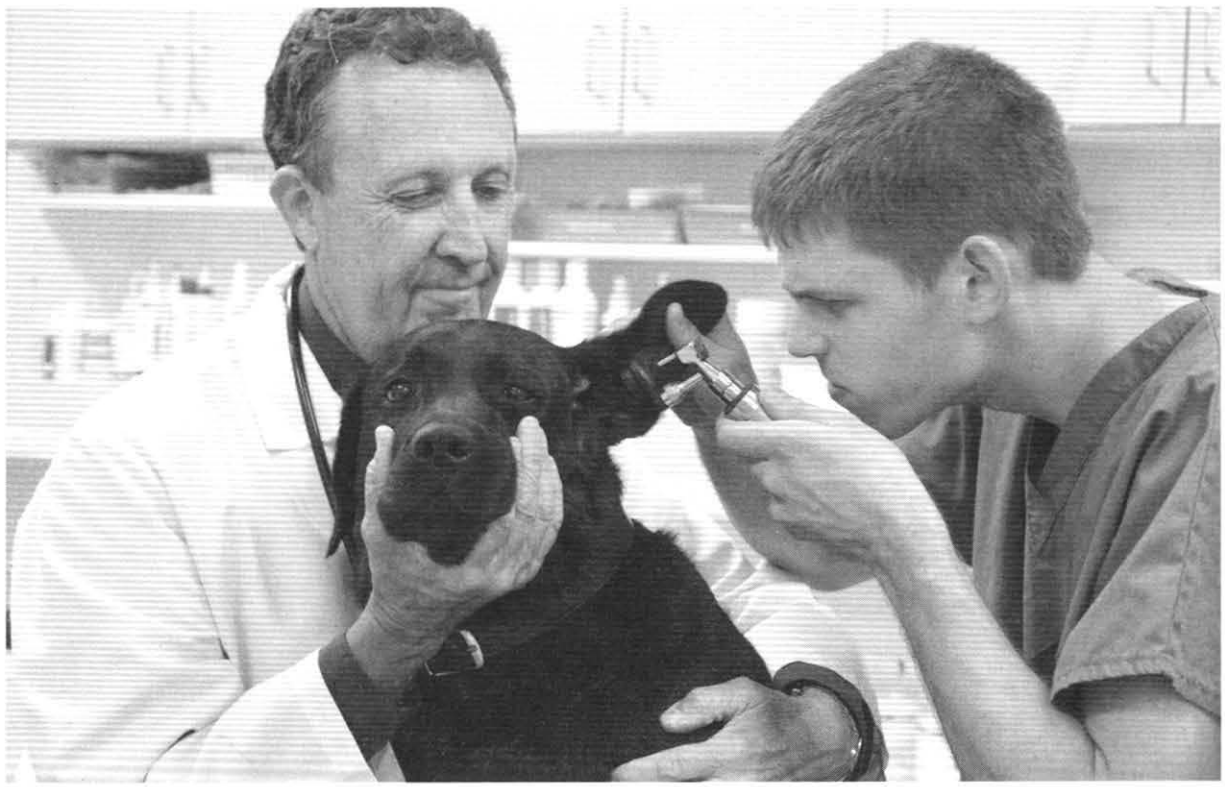
Management of Agribusiness

AGB 411 Agricultural Cooperatives or AGB 480 Agribusiness Policy and Government Regulations (3)	3
AGB 451 Management Science *CS*	3
AGB 481 Applied Microeconomics	3
AGB electives	8
Agribusiness core	36
Agribusiness prerequisite courses	26
Total	79

Food and Agribusiness Marketing Concentration. Students in the food and agribusiness marketing concentration develop critical skills relevant to dealing with firms involved in food, fiber, consumer products, and pharmaceutical manufacturing; distribution; and retailing. Students also learn about the relationship between input suppliers, commodity associations, and primary producers. To this end, food and agribusiness marketing students are required to complete a series of courses that analyze the behavior and performance of both commodity and consumer food markets.

Food and Agribusiness Marketing

AGB 334 Agricultural Commodities or AGB 420 Food Marketing (3)	3
AGB 422 Consumer Behavior	3
AGB 429 Marketing Research	3
AGB electives	8
Agribusiness core	36
Agribusiness prerequisite courses	26
Total	79



The Morrison School of Agribusiness and Resource Management offers a program in preveterinary medicine. Tim Trumble photo

Food Science Concentration. The food science concentration focuses on both scientific and technical competency skills with an emphasis on food microbiology, food chemistry, biotechnology, mathematics, and statistics. This unique program prepares graduates for employment opportunities in the food, beverage, and dairy industries; regulatory agencies such as the FDA and USDA; international organizations such as FAO and WHO; and consumer organizations. In addition, graduates may choose to pursue advanced degrees.

Food Science

AGB 340 Food Processing	3
AGB 440 Food Safety	3
AGB 442 Food and Industrial Microbiology	4
AGB upper-division electives	7
Agribusiness core	36
Agribusiness prerequisite courses	26
Total	79

General Agribusiness Concentration. The general agribusiness concentration offers students a chance to build a broad perspective in the field of agribusiness. In an age of specialization, there remains a growing need for generalists. These individuals have mastered finance, marketing, management, and other technologies such as computers and statistics and are capable of demonstrating this mastery.

General Agribusiness

AGB 334 Agricultural Commodities	3
AGB electives	14
Agribusiness core	36
Agribusiness prerequisite courses	26
Total	79

International Agribusiness Concentration. A student studying international agribusiness is typically preparing for a career with government agencies oriented toward international issues; programs of agribusiness for or in developing countries; U.S. agribusiness firms affected significantly by trade; or U.S.-based international agribusiness firms. This concentration requires a mastery of subjects in international trade, agricultural development, international policy, and global marketing practices and institutions.

International Agribusiness

AGB 450 International Agricultural Development *G*	3
AGB 452 International Agricultural Policy	3
AGB 454 International Trade	3
AGB electives	8
Agribusiness core	36
Agribusiness prerequisite courses	26
Total	79

Professional Golf Management Concentration. The Professional Golf Management (PGM) concentration, accredited by the Professional Golfer's Association (PGA) of America, is specifically designed for students who aspire to become Class A PGA Professionals and work in management careers in the golf industry. Any student admitted to this program should be aware that membership in the PGA of America is restricted to U.S. citizens and resident aliens. PGM students complete the agribusiness core, which helps them develop the critical skills needed to manage complex organizations. In addition, the PGM concentration requires a minimum of 23 semester hours of golf-related curriculum, of which nine hours consist of hands-on internship experience at golf facilities. The remaining 14 semester hours include courses selected from the following areas: golf course operations, turf grass management, club fitting and repair, pro shop merchandising, movement analysis, sports psychology and equipment, mechanics and shop maintenance and repair. Students must also complete the majority of requirements in the PGA Golf Professional Training Program, including the PGA Playing Ability Test. All golf-related courses and internships are selected with the assistance of the PGM program director.

PGM Admission. To be admitted to the PGM program, students must meet a playing ability test. Call the PGM director at 480/727-1017 for more information.

Professional Golf Management

Agribusiness core	30
Agribusiness prerequisite courses	19
Professional golf management courses	14
Professional golf management internship	9
Total	72

Golf and Facilities Management Concentration. The Golf and Facilities Management (GFM) concentration is designed to prepare students for careers as golf course superintendents. Through the agribusiness core, students develop the critical skills needed to manage complex organizations. In addition, the GFM concentration requires a minimum of 25 semester hours of golf and facilities management-related curriculum, of which six hours consist of hands-on internship experience at golf courses. The remaining 19 semester hours include courses selected from the following areas: golf course operations, plants and landscaping, soils, irrigation and water management, fertilizers, pest control, turf grass management, mechanics and shop maintenance and repair. The GFM concentration also requires the student to complete six semester hours of internship experience at golf facilities, providing valuable hands-on experience. Call the GFM program coordinator at 480/727-1256 for additional information.

Golf and Facilities Management

Agribusiness core	27
Agribusiness prerequisite courses	17
Golf and facilities management courses	19
Internship	6
Total	69

Prerequisite Courses for Preveterinary Medicine. Students who select the preveterinary medicine concentration must take the following courses, some of which can also be used to meet the General Studies requirement.

ACC 230 Uses of Accounting Information I	3
BCH 361 Principles of Biochemistry	3
BIO 187 General Biology I *SG*	4
BIO 188 General Biology II *SQ*	4
BIO 340 General Genetics	4
CHM 113 General Chemistry *SQ*	4
CHM 115 General Chemistry with Qualitative Analysis *SQ*	5
or CHM 116 General Chemistry *SQ* (4)	

Choose between the course combinations below	4–8
CHM 231 Elementary Organic Chemistry *SQ* (3)[1]	
CHM 235 Elementary Organic Chemistry Laboratory *SQ* (1)[1]	
—or—	
CHM 331 General Organic Chemistry (3)	
CHM 332 General Organic Chemistry (3)	
CHM 335 General Organic Chemistry Laboratory (1)	
CHM 336 General Organic Chemistry Laboratory (1)	
ECN 111 Macroeconomic Principles *SB*	3
or ECN 112 Microeconomic Principles *SB* (3)	
ENG 301 Writing for the Professions *L*	3
MAT 210 Brief Calculus *MA*	3
MIC 205 Microbiology *SG*[2]	3
MIC 206 Microbiology Laboratory *SG*[2]	1
PHY 111 General Physics *SQ*[3]	3
PHY 113 General Physics Laboratory *SQ*[3]	1
Upper-division AGB	6
Total	54–58

[1] Both CHM 231 and 235 must be taken to secure SQ credit.
[2] Both MIC 205 and 206 must be taken to secure SG credit.
[3] Both PHY 111 and 113 must be taken to secure SQ credit.

Preveterinary Medicine. A student studying agribusiness could also be preparing for admission to a professional veterinary school. While completing the courses needed for acceptance into veterinary school, the student is broadening his or her career potential with agribusiness courses. The Agribusiness major provides knowledge of how to run a business or practice. In addition, should a preveterinary student decide not to apply to a veterinary school, this major provides alternative career paths into human or veterinary pharmaceutical industries or the food industry. This concentration permits students to complete the preveterinary requirements for entrance to professional veterinary school.

Preveterinary Medicine

Agribusiness core	21
AGB 310 Agribusiness Management I (3)	
AGB 320 Agribusiness Marketing I (3)	
AGB 332 Agribusiness Finance I (3)	
AGB 360 Agribusiness Statistics *CS* (3)	
AGB 364 Agribusiness Technologies I (3)	
AGB 365 Agribusiness Technologies II (3)	
AGB 414 Agribusiness Analysis *L* (3)	
Preveterinary medicine prerequisites	54–58
Total	75–79

Veterinary College Acceptance. A student who has been accepted to a school of veterinary medicine before he or she has earned a B.S. degree in the Morrison School may do so by completing a minimum of 30 semester hours at ASU and the General Studies requirement. Students must receive a written statement from the dean of the Morrison School giving senior-in-absentia privileges. A student is eligible to receive the B.S. degree after the ASU Office of the Registrar receives a recommendation from the dean of the veterinary professional school and a transcript indicating the student has completed the necessary semester hours commensurate with ASU graduation requirements.

Veterinary Medical Schools. There are approximately 27 schools of veterinary medicine in the United States. Each school establishes the specific prerequisites that are required for admission. Advisors in the Morrison School assist students in designing their class schedules to meet the requirements of the veterinary schools to which they plan to apply. Each school generally looks for courses in biology, chemistry, genetics, microbiology, and organic chemistry. In addition to a science foundation, all students must meet the University General Studies requirement, complete 45 semester hours of upper-division courses, and satisfy the school admission requirements.

Resource Management Concentration. The resource management concentration combines the agribusiness concentration core with solid technical preparation in biology, chemistry, and/or economics. There is a growing demand by industry and government for persons who understand both the technical and managerial basis for sustainable development, remediation and/or utilization of natural resources for agribusiness, conservation, and habitat restoration. Courses and field projects prepare the student to analyze, develop, and manage programs that make use of land and water in an economic as well as environmentally sustainable fashion.

Resource Management Concentration Prerequisite Courses. Students who select the resource management concentration must complete these courses, some of which can also be used to meet General Studies requirements:

ACC 230 Uses of Accounting Information I	3
BIO 187 General Biology I *SG*	4
BIO 188 General Biology II *SQ*	4
CHM 101 Introductory Chemistry *SQ*	4
CHM 231 Elementary Organic Chemistry *SQ**	3
CHM 235 Elementary Organic Chemistry Laboratory *SQ**	1
ECN 112 Microeconomic Principles *SB*	3
ENG 301 Writing for the Professions *L*	3
MAT 210 Brief Calculus *MA*	3
Total	28

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

Resource Management

AGB 455 Resource Management *SB*	3
AGB 480 Agribusiness Policy and Government Regulations	3
AGB electives or approved courses	12
Agribusiness core	27
Resource Management prerequisites	28
Total	73

APPLIED SCIENCE—B.A.S.

The Bachelor of Applied Science degree is a capstone degree for the Associate of Applied Science degree. The B.A.S. degree exposes students to advanced concepts and diverse critical thinking skills to prepare them for future career opportunities and professional advancement.

Admission

Admission to the B.A.S. degree program is restricted to students holding an A.A.S. degree from a regionally accredited U.S. postsecondary educational institution. A GPA of

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

2.00 or higher is required for all resident applicants and 2.50 for nonresident applicants.

B.A.S. Degree Graduation Requirements

The B.A.S. degree program consists of 60 semester hours of upper-division courses, with 30 semester hours in residence. An overall GPA of 2.00 or higher is required.

A.A.S. degree	60
Assignable credit	6
B.A.S. core	16
Concentration	19
General Studies	19
Total	120

General Studies Curriculum. The B.A.S. curriculum builds on the general education content of the A.A.S. degree. Additional General Studies courses are taken in the core or concentration. General Studies courses focus on contextual learning.

L	3
MA	3
HU	3
HU or SB	3
SB	3
SG	4
Total	19

Assignable Credit. Assignable credit allows space in the curriculum for prerequisite courses. The courses are determined by the student and advisor.

B.A.S. Core

AGB 310 Agribusiness Management I	3
AGB 320 Agribusiness Marketing I	3
AGB 360 Agribusiness Statistics *CS*	3
AGB 414 Agribusiness Analysis *L*	3
AGB 460 Agribusiness Management Systems	4
Total	16

Consumer Products Technology Concentration. Students in this concentration prepare for a career in the food and consumer products industries. Students learn to develop food, drug, cosmetic, and other consumer products and to ensure product safety and marketability by obtaining a thorough mastery of courses in product and package design, manufacturing, processing, and safety.

Consumer Products Technology

AGB 340 Food Processing	3
AGB 364 Agribusiness Technologies I	3
AGB 440 Food Safety	3
MET 341 Manufacturing Analysis	3
MET 494 ST: Consumer Manufacturing	3
MET 494 ST: Packaging Design	3
AGB elective	1
Total	19

Food Retailing Concentration. A student studying food retailing prepares for a career in the food marketing and distribution industries. Potential employers are food manufacturing and processing companies, distribution centers, wholesalers, and all types of food retailers, e.g., supermarkets, mass merchandisers, fast food outlets, restaurants, and direct marketers of food.

Food Retailing

AGB 332 Agribusiness Finance I	3
AGB 340 Food Processing	3
AGB 420 Food Marketing	3
AGB 440 Food Safety	3
AGB 445 Food Retailing	3
AGB 484 Internship	1
AGB elective	3
Total	19

Resource Team Specialist Concentration. The resource team specialist concentration combines the technical preparation acquired in an A.A.S. program with a special orientation in environmental and resource management. This concentration prepares individuals to participate as an integral part of an environmental emergency response team as well as postemergency biological and environmental rehabilitation efforts.

Resource Team Specialist

AGB 332 Agribusiness Finance I	3
AGB 457 Resource Policy and Sustainability	3
AGB 484 Internship	1
ETM 301 Environmental Management	3
ETM 303 Environmental Regulations	3
AGB electives	6
Total	19

Morrison School of Agribusiness and Resource Management

www.east.asu.edu/msabr

480/727-1585

WANNER, First Floor

Raymond A. Marquardt, Dean

Professors: Daneke, Edwards, Kagan, Marquardt, Seperich, Shultz, Thor

Associate Professors: Patterson, Raccach, Richards

Assistant Professors: Eaves, Hughner, Manfredo, Schmitz

Senior Lecturer: Odom

AGRIBUSINESS (AGB)

AGB 100 Introduction to Agribusiness. (3)
fall
Overview of agribusiness industries and career opportunities.

AGB 161 Computer Applications for Agribusiness Industries. (3)
spring
Uses and integrates word processing, spreadsheets, and databases as tools for managing an agribusiness firm. Integrated lecture/lab.
General Studies: CS

AGB 171 Animal Science. (3)
spring
Comparative growth, development, and propagation of domestic animals.

AGB 191 First-Year Seminar. (1–3)
selected semesters

AGB 194 Special Topics. (1–4)
selected semesters

AGB 258 International Agribusiness. (3)
fall
Identifies and analyzes methods, problems, and future of international agribusiness operations. Emphasizes special problems associated with international agribusiness systems.
General Studies: G

AGB 271 Veterinary Medicine Today. (3)
spring
Introduces the role of the veterinarian as related to the fields of food supply and veterinary medicine.

AGB 294 Special Topics. (1–4)
selected semesters

AGB 310 Agribusiness Management I. (3)
fall
Principles of management, including planning, organizing, integrating, measuring, and developing people in agribusiness organizations.

AGB 311 Establishing an Agribusiness. (3)
fall
Opportunities and problems associated with new firm development in agribusiness. Business plan is written and presented orally.

AGB 320 Agribusiness Marketing I. (3)
fall and spring
Examines marketing strategy, focusing on the marketing mix (product, price, promotion, and place) in a dynamic socioeconomic environment. Prerequisites: ACC 230, 240; AGB 360; ECN 112.

AGB 321 Agribusiness Marketing II. (3)
fall and spring
Examines the food marketing system with emphasis on the marketing institutions, arrangements, and methods for basic commodities. Prerequisites: ACC 230, 240; AGB 360; ECN 112.

AGB 332 Agribusiness Finance I. (3)
fall and spring
Introduces concepts in agribusiness financial management: time value of money, risk and return, capital budgeting, and cost of capital. Prerequisites: ECN 111 and 112 (or their equivalents); introductory accounting.

AGB 333 Agribusiness Finance II. (3)
spring
Introduces financial markets and institutions. Interest rate determination, money and banking, equity markets, farm credit system, vendor financing. Prerequisites: ECN 111 and 112 (or their equivalents); introductory accounting.

AGB 334 Agricultural Commodities. (3)
fall
Trading on futures markets. Emphasis on the hedging practices with grains and meats. Fee. Prerequisite: AGB 320.

AGB 340 Food Processing. (3)
fall
Introduces processed food quality assurance, statistical sampling, and inspection procedures. Prerequisite: AGB 364.

AGB 341 Food Analysis. (3)
selected semesters
Processing control and scientific instrumentation used in food quality assurance laboratories. Prerequisites: AGB 364; CHM 101.

AGB 355 Sustainable Agriculture Systems. (3)
fall and spring
Innovative developments in precision farming, irrigation, soils, tillage methods, machinery, and biotechnology in crop production.

AGB 360 Agribusiness Statistics. (3)
fall and spring
Statistical methods with applications in agribusiness and resource management. Prerequisite: college algebra.
General Studies: CS

AGB 364 Agribusiness Technologies I. (3)
fall
Examines methods of managing diverse crop and livestock enterprises with emphasis on growth, development, marketing, and loss prevention. Prerequisite: BIO 100.

AGB 365 Agribusiness Technologies II. (3)
fall
Biotechnology and other methods used in the production, processing, and distribution of food. Prerequisite: BIO 100.

AGB 370 Wildlife and Domestic Animal Nutrition. (3)
spring
Survey of nutritional needs of domestic and wild animals. Prerequisite: a General Studies SQ course.

AGB 371 Animal Genetics. (3)
fall
Principles of animal genetics, including heritable traits, chromosomal aberrations, population genetics, molecular genetics, and gene regulation. Prerequisites: BIO 187, 188.

AGB 394 Special Topics. (1–4)
selected semesters

AGB 410 Agribusiness Management II. (3)
spring
Principles of human resource management in agribusiness firms. Prerequisite: AGB 310.

AGB 411 Agricultural Cooperatives. (3)
spring
Organization, operation, and management of agricultural cooperatives.

AGB 414 Agribusiness Analysis. (3)
fall and spring
Analysis of agribusiness firm decisions in the ecological, economic, social, and political environments. Special emphasis on ethical issues surrounding food production and consumption.
General Studies: L

AGB 420 Food Marketing. (3)
spring
Food processing, packaging, distribution, market research, new food research and development, and social implications. Prerequisite: AGB 320.

AGB 422 Consumer Behavior. (3)
fall
Applies behavioral concepts in analyzing consumer food purchases and their implications for marketing strategies. Fee. Prerequisite: completion of Agribusiness core (or its equivalent).

AGB 424 Sales and Merchandising in Agribusiness. (3)
summer
Principles and techniques of selling and merchandising in the agricultural and food industries.

AGB 425 Agricultural Marketing Channels. (3)
fall
Operational stages of agricultural commodities in normal distribution systems and implementation of marketing strategies. Prerequisite: AGB 320.

AGB 429 Marketing Research. (3)
fall
Examines the marketing research process and its role in facilitating agribusiness decisions. Emphasizes problem identification, survey design, and data analysis. Fee. Prerequisite: completion of Agribusiness core (or its equivalent).

AGB 431 Intermediate Agribusiness Financial Management. (3)
spring
Comprehensive treatment of topics in financial management of agribusiness: capital structure, dividend policy, asset valuation, mergers and acquisitions, risk management. Prerequisites: AGB 332, 333.

AGB 433 Intermediate Agribusiness Financial Markets. (3)
spring
Role and function of agribusiness in U.S. financial system. Topics include rural banking, farm credit system, monetary policy, and federal reserve. Prerequisite: completion of Agribusiness core (or its equivalent).

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

AGB 434 Agricultural Risk Management and Insurance. (3)
fall
Strategies to manage agricultural price and business risk: derivatives, insurance, self-insurance, and public policy. Prerequisite: completion of Agribusiness core (or its equivalent).

AGB 436 Entrepreneurship and Financial Management of E-commerce. (3)
fall
Uses lectures, case studies, and business plans to highlight challenges of starting and running a small business. Lecture, seminar, case studies, computer labs.

AGB 440 Food Safety. (3)
spring
Control, prevention, and prediction of microbial and chemical foodborne diseases. Prerequisite: AGB 442 or instructor approval.

AGB 441 Food Chemistry. (3)
spring
Biochemical and chemical interactions that occur in raw and processed foods. Prerequisites: CHM 115, 231.

AGB 442 Food and Industrial Microbiology. (4)
selected semesters
Food- and industrial-related microorganisms; deterioration and preservation of industrial commodities. Lecture, lab. Prerequisite: a course in microbiology with lecture and lab.

AGB 443 Food and Industrial Fermentations. (3)
spring
Management, manipulation, and metabolic activities of industrial microbial cultures and their processes. Prerequisite: AGB 442 or instructor approval.

AGB 445 Food Retailing. (3)
fall
Food retail management. Discusses trends, problems, and functions of food retail managers within various retail institutions. Lecture, case studies.

AGB 450 International Agricultural Development. (3)
fall
Transition of developing countries from subsistence to modern agriculture. Emphasis placed on implications for U.S. agribusiness working abroad.
General Studies: G

AGB 451 Management Science. (3)
fall
Focus on the construction, solution, and interpretation of quantitative models used for management decision making in agribusiness firms. Prerequisites: AGB 320, 360; ECN 112; MAT 117.
General Studies: CS

AGB 452 International Agricultural Policy. (3)
fall
Use of international trade theory to analyze the effects of government policies, trade agreements, and exchange rates on agribusiness. Prerequisite: ECN 112.

AGB 454 International Trade. (3)
spring
International practices in trading of agribusiness, technology, and resource products and services.

AGB 455 Resource Management. (3)
spring
Explores differences between societal and individual valuations of natural resources and considers public policy versus market-based solutions to environmental concerns. Prerequisite: ECN 112.
General Studies: SB

AGB 457 Resource Policy and Sustainability. (3)
fall
Considers the evolution of policy design, focusing on how resource and environmental concerns have affected agricultural development and trade policies. Prerequisite: ECN 112.

AGB 460 Agribusiness Management Systems. (3)
spring
Development and use of decision support systems for agribusiness management and marketing.

AGB 463 Electronic Commerce Applications. (3)
fall
Overview of electronic commerce technology with introduction to basics of design, control, operation, organization, and emerging issues. Pre- or corequisite: AGB 460 (or its equivalent).

AGB 465 Organic Farming Technologies. (3)
fall and spring
Organic farming methods, including certification, soil fertility, planting, integrated pest management, irrigation, cover crops, rotations, and marketing farm products.

AGB 470 Comparative Nutrition. (3)
selected semesters
Effects of nutrition on animal systems and metabolic functions. Prerequisite: CHM 231.

AGB 471 Diseases of Domestic Animals. (3)
spring
Discusses animal welfare, mechanisms of disease development, causes and classification of diseases, disease resistance, and common zoonoses. Prerequisite: BIO 188.

East Campus continues to expand its programs and add new facilities.

Tim Trumble photo

AGB 473 Animal Physiology I. (3)
selected semesters
Control and function of the nervous, muscular, cardiovascular, respiratory, and renal systems of domestic animals. Prerequisites: BIO 188; CHM 113.

AGB 479 Veterinary Practices. (3)
fall and spring
Observation of and participation in veterinary medicine and surgery supervised by local veterinarians. Prerequisite: advanced preveterinary student.

AGB 480 Agribusiness Policy and Government Regulations. (3)
spring
Development and implementation of government food, drug, pesticide, and farm policies and regulations that affect the management of agribusiness.

AGB 481 Applied Microeconomics. (3)
fall and spring
Emphasizes application of the theory of the firm, theory of exchange, and consumer theory.

AGB 484 Internship. (1–12)
fall and spring

AGB 492 Honors Directed Study. (1–6)
selected semesters
Topics may include the following:
- Recent Advances in Food Science. (1)

AGB 493 Honors Thesis. (1–6)
selected semesters

AGB 494 Special Topics. (1–4)
selected semesters

AGB 498 Pro-Seminar. (1–7)
selected semesters
Topics may include the following:
- Effective Consumer Response
  Fee.
- Selling Today
  Fee.

AGB 499 Individualized Instruction. (1–3)
selected semesters

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

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

PROFESSIONAL GOLF MANAGEMENT (PGM)

PGM 100 Introduction to GPTP. (2)
fall and spring
Introduces the golf professional training program. Career enhancement, rules of golf, tournament operations, and playing professional development programs. Prerequisite: admission to PGM program.

PGM 110 Player Development I. (1)
fall and spring
Introductory instruction on golf game improvement to assist PGM students in preparation for Players Ability Test. Evaluation. Fee. Prerequisite: admission to PGM program.

PGM 111 Player Development II. (1)
fall and spring
Instruction to assist PGM students in preparation for Players Ability Test with emphasis on full swing mechanics and practice plan development. Evaluation. Fee. Prerequisite: admission to PGM program.

PGM 112 Player Development III. (1)
fall and spring
Emphasizes classroom and "hands-on" applications of full swing analysis and short game strategies. Special focus on golf course management. Evaluation. Fee. Prerequisite: admission to PGM program.

PGM 113 Player Development IV. (1)
fall and spring
Emphasizes classroom and "hands-on" applications of full swing analysis and short game strategies. Special focus on golf course management. Evaluation. Fee. Prerequisite: admission to PGM program.

PGM 114 Player Development V. (1)
summer
Introductory instruction on golf game improvement to assist PGM students in preparation for Player Ability Test. Evaluation. Prerequisite: admission to PGM program.

PGM 120 Golf for Business and Life. (1)
fall and spring
Introduces nongolfing students to the game of golf. For beginners. Integrated lecture/lab.

PGM 150 Teaching Golf I. (2)
fall and spring
Introduces golf instruction. Focus on fundamentals of golf swing and teaching techniques. Fee. Prerequisite: admission to PGM program.

PGM 166 Turf Equipment Management. (3)
spring
Introduces turf equipment used on golf courses. Instruction in maintenance, adjustment, and safety issues. Integrated lecture/lab.

PGM 200 GPTP II. (2)
fall
Focuses on golf professional training program and the completion of the PGA Level One experience kit. Prerequisite: admission to PGM program.

PGM 250 Teaching Golf II. (1)
fall and spring
Communicating with student golfers, swing evaluation, key factors club fitting, developing a successful teaching practice. Prerequisite: admission to PGM program.

PGM 266 Golf Course Irrigation. (3)
fall and spring
Design, management, and maintenance of golf course irrigation systems.

PGM 300 GPTP III. (1)
fall
Business planning and operations, business communications related to business of golf. Completion of the PGA Level Two experience kit. Prerequisite: admission to PGM program.

PGM 350 Teaching Golf III. (1)
fall and spring
Teaching swing concepts. Developing a teaching philosophy, analyzing flawed swing mechanics through video and swing analysis software. Prerequisite: admission to PGM program.

PGM 366 Golf Turf Management. (3)
fall and spring
Selection, establishment, and maintenance of turf grasses bred specifically for golf greens, fairways, and roughs. Lecture, lab.

PGM 367 Golf Course Landscape Plants and Design. (3)
fall and spring
Identification, culture, and use of plants in a golf course setting. Fee.

PGM 400 GPTP IV. (1)
fall
Food and beverage control, supervision and delegation of golf facilities. Completion of the PGA Level Three experience kit. Prerequisite: admission to PGM program.

PGM 466 Integrated Pest Control. (2)
fall and spring
Management of pests affecting golf turf and landscape plants. Structural Pest Control Board sprayer certification preparation offered during the semester.

PGM 484 Internship. (1–12)
selected semesters

PGM 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Food and Beverage
  Fee.

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

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

East College

www.east.asu.edu/ecollege **Glenn W. Irvin, Ph.D., Dean**

PURPOSE

East College offers a variety of liberal and professional programs. Baccalaureate programs are offered in applied biological sciences, applied psychology, business administration, elementary education, exercise and wellness, human health studies, interdisciplinary studies, multimedia writing and technical communication, and nutrition. Minors, certificates, and graduate programs are available in some areas.

Each semester, East College offers a selection of popular upper-division ASU General Studies and general interest courses. While designed primarily to support ASU East students, these courses are open to all ASU students who might find the times and location convenient. East College typically offers courses in anthropology, art, communication, economics, English, history, mathematics, music, philosophy, political science, psychology, religious studies, sociology, and women's studies. Students should refer to the current *Schedule of Classes* for specific courses offered at ASU East each semester. All credit earned at ASU East automatically transfers to ASU Main or ASU West.

Students who begin their college careers at ASU East benefit from the small, residential campus environment. If they are uncertain about a major they can declare East College/No Preference status. Students are able to complete General Studies requirements and search for an ASU major that serves their personal and career objectives while enrolled as No Preference majors. East College provides advising to No Preference majors.

East College also offers statistics courses (APM) to meet requirements for a range of majors and support courses for the Bachelor of Applied Science (B.A.S.) degree. The applied science core (ASC) courses are upper division and specifically designed to build upon the mathematics and science base acquired in the Associate of Applied Science (A.A.S.) degree.

APPLIED MATHEMATICS (APM)

APM 301 Introductory Statistics. (3)
selected semesters
Probability, distributions, statistical hypothesis testing, t-tests, basic correlation, and regression. Prerequisite: MAT 117 or instructor approval.
General Studies: CS

APM 401 Intermediate Statistics. (3)
selected semesters
Analysis of variance, multiple comparisons, multiple regression. Prerequisite: APM 301 (or its equivalent) or instructor approval.

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

APPLIED SCIENCE CORE (ASC)

ASC 301 Contextual Uses of Algebra in Technology. (1)
fall and spring
Uses algebra to solve real-world technological problems using currently available computer software. Prerequisite: B.A.S. major.

ASC 302 Contextual Uses of Geometry in Technology. (1)
fall and spring
Uses geometrical concepts to solve real-world technological problems using currently available computer software. Prerequisite: B.A.S. major.

ASC 303 Contextual Uses of Trigonometry in Technology. (1)
fall and spring
Uses trigonometry to solve real-world technological problems using currently available computer software. Prerequisite: B.A.S. major.

ASC 315 Numeracy in Technology. (3)
fall and spring
Contextual uses of mathematics in applied sciences. Emphasizes using mathematical methodologies to solve technology-related problems. Prerequisite: B.A.S. major.

ASC 325 Physical Sciences in Technology. (4)
fall and spring
Physical systems and their interrelationships on technology systems. Real-world applications of physical systems. Lecture, lab. Prerequisite: B.A.S. major.

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

Partnership in Baccalaureate Education. The Partnership in Baccalaureate Education, an agreement between Chandler-Gilbert Community College and ASU East, is coordinated through East College. Through this partnership, ASU East students take first-year composition courses and courses that meet lower-division ASU General Studies requirements. They are listed in "General Studies," page 91. These courses, combined with introductory courses within the major, are available in an innovative and integrated first-year curriculum designed to foster academic success. Students can also take major prerequisite courses, introductory language courses, and other lower-division courses of general interest through the partnership. These courses automatically transfer to ASU each semester.

DEGREE PROGRAMS

See the "East College Baccalaureate Degrees and Majors" table, page 615. For graduate degrees, see the "East College Graduate Degrees and Majors" table, page 615.

East College also offers certificate programs in Multimedia Writing and Technical Communication; minors in Applied Biological Sciences, Applied Psychology, Food and Nutrition Management, Human Nutrition, Small Business, and Wellness Foundations; and concentrations for the B.A.S. See the *Graduate Catalog* for more information about graduate programs.

East College Baccalaureate Degrees and Majors

Major	Degree	Concentration*	Administered By
Applied Biological Sciences	B.S.	Applied biological sciences, applied biological sciences/secondary education, ecological restoration, urban horticulture, or wildlife habitat management	Department of Applied Biological Sciences
Applied Psychology	B.S.	—	East College
Applied Science	B.A.S.	Food service management, multimedia writing and technical communication, or wellness	East College
Business Administration	B.S.	—	East College
Elementary Education	B.A.E.	—	East College
Exercise and Wellness	B.S.	Exercise and wellness or health promotion	Department of Exercise and Wellness
Human Health Studies	B.A., B.S.	—	East College
Interdisciplinary Studies	B.I.S.	See the "B.I.S. Concentrations" table, page 125.	Bachelor of Interdisciplinary Studies Advisory Committee
Multimedia Writing and Technical Communication	B.S.	—	East College
Nursing	B.S.N.	—	College of Nursing (ASU Main)
Nutrition	B.S.	Dietetics, food and nutrition management, or human nutrition	Department of Nutrition

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

East College Graduate Degrees and Majors

Major	Degree	Concentration*	Administered By
Applied Psychology	M.S.	—	East College
Curriculum and Instruction*	Ph.D.	Exercise and wellness education	Interdisciplinary Committee on Curriculum and Instruction
Environmental Design and Planning*	Ph.D.	Design; history, theory and criticism; or planning	Committee on Environmental Design and Planning
Environmental Resources	M.S.	GIS/remote sensing, natural resource management, or range ecology	Department of Applied Biological Sciences
Exercise and Wellness	M.S.	—	Department of Exercise and Wellness
Nutrition	M.S.	—	Department of Nutrition

* Doctoral courses for this interdisciplinary program administered by ASU Main are offered at ASU East.

INTERDISCIPLINARY STUDIES—B.I.S.

The Bachelor of Interdisciplinary Studies (B.I.S.) program is intended for the student who has academic interests that might not be satisfied with existing majors. Building on academic concentrations and an interdisciplinary core, students in the B.I.S. program take an active role in creating their educational plans and defining their career goals. The B.I.S. program emphasizes written communication, versatility, and critical thinking, skills desired in the 21st-century workplace. Self-assessment and appraisal of opportunities to support academic and career goals are key elements in the core courses. The concentrations are generally based on approved academic minors, certificate programs, or special coherent clusters of course work. The student should be able to integrate these into a meaningful program.

The combination of areas of concentration gives students flexibility in creating unique programs to accomplish individual academic goals. Students who declare the B.I.S. as their major in East College at ASU East take their core courses and at least one concentration through ASU East. The second concentration may be taken at ASU Main or ASU East. The B.I.S. core courses are offered by East College. Concentrations at ASU East are offered by East Col-

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

lege, the College of Technology and Applied Sciences, and the Morrison School of Agribusiness and Resource Management. Students interested in the B.I.S. program should arrange an appointment with an East College advisor at 480/727-1333 before declaring the B.I.S. major.

Basic Requirements

The B.I.S. major requires 120 semester hours. The major is composed of a 12 hour core and a minimum of 36 hours in two or three concentration areas (18 hours or more each). Throughout the core sequence, the student assembles a portfolio including self-assessment of progress toward career goals and an evaluation of key educational and personal activities that may apply. The core courses must be taken in sequence. These courses may not be transferred from other institutions. BIS 401 may be taken as a corequisite or prerequisite for BIS 402. All core courses must be completed with a grade of "C" (2.00) or higher.

Core Courses

BIS	301 Foundations of Interdisciplinary Studies *L*	3
BIS	302 Interdisciplinary Principles	3
BIS	401 Applied Interdisciplinary Studies	3
BIS	402 Senior Seminar *L*	3
Total		12

For course descriptions, see "Bachelor of Interdisciplinary Studies," page 124.

Other Requirements

In addition to the basic requirements, students must complete all university requirements, including First-Year Composition and General Studies. Early advising is recommended to ensure that students meet requirements efficiently and optimize their choices.

Declaring the B.I.S. Major

Students must receive approval from an East College advisor before declaring the B.I.S. major. In addition, the student must

1. complete at least 45 semester hours of university credit;
2. earn a cumulative G.P.A. of at least 2.00;
3. complete two courses in each concentration with a minimum grade of "C" (2.00) before enrolling in BIS 301; and
4. complete the university mathematics and First-Year Composition requirements.

All incoming students and continuing students with a minimum GPA of 2.00 who do not meet the above requirements are placed in a pre-B.I.S. major until the requirements have been met.

Approved Concentrations

Each concentration requires 18 or more semester hours, with each course completed with a grade of "C" (2.00) or higher. Twelve or more of the semester hours must be in upper-division courses. Students should check for new information about concentrations on the Web at www.east.asu.edu/ecollege or contact an East College advisor at 480/727-1333.

Department of Applied Biological Sciences

www.east.asu.edu/ecollege/appliedbiologicalsciences

480/727-1444

WANNER, Third Floor

Ward W. Brady, Chair

Professors: Brady, Brock, Mushkatel, Ohmart, Stutz

Associate Professors: Green, Martin, Miller, Steele, Whysong

Assistant Professor: Marcum

Lecturer: Lefler

APPLIED BIOLOGICAL SCIENCES—B.S.

The B.S. degree in Applied Biological Sciences is designed to prepare professionals and scholars for careers in the biological sciences. Because of the large diversity of career options available in this field, one general and four focused concentrations are offered:

1. applied biological sciences;
2. applied biological sciences/secondary education;
3. ecological restoration;
4. urban horticulture; and
5. wildlife habitat management.

The goal of the program is to ensure that all students know basic biological principles and the supporting sciences appropriate to each concentration. Concentrations are designed to be flexible to allow students to pursue specialized interests.

Applied Biological Sciences graduates can pursue entry-level careers in biological research, education, and applied sciences such as ecological restoration, urban horticulture, and wildlife biology. The Applied Biological Sciences major also prepares students for graduate school and professional schools in disciplines such as medicine, dentistry, physical therapy, ecology, horticulture, and wildlife biology. For the latest information about program requirements and courses, access the Web site at www.east.asu.edu/ecollege/appliedbiologicalsciences, call 480/727-1444, or send e-mail to appliedbiologicalsciences@asu.edu.

Graduation Requirements

A total of 120 semester hours, with a minimum of 45 semester hours of upper-division credit, is required for graduation. As part of the undergraduate degree program, students complete the ASU General Studies requirement. For courses that meet ASU General Studies requirement, see "General Studies," page 91. It is strongly recommended that students work with an academic advisor when selecting courses to meet the General Studies requirement since oth-

erwise required courses can often be used to meet the General Studies requirement.

Applied Biological Sciences Core. All Applied Biological Sciences students are required to complete the following courses:

Applied Biological Sciences Core

ABS	150	Environmental Biology 3
ABS	301	Technology and Biology 2
ABS	302	Policy and Biology 2
ABS	312	Structure and Function 4
ABS	350	Applied Statistics 3
		or equivalent *CS*
BIO	187	General Biology I *SG* 4
BIO	188	General Biology II *SQ* 4
BIO	340	General Genetics 4
		or BIO 360 Animal Physiology (3)
		or PLB 308 Plant Physiology (4)
MAT	210	Brief Calculus *MA* 3
Total		 29–30

Students majoring in Applied Biological Sciences must select one of the concentrations listed below.

Applied Biological Sciences Concentration

A general background in the biological sciences and associated sciences is provided in the applied biological sciences concentration. This concentration is appropriate for students seeking an education rich in the liberal arts. It is designed to provide maximum flexibility to meet specific student interests. Students intending to pursue research careers in biology and postgraduate studies may also find this concentration appropriate. In addition, the concentration is designed for students planning to enter professional programs in the health care professions such as medicine, medical technology, epidemiology, dentistry, optometry, pharmacy, physical therapy, podiatry, public health, and physician's assistant programs. Students planning to enter professional programs need to include two semester sequences in physics and organic chemistry in their programs of study. BCH 361 Principles of Biochemistry is also suggested.

General Concentration General Studies Requirements. For students choosing the general concentration, the following courses must also be used as General Studies courses to graduate without exceeding 120 semester hours:

ABS 350 Applied Statistics or equivalent *CS* (3)
BIO 187 General Biology I *SG* (4)
BIO 188 General Biology II *SQ* (4)
MAT 210 Brief Calculus *MA* (3)

Applied Biological Sciences Concentration

ABS	355	Vertebrate Zoology 4
ABS	370	Ecology 3
ABS	490	Applied Biological Sciences Seminar 1
CHM	113	General Chemistry *SQ* 4
CHM	116	General Chemistry *SQ* 4
Choose between the organic chemistry course combinations below ..... 4 or 8		
	CHM 231	Elementary Organic Chemistry *SQ* (3)
	CHM 235	Elementary Organic Chemistry Laboratory *SQ* (1)
		— *or* —
	CHM 331	General Organic Chemistry (3)
	CHM 332	General Organic Chemistry (3)
	CHM 335	General Organic Chemistry Laboratory (1)
	CHM 336	General Organic Chemistry Laboratory (1)
Choose between the physics course combinations below ..... 4 or 8		
	PHY 101	Introduction to Physics *SQ* (4)
		— *or* —
	PHY 111	General Physics *SQ*[2] (3)
	PHY 112	General Physics *SQ*[2] (3)
	PHY 113	General Physics Laboratory *SQ*[3] (1)
	PHY 114	General Physics Laboratory *SQ*[3] (1)
Approved electives in biology and science ..... 27 (At least 15 semester hours must be upper-division ABS courses)		
Total		 51–59

[1] Both CHM 231 and 235 must be taken to secure SQ credit.
[2] Both PHY 111 and 112 must be taken to secure SQ credit.
[3] Both PHY 111 and 114 must be taken to secure SQ credit.

Applied Biological Sciences/Secondary Education Concentration

The applied biological sciences/secondary education concentration qualifies students for the State of Arizona Certification in Secondary Biology Education. Students interested in pursuing this concentration need to complete the science content courses related to biology and the courses specific to the secondary education curriculum. The program concludes with full-time student teaching in a secondary science classroom. Students interested in pursuing the concentration need to be admitted into the Teacher Education unit before taking the secondary methods courses (approximately during the junior year). See "Applied Biological Sciences–B.S. Secondary Education Concentration," page 625, for application requirements.

Secondary Education Concentration General Studies Requirement. For students choosing the secondary education concentration, the following courses must be used as General Studies courses in order to graduate in 120 hours:

ABS 350 Applied Statistics or equivalent *CS* 3
BIO 187 General Biology I *SG* 4
BIO 188 General Biology II *SQ* 4
MAT 210 Brief Calculus *MA* 3

Applied Biological Sciences/Secondary Education Concentration

ABS	355	Vertebrate Zoology 4
		or ABS 207 Applied Plant Taxonomy (3)
ABS	370	Ecology 3
ABS	490	Applied Biological Sciences Seminar 1
CHM	113	General Chemistry *SQ* 4
CHM	116	General Chemistry *SQ* 4
MIC	205	Microbiology *SQ** 3
MIC	206	Microbiology Laboratory *SQ** 1
PHY	101	Introduction to Physics *SQ* 4
Upper-division electives 2		
Total		 25–26

* Both MIC 205 and 206 must be taken to secure SQ credit.

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

Secondary Education Curricula

BIO	480	Methods of Teaching Biology	3
BIO	482	Advanced Methods of Teaching Biology	3
EDC	350	Educational Technology I: Applications	1
EDC	351	Educational Technology II: Instruction and Evaluation	1
EDC	352	Educational Technology III: Design	1
EDC	494	ST: Professional Knowledge	2
EDP	303	Human Development	3
EDP	310	Educational Psychology *SB*	3
RDG	301	Literacy and Instruction in the Content Areas	3
SED	403	Middle and Secondary School Principles, Curricula, and Methods	3
SED	478	Student Teaching in Secondary Schools	10–12
SED	496	Field Experience	0
SPE	394	ST: Inclusion Practices at the Secondary Level	3
Total			36–38

Strongly Recommended

MCE	446	Understanding the Culturally Diverse Child *C*	3
SPE	311	Orientation to Education of Exceptional Children *SB*	3

Ecological Restoration Concentration

The ecological restoration concentration focuses on rehabilitation and management practices that improve the ecological structure and function of degraded ecosystems. Restoration activities may involve all ecosystem components, including soils, water, vegetation, and wildlife. The goals of restoration are to restore ecological integrity and to meet societal needs for sustainable and functional ecosystems. The restoration process includes identifying the causes of degradation, devising methods and goals for the restoration effort, developing management strategies for restoring sites, monitoring changes at sites and assessing restoration success.

For students choosing the Ecological Restoration Concentration, the following courses from the ABS and Ecological Restoration Cores must also be used as General Studies courses in order to graduate in 120 hours:

ABS	350	Applied Statistics or equivalent *CS*	3
ABS	480	Ecosystem Management and Planning *L*	3
BIO	187	General Biology I *SG*	4
BIO	188	General Biology II *SQ*	4
MAT	210	Brief Calculus *MA*	3

Ecological Restoration Requirements

ABS	207	Applied Plant Taxonomy	3
ABS	225	Soils	3
ABS	226	Soils Laboratory	1
ABS	370	Ecology	3
ABS	380	Restoration and Wildlife Plants	3
ABS	381	Natural Resources Policy	3
ABS	402	Vegetation and Wildlife Measurement	3
ABS	440	Ecological Restoration Techniques	3
ABS	441	Ecological Restoration Practicum	1
ABS	480	Ecosystem Management and Planning *L*	3
ABS	482	Ecology and Planning for Restoration	3
ABS	483	Restoration Planning Practicum	2
ABS	485	GIS in Natural Resources	3
ABS	490	Applied Biological Sciences Seminar	1
CHM	101	Introductory Chemistry *SQ*	4
CHM	231	Elementary Organic Chemistry *SQ*	3

Ecological Restoration Requirements

Select 12 semester hours from the following list, or courses approved by advisor:

ABS	368	Plant Propagation (3)	
ABS	374	Introduction to Wildlife Management (3)	
ABS	376	Wildlife Ecology (3)	
ABS	425	Soil Classification and Management (3)	
ABS	430	Watershed Management (3)	
ABS	433	Riparian and Wetland Ecology (3)	
ABS	434	Soil Ecology (3)	
ABS	475	Habitat Management for Small Wildlife (3)	
ABS	476	Big Game Habitat Management (3)	
ABS	481	Riparian and Wetland Restoration (3)	
ABS	486	Introduction to Remote Sensing (4)	

Urban Horticulture Concentration

Urban horticulture focuses on the relationship of plants and people in cities with an emphasis on the biology of plants applied to human landscapes. Urban horticulture students learn and practice principles that create pleasing environments in which people work and live. Urban horticulture graduates are qualified to plan or manage environmentally sustainable amenity landscapes or grow amenity trees, shrubs and ground covers, turf, and bedding plants. Students also gain expertise in plant identification, plant propagation, irrigation, fertilization, and pest management, as well as urban forestry and horticultural education.

Urban Horticulture Concentration

ABS	225	Soils	3
ABS	226	Soils Laboratory	1
ABS	260	Fundamentals of Urban Horticulture *SG*	4
ABS	362	Landscape Plants	4
ABS	363	Landscape Practices	4
ABS	364	Urban Forestry	4
ABS	462	Greenhouse/Nursery Management	4
		or ABS 463 Sports and Recreational Turf (3)	
Choose one of the three courses below:			
ABS	465	Senior Enterprise Project (3)	
ABS	484	Internship (3)	
ABS	492	Honors Directed Study (3)	
CHM	101	Introductory Chemistry *SQ*	4
CHM	231	Elementary Organic Chemistry *SQ*	3
PLB	414	Plant Pathology *L*	3
		or PGM 466 Integrated Pest Control (2)	
Approved upper-division electives			6
Total			40–44

Wildlife Habitat Management Concentration

The wildlife habitat management concentration focuses on the relationships between wildlife, ecology, and habitat management. This study requires an understanding of the interrelations between the environment, vegetation, and wildlife. The goal of wildlife habitat management is to create conditions that ensure sustainable wildlife populations. Achieving this goal requires identification of existing wildlife populations, educational wildlife habitat quality, improvement of habitat for wildlife populations, and the monitoring of wildlife populations for future generations.

Wildlife Habitat Concentration General Studies Requirements. For students choosing the wildlife habitat concentration, the following courses from the ABS and Wildlife Habitat Cores must also be used as General Studies courses in order to graduate in 120 hours:

ABS	350	Applied Statistics or Equivalent *CS*	3
ABS	480	Ecosystem Management and Planning *L*	3
BIO	187	General Biology I *SG*	4

BIO 188 General Biology II *SQ* 4
MAT 210 Brief Calculus *MA* 3

Wildlife Habitat Management Concentration
Select from the following list, or courses approved by advisor:
ABS 207 Applied Plant Taxonomy 3
ABS 355 Vertebrate Zoology 4
ABS 370 Ecology 3
ABS 374 Introduction to Wildlife Management 3
ABS 376 Wildlife Ecology 3
ABS 402 Vegetation and Wildlife Measurement 3
ABS 440 Ecological Restoration Techniques 3
ABS 480 Ecosystem Management and Planning *L* 3
ABS 485 GIS in Natural Resources 3
ABS 490 Applied Biological Sciences Seminar 1
CHM 101 Introductory Chemistry *SQ* 4
CHM 231 Elementary Organic Chemistry *SQ* 3
Total 36

Wildlife Supporting Courses
Select 12 semester hours from the following list, or courses approved by advisor:
ABS 375 Conservation Biology 3
ABS 378 Wildlife Nutrition 3
ABS 470 Mammalogy 4
ABS 471 Ornithology 3
ABS 475 Habitat Management for Small Wildlife 3
ABS 476 Big Game Habitat Management 3
BIO 331 Animal Behavior 3
BIO 385 Comparative Invertebrate Zoology 4
BIO 410 Techniques in Wildlife Conservation Biology *L* 3
BIO 426 Limnology *L* 4
BIO 473 Ichthyology 3
BIO 474 Herpetology 3
Total 39

Habitat Supporting Courses
Select 12 semester hours from the following list, or courses approved by advisor:
ABS 225 Soils 3
ABS 226 Soils Laboratory 1
ABS 368 Plant Propagation 3
ABS 380 Restoration and Wildlife Plants 3
ABS 381 Natural Resource Policy 3
ABS 430 Watershed Management 3
ABS 433 Riparian and Wetland Ecology 3
ABS 435 Ecological Modeling 3
ABS 481 Riparian and Wetland Restoration 3
ABS 486 Introduction to Remote Sensing 4
PLB 308 Plant Physiology 3
Total 32

B.I.S. CONCENTRATION

A concentration in applied biological sciences is available under the Bachelor of Interdisciplinary Studies (B.I.S.) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see "Bachelor of Interdisciplinary Studies," page 123.

MINOR

The Applied Biological Sciences minor consists of 24 semester hours, including BIO 187 General Biology I, BIO 188 General Biology II, ABS 312 Structure and Function, and at least 12 hours selected with the approval of an advisor; at least nine hours must be in the upper division. This minor is not available to students majoring in the life sciences.

GRADUATE PROGRAMS

Faculty associated with the Applied Biological Sciences program also offer programs leading to M.S. degrees in Environmental Resources and Plant Biology. The selected faculty also participate with the Graduate College and the Colleges of Architecture and Environmental Design and Liberal Arts and Sciences in programs leading to Ph.D. degrees in Environmental Design and Planning, with a concentration in Planning, and a Ph.D. degree in Plant Biology. See the *Graduate Catalog* for requirements.

Biology and plant biology courses regularly offered on East campus include BIO 340, BIO 360, PLB 308, and PLB 414. For course descriptions, see "School of Life Sciences," page 400.

APPLIED BIOLOGICAL SCIENCES (ABS)

ABS 130 Introduction to Environmental Science. (4)
fall
Introduces resources, their physical and chemical properties, classification, energy dynamics, and the role they play in environmental quality. Lecture, lab.
General Studies: SQ

ABS 150 Environmental Biology. (3)
spring
Applies biological sciences to environmental issues. Includes ecological, historical, and global perspectives on environmental conservation.

ABS 191 First-Year Seminar. (1–3)
selected semesters

ABS 207 Applied Plant Taxonomy. (3)
spring
Introduces identification of vascular plants emphasizing seed plants. Surveys seed plant families. Lecture, lab, field trips. Fee. Prerequisite: BIO 187.

ABS 225 Soils. (3)
fall
Fundamental properties of soils and their relations to plant growth, nutrition of man and animals, and environmental quality. Prerequisite: CHM 101 or 113 (or its equivalent).

ABS 226 Soils Laboratory. (1)
fall
Selected exercises to broaden the background and understanding of basic soil principles. Lab. Fee. Pre- or corequisite: ABS 225.

ABS 260 Fundamentals of Urban Horticulture. (4)
fall
Principles and practices of horticulture, emphasizing development, growth, and propagation of horticultural plants and environmental factors that affect these processes. 3 hours lecture, 3 hours lab. Fee. Prerequisite: BIO 187 or PLB 108.
General Studies: SG

ABS 294 Special Topics. (1–4)
selected semesters

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

ABS 301 Technology and Biology. (2)
spring
Demonstrations of a broad range of innovative technologies in molecular biology, cellular and organismal biology, horticulture, and wildlife and restoration ecology. Fee.

ABS 302 Policy and Biology. (2)
fall
Policy environment for the practice of biology. Covers policy formulation, regulatory agencies, and policies in biotechnology, agriculture, and environment.

ABS 312 Structure and Function. (4)
spring
Surveys structural and functional attributes of plant and animals of particular importance in the applied biological sciences. Lecture, lab. Fee. Prerequisite: BIO 187.

ABS 350 Applied Statistics. (3)
fall and spring
Statistical methods with applications in the biological sciences and natural resource management. Uses computers and the Internet. Prerequisite: MAT 117 (or its equivalent).
General Studies: CS

ABS 355 Vertebrate Zoology. (4)
spring
Classification, anatomy, and physiology of the vertebrates. Lecture, lab. Prerequisites: BIO 188 and CHM 101 (or their equivalents).

ABS 360 Southwest Home Gardening. (2)
fall and spring
Multimedia course for nonmajors surveying contemporary topics in Southwest home horticulture, including landscaping, flower and vegetable gardening, citriculture, interiorscaping, and others.

ABS 362 Landscape Plants. (4)
spring
Identification, design, culture, and use of woody and herbaceous plants in urban landscapes. 3 hours lecture, 3 hours lab. Fee. Prerequisite: ABS 260 (or its equivalent).

ABS 363 Landscape Practices. (4)
fall
Installation, irrigation, and maintenance of amenity plants in urban landscapes with an emphasis on integrated environmental landscape technologies. 3 hours lecture, 3 hours lab. Fee. Prerequisite: ABS 260 (or its equivalent).

ABS 364 Urban Forestry. (3)
fall
Care, maintenance, and valuation of the urban forest, including public and private landscape codes. Prerequisite: ABS 260 (or its equivalent).

ABS 366 Indoor Plants. (3)
fall or spring
Identification, culture, and use of container-grown plants for interior environments. Prerequisite: ABS 260 or instructor approval.

ABS 367 Urban Parks. (4)
spring
Overview of the management and maintenance of private and public parks, urban greenspaces, and recreational areas. Lecture, lab. Fee.

ABS 368 Plant Propagation. (3)
spring
Theory and application of sexual and asexual propagation techniques. Considers plant materials used both for urban horticulture and ecological restoration applications. 2 hours lecture, 3 hours lab. Fee. Prerequisite: BIO 188.

ABS 370 Ecology. (3)
fall
Interactions between organisms and their environments; structure and dynamics of populations, communities, ecosystems, and landscapes, with emphasis on vegetation. Lecture, field trips. Prerequisite: BIO 188.

ABS 372 Ecology: Ecosystems and Landscapes. (3)
spring
Structure and function of ecosystems, interactions of pattern and process in landscapes. Lecture, lab, field trips. Prerequisite: ABS 370.

ABS 374 Introduction to Wildlife Management. (4)
spring
Managing wildlife in the Southwest, including life histories of small game, fur bearers, big game, and selected nongame specials. Fee. Lecture, lab, field trips.

ABS 375 Conservation Biology. (3)
spring
Principles of conservation biology, management of threatened species and ecosystems, biodiversity patterns with emphasis on issues in the Southwest. Lecture, field trips. Fee.

ABS 376 Wildlife Ecology. (3)
spring
Examines ecological principles underlying wildlife population dynamics with emphasis on physiology, genetics, nutrition, and habitat factors. Lecture, lab, 1 weekend field trip. Prerequisite: ABS 370.

ABS 378 Wildlife Nutrition. (3)
fall
Principles of nutrient metabolism in wildlife species, with emphasis on understanding the interaction of wildlife with their environment. Prerequisites: BIO 188; CHM 101.

ABS 380 Restoration and Wildlife Plants. (3)
fall
Important wildland plants, including invasive and endangered species, wildlife food species, and species used for ecosystem restoration. Lecture, lab. Prerequisite: ABS 207 or 260.

ABS 381 Natural Resources Policy. (3)
fall
Policies and regulations affecting management of natural resources, with emphases on wildlife and ecological restoration.

ABS 402 Vegetation and Wildlife Measurement. (3)
spring
Vegetation inventory, sampling, monitoring, and evaluation. Methods of estimating wildlife populations, activity, and home ranges. Lecture, lab, 1 weekend field trip. Prerequisites: ABS 207, 350, 370.

ABS 425 Soil Classification and Management. (3)
selected semesters
Principles of soil genesis, morphology, and classification. Presents management and conservation practices. Prerequisite: ABS 225 (or its equivalent).

ABS 430 Watershed Management. (3)
selected semesters
Hydrologic, physical, biological, and ecological principles applied to watershed management. Impact of ecosystem manipulations on water yield and quality. Lecture, 1 weekend field trip. Prerequisite: ABS 225.

ABS 433 Riparian and Wetland Ecology. (3)
selected semesters
Functions and components of riparian and wetland ecosystems and the management of these systems. Lecture, field trips. Prerequisite: ABS 370.

ABS 434 Soil Ecology. (3)
selected semesters
Soils viewed in an ecosystem context, soil-plant relationships, nutrient budgets, and abiotic factors that influence soil processes. Lecture, lab, field trips. Prerequisites: ABS 225, 226, 370.

ABS 435 Ecological Modeling. (3)
fall
Simulation modeling as a tool to study ecological processes and human impact on ecosystems and organisms. Lecture, lab. Prerequisites: ABS 350, 370.

ABS 440 Ecological Restoration Techniques. (3)
fall
Techniques for ecological restoration, riparian and wetland restoration, and monitoring restoration success. Prerequisites: ABS 370, 380.

ABS 441 Ecological Restoration Practicum. (1)
fall
Field experience in the evaluation and monitoring of implemented ecological restoration projects. Lab, field trips. Fee. Pre- or corequisite: ABS 440.

ABS 460 Organic Gardening. (3)
fall
Applies principles and practices of organic gardening in the low desert, including environmental impacts of modern food production. 1 hour lecture, 3 hours lab. Fee. Prerequisite: ABS 260.

ABS 462 Greenhouse/Nursery Management. (4)
spring
Greenhouse structures, environment, and nursery operations. Includes irrigation, nutrition, and other principles relative to production of nursery crops. 1 hour lecture, 3 hours lab. Fee. Prerequisite: ABS 260.

ABS 463 Sports and Recreational Turf. (3)
fall and spring
Maintenance and operation of large areas such as golf courses, athletic fields, and park areas. Prerequisite: ABS 260 (or its equivalent).

ABS 465 Senior Enterprise Project. (3)
fall and spring
Selection and completion of an urban horticulture project with faculty advisor approval related to the field of study. Prerequisite: senior standing.

ABS 470 Mammalogy. (3)
fall
Classification and biology of mammals, emphasizes North America. Pre- or corequisite: ABS 355.

ABS 471 Ornithology. (3)
spring
Classification and biology of birds, emphasizing North America. Lecture, lab, field trips. Fee. Prerequisite: ABS 355.

ABS 475 Habitat Management for Small Wildlife. (3)
fall
Habitat management considerations and practices for small game and nongame wildlife species in North America. Lecture, field trips. Fee. Prerequisites: ABS 370, 376, 380.

ABS 476 Big Game Habitat Management. (3)
spring
Habitat management considerations and practices for big game wildlife species in North America. 2 hours lecture, 3 hours lab. Prerequisites: ABS 370, 376. Pre- or corequisite: ABS 402.

ABS 480 Ecosystem Management and Planning. (3)
selected semesters
Principles of ecosystem management, with emphasis on economic and policy constraints on the planning process. Risk assessment and management. Lecture, 1 weekend field trip. Prerequisite: senior standing or instructor approval.
General Studies: L

ABS 481 Riparian and Wetland Restoration. (3)
fall
Principles and problems in the restoration of degraded riparian and wetland ecosystems. Construction of wetlands. Prerequisites: ABS 433, 440.

ABS 482 Ecology and Planning for Restoration. (3)
spring
Ecological principles and resource planning processes applied to the restoration of degraded landscapes. Prerequisites: ABS 225, 372, 440.

ABS 483 Restoration Planning Practicum. (2)
spring
Field experience in ecological restoration techniques, selection of mitigation techniques, and implementation planning. Lab, extended field trip over spring break. Fee. Pre- or corequisite: ABS 482.

ABS 484 Internship. (1–12)
selected semesters

ABS 485 GIS in Natural Resources. (3)
fall
Principles of Geographic Information Systems (GIS) utilized in natural resource management. Use of computers for spatial analysis of natural resources. Lecture, lab. Prerequisite: ABS 350 (or its equivalent).

ABS 486 Introduction to Remote Sensing. (4)
selected semesters
Remote sensing technologies in natural resource management using computerized data from aerial photography and satellite imagery. Not for graduate credit. Lecture, lab.

ABS 489 Undergraduate Research. (1–3)
fall and spring
Undergraduate research under the supervision of an applied biological sciences faculty member. Prerequisite: junior or senior standing.

ABS 490 Applied Biological Sciences Seminar. (1)
fall and spring
Current literature and significant developments related to applications of the biological sciences. May be repeated for credit. Prerequisite: junior or senior standing.

ABS 492 Honors Directed Study. (1–6)
selected semesters

ABS 493 Honors Thesis. (1–6)
selected semesters

ABS 494 Special Topics. (1–4)
selected semesters

ABS 498 Pro-Seminar. (1–7)
selected semesters

ABS 499 Individualized Instruction. (1–3)
selected semesters

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

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

Faculty of Applied Psychology

www.east.asu.edu/ecollege/appliedpsych
480/727-1515
SUTTON, Third Floor

Roger W. Schvaneveldt, Faculty Head

Professors: Cooke, Schvaneveldt

Assistant Professor: Gray

APPLIED PSYCHOLOGY—B.S.

This major offers a traditional psychology core leading to graduate school preparation and/or to applications in human factors with emphasis on human-computer interaction, aviation, or manufacturing. Although most careers in psychology require graduate training, there are some employment opportunities for B.S. students in applied settings. For example, there is a need for individuals who can help deal with problems of usability of products and systems. The Applied Psychology program offers courses and experiences to prepare students for these positions. The rigor of the major also provides strong preparation for further graduate study in psychology. The program serves students in other ASU East programs such as manufacturing engineering technology, aeronautical management technology, industrial technology, and business administration.

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

Graduation Requirements

The completion of 120 semester hours—including First-Year Composition, General Studies (see "General Studies," page 91), and major requirements—leads to the B.S. degree. The major allows for at least 21 semester hours of electives. The major requirements for the B.S. degree in Applied Psychology consist of a 28-semester-hour core of psychology courses, 12 semester hours in applied psychology, and 18 semester hours of related course work.

Core Courses. Core courses provide a general background in the basic scientific areas of psychology and provide a culminating experience to integrate the varied studies.

PGS	101	Introduction to Psychology *SB* 3
PGS	350	Social Psychology *SB* 3
PSY	230	Introduction to Statistics *CS* 3
PSY	290	Research Methods *L/SG* 4
PSY	323	Sensation and Perception 3
PSY	324	Memory and Cognition 3
PSY	325	Physiological Psychology 3
PSY	330	Statistical Methods *CS* 3
PSY	477	Applied Psychology Capstone Experience* 3
		or HON 493 Honors Thesis (3)
Total		 28

* This PSY course is offered only by ASU East. All other PSY courses listed above are offered by ASU East and ASU Main.

Applied Psychology Courses. Students work with an advisor to select courses in Applied Psychology emphasizing human-computer interaction, aviation, training, manufacturing, or methods. Course work must include a minimum of four of the following courses:

AMT	410	Aviation Safety and Human Factors 3
PGS	471	Psychological Testing 3
PSY	320	Learning and Motivation 3
PSY	360	Cognitive Science* 3
PSY	390	Experimental Psychology *L* 3
PSY	437	Human Factors *L* 3
PSY	438	Human-Computer Interaction* 3
PSY	439	Training and Skill Acquisition* 3
PSY	440	Industrial/Organizational Psychology* 3
PSY	448	Human Factors in Transportation* 3
PSY	449	Human Factors in Sport* 3
PSY	494	Special Topics 1–4

* This PSY course is offered only by ASU East. All other PSY courses listed above are offered by ASU East and ASU Main.

Related Course Work

BIO		course with a lab 4
MAT	210	Brief Calculus *MA* 3
		or a higher MAT course (3)
Computer skills course 3		
Writing skills course 3		
Courses selected in consultation with an advisor 5		
Total		 18

Minor in Applied Psychology

The minor in applied psychology consists of 22 semester hours with at least 12 being upper-division courses. The following are required courses that must be completed with a grade of "C" (2.00) or higher:

PGS	101	Introduction to Psychology *SB* 3
PSY	230	Introduction to Statistics *CS* 3
		or equivalent statistics course
PSY	290	Research Methods *L/SG* 4
PSY	437	Human Factors 3
		or PSY 438 Human-Computer Interaction* (3)
		or PSY 440 Industrial/Organizational Psychology* (3)
Additional hours of upper-division PSY and/or PGS courses 9		

* This PSY course is offered only by ASU East. All other PSY courses listed above are offered by ASU East and ASU Main.

A maximum of three semester hours from the following courses can be used to satisfy minor requirements:

PGS	399	Supervised Research 3
PGS	499	Individualized Instruction 3
		or PSY 499 Individualized Instruction (3)
PSY	492	Honors Directed Study 3

Note: A minimum of three classes (two of which are in the upper division) must be taken in residence at ASU.

For more information about program requirements and courses, call an East College advisor at 480/727-1515, or access the Web site at www.east.asu.edu/ecollege/appliedpsych.

For PGS courses and additional PSY courses, see "Department of Psychology," page 437.

PSYCHOLOGY (SCIENCE AND MATHEMATICS) (PSY)

The courses listed are offered by only ASU East. For more PSY courses that may be offered by ASU East, see "Department of Psychology" under "College of Liberal Arts and Sciences."

E PSY 360 Cognitive Science. (3)
once a year
Examines cognition from the varied perspectives of philosophy, linguistics, psychology, computer science (artificial intelligence), and neuroscience. Lecture, discussion. Prerequisite: PSY 324.

E PSY 438 Human-Computer Interaction. (3)
once a year
Theories, methods, and findings concerning the usability of computer systems and the design of effective user interfaces. Lecture, discussion, projects. Prerequisite: PSY 437.

E PSY 439 Training and Skill Acquisition. (3)
once a year
Theories, methods, and findings concerning the acquisition of skilled performance and the design of effective training systems. Lecture, discussion, projects. Prerequisite: PSY 437.

E PSY 440 Industrial/Organizational Psychology. (3)
once a year
Examines personnel selection, performance assessment, job and workplace design, job satisfaction, organizational behavior, management systems, and industrial safety. Lecture, discussion, projects. Prerequisite: PSY 230 (or an equivalent statistics course).

E PSY 448 Human Factors in Transportation. (3)
selected semesters
Examines human performance and human-machine design issues in aviation and ground transportation. Integrated lecture/lab. Pre- or corequisite: PSY 323.

E PSY 449 Human Factors in Sport. (3)
selected semesters
Examines how psychological principles can be applied to enhance the performance of athletes and coaches. Lecture, discussion. Pre- or corequisites: PSY 320, 323.

E PSY 477 Applied Psychology Capstone Experience. (3)
fall, spring, summer
Applied psychology from a systems perspective. Requires a report based on research and/or applied work as a culminating experience. Lecture, discussion, projects. Prerequisite: senior standing.

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

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

Faculty of Business Administration

www.east.asu.edu/ecollege/businessadmin
480/727-1515
SUTTON, Third Floor

Roger W. Hutt, Faculty Head

Professors: Daneke, Edwards, Kagan, Marquardt, Shultz, Thor

Associate Professors: Hutt, Patterson, Richards

Assistant Professors: Manfredo, Skilton

Senior Lecturer: Watson

BUSINESS ADMINISTRATION—B.S.

The B.S. degree in Business Administration offers a survey of contemporary business disciplines and additional depth in at least three disciplines. The curriculum enables students to gain essential business competencies, knowledge of business disciplines and methods, and appreciation for contemporary business environments and cultures. Students prepare for careers in business, industry, or government, as well as for career advancement and entrepreneurial enterprises. This program operates under the umbrella of the AACSB International–accreditated ASU Main W. P. Carey School of Business, but it is offered through East College.

A total of 120 semester hours is required for graduation with a minimum of 51 semester hours of upper-division credit. As part of the undergraduate degree program, students complete the General Studies requirement (see "General Studies," page 91).

Requirements for the Business Administration major consist of 30 semester hours of lower-division core and skill courses, 22 semester hours of upper-division core courses, one three-semester-hour capstone course, and 18 semester hours of approved electives. All of the upper-division business courses (with the exception of nine semester hours) must be taken at ASU East.

Business Administration Core

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

Capstone Course (Three Semester Hours)

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

Approved Electives (18 Semester Hours)

Total		18

Students select 18 semester hours of electives toward a goal of building upon and integrating prior and current course work. This set of courses, which must be approved by the Business Administration program head, allows students to study a subset of business problems or issues as well as focus on their career interests.

Approved electives include courses in ASU East industry-specific business programs (Aeronautical Management Technology, Agribusiness, and Information and Management Technology).

For the latest information about application, admissions, program requirements, and courses, call an East College advisor at 480/727-1515, or access the Web site at www.east.asu.edu/ecollege/businessadmin.

Minor in Small Business

The minor in small business is available to nonbusiness majors and consists of 18 semester hours, with five required courses and one approved elective. BUA 380 Small Business Leadership is a prerequisite or corequisite for other courses.

Requirements

BUA	380 Small Business Leadership	3
BUA	381 Small Business Accounting and Finance	3
BUA	382 Small Business Sales and Market Development	3
BUA	383 Small Business Working Relationships	3
BUA	384 Small Business Operations and Planning	3
Approved elective		3
Total		18

B.I.S. Concentration in Small Business (B.I.S. Majors Only)

The requirements for the small business concentration are identical to those for the minor in Small Business listed above. For B.I.S. degree requirements, see "Bachelor of Interdisciplinary Studies," page 123.

BUSINESS ADMINISTRATION (BUA)

BUA 380 Small Business Leadership. (3)
fall, spring, summer
Develops leadership skills needed to form, lead, and operate a small business. Emphasizes creating a vision, research, and problem solving. Lecture, team teaching, collaborative learning.

BUA 381 Small Business Accounting and Finance. (3)
fall and spring
Accounting and finance skills needed by small business owners to acquire, allocate, and track monetary resources and evaluate performance. Lecture, team teaching, collaborative learning.

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

BUA 382 Small Business Sales and Market Development. (3)
fall and spring
Building and maintaining customers, developing a market identity and a niche, and the importance of sales. Lecture, team teaching, collaborative learning.

BUA 383 Small Business Working Relationships. (3)
fall and spring
Addresses communication and the people in a business—clients, employees, suppliers, competitors, governments, family, and self development. Lecture, team teaching, collaborative learning.

BUA 384 Small Business Operations and Planning. (3)
fall and spring
Planning and executing plans—the what, when, where, how, and who from product/service/project idea to pay back or completion. Lecture, team teaching, collaborative learning.

BUA 394 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Business Professional Development. (1)
- Professional Development. (1)

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

Faculty of Education

www.east.asu.edu/ecollege/education
480/727-1103
SUTTON 240E

Bette S. Bergeron, Faculty Head

Professor: Bergeron

Assistant Professor: White-Taylor

Senior Lecturers: Stever, Wenhart

Lecturers: Foley, Gomez, Gryder, Hopper, Prest

ELEMENTARY EDUCATION—B.A.E.

Program Overview

The Elementary Education program at ASU East is unique in its focus on intensive field experiences, practical application of current theory, and emphasis on technology. The curriculum is also focused on and directly aligned with Arizona's standards for teachers. Courses are arranged sequentially and taken with peer cohorts in four semester-long blocks. Each semester Elementary Education students are immersed in field experiences that directly link with course discussions and assignments. Course instructors have taught in a variety of K–8 settings and can therefore augment class experiences with practical applications. Current educational technologies are incorporated into course delivery and assignments. Additionally, students have the opportunity to choose between the daytime Elementary Education program at the ASU East campus or participate in one of the campus's district-based evening cohorts.

Graduation Requirements

A total of 120 semester hours is required for graduation with a minimum of 45 semester hours of upper-division credit. As part of the undergraduate degree program, students will complete ASU General Studies (see "General Studies," page 91) requirements. In addition, Elementary Education students are required to complete 18 semester hours in an academic specialization, which is tailored to an individual student's academic strengths (e.g., math, science, social studies, English). The remaining program hours, which specifically focus on the teaching profession, are outlined below. Students must first be admitted to the ASU East Elementary Education program before enrolling in the Professional Preparation Program courses (Blocks I–IV).

Foundations (15 semester hours)*

ECD	314	The Developing Child	3
EDP	310	Educational Psychology *SB*	3
MCE	446	Understanding the Culturally Diverse Child *C*	3
MTE	180	Theory of Elementary Mathematics	3
SPE	311	Orientation to Education of Exceptional Children *SB*	3

* For foundation courses, see "College of Education," page 189.

Professional Preparation Program*

Block I

EDC	320	Integrated Learning Experience I: Learning Climate	2
EDC	330	Literacy I: Emerging Literacy and Phonemic Awareness	3
EDC	340	Writing and the Professional Educator *L*	3
EDC	350	Educational Technology I: Applications	1
EDC	351	Educational Technology II: Instruction and Evaluation	1
EDC	352	Educational Technology III: Design	1
EDC	474	Field Experience	0–1

Block II

EDC	325	Integrated Learning Experience II: Instructional Design and Implementation	2
EDC	335	Literacy II: Intermediate Literacy and Phonetic Principles	3
EDC	345	Math Methods for the Elementary Classroom	3
EDC	355	Accommodating Instruction for Diverse Learners	3
EDC	474	Field Experience	0–1

Block III

EDC	420	Integrated Learning Experience III: Assessment	2
EDC	430	Literacy III: Interventions	3
EDC	440	Science Methods for the Elementary Classroom	3
EDC	450	Social Studies Methods for the Elementary Classroom	3
EDC	474	Field Experience	0–1

Block IV

EDC	425	Integrated Learning Experience IV: Professional Knowledge	2
EDC	484	Student Teaching in the Elementary School	10–12

* Block courses can only be taken upon admission to the Elementary Education program.

Postbaccalaureate Program. Individuals who hold a bachelor's degree from an accredited institution are encouraged to participate in the Elementary Education program as non-degree graduate students. Postbaccalaureate students complete the same professional preparation program courses as outlined above, which are augmented by the students' unique life and work experiences.

In addition to participation in any of the four-semester undergraduate Elementary Education programs, postbacca-

laureate students also have the option of an accelerated program. For more information, call 480/727-1103.

Application. Applications for the ASU East Elementary Education programs are due October 15 for spring admission, and April 15 for fall admission. Students eligible for admission must meet the following criteria:

1. admission to ASU East;
2. a minimum cumulative GPA of 2.50;
3. completion of at least 56 semester hours at the time of admission (undergraduate degree-seeking students); or, completion of a bachelor's degree from an accredited institution (postbaccalaureate students); and
4. evidence of competence in written English.

Applications include two letters of recommendation and a résumé outlining work with school-age children and/or their families. Students should call the ASU East Teacher Education Office at 480/727-1103 for complete admission packet information and eligibility requirements.

State Certification. Students who successfully complete the undergraduate or postbaccalaureate routes to Elementary Education teacher preparation at ASU East are recommended for K–8 certification in the State of Arizona pending the completion of all other requirements mandated by the state. These additional requirements include, but are not limited to, successful completion of all appropriate areas of the Arizona Education Proficiency Assessment and course work in the United States and Arizona constitutions. Because of the possibility that requirements for state certification may change, students are urged to maintain close contact with their education advisor.

Advising Information. It is important for all students to work closely with an ASU East academic advisor to ensure that their overall curriculum is coherent and best reflects their unique academic talents. For the latest information about application, admissions, program requirements, and courses, access the Web site at www.east.asu.edu/ecollege/elementaryed, or call the ASU East Teacher Education Office at 480/727-1103, or the prospective student advisor at 480/727-1745.

Applied Biological Sciences–B.S. Secondary Education Concentration

Program Overview

Applied Biological Sciences majors can complete requirements for state certification in Secondary Biology through a concentration in applied biological sciences/secondary education. See "Applied Biological Sciences/Secondary Education Concentration," page 617. Students complete course work in the applied biological sciences core, science content courses related to secondary biology, and courses specific to the secondary education curriculum and instruction. The program concludes with full-time student teaching in secondary science classrooms.

Graduation Requirements

A total of 120 semester hours is required for graduation with a minimum of 45 hours of upper-division credit. As part of the undergraduate degree program, students meet the General Studies requirement (see "General Studies," page 91). Courses specific to the applied biological sciences/secondary education concentration are outlined below:

Applied Biological Sciences Core

ABS	150	Environmental Biology	3
ABS	301	Technology and Biology	2
ABS	302	Policy and Biology	2
ABS	312	Structure and Function	4
ABS	350	Applied Statistics *CS**	3
BIO	187	General Biology I *SG*	4
BIO	188	General Biology II *SQ*	4
BIO	340	General Genetics	4
BIO	360	Animal Physiology	3
		or PLB 308 Plant Physiology (4)	
MAT	210	Brief Calculus *MA*	3

* An equivalent course may be taken in place of ABS 350.

For students choosing the secondary education concentration, the following courses must be used as General Studies courses in order to graduate in 120 hours:

ABS	350	Applied Statistics *CS*[1]	3
BIO	187	General Biology I *SG*	4
BIO	188	General Biology II *SQ*	4
MAT	210	Brief Calculus *MA*	3

Applied Biological Sciences/Secondary Education Concentration

ABS	207	Applied Plant Taxonomy	3
		or ABS 355 Vertebrate Zoology (4)	
ABS	370	Ecology	3
ABS	490	Applied Biological Sciences Seminar	1
CHM	113	General Chemistry *SQ*	4
CHM	116	General Chemistry *SQ*	4
MIC	205	Microbiology *SG*[2]	3
MIC	206	Microbiology Laboratory *SG*[2]	1
PHY	101	Introduction to Physics *SQ*	4
Upper-division electives			2
Total			25–26

Secondary Education Course Work

BIO	480	Methods of Teaching Biology	3
BIO	482	Advanced Methods of Teaching Biology	3
EDC	350	Educational Technology I: Applications	1
EDC	351	Educational Technology II: Instruction and Evaluation	1
EDC	352	Educational Technology III: Design	1
EDC	494	ST: Professional Knowledge	2
EDP	303	Human Development *L*	3
EDP	310	Educational Psychology *SB*	3
RDG	301	Literacy and Instruction in the Content Areas	3
SED	403	Middle and Secondary School Principles, Curricula, and Methods	3
SED	478	Student Teaching in Secondary Schools	10–12
SED	496	Field Experience	0

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

SPE 394 ST: Inclusion Practices at the Secondary Level 3

Total 36–38
Concentration total 61–64

[1] An equivalent course may be taken in place of ABS 350.
[2] Both MIC 205 and 206 must be taken to secure SG credit.

Strongly Recommended
MCE 446 Understanding Culturally Diverse Child *C* 3
SPE 311 Orientation to Education of Exceptional Children *SB* ...3

Application

Students interested in pursuing the applied biological sciences/secondary education concentration need to be admitted into the Teacher Education unit before taking the secondary methods courses (usually during the junior year). The following requirements for admission to the applied biological sciences/secondary education concentration mirror those of acceptance into other education programs at ASU East. Requirements for entry include

1. completion of 56 semester hours;
2. a 2.50 cumulative GPA;
3. a 2.50 GPA within the major (Applied Biological Sciences);
4. proficiency in written English, met in one of the following ways: (*a*) GPA of 3.00 in ENG 101 and 102 (or equivalent) or (*b*) successful completion of a written proficiency exam; and
5. formal application to the ASU East Education program, including two letters of recommendation and current résumé; the résumé and letters should outline the candidate's experiences with adolescents and/or their families and show proficiency in the content (i.e., applied biological sciences).

Advising Information

Students interested in the applied biological sciences/secondary education concentration must participate in dual advising—both in applied biological sciences and education. Education advising is required at the time a student seeks admission to the Education unit. However, students are encouraged to seek advisement from Education as soon as they decide to pursue the secondary education concentration. For more information about application, admission, program requirements, and courses, visit the ASU East Teacher Education Office, SUTTON, call 480/727-1103, or access the Web site at www.east.asu.edu/ecollege/education.

EARLY CHILDHOOD EDUCATION (EAC)

EAC 494 Special Topics. (1–4)
selected semesters

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

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

ELEMENTARY EDUCATION (EDC)

EDC 320 Integrated Learning Experience I: Learning Climate. (2)
fall and spring
Explores factors contributing to a positive and productive classroom learning environment. Interactive forum.

EDC 325 Integrated Learning Experience II: Instructional Design and Implementation. (2)
fall and spring
Design and implementation of developmentally appropriate instruction, and the alignment of instruction with district and state academic standards. Interactive forum. Prerequisite: EDC 320.

EDC 330 Literacy I: Emerging Literacy and Phonemic Awareness. (3)
fall and spring
Development of language from birth to age 8, and appropriate strategies for promoting growth in speaking, listening, reading, and writing. Applied inquiry. Corequisite: EDC 474.

EDC 335 Literacy II: Intermediate Literacy and Phonetic Principles. (3)
fall and spring
Strategies for teaching literacy in intermediate elementary classrooms, the application of phonetic principles to instruction, and integrating literacy across disciplines. Applied inquiry. Prerequisite: EDC 330. Corequisite: EDC 474. Pre- or corequisite: EDC 325.

EDC 340 Writing and the Professional Educator. (3)
fall and spring
Professional writing focused on foundational issues in education, including the culture of schooling, current social contexts, and educational law.
General Studies: L

EDC 345 Math Methods for the Elementary Classroom. (3)
fall and spring
Developmentally appropriate practices for teaching and assessing mathematics in grades K–8. Applied inquiry. Fee. Prerequisite: MTE 180. Corequisite: EDC 474. Pre- or corequisite: EDC 325.

EDC 350 Educational Technology I: Applications. (1)
fall and spring
Module focused on basic technological skills needed for managing classroom instruction. Lab.

EDC 351 Educational Technology II: Instruction and Evaluation. (1)
fall and spring
Module focused on technology as an instructional medium, evaluation, and effective classroom use. Lab. Prerequisite: EDC 350.

EDC 352 Educational Technology III: Design. (1)
fall and spring
Module focused on instructional design utilizing a variety of technologies, including multimedia. Lab. Prerequisite: EDC 351.

EDC 354 Educational Media in the Classroom. (3)
fall and spring
Designing and implementing educational media into the K–12 curriculum. Includes instructional design, evaluation of sources, and introduction to multimedia applications. Prerequisite: acceptance into teacher preparation program.

EDC 355 Accommodating Instruction for Diverse Learners. (3)
fall and spring
Identifying and accommodating learners with special needs, including classroom adaptations in instruction and assessment. Forum, practicum. Prerequisite: SPE 311. Corequisite: EDC 474. Pre- or corequisite: EDC 325.

EDC 420 Integrated Learning Experience III: Assessment. (2)
fall and spring
Principles related to classroom assessment, including the alignment of assessment to curriculum, test interpretation, and a variety of assessment techniques. Interactive forum. Prerequisite: EDC 325.

EDC 425 Integrated Learning Experience IV: Professional Knowledge. (2)
fall and spring
Explores issues related to professional knowledge, including interdisciplinary instruction and the impact of the community on students' learning. Interactive forum. Prerequisite: EDC 420. Corequisite: EDC 484.

EDC 430 Literacy III: Interventions. (3)
fall and spring
Strategies for accommodating students struggling with learning, with a focus on the areas of literacy acquisition and assessment. Forum, practicum. Prerequisites: EDC 335, 355. Corequisite: EDC 474. Pre- or corequisite: EDC 420.

EDC 440 Science Methods for the Elementary Classroom. (3)
fall and spring
Developmentally appropriate practices for teaching and assessing sciences in grades K–8. Applied inquiry. Fee. Prerequisites: EDC 325, 345. Corequisite: EDC 474. Pre- or corequisite: EDC 420.

EDC 450 Social Studies Methods for the Elementary Classroom. (3)
fall and spring
Developmentally appropriate practices for teaching and assessing social studies in grades K–8. Applied inquiry. Prerequisites: EDC 325, 335. Corequisite: EDC 474. Pre- or corequisite: EDC 420.

EDC 455 Diverse Learners in the K–8 Classroom. (3)
fall, spring, summer
Identifies and implements instructional practices for students with diverse needs in the elementary classroom. Laws related to special populations. Interactive forum. Prerequisite: approval of the ASU East Education Office.

EDC 460 Principles of Curriculum and Instruction in the K–8 Classroom. (3)
fall, spring, summer
Current research and practices related to the K–8 curriculum, including application of motivation and learning theories, lesson development, and assessment. Interactive forum. Prerequisite: approval of the ASU East Education Office.

EDC 465 Literacy Instruction in the K–8 Classroom. (3)
fall, spring, summer
Principles of a developmentally appropriate elementary literacy curriculum and related instructional practices. Encompasses reading, language arts, writing, and oral expression. Interactive forum. Prerequisite: approval of the ASU East Education Office. Corequisite: EDC 474.

EDC 474 Field Experience. (0–1)
fall and spring
Applies course content in a K–8 school. Emphasizes observation, classroom management, planning and delivery of instruction, and assessment. Practicum. Corequisite: all methods courses in the teacher preparation program must be taken with Field Experience.

EDC 475 Social Studies Instruction in the K–8 Classroom. (3)
fall, spring, summer
Principles of a developmentally appropriate social studies curricula and related instructional practices. Emphasizes cultural diversity and implications of a global society. Interactive forum. Prerequisite: approval of the ASU East Education Office.

EDC 480 Theory of Mathematics and Science Instruction. (3)
fall, spring, summer
Examines theoretical and conceptual frameworks of elementary mathematics and science instruction. Emphasizes academic content standards and prerequisite knowledge. Fee. Prerequisite: approval of the ASU East Education Office.

EDC 484 Student Teaching in the Elementary School. (10–12)
fall and spring
Supervised teaching in the area of specialization. Capstone internship in curriculum, instruction, and classroom management. Internship. Prerequisites: 2.50 GPA; completion of professional course sequence; approval of ASU East Education Office. Corequisite: EDC 425.

EDC 485 Science Instruction in the K–8 Classroom. (3)
fall, spring, summer
Principles of a developmentally appropriate science curricula and related instructional practices, with an emphasis on learner-centered methodologies. Fee. Prerequisites: EDC 480 (or instructor approval); approval of the ASU East Education Office. Corequisite: EDC 474.

EDC 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Professional Knowledge

EDC 495 Mathematics Instruction in the K–8 Classroom. (3)
fall, spring, summer
Principles of a developmentally appropriate mathematics curricula and related instructional practices, including a range of learning theories and their application. Fee. Prerequisites: EDC 480 (or instructor approval); approval of the ASU East Education Office. Corequisite: EDC 474.

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

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

ENGLISH AS A SECOND LANGUAGE (ELL)

ELL 484 Internship. (1–12)
selected semesters

ELL 494 Special Topics. (1–4)
selected semesters

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

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

INSTRUCTIONAL MEDIA (IMD)

IMD 494 Special Topics. (1–4)
selected semesters

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

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

SECONDARY EDUCATION EAST (SDE)

SDE 194 Special Topics. (1–4)
selected semesters

SDE 294 Special Topics. (1–4)
selected semesters

SDE 394 Special Topics. (1–4)
selected semesters

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

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

Department of Exercise and Wellness

www.east.asu.edu/ecollege/wellness
480/727-1945
EAW

William J. Stone, Chair

Professors: Burkett, Stone

Associate Professors: Phillips, Swan

Assistant Professors: Adams, Tudor-Locke

Lecturer: Woodruff

EXERCISE AND WELLNESS—B.S.

The B.S. degree in Exercise and Wellness offers two concentrations: (1) exercise and wellness and (2) health promotion. Exercise and Wellness students study physical activity and other healthy lifestyles as they relate and contribute to optimal health and wellness. The exercise and wellness concentration is designed to prepare professionals and scholars in exercise and physical activity leadership as well as in wellness education. Areas of study include the kinesiological and physiological foundations of physical activity, exercise testing and prescription, as well as nutrition, stress management, social/cultural issues, and factors involved in health behavior change. The health promotion concentration is designed to prepare professionals and scholars in health and wellness promotion and disease prevention and management. Areas of study include epidemiology, health behavior change, prevention of chronic disease, program development and evaluation, as well as nutrition, stress management, social/cultural issues, and substance abuse. Students in both concentrations are exposed to the latest research and practice designed to enhance fitness, wellness, and healthy living including both laboratory and field experiences. A unique aspect of both degree options in the Exercise and Wellness program is an outstanding internship program that provides preprofessional experience in all segments of fitness, wellness, health promotion, and the allied health professions in metropolitan Phoenix or elsewhere in the country.

Career opportunities range broadly across the several sectors of the industry related to fitness, wellness, health promotion, and the health professions. Those settings include worksite/corporate, clinical/medical, community/educational, and the private/commercial sector. The degree is also ideal preparation for advanced study in health professions such as cardiopulmonary rehabilitation, physical therapy, and athletic training, as well as graduate study in exercise and wellness and public health.

Graduation Requirements

A total of 120 semester hours is required for graduation with a minimum of 45 semester hours of upper-division credit. As part of the undergraduate degree program, students complete ASU General Studies requirements. For a list of courses that meet ASU General Studies requirements, see "General Studies," page 91.

Exercise and Wellness students are required to complete the following courses:

Required core courses

EXW	300	Foundations of Exercise and Wellness *L/SB* 3
EXW	310	Computer Skills and Technology for Exercise and Wellness *CS* 3
EXW	342	Health Behavior Change 3
EXW	450	Cultural and Social Issues in Exercise and Wellness *SB, C* 3
EXW	484	Exercise and Wellness Internship 6
NTR	241	Human Nutrition 3
Total		 21

Each EXW core course has specific prerequisite courses that must be taken before taking the respective core course. These prerequisite courses include the following:

BIO	201	Human Anatomy and Physiology I *SG* 4
BIO	202	Human Anatomy and Physiology II 4
CHM	101	Introductory Chemistry *SQ* 4
		or any equivalent chemistry course
COM	225	Public Speaking *L* 3
PGS	101	Introduction to Psychology *SB* 3
Total		 18

Exercise and Wellness Concentration. The following EXW courses are required of all students in the exercise and wellness concentration:

EXW	212	Instructional Competency Laboratory 6
EXW	315	Physiological Foundations of Movement 3
EXW	320	Program Development and Leadership 3
EXW	330	Kinesiological Foundations of Movement 3
EXW	400	Stress Management for Wellness 3
EXW	420	Exercise Testing 3
EXW	425	Exercise Prescription 3
Elective*		 3
Total		 27

* Three semester hours must be selected from an approved list of concentration electives.

Health Promotion Concentration. The following EXW courses are required of all students in the health promotion concentration:

EXW	320	Program Development and Leadership 3
EXW	325	Fitness for Life 3
EXW	346	Program Evaluation in Health Promotion 3
EXW	350	Substance Abuse and Addictive Behavior 3
EXW	400	Stress Management for Wellness 3
EXW	442	Physical Activity in Health and Disease *L* 3
EXW	444	Epidemiology 3
Elective*		 6
Total		 27

* Six semester hours must be selected from an approved list of concentration electives.

WELLNESS FOUNDATIONS MINOR

The minor in Wellness Foundations is appropriate for students in the B.I.S. degree program. It consists of the following plus all prerequisite courses:

EXW 300 Foundations of Exercise and Wellness *L/SB*	3
EXW 325 Fitness for Life	3
EXW 342 Health Behavior Change	3
EXW 450 Cultural and Social Issues in Exercise and Wellness *SB. C*	3
EXW electives*	6
Total	18

* Six semester hours must be selected from an approved list of EXW electives. See an advisor for a list of approved electives.

B.I.S. CONCENTRATION

A concentration in wellness foundations is available under the Bachelor of Interdisciplinary Studies (B.I.S.) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see "Bachelor of Interdisciplinary Studies," page 123.

APPLIED SCIENCE—B.A.S.

The Bachelor of Applied Science (B.A.S.) degree is a capstone degree for the Associate of Applied Science (A.A.S.) degree. The B.A.S. degree exposes students to advanced concepts and diverse critical thinking skills to prepare them for future career opportunities and professional advancement.

Admission

Admission to the B.A.S. degree program is restricted to students holding an A.A.S. degree from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and 2.50 for nonresident applicants.

B.A.S. Degree Graduation Requirements

The B.A.S. degree program consists of 60 semester hours of upper-division courses, with 30 semester hours in residence. An overall GPA of 2.00 or higher is required.

A.A.S. degree	60
Assignable credit	5
B.A.S. core	15
Concentration	21
General Studies	19
Total	120

General Studies Curriculum. The B.A.S. curriculum builds on the general education content of the A.A.S. degree. Additional General Studies courses are taken in the core or concentration. General Studies courses focus on contextual learning.

L	3
MA	3
HU	3
HU or SB	3
SB	3
SG	4
Total	19

Assignable Credit. Assignable credit allows space in the curriculum for an internship requirement.

B.A.S. Core

EXW 300 Foundations of Exercise and Wellness *L/SB*	3
EXW 310 Computer Skills and Technology for Exercise and Wellness *CS*	3
EXW 320 Program Development and Leadership	3
EXW 325 Fitness for Life	3
EXW 346 Program Evaluation in Health Promotion	3
Total	15

Wellness Concentration. The wellness concentration is designed to prepare professionals in the area of wellness promotion and disease prevention and management.

Wellness Concentration

EXW 342 Health Behavior Change	3
EXW 350 Substance Abuse and Addictive Behavior	3
EXW 400 Stress Management for Wellness	3
EXW 442 Physical Activity in Health and Disease *L*	3
EXW 444 Epidemiology	3
EXW 450 Cultural and Social Issues in Exercise and Wellness *SB. C*	3
EXW 300- or 400-level elective	3
Total	21

GRADUATE PROGRAMS

The faculty in the Department of Exercise and Wellness offer programs leading to the M.S. degree in Exercise and Wellness. The department also participates with the Graduate College and College of Education in the program leading to the Ph.D. degree in Curriculum and Instruction with a concentration in Exercise and Wellness. See the *Graduate Catalog* for requirements.

EXERCISE AND WELLNESS (EXW)

EXW Note 1. A $5.00 towel and locker fee is required each semester by students using towel and locker facilities for physical activity courses.

EXW Note 2. Physical activity instruction courses (EXW 105, 205, 305) may not be taken for audit. Excessive absences and/or tardiness are considered disruptive behavior.

EXW 100 Introduction to Health and Wellness. (3)
fall and spring
Current concepts in health, exercise, and wellness. Emphasis placed on personal health, theories, attitudes, beliefs, and behaviors. Cross-listed as HES 100/KIN 100. Credit is allowed only for EXW 100 or HES 100 or KIN 100.
General Studies: SB

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

EXW 105 Physical Activity Instruction: Beginning. (1)
fall, spring, summer
Beginning instruction in a variety of physical activities such as aerobics, aquatics, racquet sports, physical conditioning, and golf. "Y" grade only. May be repeated for credit. 3 hours per week. Activity. Fee. See EXW Notes 1, 2.

EXW 205 Physical Activity Instruction: Intermediate. (1)
fall and spring
Intermediate-level instruction in a variety of physical activities. Continuation of EXW 105. "Y" grade only. May be repeated for credit. 3 hours per week. Activity. Fee. See EXW Notes 1, 2.

EXW 212 Instructional Competency Laboratory. (2)
fall, spring, summer
Methods of instructing and leading fitness activities, including aerobic, resistance, and flexibility activities. May be repeated for credit. Integrated lecture lab. See EXW Note 1. Prerequisite: Exercise and Wellness major.

EXW 215 Physical Activity and Healthy Lifestyles. (1)
fall and spring
Applies principles of physical activity to personal fitness testing and program planning for people of all ages. Telecampus course. Not open to Exercise and Wellness majors or to students who have credit for EXW 325.

EXW 280 Global Issues in Exercise and Wellness. (3)
spring
Historical overview of health promotion and wellness models as they relate to minority, gender, social, cultural, economic, international, and environmental issues.
General Studies: G

EXW 300 Foundations of Exercise and Wellness. (3)
fall, spring, summer
Analyzes research in various disciplines which contribute to health promotion and wellness.
General Studies: L/SB

EXW 301 Concepts of Fitness and Wellness. (1)
fall and spring
Guidelines for achieving health benefits of physical activity and other healthy lifestyles. Telecampus course. Not open to Exercise and Wellness majors or to students who have credit for EXW 325.

EXW 305 Physical Activity Instruction: Advanced. (1)
fall and spring
Advanced-level instruction in a variety of physical activities. Continuation of EXW 105. May be repeated for credit. "Y" grade only. 3 hours per week. Activity. Fee. See EXW Notes 1, 2.

EXW 310 Computer Skills and Technology for Exercise and Wellness. (3)
spring
Use of computers to statistically analyze data and design presentations of findings. Design of health promotion educational applications and presentations. Lecture, lab. Prerequisite: MAT 117.
General Studies: CS

EXW 311 Special Populations in Exercise and Wellness. (3)
fall
Introduces the challenged population and surveys the agencies that work with special populations.

EXW 315 Physiological Foundations of Movement. (3)
spring
Studies human movement with emphasis on physiological function of the body in response to physical activity and fitness training. Lecture, lab. Fee. Prerequisites: BIO 201, 202.

EXW 320 Program Development and Leadership. (3)
fall
Principles of planning, organizing, promoting, and leading fitness and wellness programs. Prerequisites: COM 225; Exercise and Wellness major.

EXW 325 Fitness for Life. (3)
fall and spring
Physical fitness and benefits of exercise with emphasis on self-evaluation and personalized program planning for a lifetime. Not open to students who have credit for EXW 215 or 301.

EXW 330 Kinesiological Foundations of Movement. (3)
spring
Studies and considers human movement with emphasis on kinesiology principles and their application to movement and fitness. Lecture, lab. Prerequisites: BIO 201, 202.

EXW 342 Health Behavior Change. (3)
fall
Examines major theories of health behavioral change. Develops intervention strategies and techniques employed to facilitate health behavioral change. Prerequisite: PGS 101.

EXW 346 Program Evaluation in Health Promotion. (3)
spring
Introduces and applies theory-based concepts and methods of program evaluation in health promotion. Prerequisite: EXW 320. Pre- or corequisites: EXW 300, 310.

EXW 350 Substance Abuse and Addictive Behavior. (3)
spring
Studies addictive substances, their pharmacology and effects. Psychosocial risk factors for, and consequences of, substance abuse. Lecture, discussion, individual and group study.

EXW 380 Body Image and Wellness. (3)
fall
Explores body image in American culture from physical, psychological, historical, and societal perspectives. Prerequisites: NTR 241; PGS 101.

EXW 400 Stress Management for Wellness. (3)
fall
Examines the stress response and management from a behavioral perspective as it pertains to individuals or groups. Prerequisite: PGS 101.

EXW 420 Exercise Testing. (3)
fall
Theoretical basis and practical application of pre-exercise screening, exercise testing, estimates of energy expenditure, and interpretation of results. Lecture, lab. Fee. Prerequisites: EXW 315; current CPR certification.

EXW 425 Exercise Prescription. (3)
fall
Theoretical basis for and application of general principles of exercise prescription to various ages, fitness levels, and health states. Prerequisites: EXW 320, 330. Pre- or corequisite: EXW 420.

EXW 442 Physical Activity in Health and Disease. (3)
spring
Examines the role of physical activity and fitness in the development of morbidity and mortality throughout the human life span. Prerequisite: EXW 315.
General Studies: L

EXW 444 Epidemiology. (3)
fall
Introduces epidemiological concepts and research literature, including physical activity, nutrition, tobacco, alcohol, injury prevention, and safe sex. Prerequisites: EXW 300, 310, 320. Pre- or corequisites: EXW 325, 350.

EXW 450 Cultural and Social Issues in Exercise and Wellness. (3)
spring
Examines contemporary cultural and social issues in physical activity. Focus on theories of social behavior, racial, ethnic, and cultural differences. Prerequisite: PGS 101.
General Studies: SB, C

EXW 460 Resistance Training Application and Theory. (3)
fall
Fosters critical thinking as it applies to resistance training theory. Pre- or corequisite: EXW 315.

EXW 484 Exercise and Wellness Internship. (6)
fall, spring, summer
Supervised practicum experience in approved exercise and wellness/health promotion agencies. Field work. Prerequisites: EXW 315, 320, 420. Pre- or corequisite: EXW 425.

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

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

Faculty of Human Health Studies

www.east.asu.edu/ecollege/humanhealth
480/727-1065
CLRB 102

William L. Mermis, Faculty Head

HUMAN HEALTH STUDIES—B.A. AND B.S.

The baccalaureate degrees in human health studies examine the multiple dimensions of human health, including psychological, social, biological, spiritual, economic, and emotional dimensions. Different perspectives on health and health care are examined as well as how those perspectives influence changes in belief structures and behavior. Students engage in a critical examination of the alternative approaches to health care and health promotion.

The degrees in human health studies provide students with the general knowledge and intellectual competencies to pursue many different careers and graduate studies in human services or health professions. Students planning to seek admission to medical school or other postbaccalaureate practitioner training that requires an extensive background in mathematics and science benefit from the B.S. program.

Graduation Requirements

To graduate with either a B.A. or a B.S. in Human Health Studies, students must complete a minimum of 120 semester hours (45 upper–division hours), including the university General Studies requirements. Both the B.A. and B.S. degree programs require 45 semester hours of major requirements consisting of a 15 semester hour core of Human Health Studies courses, a 12 semester hour concentration, and 18 semester hours of related course work.

The difference between the B.A. and B.S. programs lies in the mathematics and science requirements. Both B.A. and B.S. students must take one semester of general biology with a lab and two semesters of human anatomy and physiology with labs. The B.S. program requires additional mathematics courses (through brief calculus) and the following science courses:

CHM 113 General Chemistry *SQ* 4
CHM 116 General Chemistry *SQ* 4
CHM 331 General Organic Chemistry 3
CHM 332 General Organic Chemistry 3
CHM 335 General Organic Chemistry Laboratory 1
CHM 336 General Organic Chemistry Laboratory 1
PHY 111 General Physics *SQ** 3
PHY 112 General Physics *SQ** 3
PHY 113 General Physics Laboratory *SQ** 1
PHY 114 General Physics Laboratory *SQ** 1

* Both PHY 111 and 113 or 112 and 114 must be taken to secure SQ credit.

HUMAN HEALTH STUDIES (HHS)

HHS 100 Introduction to Holistic Health. (3)
selected semesters
Studies holistic health in a bio-psycho-socio-cultural context for health promotion and wellness.

HHS 194 Special Topics. (1–4)
selected semesters

HHS 294 Special Topics. (1–4)
selected semesters

HHS 300 Overview of Complementary Health Systems. (3)
selected semesters
Identifies and describes major approaches to complementary health models in the context of holistic health. Prerequisite: HHS 100.

HHS 302 Evidence-Based Complementary Health Modalities. (3)
selected semesters
Investigates complementary practices in the context of scholarly knowledge and standards for health care. Prerequisite: HHS 100.

HHS 394 Special Topics. (1–4)
selected semesters

HHS 400 Community-Based Complementary Health Services. (3)
selected semesters
Examines recent developments in community-based health and human services from a holistic perspective. Lecture, service learning. Prerequisite: HHS 100.

HHS 402 Work, Health, and the Family. (3)
selected semesters
Examines issues and programs in the contemporary workplace and society. Future directions for the family and its health.

HHS 403 Community Mental Health and Human Services. (3)
selected semesters
Examines concepts, issues, and programs in community mental health and the delivery of human services.

HHS 405 Seminar in Holistic Health. (3)
selected semesters
Integrates concepts and issues in holistic health within philosophical, historical, political, economic, and cultural frameworks. Prerequisite: HHS 100.

HHS 494 Special Topics. (1–4)
selected semesters

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

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

Faculty of Multimedia Writing and Technical Communication

www.east.asu.edu/ecollege/multimedia
480/727-1515
SUTTON, Third Floor

Barry M. Maid, Faculty Head

Professor: Maid

Associate Professor: Barchilon

MULTIMEDIA WRITING AND TECHNICAL COMMUNICATION—B.S.

In the Multimedia Writing and Technical Communication program, students learn how to produce, to design, and to manage information using both traditional and leading edge technologies. Students

1. learn to communicate, both orally and in writing, across audiences and cultures;
2. become aware of issues of ethics in technical communications;
3. gain an awareness of the global nature of technical communication—both culturally and economically—and develop the ability to evaluate print, oral, and electronic sources;
4. gain an understanding of appropriate technical genres and learn to demonstrate technical editing skills in all work; and
5. become able to incorporate appropriate visual elements and design in written documents and oral presentations and to work in appropriate media.

The program serves students who wish to pursue careers as technical writers, technical editors, Web page and intranet page designers, multimedia designers, desktop publishers, publications managers, and information designers.

GRADUATION REQUIREMENTS

To graduate with a B.S. degree in Multimedia Writing and Technical Communication, students must complete a minimum of 120 semester hours, including university graduation requirements and the requirements of the major.

Multimedia Writing and Technical Communication Core

TWC 301 General Principles of Multimedia Writing *L*	3
TWC 401 Principles of Technical Communication *L*	3
TWC 411 Principles of Visual Communication *L*	3
TWC 421 Principles of Writing with Technology *L*	3
TWC 431 Principles of Technical Editing *L*	3
TWC 490 Capstone	3
Total	18

Major Electives. Fifteen semester hours are considered electives in the major (TWC). At least six of which need to be in genre courses, such as TWC 443 Proposal Writing or TWC 447 Business Reports. An Internship (TWC 484) or supervised work experience is strongly recommended.

For information about program requirements and courses, access the Web at www.east.asu.edu/ecollege, or call an East College advisor at 480/727-1515.

Related Area. Students select a related area consisting of 12 semester hours of study in one other discipline. At least nine of these 12 semester hours must be in the upper division. Suggested disciplines might be, but are not limited to, applied psychology, business administration, or computer graphics. Students, with the help of an advisor, may also develop a coherent interdisciplinary related area.

BACHELOR OF APPLIED SCIENCE—B.A.S.

A Bachelor of Applied Science is also offered with a concentration in multimedia writing and technical communication. The B.A.S. degree is a "capstone" degree for the Associate of Applied Science degree. The B.A.S. degree exposes students to advanced concepts and diverse critical thinking skills that prepare them for future career opportunities and professional advancement.

Admission. Admission to the B.A.S. degree program is restricted to students holding an A.A.S. degree or equivalent from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and a 2.50 for nonresident applicants.

Degree Requirements. In addition to the A.A.S. degree, the B.A.S. in Applied Science through East College consists of 60 semester hours of upper-division (300-level and above) courses, with 30 semester hours in residence.

Assignable credit	6
B.A.S. core	15
General Studies	19
MWTC concentration	20
Total	60

General Studies Curriculum. The B.A.S. curriculum builds on the general education content of the A.A.S. degree. Additional General Studies (L, CS, and awareness areas) are met with courses in the core or concentration. General Studies courses focus on contextual learning.

L	3
MA	3
HU	3
HU or SB	3
SB	3
SG	4
Total	19

Assignable Credit. Assignable credit offers students the flexibility within the curriculum to take the prerequisite courses needed for success. The courses (six semester hours) are determined by the student and an advisor.

B.A.S. Core. The area core (15 semester hours) is focused on management and organization, professional communication, qualitative analysis, and computer competency.

Multimedia Writing and Technical Communication Concentration. In consultation with an advisor, students select 20 semester hours of upper-division TWC courses.

CERTIFICATE PROGRAMS

An undergraduate Multimedia Writing and Technical Communication Certificate is available and requires 18 semester hours.

For students who have already completed a baccalaureate degree, a Postbaccalaureate Certificate in Multimedia Writing and Technical Communication is available that also requires 18 semester hours.

Postbaccalaureate Certificate in Multimedia Writing and Technical Communication. The postbaccalaureate certificate in Multimedia Writing and Technical Communication requires the following courses:

TWC 501 Principles of Technical Communication	3
Two of the following courses	6
TWC 511 Principles of Visual Communication (3)	
TWC 521 Principles of Writing with Technology (3)	
TWC 531 Principles of Technical Editing (3)	
Three 500-level TWC courses at least two of which must be genre courses, such as TWC 543 Proposal Writing or TWC 547 Business Reports	9
Total	18

For more information about both certificate programs, call the East College advisor at 480/727-1515, or access the Web site at www.east.asu.edu/ecollege/multimedia.

B.I.S. CONCENTRATION

A concentration in multimedia writing and technical communication is available under the Bachelor of Interdisciplinary Studies (B.I.S.) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see "Bachelor of Interdisciplinary Studies," page 123.

MULTIMEDIA WRITING AND TECHNICAL COMMUNICATION (TWC)

TWC 194 Special Topics. (1–4)
selected semesters

TWC 200 Impact of Communications Technology on Society. (3)
fall and spring
Organizational issues and development of technical communication. Activities include research, evaluations, and presentation of oral arguments in support of positions. Prerequisites: both ENG 101 and 102 or only ENG 105.
General Studies: L

TWC 301 General Principles of Multimedia Writing. (3)
fall and spring
Introduces writing in a variety of media, understanding the consequences of integrating media, and effective editing techniques. Prerequisite: First-Year Composition.
General Studies: L

TWC 351 Technical Writing and Editing. (3)
fall and spring
Effective style, format, and organization of technical material; editing principles and practices; copyediting versus substantive editing; and document management. Prerequisite: ENG 102.

TWC 400 Technical Communications. (3)
fall, spring, summer
Planning and preparing technical publications and oral presentations based on directed library research related to current technical topics. Prerequisites: completion of first-year English requirements; a General Studies L course; senior standing with a major in College of Technology and Applied Sciences.
General Studies: L

TWC 401 Principles of Technical Communication. (3)
fall and spring
Basic information design principles to produce effective written, oral, and electronic technical communication. Understanding of rhetorical and audience analysis. Pre- or corequisite: TWC 301.
General Studies: L

TWC 403 Writing for Professional Publication. (3)
selected semesters
Analyzes the market and examines the publication process, including the roles of the author, editor, and reviewer. Pre- or corequisite: TWC 401.

TWC 411 Principles of Visual Communication. (3)
fall and spring
Basic principles of visual communication in print and electronic media. Understanding graphic and document design, including typography and color. Pre- or corequisite: TWC 401.
General Studies: L

TWC 421 Principles of Writing with Technology. (3)
fall and spring
Understanding historical and social impact of technology on writing, with emphasis on multimedia design, computer-mediated communication, and hypertext. Pre- or corequisite: TWC 401.
General Studies: L

TWC 431 Principles of Technical Editing. (3)
fall and spring
Basic principles of technical editing (for print and electronic media), including copyediting, reviews, standards, style, and project management. Pre- or corequisite: TWC 401.
General Studies: L

TWC 443 Proposal Writing. (3)
once a year
Develops persuasive strategies and themes for researching and writing professional proposals. Pre- or corequisite: TWC 401.

TWC 444 Manual and Instructional Writing. (3)
once a year
Design and development of a user manual, writing instructions, improving graphics and page design, and usability testing. Pre- or corequisite: TWC 401.

TWC 445 Computer Documentation. (3)
once a year
Introduces writing documentation for the computer industry. Pre- or corequisite: TWC 401.

TWC 446 Technical and Scientific Reports. (3)
once a year
Introduces strategies, formats, and techniques of presenting information to technical and scientific audiences. Pre- or corequisite: TWC 401.
General Studies: L

TWC 447 Business Reports. (3)
once a year
Introduces strategies, formats, and techniques of presenting information to business and other workplace audiences. Pre- or corequisite: TWC 401.
General Studies: L

TWC 484 Internship. (3)
fall and spring
Applies classroom work in a supervised workplace environment. Pre- or corequisite: TWC 411 or 421 or 431.

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

TWC 490 Capstone. (3)
fall and spring
Development of a professional portfolio, creation of a "culminating document," and synthesis of undergraduate experience. Prerequisite: instructor approval.

TWC 494 Special Topics. (1–4)
selected semesters

TWC 501 Principles of Technical Communication. (3)
fall and spring
Basic information design principles to produce effective written, oral, and electronic technical communication. Understanding of rhetorical and audience analysis. Pre- or corequisite: graduate standing.

TWC 503 Writing for Professional Publication. (3)
selected semesters
Analyzes the market and examines the publication process, including the roles of the author, editor, and reviewer. Pre- or corequisite: TWC 501.

TWC 511 Principles of Visual Communication. (3)
fall and spring
Basic principles of visual communication in print and electronic media. Understanding graphic and document design, including typography and color. Pre- or corequisite: TWC 501.

TWC 521 Principles of Writing with Technology. (3)
fall and spring
Understanding historical and social impact of technology on writing, with emphasis on multimedia design, computer-mediated communication, and hypertext. Pre- or corequisite: TWC 501.

TWC 531 Principles of Technical Editing. (3)
fall and spring
Basic principles of technical editing for print and electronic media, including copyediting, reviews, standards, style, and project management. Pre- or corequisite: TWC 501.

TWC 543 Proposal Writing. (3)
once a year
Develops persuasive strategies and themes for researching and writing professional proposals. Pre- or corequisite: TWC 501.

TWC 544 Manual and Instructional Writing. (3)
once a year
Design and development of a user manual, writing instructions, improving graphics and page design, and usability testing. Pre- or corequisite: TWC 501.

TWC 545 Computer Documentation. (3)
once a year
Introduces writing documentation for the computer industry. Pre- or corequisite: TWC 501.

TWC 546 Technical and Scientific Reports. (3)
once a year
Introduces strategies, formats, and techniques of presenting information to technical and scientific audiences. Pre- or corequisite: TWC 501.

TWC 547 Business Reports. (3)
once a year
Introduces strategies, formats, and techniques of presenting information to business and other workplace audiences. Pre- or corequisite: TWC 501.

TWC 584 Internship. (3)
fall and spring
Applies classroom work in a supervised workplace environment. Pre- or corequisites: TWC 511, 521, 531.

TWC 598 Special Topics. (1–4)
selected semesters

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

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

Department of Nutrition

www.east.asu.edu/ecollege/nutrition
480/727-1728
HSC 1386

Linda A. Vaughan, Chair

Professors: Johnston, Vaughan

Associate Professor: Hampl

Assistant Professors: Hutchins, Winham, Woolf

Lecturers: Dixon, Hall, Shepard

NUTRITION—B.S.

The B.S. degree in Nutrition offers three concentrations: dietetics, human nutrition, and food and nutrition management. The dietetics concentration provides students with a comprehensive range of nutrition, foods, and science courses that meet the academic (didactic) requirements necessary to become a registered dietitian. This concentration has been granted full accreditation as a Didactic Program in Dietetics (DPD) by the Commission on Accreditation for Dietetics Education of the American Dietetic Association. Graduates of a DPD may apply for Dietetic Internships to establish eligibility to write the Dietetic Registration examination.

The human nutrition concentration provides a sound foundation in the basic sciences and nutrition, but no food service courses are required. This program is often used by students who, while not seeking the credential of Registered Dietitian, are working towards a career in nutrition research or completing a premedical/predental program of study. The food and nutrition management concentration provides a number of nutrition, foods, and business courses and is offered to students with an interest in food production, nutrition program management, and food/nutrition marketing.

Accreditation. The B.S. degree in Nutrition with a concentration in dietetics has been granted full accreditation as a Didactic Program in Dietetics (DPD) by the Commission on Accreditation for Dietetics Education of the American Dietetic Association. For more information, call 312/899-0040, or write

COMMISSION ON ACCREDITATION FOR
DIETETICS EDUCATION
AMERICAN DIETETIC ASSOCIATION
120 S RIVERSIDE PLAZA SUITE 2000
CHICAGO IL 60606-6995

Dietetics Concentration. The following NTR courses are required of all students in the dietetics concentration:

NTR	142	Applied Food Principles	3
NTR	150	Introduction to Professions in Nutrition and Dietetics	1
NTR	241	Human Nutrition	3
NTR	340	Applications in Human Nutrition	3
NTR	341	Introduction to Planning Therapeutic Diets	3
NTR	343	Food Service Purchasing	3
NTR	344	Nutrition Services Management *L*	3
NTR	350	Nutrition Counseling *SB*	3
NTR	400	Preprofessional Preparation in Dietetics	3
NTR	440	Advanced Human Nutrition I	3
NTR	441	Advanced Human Nutrition II	3
NTR	444	Medical Nutrition Therapy	3
NTR	445	Management of Food Service Systems	3
NTR	446	Human Nutrition Assessment Lecture/Laboratory	3
NTR	448	Community Nutrition *L*	3
Total			43

In addition to the required NTR courses, the following related courses are required to complete the academic requirements of the Didactic Program in dietetics:

BCH	361	Principles of Biochemistry	3
BCH	367	Elementary Biochemistry Laboratory	1
BIO	201	Human Anatomy and Physiology I *SG*	4
BIO	202	Human Anatomy and Physiology II	4
CHM	113	General Chemistry *SQ*	4
CHM	116	General Chemistry *SQ*	4
CHM	231	Elementary Organic Chemistry *SQ*[1]	3
CHM	235	Elementary Organic Chemistry Laboratory *SQ*[1]	1
MIC	205	Microbiology *SG*[2]	3
MIC	206	Microbiology Laboratory *SG*[2]	1
Statistics course			3
Technical writing course			3
Total			34

[1] Both CHM 231 and 235 must be taken to secure SQ credit.
[2] Both MIC 205 and 206 must be taken to secure SG credit.

Additional supporting courses in the social sciences are required for completion of the DPD and must be selected in consultation with the Nutrition academic advisor.

Human Nutrition Concentration. The following NTR courses are required of all students in the human nutrition concentration:

NTR	142	Applied Food Principles	3
NTR	241	Human Nutrition	3
NTR	340	Applications in Human Nutrition	3
NTR	341	Introduction to Planning Therapeutic Diets	3
NTR	440	Advanced Human Nutrition I	3
NTR	441	Advanced Human Nutrition II	3
NTR	444	Medical Nutrition Therapy	3
NTR	446	Human Nutrition Assessment Lecture/Laboratory	3
Total			24

An additional six semester hours from the Department of Nutrition are required to complete this concentration. A maximum of three semester hours of Independent Study may be used to satisfy this requirement. Students select these courses in consultation with the Nutrition academic advisor.

In addition to the required NTR courses, the following related courses are required in order to complete the academic requirements of this concentration:

BCH	361	Principles of Biochemistry	3
BCH	367	Elementary Biochemistry Laboratory	1
BIO	201	Human Anatomy and Physiology I *SG*	4
BIO	202	Human Anatomy and Physiology II	4
CHM	113	General Chemistry *SQ*	4
CHM	116	General Chemistry *SQ*	4
CHM	231	Elementary Organic Chemistry *SQ*[1]	3
CHM	235	Elementary Organic Chemistry Laboratory *SQ*[1]	1
MIC	205	Microbiology *SG*[2]	3
MIC	206	Microbiology Laboratory *SG*[2]	1
Total			28

[1] Both CHM 231 and 235 must be taken to secure SQ credit.
[2] Both MIC 205 and 206 must be taken to secure SG credit.

Food and Nutrition Management Concentration. The following NTR courses are required of all students in the food and nutrition management concentration:

NTR	100	Introductory Nutrition or NTR 241 Human Nutrition (3)	3
NTR	142	Applied Food Principles	3
NTR	300	Computer Applications in Nutrition *CS*	3
NTR	343	Food Service Purchasing	3
NTR	344	Nutrition Services Management *L*	3
NTR	345	Development of Healthy Cuisines	3
NTR	351	Nutrition and Health Communications	3
NTR	401	Professional Practice in Food Service Management	3
NTR	445	Management of Food Service Systems	3
Total			27

Three more semester hours from the Department of Nutrition are required to complete this concentration. A maximum of three semester hours of Independent Study may be used to satisfy this requirement. Students select these courses in consultation with the Nutrition academic advisor.

In addition to the required NTR courses, the following related courses are required to complete the academic requirements of this concentration:

CHM	101	Introductory Chemistry *SQ*	4
MIC	205	Microbiology *SG*[1]	3
MIC	206	Microbiology Laboratory *SG*[1]	1
Business or technical writing course			3
Management (AGB 310; BUS 301; COB 380; MGT 300, 380, or 394)			3
Marketing (AGB 320; COB 382; MKT 300 or 394)			3
Other agribusiness or business courses[2]			6
Total			23

[1] Both MIC 205 and 206 must be taken to secure SG credit.
[2] Courses taken to fulfill the final six credit business requirement should be taken from the following prefixes: ACC, AGB, BUS, CIS, COB, CSE, ECN, FIN, HSA, IBS, MGT, MKT, QBA, SCM, and TWC. Students select these courses in consultation with the Nutrition academic advisor.

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

MINORS

The faculty of the Department of Nutrition also offers minors in Food and Nutrition Management and Human Nutrition, each requiring 18 semester hours. At least 12 of the 18 must be in upper-division courses.

Food and Nutrition Management. The minor requires that students take the following courses:

NTR	100 Introductory Nutrition	3
	or NTR 241 Human Nutrition (3)	
NTR	142 Applied Food Principles	3
NTR	300 Computer Applications in Nutrition *CS*	3
NTR	343 Food Service Purchasing	3
NTR	344 Nutrition Services Management *L*	3
NTR	445 Management of Food Service Systems	3
Total		18

Human Nutrition. The minor requires that students take the following courses:

NTR	241 Human Nutrition	3
NTR	340 Applications in Human Nutrition	3
NTR	341 Introduction to Planning Therapeutic Diets	3
NTR	440 Advanced Human Nutrition I	3
NTR	441 Advanced Human Nutrition II	3
NTR	444 Medical Nutrition Therapy	3
Total		18

Additional upper-division (or graduate) courses may be selected from among the following:

NTR	346 Sports Nutrition	3
NTR	348 Cultural Aspects of Food *SB/C*	3
NTR	350 Nutrition Counseling *SB*	3
NTR	351 Nutrition and Health Communications	3
NTR	446 Human Nutrition Assessment Lecture/Laboratory	3
NTR	448 Community Nutrition *L*	3
NTR	450 Nutrition in the Life Cycle I *SB*	3
NTR	451 Nutrition in the Life Cycle II	3

B.I.S. CONCENTRATIONS

Concentrations in (1) food and nutrition management and (2) human nutrition are available under the Bachelor of Interdisciplinary Studies (B.I.S.) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see "Bachelor of Interdisciplinary Studies," page 123.

APPLIED SCIENCE—B.A.S.

Food Service Management Concentration. The B.A.S. degree with a concentration in food service management is designed to complement and enhance the educational preparation of students holding an A.A.S. degree from a regionally accredited U.S. postsecondary educational institution. The concentration is particularly designed for students holding an A.A.S. degree in culinary or hospitality science. The degree prepares students for careers in food production, service, management, and marketing. With additional education and/or professional training, students may also become credentialed as certified dietary managers, school food service and nutrition specialists, or registered sanitarians.

Admission. Admission to the B.A.S. degree program is restricted to students holding an A.A.S. degree from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and a 2.50 is required for nonresident applicants.

Degree Requirements. The B.A.S. degree consists of 60 semester hours of upper-division (300 level and above) courses, with 30 hours in residence. A total of 120 semester hours are required for graduation.

A.A.S. degree	60
Assignable credit	6
B.A.S. core	15
General Studies	19
Concentration	20
Total	120

General Studies Curriculum. The B.A.S. curriculum builds on the general education content of the A.A.S. degree. Additional General Studies (L, CS, and awareness areas) are met with courses in the core or concentration. General Studies courses focus on contextual learning.

L	3
MA	3
HU	3
HU/SB	3
SB	3
SG	4
Total	19

Required Core Courses

NTR	300 Computer Applications in Nutrition *CS*	3
NTR	343 Food Service Purchasing	3
NTR	344 Nutrition Services Management *L*	3
NTR	345 Development of Healthy Cuisines	3
NTR	348 Cultural Aspects of Food *SB, C*	3
NTR	401 Professional Practice in Food Service Management	3
NTR	445 Management of Food Service Systems	3
Marketing course		3
NTR electives		6
Statistics course		3
Technical communications course		3
Total		36

Assignable Credit. Assignable credit offers students the flexibility within the curriculum to take the prerequisite courses needed for success. It also allows students to take additional technical electives. The courses are determined by the student and the advisor.

NUTRITION (NTR)

NTR 100 Introductory Nutrition. (3)
fall, spring, summer
Basic concepts of human nutrition. Recent controversies in nutrition and how food choices affect personal health.

NTR 142 Applied Food Principles. (3)
fall and spring
Applied scientific principles of food preparation and production. 2 hours lecture, 3 hours lab. Fee.

NTR 150 Introduction to the Professions in Nutrition and Dietetics. (1)
fall and spring
Introduces the professions of nutrition and dietetics; their history, practice, and future; credentials, ethics, and standards of practice.

NTR 241 Human Nutrition. (3)
fall, spring, summer
Principles of human nutrition. Emphasizes nutrient metabolism and the relationships between diet and disease. Prerequisite: CHM 101 (or its equivalent).

NTR 300 Computer Applications in Nutrition. (3)
spring
Introduces nutrition and food software, including dietary assessment and analysis, food inventory and control, and telecommunications. Integrated lecture/lab. Prerequisites: NTR 100 (or 241), 341 strongly recommended; basic computer literacy.
General Studies: CS

NTR 340 Applications in Human Nutrition. (3)
spring
Applications of nutrient metabolism through case studies and product evaluations; special topics in human nutrition. Prerequisites: BIO 201; NTR 241. Corequisite: BIO 202.

NTR 341 Introduction to Planning Therapeutic Diets. (3)
fall and summer
Cultural, health, and economic aspects of planning therapeutic diets. Assessments of food and diet composition. Reviews common therapeutic diets. Credit is allowed for only NTR 341 or 345. Fee. Prerequisite: NTR 100 or 241 (or their equivalents).

NTR 343 Food Service Purchasing. (3)
fall
Introduces purchasing systems, bid processes, receiving and storage procedures, and regulatory agencies involved in the food service industry. Prerequisite: NTR 142.

NTR 344 Nutrition Services Management. (3)
fall and spring
Organization, administration, and management of food and nutrition services in hospitals and other institutions. Possible field trips. Prerequisite: NTR 100 or 241 (or its equivalent).
General Studies: L

NTR 345 Development of Healthy Cuisines. (3)
fall
Principles and applications of nutrition and medical nutrition therapy; development of healthy cuisines in health and disease states. Credit is allowed for only NTR 345 or 341. Prerequisite: NTR 100 or 241 or instructor approval.

NTR 346 Sports Nutrition. (3)
fall and summer
Nutritional needs of recreational and elite athletes; energy balance; nutrient metabolism during activity; fluid-electrolyte regulation; evaluation of ergogenic supplements. Prerequisites: BIO 202; NTR 241.

NTR 348 Cultural Aspects of Food. (3)
spring and summer
Origins, development, and diversity of food preferences and dietary habits; food patterns and attitudes of global populations and U.S. immigrants. Prerequisite: NTR 100 or 241 (or its equivalent).
General Studies: SB, C

NTR 350 Nutrition Counseling. (3)
spring
Counseling techniques in nutrition; interpersonal and communication skills in clinical and community sites; nutrition education for individuals and populations. Integrated lecture/lab. Prerequisites: NTR 100 (or 241) and 341 (or their equivalents).
General Studies: SB

NTR 351 Nutrition and Health Communications. (3)
fall
Approaches of nutrition and health communications; development of nutrition and health communication materials for selected target audiences. Prerequisite: NTR 100 or 241.

NTR 400 Preprofessional Preparation in Dietetics. (3)
fall and spring
Applies academic knowledge in field practicum; aspects of professional development. Lecture, practicum. Prerequisites: NTR 341, 440 (or 441 or 444); senior standing in dietetics or human nutrition.

NTR 401 Professional Practice in Food Service Management. (3)
spring
Applies academic knowledge in food service management to field practicum; develops practical skills in planning, purchasing, production, management. Lecture, practicum. Prerequisites: NTR 343; senior standing in food and nutrition management. Pre- or corequisite: NTR 344.

NTR 440 Advanced Human Nutrition I. (3)
fall
Metabolic reactions and interrelationships of vitamins, minerals, and water. Prerequisites: BIO 201; NTR 241. Corequisite: BIO 202.

NTR 441 Advanced Human Nutrition II. (3)
spring
Metabolic reactions and interrelationships of carbohydrate, lipid, and protein. Prerequisites: BCH 361 and BIO 202 and NTR 241 (or their equivalents).

NTR 442 Experimental Foods. (3)
selected semesters
Food product development techniques, food evaluation and testing, and investigation of current research into food composition. 2 hours lecture, 3 hours lab. Fee. Prerequisites: CHM 231; NTR 142.

NTR 444 Medical Nutrition Therapy. (3)
spring and summer
Principles of medical nutrition therapy for prevention and treatment of disease and promotion of health. Prerequisites: BIO 201 and 202 and NTR 341 (or their equivalents). CHM 231 strongly recommended.

NTR 445 Management of Food Service Systems. (3)
fall and spring
Standardized methods of quantity food preparation, operation of institutional equipment, institutional menu planning, quantity food experiences. Integrated lecture/lab. Fee. Prerequisites: NTR 142 and 344 (or their equivalents).

NTR 446 Human Nutrition Assessment Lecture/Laboratory. (3)
fall and spring
Clinical and biochemical evaluation of nutritional status. 2 hours lecture, 3 hours lab. Fee. Prerequisites: BCH 361, 367; NTR 440 (or 441).

NTR 448 Community Nutrition. (3)
fall and spring
Food-related behaviors; organization and delivery of nutrition services; program design, implementation, and evaluation strategies; nutrition assessment of populations. Prerequisite: NTR 241 (or its equivalent).
General Studies: L

NTR 450 Nutrition in the Life Cycle I. (3)
fall
Emphasizes nutritional needs and problems during pregnancy, lactation, infancy, and childhood. Prerequisite: NTR 100 or 241 (or its equivalent).
General Studies: SB

NTR 451 Nutrition in the Life Cycle II. (3)
spring
Nutritional needs and problems of adults, particularly the elderly. Prerequisite: NTR 100 or 241 (or its equivalent).

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

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

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

College of Technology and Applied Sciences

www.east.asu.edu/ctas **Albert L. McHenry, Ph.D., Dean**

PURPOSE

The College of Technology and Applied Sciences (CTAS) helps students develop knowledge and skill in technological fields that qualify them for career positions and leadership responsibility in industry, government, and commercial enterprise. Each student is guided to select a major that addresses short-term employment goals through state-of-the-art technological preparation. Long-term career aspirations are supported through the development of a strong base in mathematics, science, engineering, and technical principles, coupled with a solid foundation in liberal arts and a commitment to lifelong learning.

Engineering technology programs offer professional preparation through a B.S. degree that stresses state-of-the-art technological applications. Special emphasis is placed on the development of knowledge and skill in applied mathematics, natural sciences, and engineering principles with formal laboratory experiences. This mixed educational approach provides the basis for both employment and a long-term career evolution.

The other CTAS technology programs provide the opportunity for students to develop knowledge and skill in solving broad-scale industrial problems, operating modern technological systems, and managing personnel in the implementation of processes and production. Programs of study focus on the latest technologies in areas such as aviation flight training and management, environmental technology management, graphic information technology, fire service management, and industrial management.

Each student is encouraged to participate in creative activities through a close relationship with a faculty mentor. Learning through execution of the scientific method, using both inductive and deductive processes in applied research activities, is essential for both faculty and students.

ORGANIZATION

The College of Technology and Applied Sciences is composed of the following four academic units:

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

DEGREE PROGRAMS

See the "College of Technology and Applied Sciences Baccalaureate Degrees and Majors" table, page 639. For graduate degrees, see the "College of Technology and Applied Sciences Graduate Degrees and Majors" table, page 640.

The College of Technology and Applied Sciences offers programs leading to the B.S. degree and B.A.S. degree. The college also offers the Master of Science in Technology (M.S.T.) degree. For more information on courses, faculty, and programs in the M.S.T. degree, see the *Graduate Catalog*.

ACCREDITATION

Undergraduate B.S. degree programs in Aeronautical Engineering Technology, Electronics Engineering Technology, and Manufacturing Engineering Technology are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc. For additional information, call 410/347-7700, or write

TECHNOLOGY ACCREDITATION COMMISSION OF
THE ACCREDITATION BOARD FOR
ENGINEERING AND TECHNOLOGY INC
111 MARKET PLACE SUITE 1050
BALTIMORE MD 21202-7102

Both the professional flight and the air transportation management concentrations in the Department of Aeronautical Management Technology are fully accredited by the Council on Aviation Accreditation. For more information, call 334/844-2431, send e-mail to caa@auburn.edu, or write

COUNCIL ON AVIATION ACCREDITATION
3410 SKYWAY DRIVE
AUBURN AL 36830

The Bachelor of Science degree in Industrial Technology, including the environmental technology management, graphic information technology, and industrial technology management concentrations is fully accredited by the National Association of Industrial Technology (NAIT). For more information, call 734/677-0720, or write

NATIONAL ASSOCIATION OF INDUSTRIAL
TECHNOLOGY
3300 WASHTENAW AVENUE SUITE 220
ANN ARBOR MI 48104-4200

ADMISSION—B.S. DEGREE

The College of Technology and Applied Sciences admits first-year students who meet the undergraduate admission requirements of ASU. See "Undergraduate Admission," page 65. High school precalculus, physics, and chemistry are recommended. Transfer applicants must meet the university requirements for transfer students as

College of Technology and Applied Sciences Baccalaureate Degrees and Majors

Major	Degree	Concentration[1]	Administered By
Aeronautical Management Technology[2]	B.S.	Air transportation management or professional flight	Department of Aeronautical Management Technology
Applied Science	B.A.S.	Aviation maintenance management technology, aviation management technology, computer systems administration, digital media management, digital publishing, emergency management, fire service management, instrumentation, manufacturing technology and management, materials joining and manufacturing technology, microcomputer systems, municipal operations management, operations management, semiconductor technology, software technology applications, or technical graphics	Bachelor of Applied Science Advisory Committee
Computer Engineering Technology[2]	B.S.	Computer hardware technology, embedded systems technology, or software technology	Department of Electronics and Computer Engineering Technology
Electronics Engineering Technology[2]	B.S.	Electronic systems, microelectronics, or telecommunications	Department of Electronics and Computer Engineering Technology
Industrial Technology	B.S.	Environmental technology management, graphic information technology, or industrial technology management	Department of Information and Management Technology
Manufacturing Engineering Technology[2]	B.S.	Manufacturing engineering technology or mechanical engineering technology	Department of Mechanical and Manufacturing Engineering Technology
Mechanical Engineering Technology[2]	B.S.	Aeronautical engineering technology, automation engineering technology, or mechanical engineering technology	Department of Mechanical and Manufacturing Engineering Technology

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

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

specified under "Transfer Credit," page 68, with the exception that Arizona resident transfer students must have a 2.25 GPA.

Students admitted to a B.S. degree program in CTAS begin study under one of two student classifications, professional or preprofessional.

Professional Status

First-year students (new freshmen) are admitted to CTAS with professional status if they meet the general aptitude criteria for admission and have no deficiencies in the basic competency requirements for admission. First-year students admitted upon completion of the GED are admitted with professional status if they have also achieved the minimum ACT or SAT scores required for undergraduate admission to the university.

Students transferring from other ASU colleges are admitted to CTAS with professional status if they have no remaining admissions deficiencies and meet the required GPA.

Transfer students from other institutions must meet the minimum admission requirements for college transfer students as described under "Transfer Credit," page 68. The CTAS also requires resident transfer students to have a cumulative GPA of 2.25.

All international students must have a minimum 500 TOEFL score to be admitted with professional status.

Preprofessional Status

All other students are admitted with preprofessional status and may apply for professional status after they have removed the deficiency that disallows awarding professional status. Students with preprofessional status may not register for 300- and 400-level courses in the college until they have been awarded professional status. See an advisor for details.

Transfer Credit

Credit for courses taken at a community college or another four-year institution is awarded according to the guidelines under "Transfer Credit," page 68. Students who are transferring from an Arizona community college and have been in continuous residence may continue under the

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

College of Technology and Applied Sciences Graduate Degrees and Majors

Major	Degree	Concentration	Administered By
Technology	M.S.Tech.	Aeronautical engineering technology, manufacturing engineering technology, or mechanical engineering technology	Department of Mechanical and Manufacturing Engineering Technology
		Aviation human factors or aviation management technology	Department of Aeronautical Management Technology
		Computer systems engineering technology, electronic systems engineering technology, instrumentation and measurement technology, or microelectronics engineering technology	Department of Electronics and Computer Engineering Technology
		Environmental technology management, fire service administration, information technology, or management of technology	Department of Information and Management Technology
		Global technology and development or security engineering technology	College of Technology and Applied Sciences

catalog in effect at the time of their entrance into the community college. Students should be aware that some course work that transfers to ASU may not be applicable toward CTAS degree requirements. Students should confer with an advisor. The College of Technology and Applied Sciences maintains a cooperative agreement with most Arizona community colleges and with selected out-of-state colleges and universities to structure programs that are directly transferable into the technology programs at ASU East. For assistance in transferring from Arizona community colleges, transfer guides are available at www.asu.edu/provost/articulation.

Courses taken more than five years before admission to a CTAS degree program are not normally accepted for transfer credit at the option of the department in which the applicant wishes to enroll. Courses completed within the five years preceding admission are judged as to their applicability to the student's curriculum.

ADMISSION—B.A.S. DEGREE

Admission to the B.A.S. degree program is restricted to students holding an A.A.S. degree from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and a 2.50 for nonresident applicants.

ADVISING

New incoming and transfer students should seek initial advising from the academic advisor in the Dean's Office. CTAS students are then assigned faculty advisors who assist them with planning a program of study in the department of their major. The college requires that students consult with advisors before registering each semester. Advisors should be made aware of any employment obligations or special circumstances that may affect a student's ability to successfully handle a full course load. CTAS students may register for a maximum of 19 semester hours per semester. Any student wishing to take more than the maximum must petition the CTAS Standards Committee and have an approval on file before registering for a course overload.

GRADUATION REQUIREMENTS

Students must meet all university graduation requirements given in "University Graduation Requirements," page 87, as well as degree requirements of their major in the College of Technology and Applied Sciences. For detailed information on the degree requirements of a major in CTAS, refer to that department's individual description.

COLLEGE STANDARDS

Pass/Fail Grades

The College of Technology and Applied Sciences does not offer pass/fail grades. Courses graded on a pass/fail basis do not count toward degree credit in CTAS. Students may request credit for pass/fail courses by petitioning the CTAS Standards Committee.

Entry into Upper-Division Courses (B.S. Degree)

Before enrolling in courses at the 300 level and above, CTAS students must be in professional status within the college. Students who are not in good academic standing must petition the CTAS Standards Committee. Students enrolled in another ASU college may not register for any 300- and 400-level CTAS courses unless those courses are required in the degree program and the students have the proper course prerequisites.

ACADEMIC STANDARDS

Retention. A student is expected to make satisfactory progress toward completion of degree requirements to continue enrollment in the College of Technology and Applied Sciences. Any one of the following conditions is considered unsatisfactory progress and results in the student's being placed on probationary status:

1. a semester with a GPA less than or equal to 1.50;
2. two successive semesters with GPAs less than 2.00; or
3. an ASU cumulative GPA less than 2.00.

A student on probation is subject to disqualification if (1) a semester GPA of 2.25 is not attained and the cumulative GPA is below 2.00 at the end of the probationary semester or (2) the student is placed on probation for two consecutive semesters and is unable to achieve the standard GPAs stated in number one.

Students on academic probation are not allowed to register for more than 13 semester hours. Probationary students may not register for the semester following the semester in which they were declared probationary without a special permit from an advisor in the dean's office. Special permits are given only after the registrar records grades for the current semester.

Disqualification. During a semester on academic probation, a student who fails to meet the retention standards is disqualified. Students may request a review of their disqualification status by contacting the CTAS associate dean in the College of Technology Dean's Office. Any disqualified student who is accepted by another college at ASU may not register for courses in CTAS unless the courses are required in the new major. Disqualified students who register for courses in CTAS may be withdrawn from these courses any time during the semester.

Reinstatement. The college does not accept an application for reinstatement until the disqualified student has remained out of the college for at least a 12-month period. Merely having remained in disqualified status for this period of time does not, in itself, constitute a basis for reinstatement. Proof of ability to do satisfactory college work in the chosen discipline is required; for example, completing pertinent courses in the discipline at a community college with higher-than-average grades.

STUDENT RESPONSIBILITIES

Course Prerequisites. Students should consult the *Schedule of Classes* and the catalog for course prerequisites. Students who register for courses without the designated prerequisites may be withdrawn without their consent at any time before the final examination. The instructor, the chair of the department, or the dean of the college may initiate such withdrawals. In such cases, students do not receive monetary reimbursement. Such withdrawals are considered to be unrestricted as described under "Unrestricted Course Withdrawal," page 81, and do not count against the number of restricted withdrawals allowed.

SPECIAL PROGRAMS

Academic Recognition. Students completing baccalaureate degree requirements receive the appropriate honors designations on their diplomas consistent with the requirements specified by the university.

Students in the college are encouraged to seek information concerning entry into honor societies that enhance their professional stature. Tau Alpha Pi is the engineering technology honor society, and Alpha Eta Rho is available for aeronautical management technology students.

Barrett Honors College. The College of Technology and Applied Sciences participates in the programs of the Barrett Honors College, which provides enhanced educational experiences to academically superior undergraduate students. Participating students can major in any academic program. For more information, see "General Studies," page 91.

Scholarships. Information and applications for academic scholarships for continuing students may be obtained by contacting departmental offices. Other scholarships may be available through the university's Student Financial Assistance Office.

ROTC Students. Students pursuing a commission through either the Air Force or Army ROTC program must take 12 to 20 semester hours of courses in the Department of Aerospace Studies or Department of Military Science. To preclude excessive overloads, these students should plan on at least one additional semester to complete degree requirements. Because of accreditation requirements, aerospace studies (AES) or military science (MIS) courses are not accepted for engineering technology majors.

ENGINEERING TECHNOLOGY CORE (ETC)

ETC 100 Languages of Technology. (4)
fall and spring
Introduces computer-aided design, programming, modeling, and technical documentation. Lecture, lab.
General Studies: CS

ETC 191 First-Year Seminar. (1–3)
selected semesters

ETC 194 Special Topics. (1–4)
selected semesters

ETC 211 Applied Engineering Mechanics: Statics. (3)
fall and spring
Vectors, forces and moments, force systems, equilibrium, analysis of basic structures and structural components, friction, centroids, and moments of inertia. Prerequisites: MAT 260; PHY 111, 113.

ETC 340 Applied Thermodynamics and Heat Transfer. (3)
fall and spring
Thermodynamic systems and processes, first and second laws of thermodynamics, properties of pure substances, and applications to heat engines and special systems. Fundamentals of conduction, radiation, and convection. Prerequisites: MAT 261; PHY 112, 114.

ETC 492 Honors Directed Study. (1–6)
selected semesters

ETC 493 Honors Thesis. (1–6)
selected semesters

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

GLOBAL TECHNOLOGY AND DEVELOPMENT (GTD)

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

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

SECURITY ENGINEERING TECHNOLOGY (SET)

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

Department of Aeronautical Management Technology

eastair.east.asu.edu
480/727-1381
SIM 205

William K. McCurry, Chair

Professors: Gesell, McCurry

Associate Professors: Karp, Turney

Assistant Professors: Niemczyk, Pearson

Lecturers: O'Brien, Tripp

PURPOSE

Graduates are prepared for entry into the aviation and aerospace industry in productive, professional employment or, alternatively, for graduate study. Curricula emphasize principles underlying the application of technical knowledge as well as current technology, preparing the graduate to adapt to the rapid and continual changes in aviation and aerospace technology.

ADMISSION

New and transfer students who have been admitted to ASU and who meet the requirements for admission to the College of Technology and Applied Sciences may be admitted without separate application to the Department of Aeronautical Management Technology only in the Bachelor of Applied Science concentrations or to the Bachelor of Science air transportation management concentration. Admission to the Bachelor of Science professional flight concentration requires an additional admission process. Transfer credits are reviewed by department faculty advisors. To be acceptable for department credit, transfer courses must be equivalent in both content and level of offering. No flight experience or theoretical training courses beyond the Private Pilot Certificate are accepted.

DEGREES

The faculty in the Department of Aeronautical Management Technology offer a B.S. degree in Aeronautical Management Technology with concentrations in professional flight and air transportation management. A B.A.S. degree in Applied Science is also offered with concentrations in aviation maintenance management technology and aviation management technology.

A Master of Science in Technology degree is offered for graduate study with concentrations in aviation management technology and aviation human factors. For more information, see the *Graduate Catalog*.

ACCREDITATION

The professional flight and air transportation management concentrations in the Department of Aeronautical Management Technology are fully accredited by the Council on Aviation Accreditation. For more information, call 344/844-2431, send e-mail to caa@auburn.edu, or write

COUNCIL ON AVIATION ACCREDITATION
3410 SKYWAY DRIVE
AUBURN AL 36830

AERONAUTICAL MANAGEMENT TECHNOLOGY—B.S.

The Aeronautical Management Technology curricula are designed to provide a thorough technical background combined with an interdisciplinary general university education. The graduate is prepared to assume responsibilities in a wide area of managerial and technically related areas of aviation. The student gains a background in aircraft structures, reciprocating and turbine engines, aircraft performance and design, management skills, business principles, systems analysis, and a variety of course work specific to aircraft flight, airport operations, and air transportation systems. The degree offers two concentrations: professional flight and air transportation management, both of which are accredited by the Council on Aviation Accreditation. The concentrations are described separately on the following pages.

All degree requirements are shown on curriculum check sheets for the concentrations that are available by visiting the department or by accessing the department Web site at eastair.east.asu.edu. Requirements include First-Year Composition, university General Studies (see "General Studies," page 91), and the Aeronautical Management Technology Core. Note that all three General Studies awareness areas are required. Consult an advisor for an approved list of courses. Refer to individual concentration degree requirements for additional required courses. Students must complete each Aeronautical Management Technology course with a grade of "C" (2.00) or higher.

Aeronautical Management Technology Core

AMT	101	Introduction to Aeronautical Management Technology 1
AMT	182	Private Pilot Ground School 3
AMT	201	Air Traffic Control 3
AMT	220	Aviation Meteorology 3
AMT	280	Aerospace Structures, Materials, and Systems 4
AMT	287	Aircraft Powerplants 4
AMT	308	Air Transportation *G* 3
AMT	350	Aircraft Design, Performance, and Avionics 3
AMT	396	Aviation Professional 1
AMT	410	Aviation Safety and Human Factors 3
AMT	442	Aviation Law/Regulations 3
ETC	100	Languages of Technology *CS* 4
TWC	400	Technical Communications *L* 3
Total		 38

Professional Flight Concentration

Flight training is certified by the Federal Aviation Administration. Students in the professional flight concentration must pass an FAA medical examination before flying solo. An FAA Class I medical examination is required for admission. It is recommended that a medical examination be completed by an aviation medical examiner of the student's choice before application for admission.

This program is designed for students who are seriously interested in becoming professional airline pilots. Because of limited space, the program selection process is academically competitive. Only those applicants who meet the subject matter and quality requirements and who submit their applications by the appropriate deadlines will be considered for admission.

The ASU Professional Flight program is the initial phase of the qualification/application process to become an airline first officer. Individuals seeking admission to the program will need to participate in a secondary application process. The secondary process will assess a candidate's FAA-certified First Class medical qualification; driving record; work and/or personal references; and cognitive, psychomotor skill, and psychological test results. It will also include a personal interview. The secondary application deadlines are typically nine months before the beginning of the appropriate semester.

Total program costs, which include aircraft, flight instructor time, flight training devices, simulator time, tests, fees, and tuition, require careful financial planning. Students must make satisfactory progress throughout both the flight and academic areas to be considered for continued advancement in the program. To proceed at a satisfactory pace through the flight training program, students should expect and plan to fly during the winter intersession and the summer session to complete the program.

For more information, requirements, and specific application procedures, access the AMT Department Web site at eastair.east.asu.edu.

Flight instruction costs are not included in university tuition and fees. The estimated cost of flight training is $45,000 in addition to normal university costs.

Degree Requirements

Professional flight students are required to complete 128 semester hours with a 2.00 cumulative GPA, including a minimum of 50 semester hours of upper-division courses. All degree requirements are shown on the student's curriculum check sheet.

Concentration Requirements

In addition to the required courses for First-Year Composition, university General Studies (see "General Studies," page 91), and the Aeronautical Management Technology core, the following additional courses are required for the professional flight management concentration:

AMT	100	Flight Safety I 1
AMT	200	Flight Safety II 2
AMT	214	Commercial/Instrument Ground School I 3
AMT	300	Flight Safety III 2
AMT	322	Commercial/Instrument Ground School II 3
AMT	382	Air Navigation 3
AMT	385	Flight Instructor Ground School 3
AMT	387	Multiengine Pilot Ground School 1
AMT	392	Flight Instructor Instrument Ground School 3
AMT	400	Flight Safety IV 1
AMT	408	National Aviation Policy 3
AMT	482	Airline Instrument Procedures 3
AMT	489	Airline Administration 3
AMT	496	Airline Aircraft Systems Capstone 3
APM	301	Introductory Statistics *CS* 3
ECN	111	Macroeconomic Principles *SB* 3
		or ECN 112 Microeconomic Principles *SB* (3)
PGS	101	Introduction to Psychology *SB* 3
Technical electives or internship 6		
Total 49		

Suggested Course Pattern for Freshmen

First Semester

AMT	100	Flight Safety I 1
AMT	101	Introduction to Aeronautical Management Technology 1
AMT	182	Private Pilot Ground School 3
AMT	220	Aviation Meteorology 3
ENG	101	First-Year Composition 3
MAT	260	Technical Calculus I *MA* 3
Total 14		

Second Semester

AMT	214	Commercial/Instrument Ground School I 3
AMT	322	Commercial/Instrument Ground School II 3
ENG	102	First-Year Composition 3
ETC	100	Languages of Technology *CS* 4
PHY	111	General Physics *SQ** 3
PHY	113	General Physics Laboratory *SQ** 1
Total 17		

* Both PHY 111 and 113 must be taken to secure SQ credit.

Air Transportation Management Concentration

The air transportation management concentration is designed to prepare graduates for managerial and supervisory positions throughout the air transportation industry. An in-depth technical education is included along with broad exposure to business and management courses. This program of study is interdisciplinary in nature and prepares the aeronautical career-oriented student for positions such as air traffic control specialist, air carrier manager, airport manager, and general aviation operations manager.

Degree Requirements

Air transportation management students are required to complete 128 semester hours with a 2.00 cumulative GPA, including a minimum of 50 semester hours of upper-division courses. All degree requirements are shown on the student's curriculum check sheet.

Concentration Requirements

In addition to the required courses for First-Year Composition, university General Studies (see "General Studies," page 91), and the Aeronautical Management Technology

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

core, the following additional courses are required in the air transportation management concentration:

ACC	230	Uses of Accounting Information I 3
AMT	408	National Aviation Policy 3
AMT	444	Airport Management and Planning 3
AMT	489	Airline Administration 3
AMT	491	Aviation Management Capstone 3
APM	301	Introductory Statistics *CS* 3
ECN	111	Macroeconomic Principles *SB* 3
		or ECN 112 Microeconomic Principles *SB* (3)
IMC	346	Management Dynamics 3
ITM	343	Occupational Safety and Ergonomics 3
ITM	430	Ethical Issues in Technology 3
ITM	452	Industrial Human Resource Management 3
ITM	456	Introduction to Organized Labor 3
ITM	480	Organizational Effectiveness 3
PGS	101	Introduction to Psychology *SB* 3
Technical electives or internship 7		
Total 49		

Suggested Course Pattern for Freshmen

First Semester

AMT	101	Introduction to Aeronautical Management Technology 1
AMT	182	Private Pilot Ground School 3
AMT	220	Aviation Meteorology 3
ENG	101	First-Year Composition 3
MAT	260	Technical Calculus I *MA* 3
Total 13		

Second Semester

ENG	102	First-Year Composition 3
ETC	100	Languages of Technology *CS* 4
PGS	101	Introduction to Psychology *SB* 3
PHY	111	General Physics *SQ** 3
PHY	113	General Physics Laboratory *SQ** 1
General Studies elective 3		
Total 17		

* Both PHY 111 and 113 must be taken to secure SQ credit.

APPLIED SCIENCE—B.A.S.

The Bachelor of Applied Science degree is a "capstone" degree for the Associate of Applied Science degree. The B.A.S. degree exposes students to advanced concepts and diverse critical thinking skills that prepare students for future career opportunities and professional advancement.

Admission

Admission to the B.A.S. degree program is restricted to students holding an A.A.S. degree from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and a 2.50 for nonresident applicants.

Degree Requirements

The B.A.S. degree in the College of Technology and Applied Sciences consists of 60 semester hours of upper-division (300 level and above) courses, with 30 hours in residence.

A.A.S. degree	60
Assignable credit	6
B.A.S. core	15
General Studies	19
Technical concentration	20
Total	120

General Studies Curriculum

The B.A.S. curriculum builds on the general education content of the A.A.S. degree. Additional General Studies (L, CS, and awareness areas) are met with courses in the core concentration. General Studies courses focus on contextual learning.

L	3
MA	3
HU	3
HU or SB	3
SB	3
SG	4
Total	19

Assignable Credit

Assignable credit allows space in the curriculum for prerequisite courses needed to succeed in the program. The courses are determined by the student and the advisor.

B.A.S. Core

The area core is focused on management and organization, professional communication, quantitative analysis, and computer competency.

GIT	335	Computer Systems Technology 3
IMC	346	Management Dynamics 3
		or ITM 344 Industrial Organization (3)
		or ITM 452 Industrial Human Resource Management (3)
IMC	470	Project Management 3
STP	420	Introductory Applied Statistics *CS* 3
TWC	400	Technical Communications *L* 3
Total 15		

Technical Concentrations

Aviation Maintenance Management Technology. This concentration is for those students who have completed an airframe and powerplant certification as part of their A.A.S. degree. Students receive an orientation in management practices that prepares them for progressively more responsible positions in the field of aviation maintenance management.

Aviation Management Technology. This concentration is for those students who have received training and education in some aspect of the air transportation industry (other than aviation maintenance), such as flight certificates and ratings as part of their A.A.S. degree. Students receive an orientation in management practices that prepares them for progressively more responsible positions in the field of aviation management.

STUDENT ORGANIZATIONS

The department hosts the local chapter of Alpha Eta Rho, an international professional aviation fraternity open to all students with an interest in aviation. The American Association for Airport Executives is open to all students with an interest in airport management. The Student Advisory Council is a leadership organization that facilitates student communication with faculty, departmental leaders, and uni-

versity administrative personnel. The Precision Flight Team competes in regional and national flying safety competitions. The Women in Aviation International organization is open to all students.

AERONAUTICAL MANAGEMENT TECHNOLOGY (AMT)

AMT Note 1. Flight instruction costs are not included in university tuition and fees.

AMT 100 Flight Safety I. (1)
fall, spring, summer
Supervised private pilot flight training and flight safety briefings. Requires continuous enrollment until completion of the FAA Private Pilot Certificate. Integrated lecture/lab. Fee. See AMT Note 1. Pre- or corequisites: both AMT 182 and 220 (or their equivalents).

AMT 101 Introduction to Aeronautical Management Technology. (1)
fall and spring
Facilitates entry into Aeronautical Management Technology programs. Emphasizes *General Catalog* and concentration requirements, registration, careers, and ASU East facilities.

AMT 182 Private Pilot Ground School. (3)
fall, spring, summer
Ground school preparation for Private Pilot Certificate. Aerodynamics, navigation, performance, and regulations. Integrated lecture/lab. Corequisite: AMT 220.

AMT 194 Special Topics. (1–4)
selected semesters

AMT 200 Flight Safety II. (2)
fall, spring, summer
Supervised commercial instrument flight training and safety briefings. Requires continuous enrollment until completion of FAA Commercial Pilot Certificate with Instrument Rating. Integrated lecture/lab. Fee. See AMT Note 1. Prerequisites: AMT 100; Private Pilot Certificate. Pre- or corequisite: AMT 214 or 322.

AMT 201 Air Traffic Control. (3)
fall
Ground and air operations; weather services communications and routing; flight plans, IFR operations, departures and arrivals; and airport conditions and emergencies. Prerequisite: AMT 182.

AMT 214 Commercial/Instrument Ground School I. (3)
fall and spring
Ground school leading to FAA Instrument Pilot Rating/Commercial Pilot Certificate (part 1 of 2). 10 hours ground trainer included. Integrated lecture/lab. Fee. Pre- or corequisites: AMT 182, 220.

AMT 220 Aviation Meteorology. (3)
fall, spring, summer
Evaluation, analysis, and interpretation of atmospheric phenomena. Low- and high-altitude weather from the pilot's viewpoint. Corequisite: AMT 182.

AMT 280 Aerospace Structures, Materials, and Systems. (4)
fall
Basic aerodynamics, incompressible/compressible airflow, wind tunnel testing, wing theory; analysis of aircraft structures; properties and applications of materials, and aircraft systems. Lecture, lab. Fee. Prerequisites: PHY 111, 113.

AMT 287 Aircraft Powerplants. (4)
spring
Theory and performance analysis of gas turbine and reciprocating aircraft engines. Engine accessories, systems, and environmental control. Lecture, lab. Prerequisites: PHY 111, 113.

AMT 300 Flight Safety III. (2)
fall, spring, summer
Supervised instructor flight training and safety briefings. Requires continuous enrollment until completion of FAA Flight Instructor Certificate with Instrument Instructor Rating. Integrated lecture/lab. Fee. See AMT Note 1. Prerequisite: AMT 200. Pre- or corequisite: AMT 385.

AMT 308 Air Transportation. (3)
fall
Studies the historical and international development of air transportation and its social, political, and economic impact upon global interrelationships. Prerequisite: junior standing.
General Studies: G

AMT 322 Commercial/Instrument Ground School II. (3)
fall and spring
Ground school leading to FAA Instrument Pilot Rating/Commercial Pilot Certificate (part 2 of 2). 10 hours ground trainer included. Lecture, lab. Fee. Prerequisite: AMT 100 or instructor approval. Pre- or corequisite: AMT 214.

AMT 350 Aircraft Design, Performance, and Avionics. (3)
spring
Fundamentals of aircraft design, turboprop and turbojet performance, principles of electricity, AC/DC circuits, and operation of transport category aircraft avionics systems. Integrated lecture/lab. Prerequisites: AMT 280, 287.

AMT 360 Introduction to Helicopter Technology. (3)
selected semesters
Introduces the working functions of modern rotary wing aircraft, rotary wing flight theory, aerodynamics, controls, flight, and power requirements. Prerequisites: PHY 111, 113.

AMT 370 Air Freight Operations. (3)
selected semesters
Air freight operations in National Aviation System; ramp operations, loading, weight and balance, and administration of airside and groundside operations. Prerequisite: junior standing.

AMT 382 Air Navigation. (3)
spring
Theory and application of modern advanced navigation and flight instrument systems. Introduces crew resource management in multiplace cockpits. Integrated lecture/lab. Prerequisite: AMT 322. Pre- or corequisite: AMT 200 or instructor approval.

AMT 385 Flight Instructor Ground School. (3)
fall and spring
Ground school in preparation for the FAA Flight Instructor Certificate. Integrated lecture/lab. Pre- or corequisite: AMT 200.

AMT 387 Multiengine Pilot Ground School. (1)
fall and spring
Ground school preparation for the FAA Multiengine Rating. Integrated lecture/lab. Fee. See AMT Note 1. Prerequisite: AMT 200 or instructor approval.

AMT 391 Multiengine Instructor Ground School. (2)
selected semesters
Ground school preparation for the FAA Multiengine Flight Instructor Rating. Integrated lecture/lab. See AMT Note 1. Prerequisites: AMT 300, 387, 400.

AMT 392 Flight Instructor Instrument Ground School. (3)
fall and spring
Ground school preparation for the FAA Instrument Flight Instructor Rating. Lecture, lab. See AMT Note 1. Prerequisites: AMT 200, 385.

AMT 395 Multiengine Land, Airplane Flight Instructor Rating. (1)
selected semesters
Normal and emergency flight operations. Instruction techniques and procedures for light multiengine land, airplane. Requires CFIAME Rating for course completion. Integrated lecture/lab. See AMT Note 1. Prerequisite: AMT 391.

AMT 396 Aviation Professional. (1)
fall and spring
Career focus for management and flight students, including internships, résumé writing, interviews, and employment search in aviation industry. Prerequisite: junior standing.

AMT 400 Flight Safety IV. (1)
fall, spring, summer
Multiengine and crew training and safety briefings. Requires continuous enrollment until completion of rating and multicrew training. Integrated lecture/lab. Fee. See AMT Note 1. Prerequisite: AMT 300. Pre- or corequisite: AMT 387.

AMT 408 National Aviation Policy. (3)
fall
Examines aviation and airspace policies and policy process, including agencies involved in formulation, implementation, and evaluation of aviation policy. Prerequisite: junior standing.

AMT 410 Aviation Safety and Human Factors. (3)
fall
Aviation accident prevention, human factors, life support, fire prevention, accident investigation, and crash survivability. Development and analysis of aviation safety programs. Prerequisites: junior standing; completion of 1 semester of General Studies L requirement.

AMT 412 Air Transportation Research. (1)
fall
Surveys practical research methodology in use in the air transportation industry. Topics include planning and design considerations.

AMT 419 Aviation Logistical Management. (3)
spring
Surveys FAA requirements for personnel and facilities. Topics include parts supply, quality control, product liability, pricing, profitability, and administration. Lecture, lab. Prerequisite: junior standing.

AMT 442 Aviation Law/Regulations. (3)
fall
Aviation within context of U.S. Common Law system. Public law, administrative rule making, sovereignty, enforcement, and case law analysis. Prerequisite: junior standing.

AMT 444 Airport Management and Planning. (3)
spring
Orientation to administration and management of modern public airports, including overview of planning, funding, and development of airport facilities. Prerequisite: junior standing.

AMT 482 Airline Instrument Procedures. (3)
fall
Advanced instrument flight using airline instrument procedures and airline crew and cockpit resource management. Lecture, lab. Prerequisites: a combination of AMT 200 and 322 and 382 or only instructor approval.

AMT 484 Aeronautical Internship. (1–12)
fall, spring, summer
Work experience assignment with aerospace industry commensurate with student's program. Special project guidance by industry with university supervision. Prerequisites: advisor approval; junior standing.

AMT 489 Airline Administration. (3)
spring
Administrative organizations, economics of airline administration, operational structure, and relationship with federal government agencies. Prerequisite: junior standing.

AMT 490 Regional Jet Operations. (3)
fall and spring
Regional jet aircraft systems and flight procedures. Includes theoretical education for regional airline commercial passenger operations. Integrated lecture/lab. Prerequisites: professional pilot major; instructor approval.

AMT 491 Aviation Management Capstone. (3)
spring
Integration and overview of management tools, current business problems and topics related to aviation industry. Group project with industry and government and business partners. Prerequisite: senior standing.

AMT 494 Special Topics. (1–4)
selected semesters

AMT 496 Airline Aircraft Systems Capstone. (3)
spring
Commercial airline aircraft systems and flight procedures. Includes theoretical education for large, commercial passenger aircraft. Integrated lecture/lab. Prerequisite: senior standing.

AMT 498 Pro-Seminar. (1–7)
selected semesters

AMT 499 Individualized Instruction. (1–3)
selected semesters

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

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

Department of Electronics and Computer Engineering Technology

www.east.asu.edu/ctas/ecet
480/727-1976
SUTTON 140

Timothy E. Lindquist, Chair

Professors: Lindquist, McHenry, Munukutla, Robertson

Associate Professors: Koehnemann, Macia, Millard, Sundararajan, Zeng

Assistant Professor: Gannod

Senior Lecturer: Whitehouse

PURPOSE

The Department of Electronics and Computer Engineering Technology prepares graduates to apply scientific and engineering knowledge, methods, and techniques in support of technological applications in electronics and computer engineering activities and processes.

The engineering technology curriculum is applications oriented and builds upon a background of applied science and mathematics, including the concepts and applications of calculus. Graduates are prepared to produce practical, workable, and safe solutions to technologically challenging problems. Graduates are employed in the electronics and computer industries with responsibilities such as designing, installing and operating technical systems, analyzing and (re) engineering systems that embed computer hardware and software for unique applications, developing and producing products, managing manufacturing processes, and providing customer support for technical products and systems.

DEGREES

The faculty in the Department of Electronics and Computer Engineering Technology offer the B.S. degree in Electronics Engineering Technology (B.S./EET) and the B.S. degree in Computer Engineering Technology (B.S./CET).

For students holding an A.A.S. degree, the department offers the B.A.S. degree with a major in Applied Science. Five concentrations are available: computer systems administration, instrumentation, microcomputer systems, semi-

conductor technology, and software technology applications.

A Master of Science in Technology degree program with concentrations in electronic systems engineering technology, computer systems engineering technology, instrumentation and measurement technology, and microelectronics engineering technology is available for qualified B.S. graduates. See the *Graduate Catalog* for more information.

Electronics Engineering Technology—B.S.

Students interested in the B.S. degree in Electronics Engineering Technology may choose to specialize in one of the following three concentrations: electronic systems, microelectronics, and telecommunications.

The *electronic systems* concentration is aimed at preparing persons for careers in control, electronics, instrumentation, and power systems applications. This concentration allows a student to develop a broad-based knowledge of electrical/electronic fundamentals with an applications perspective.

The *microelectronics (UET)* concentration combines applied electronics, monolithic and hybrid integrated circuit processing and applications, device and component fabrication, and manufacturing. The objective of this concentration is to prepare persons to assume positions in the area of microelectronics manufacturing with immediately applicable knowledge as well as to develop a strong foundation of electronic fundamentals and methods. Graduates of this concentration secure positions in processing, manufacturing operations, and application areas in industry as members of diverse scientific engineering teams.

The *telecommunications* concentration encompasses the fundamentals of information and signal processing, modern bandwidth-efficient digital radio analysis with RF and microwave circuits and systems. Applications include telephone pulse code modulation, cable TV, fiber optic links, and satellite transmission circuits and systems.

The departmental curriculum is organized into two categories, technical studies and General Studies. Technical studies consist of core areas and the concentration specialty area. General Studies consist of courses selected to meet the university General Studies requirement (see "General Studies," page 91) as well as the math/science requirement of TAC of ABET. Note that all three General Studies awareness areas are required. Consult an advisor for an approved list of courses.

A minimum of 50 upper-division semester hours is required, including at least 24 semester hours of EET, CET, or UET upper-division hours to be taken at ASU. A minimum of 128 semester hours with a 2.00 cumulative GPA is required for graduation. Complete program of study guides with typical four-year patterns are available from the department.

The General Studies portion of the B.S./EET curriculum has been carefully structured to meet the specific requirements of the university and to include the content required by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, the professional accrediting agency for such curricula.

ELECTRONICS ENGINEERING TECHNOLOGY—B.S. DEGREE REQUIREMENTS

In addition to the courses listed for First-Year Composition and university General Studies, the following courses are required.

Engineering Technology Core

The following courses are required as part of the engineering technology core:

ETC	100 Languages of Technology *CS*	4
ETC	211 Applied Engineering Mechanics: Statics	3
ETC	340 Applied Thermodynamics and Heat Transfer	3
Total		10

Electronics Engineering Technology Core and Major Requirements

CET	100 Object-Oriented Software Development I	3
CET	150 Digital Systems I *CS*	4
CET	350 Digital Systems II	4
CET	354 Microcomputer Architecture and Programming	4
EET	208 Electric Circuit Analysis I	4
EET	301 Electric Circuit Analysis II	4
EET	310 Electronic Circuits I	4
EET	372 Communication Systems	4
EET	396 Professional Orientation*	1
EET	407 Energy Conversion and Applications	4
EET	410 Electronic Circuits II	4
UET	331 Electronic Materials	3
UET	415 Electronic Manufacturing Engineering Principles	3
Total		46

* Students must take EET 396 the semester in which they are enrolled in the 87th hour of credit (ASU plus transfer hours). If the 87th hour occurs in summer session, students should take EET 396 the prior spring semester.

Electronics Engineering Technology Concentrations

Electronic Systems

CET	383 Shell and Script Programming with UNIX	3
EET	406 Control System Technology	4
EET	430 Instrumentation Systems	4
EET	460 Power Electronics	4
Approved technical electives		7
Total		22

Microelectronics

CHM	116 General Chemistry *SQ*	4
UET	416 Dopant Control Technology	3
UET	417 Semiconductor Technology Practice	3
UET	418 Systems on Silicon	4
UET	421 IC Device Characterization	3
UET	432 Semiconductor Packaging and Heat Transfer	3
Approved technical elective		2
Total		22

Telecommunications

CET	458 Digital Computer Networks	3
CET	473 Digital/Data Communications	4

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

EET 401 Digital Signal Processing for Multimedia....3
EET 494 ST: Digital Filter Hardware Design....3
Approved technical electives....9
Total....22

Electronics Engineering Technology
Program of Study
Typical First- and Second-Year Sequence

First Year

First Semester
ENG 101 First-Year Composition....3
ETC 100 Languages of Technology *CS*....4
MAT 170 Precalculus *MA*....3
PHY 111 General Physics *SQ*[1]....3
PHY 113 General Physics Laboratory *SQ*[1]....1
Total....14

Second Semester
CET 100 Object-Oriented Software Development I....3
CET 150 Digital Systems I *CS*....4
ENG 102 First-Year Composition....3
MAT 260 Technical Calculus I *MA*....3
PHY 112 General Physics *SQ*[2]....3
PHY 114 General Physics Laboratory *SQ*[2]....1
Total....17

Second Year

First Semester
CET 350 Digital Systems II....4
ECN 111 Macroeconomic Principles *SB*....3
EET 208 Electric Circuit Analysis I....4
ETC 211 Applied Engineering Mechanics: Statics....3
MAT 261 Technical Calculus II *MA*....3
Total....17

Second Semester
CHM 113 General Chemistry *SQ*....4
EET 301 Electric Circuit Analysis II....4
ETC 340 Applied Thermodynamics and Heat Transfer....3
MAT 262 Technical Calculus III *MA*....3
HU, SB, or awareness area course....3
Total....17

[1] Both PHY 111 and 113 must be taken to secure SQ credit.
[2] Both PHY 112 and 114 must be taken to secure SQ credit.

COMPUTER ENGINEERING TECHNOLOGY—B.S. DEGREE REQUIREMENTS

Students interested in the B.S. degree in Computer Engineering Technology (B.S./CET) may choose to specialize in one of the following three concentrations: computer hardware technology, embedded systems technology, and software technology.

The *computer hardware technology* concentration is designed to provide students with an opportunity to develop broad-based knowledge and skills in digital systems, interfacing techniques and computer hardware applications.

The *embedded systems technology* concentration prepares students for the application, interconnection, design, analysis, and realization of systems that involve both software and hardware components. This concentration balances the hardware concerns of computer engineering with the processes and technologies involved in producing reliable software solutions.

The *software technology* concentration prepares students for careers in software applications in the context of an industry in which software solutions are increasingly distributed, using object-oriented languages and frameworks, and in which the Internet, Web and wireless technologies play an important role.

Each student must satisfy the courses listed for First-Year Composition and the university General Studies requirement. In addition, the following courses are required.

Lower-Division Core
CET 100 Object-Oriented Software Development I....3
CET 150 Digital Systems I *CS*....4
CET 200 Object-Oriented Software Development II....3
EET 208 Electric Circuit Analysis I....4
ETC 100 Languages of Technology *CS*....4
Core total....18

Major
CET 326 Programming Languages for Technology with C/C++ and Visual BASIC....4
CET 354 Microcomputer Architecture and Programming....4
CET 364 Computer Architecture....3
CET 383 Shell and Script Programming with UNIX....3
CET 494 ST: Applied Software Process....3
or UET 415 Electronic Manufacturing Engineering Principles (3)
EET 396 Professional Orientation....1
Total....18

Computer Hardware Technology Concentration
CET 350 Digital Systems II....4
CET 452 Digital Logic Applications....4
CET 456 Assembly Language Applications....3
CET 458 Digital Computer Networks....3
CET 473 Digital/Data Communications....4
CET 486 Hardware Description Languages: VHDL....3
EET 301 Electric Circuit Analysis II....4
EET 310 Electronic Circuits I....4
EET 372 Communication Systems....4
EET 401 Digital Signal Processing for Multimedia....3
Technical electives....9
Total....45

Embedded Systems Technology Concentration
CET 230 Applied Data Structures....3
CET 350 Digital Systems II....4
CET 386 Operating Systems Principles....3
CET 420 Foundations of Distributed Web-Based Applications in Java....3
CET 452 Digital Logic Applications....4
CET 456 Assembly Language Applications....3
CET 458 Digital Computer Networks....3
or CET 459 Internet Networking Protocols (3)
CET 486 Hardware Description Languages: VHDL....3
EET 301 Electric Circuit Analysis II....4
EET 401 Digital Signal Processing for Multimedia....3
Technical electives....12
Total....45

Software Technology Concentration
CET 230 Applied Data Structures....3
CET 386 Operating Systems Principles....3
CET 400 Software Engineering Technology....3

CET	420	Foundations of Distributed Web-Based Applications in Java	3
Choose two of the following courses			6
CET	425	Server Software Programming	3
CET	427	Distributed Object Systems	3
CET	428	Web-Client User Interface Programming	3
CET	433	Database Technology	3
CET	441	Software for Personal Digital Assistants	3
CET	459	Internet Networking Protocols	3
CET	488	Systems Administration of UNIX	3
CET	489	Network Administration with TCP/IP	3
Technical electives			15
Total			45

Computer Engineering Technology
Program of Study
Typical First- and Second-Year Sequence

First Year

First Semester

ENG	101	First-Year Composition	3
ETC	100	Languages of Technology *CS*	4
MAT	260	Technical Calculus I *MA*	3
PHY	111	General Physics *SQ*[1]	3
PHY	113	General Physics Laboratory *SQ*[1]	1
HU, SB, or awareness area course			3
Total			17

Second Semester

CET	100	Object-Oriented Software Development I	3
CET	150	Digital Systems I *CS*	4
ENG	102	First-Year Composition	3
MAT	261	Technical Calculus II *MA*	3
PHY	112	General Physics *SQ*[2]	3
PHY	114	General Physics Laboratory *SQ*[2]	1
Total			17

Second Year

First Semester

CET	200	Object-Oriented Software Development II	3
CET	354	Microcomputer Architecture and Programming	4
CET	383	Shell and Script Programming with UNIX	3
ECN	111	Macroeconomic Principles SB	3
MAT	243	Discrete Mathematical Structures	3
Total			16

Second Semester

CET	230	Applied Data Structures	3
CET	326	Programming Languages for Technology with C/C++ and Visual BASIC	4
CET	386	Operating Systems Principles	3
ECE	380	Probability and Statistics for Engineering Problem Solving *CS*	3
EET	208	Electric Circuit Analysis I	4
Total			17

[1] Both PHY 111 and 113 must be taken to secure SQ credit.
[2] Both PHY 112 and 114 must be taken to secure SQ credit.

APPLIED SCIENCE—B.A.S.

The Bachelor of Applied Science degree is a "capstone" degree for the Associate of Applied Science degree. The B.A.S. degree exposes students to advanced concepts and diverse critical thinking skills that prepare them for future career opportunities and professional advancement. Students wishing to enroll in the B.A.S. concentrations offered by the Department of Electronics and Computer Engineering Technology should have an A.A.S. in electronics technology or computer programming.

Admission

Admission to the B.A.S. degree program is restricted to students holding an A.A.S. degree from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and a 2.50 for nonresident applicants.

Degree Requirements

The B.A.S. degree in the College of Technology and Applied Sciences consists of 60 semester hours of upper-division (300-level and above) courses, with 30 semester hours in residence.

A.A.S. degree	60
Assignable credit	6
B.A.S. core	15
General Studies	19
Technical concentration	20
Total	120

General Studies Curriculum

The B.A.S. curriculum builds on the general education content of the A.A.S. degree. Additional General Studies (L, CS, and awareness areas) are met with courses in the core or concentration. General Studies courses focus on contextual learning.

L	3
MA	3
HU	3
HU or SB	3
SB	3
SG	4
Total	19

Assignable Credit

Assignable credit allows space in the curriculum for the prerequisite courses needed to succeed in the program. The courses are determined by the student and the advisor.

B.A.S. Core

The area core focuses on management and organization, professional communication, quantitative analysis, and computer competency. The B.A.S. core consists of five courses and varies depending upon concentration.

B.A.S. Core

CET	354	Microcomputer Architecture and Programming	4
CET	386	Operating Systems Principles	3
EET	494	ST: Data Analysis	3
IMC	346	Management Dynamics	3
TWC	400	Technical Communications *L*	3
Total			16

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

Technical Concentrations

Computer Systems Administration. This concentration is designed to broaden and provide more in-depth knowledge in computer administration. Graduates from this concentration will be prepared to specify, install, maintain, and administer various computer and networking systems.

Instrumentation. This concentration studies instrumentation, power systems, and computer systems. The curriculum prepares the graduate to specify and prepare solutions for a wide variety of electrical and electronic instrumentation systems. Graduates from this concentration are primed for technical leadership positions in the various segments of the electronics industry.

Microcomputer Systems. This concentration prepares graduates for product specification and marketing positions in microcomputer applications. The B.A.S. degree provides additional technical skills in microcomputer systems to prepare graduates for responsible and productive positions in the support of computer systems.

Semiconductor Technology. This concentration prepares graduates for careers in the semiconductor industry. The B.A.S. degree provides graduates with an understanding of integrated circuit processing, mask making, packaging, and the software tools used in this industry.

Software Technology Applications. This concentration prepares graduates for careers in the software industry. The B.A.S. degree furnishes additional technical expertise in software technology to prepare graduates to design, specify, and provide software solutions for industry and the consumer market.

COMPUTER ENGINEERING TECHNOLOGY (CET)

CET 100 Object-Oriented Software Development I. (3)
fall
Basic concepts of object-oriented analysis, design, and programming using Java. Basic Java variables, expressions, arrays, statements, methods, and classes. Prerequisite: ETC 100.

CET 150 Digital Systems I. (4)
fall and spring
Number systems, Boolean algebra, combinational logic, K-maps, flip-flops, sequential circuits, state machines, and minimization techniques.
General Studies: CS

CET 191 First-Year Seminar. (1–3)
selected semesters

CET 200 Object-Oriented Software Development II. (3)
fall and spring
Object modeling with class and interaction diagrams; inheritance and run-time binding; introduces frameworks with Java collections and windowing. Prerequisite: CET 100.

CET 230 Applied Data Structures. (3)
fall
Introduces data structures: strings, stacks, queues, binary trees, recursion, searching, and sorting. Prerequisite: CET 200.

CET 256 C Programming for Engineering Technology. (3)
fall, spring, summer
Applied and practical problem solving using the C programming language. Prerequisite: ETC 100.

CET 294 Special Topics. (1–4)
selected semesters

CET 326 Programming Languages for Technology with C/C++ and Visual BASIC. (4)
fall and spring
Programming language design and implementation concepts through programming C/C++, Visual BASIC; execution, run-time management, data control, pointers, templates, multiple inheritance. Lecture, lab. Prerequisites: CET 150, 200.

CET 350 Digital Systems II. (4)
fall
Analysis and design of synchronous and asynchronous state machines. Introduces VHDL. Lecture, lab. Prerequisite: CET 150.

CET 354 Microcomputer Architecture and Programming. (4)
fall and spring
Microcomputer architecture, assembly language programming, I/O considerations, exception and interrupt handling. Introduces interfacing. Prerequisite: CET 150.

CET 364 Computer Architecture. (3)
fall
Processor performance, RISC/CISC, processor design and implementation, basic pipelining, memory hierarchy, I/O. Prerequisite: CET 200, 354.

CET 383 Shell and Script Programming with UNIX. (3)
fall and spring
UNIX operating system programming of shells, environment and 4th-generation languages and tools, such as sed, awk, perl, grep, make. Prerequisite: CET 100 or 256.

CET 386 Operating Systems Principles. (3)
spring
Fundamentals of operating systems, process management, scheduling and synchronization techniques, memory and file management, protection and security issues. Prerequisite: CET 256.

CET 400 Software Engineering Technology. (3)
spring
Software life-cycle models; project management; team development environments; software specification, design, implementation techniques and tools, validation, and maintenance; user documentation. Prerequisite: CET 326.

CET 401 Digital Signal Processing for Multimedia. (3)
fall
Applies DSP techniques to multimedia. Digital filter analysis and design. Time and frequency techniques. Computer applications. Cross-listed as EET 401. Credit is allowed for only CET 401 or EET 401. Prerequisites: EET 301; MAT 262.

CET 420 Foundations of Distributed Web-Based Applications in Java. (3)
fall and spring
Principles underlying design and implementation of distributed software components; sockets, protocols, threads, XML, serialization, reflection, security, and events. Prerequisites: CET 230, 386.

CET 425 Server Software Programming. (3)
once a year
Design and implementation of software servers, threaded socket servers, servers for distributed Web-based applications; security for the Web. Prerequisite: CET 420 or instructor approval.

CET 427 Distributed Object Systems. (3)
spring
Distributed applications with Web services, RMI and CORBA; concepts and frameworks for managing registering, locating and securing distributed object applications. Prerequisite: CET 420 or instructor approval.

CET 428 Web-Client User Interface Programming. (3)
fall
Client-server model for window interfaces. Java Swing, Applets, markup and scripting languages; Web tools and related technologies. Prerequisite: CET 420 or instructor approval.

CET 433 Database Technology. (3)
fall
Introduces database technologies and DBMS, data models, and languages. Prerequisites: CET 230, 326.

CET 441 Software for Personal Digital Assistants. (3)
fall
Mobile computing using Java's K, Virtual Machine, MIDP for wireless applications; user interfaces, persistent data storage, and networking. Prerequisite: CET 420.

CET 452 Digital Logic Applications. (4)
spring
Design of sequential machines using system design techniques and complex MSI/LSI devices with lab. Prerequisite: CET 350.

CET 456 Assembly Language Applications. (3)
fall
Programming using BIOS and DOS routines. High-level language interfacing. Disk operations, TSR routines, and device drivers. Prerequisite: CET 354.

CET 457 Microcomputer Systems Interfacing. (4)
spring
Applications of microcomputer hardware and software. Special purpose controllers, interface design. Lecture, lab. Prerequisites: CET 354; EET 310.

CET 458 Digital Computer Networks. (3)
spring
Network hardware and software, topologies, protocols, OSI model, LANs, WANs Internet; basic concepts of packet switching, routing, error controlling. Prerequisites: CET 354; EET 372.

CET 459 Internet Networking Protocols. (3)
fall
Computer networking for application, transmission control and network layers using the Internet protocols as a model; reliability and security. Prerequisites: CET 200 (or 256), 354.

CET 473 Digital/Data Communications. (4)
fall
Signals, distortion, noise, and error detection/correction. Transmission and systems design. Interface techniques and standards. Lecture, lab. Prerequisites: CET 354; EET 372.

CET 484 Internship. (1–3)
selected semesters

CET 486 Hardware Description Languages: VHDL. (3)
spring
Introduces hardware description languages using VHDL. Techniques for modeling and simulating small digital systems using a VHDL simulator. Prerequisites: CET 350, 383.

CET 488 Systems Administration of UNIX. (3)
fall
Administration of UNIX, its processes, system calls, kernel, file structure, and interprocess communication using command line tools. Integrated lecture/lab. Prerequisites: CET 383, 386.

CET 489 Network Administration with TCP/IP. (3)
spring
Writing C programs and shell scripts to create, control, and administer computer networks. Installation and maintenance of computer networks. Prerequisites: CET 383, 459.

CET 490 Reading and Conference. (1–12)
selected semesters

CET 492 Honors Directed Study. (1–3)
selected semesters

CET 493 Honors Thesis. (1–6)
selected semesters

CET 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Applied Software Process. (3)
- Computer Project

CET 498 Pro-Seminar. (1–3)
selected semesters

CET 499 Individualized Instruction. (1–3)
selected semesters

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

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

ELECTRONICS ENGINEERING TECHNOLOGY (EET)

EET 191 First-Year Seminar. (1–3)
selected semesters

EET 208 Electric Circuit Analysis I. (4)
fall and spring
Electrical models, AC/DC steady-state analysis of first and second order systems. Circuit theorems. Three-phase circuits. Lecture, lab. Pre- or corequisite: MAT 261.

EET 294 Special Topics. (1–4)
selected semesters

EET 301 Electric Circuit Analysis II. (4)
fall and spring
Analysis of continuous-time signals and linear systems of using Laplace and Fourier response of circuits. Lecture, lab. Prerequisite: EET 208. Pre- or corequisite: MAT 262.

EET 304 Transmission Lines in Computer Networks. (3)
spring
Theory and application of transmission lines in high-speed computer networks. Signal propagation and impedance matching. Lecture, lab, computer labs. Prerequisite: EET 301.

EET 310 Electronic Circuits I. (4)
fall and spring
Multistage amplifier, analysis, and design using models and computer simulation. Lecture, lab. Prerequisite: EET 208.

EET 372 Communication Systems. (4)
fall and spring
Systems analysis and design of AM, FM, PCM, and SSB communication systems. Noise and distortion performance of communication systems. Lecture, lab. Pre- or corequisites: EET 301, 310.

EET 394 Special Topics. (1–4)
selected semesters

EET 396 Professional Orientation. (1)
fall and spring
Technical, professional, economic, and ethical aspects of electronics/computer engineering technology practice and industrial organization. Lecture, projects. Prerequisite: junior standing.

EET 401 Digital Signal Processing for Multimedia. (3)
fall
Applies DSP techniques to multimedia. Digital filter analysis and design. Time and frequency techniques. Computer applications. Cross-listed as CET 401. Credit is allowed for only CET 401 or EET 401. Prerequisites: EET 301; MAT 262.

EET 403 PLCs, Sensors, and Actuators. (3)
spring
Applications, programming, and troubleshooting using PLCs. Interfacing to motors, sensors, and actuators. Fluid power principles. Lecture, lab, projects. Prerequisite: EET 208 (or equivalent electrical science course).

EET 406 Control System Technology. (4)
spring
Control system components, analysis of feedback control systems, stability, performance, and application. Lecture, lab, computer simulations. Prerequisites: EET 301; MAT 262.

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

EET 407 Energy Conversion and Applications. (4)
fall
Electricity, magnetism, mechanics, heat and units, and three-phase circuits. Electrical machines, transformers, generation, transmission, and distribution of electrical energy. Lecture, lab. Prerequisite: EET 208.

EET 410 Electronic Circuits II. (4)
fall and spring
Analysis and design of OP-amps, power amplifiers, and digital logic families. Feedback design using frequency response. Computer analysis and design. Lecture, lab. Prerequisites: EET 301, 310.

EET 422 Electronic Switching Circuits. (4)
once a year
Analysis and design of electronic circuits operating in a switching mode. Waveshaping, timing, and logic. Computer simulation. Lecture, lab. Prerequisites: CET 350; EET 301, 310.

EET 430 Instrumentation Systems. (4)
fall
Measurement principles and instrumentation, techniques. Signal and error analysis. Lecture, lab. Prerequisites: EET 301, 310.

EET 460 Power Electronics. (4)
spring
Analyzes circuits for control and conversion of electrical power and energy. Lecture, lab. Prerequisites: EET 301, 310, 407.

EET 470 Communication Circuits. (4)
spring
Analysis and design of passive and active communication circuits. Coupling networks, filters, and impedance matching. Modulation and demodulation techniques. Computer solutions. Lecture, lab. Prerequisites: EET 372; MAT 262.

EET 482 Industrial Practice: Internship/Co-op. (1–4)
fall, spring, summer
Specially assigned or approved activities in electronic industries or institutions. Requires report. May be repeated for up to a maximum of 10 credits. Prerequisites: Electronics Engineering Technology major; junior or senior standing.

EET 484 Internship. (1–3)
selected semesters

EET 490 Electronics Project. (1–4)
fall, spring, summer
Individual or small group projects in applied electronics, with emphasis on laboratory practice or hardware solutions to practical problems. Prerequisite: instructor approval.

EET 492 Honors Directed Study. (1–3)
selected semesters

EET 493 Honors Thesis. (1–6)
selected semesters

EET 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Data Analysis. (3)
- Digital Filter Hardware Design. (3)

EET 498 Pro-Seminar. (1–3)
selected semesters

EET 499 Individualized Instruction. (1–3)
selected semesters

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

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

MICROELECTRONICS ENGINEERING TECHNOLOGY (UET)

UET 191 First-Year Seminar. (1–3)
selected semesters

UET 194 Special Topics. (1–4)
selected semesters

UET 294 Special Topics. (1–4)
selected semesters

UET 305 Introduction to Microelectronics. (3)
fall, spring, summer
Quantifies the role of microelectronics technology and its associated skills as drivers for electronics systems development. Lecture with strong Web preparation and support. Prerequisite: junior standing.

UET 331 Electronic Materials. (3)
fall
Physical, chemical, electromagnetic, and mechanical properties of electronic materials. Solid-state device characteristics and their material properties. Fee. Prerequisites: CHM 113; EET 208; PHY 112, 114.

UET 411 Layer Deposition Technology. (3)
spring
Fundamentals, applications, and vacuum technology of layer deposition processes used in IC fabrication. Lecture with Web support. Credit is allowed for only UET 411 or 511. Prerequisite: UET 331. Corequisite: UET 417.

UET 415 Electronic Manufacturing Engineering Principles. (3)
fall and spring
Electronic equipment design and fabrication principles and practice. Completion of electronics hardware design project and report. Lecture, lab. Fee. Prerequisite: senior standing (113 hours) in Electronics Engineering Technology.

UET 416 Dopant Control Technology. (3)
fall
Design and practical realization of charge distribution in microelectronic devices, including ion implantation and diffusion processes. Lecture with Web support. Credit is allowed for only UET 416 or 516. Prerequisite: UET 331. Corequisite: UET 417.

UET 417 Semiconductor Technology Practice. (3)
fall
Lab-based design and execution of safe and effective semiconductor fabrication operations. Lab. Prerequisite: UET 331 (or its equivalent). Corequisites: UET 411 and 416 and 424 (or their equivalents).

UET 418 Systems on Silicon. (4)
spring
Factors that drive integration on silicon, including logic, memory, and interfaces. Economics of system-level solutions. Lecture with Web support, lab, practical project. Credit is allowed for only UET 418 or 518. Prerequisite: UET 331.

UET 421 IC Device Characterization. (3)
fall
Design and operation of the major classes of semiconductor devices. Characterization by parameters and their extraction. Future technology trends. Lecture with Web support. Fee. Prerequisite: UET 331.

UET 424 Pattern Transfer Technology. (3)
spring
Maskmaking, lithography, and etch processes for integrated circuit fabrication. Lecture with Web support. Prerequisite: UET 331. Corequisite: UET 417.

UET 426 Software Tools for the Semiconductor Industry. (3)
spring
Introduces software tools commonly used in the semiconductor industry, such as SUPREM IV, PSPICE, VIEWLOGIC, and ICED. Prerequisite: UET 331.

UET 432 Semiconductor Packaging and Heat Transfer. (3)
spring
Packaging theory and techniques; hermetic and plastic assembly; thermal management; electrical characteristics and reliability. Prerequisites: ETC 340 and UET 331 (or their equivalents).

UET 437 Process Control and Validation. (3)
spring
Statistical process control and its application to IC fabrication. Design, control, and performance validation techniques throughout the manufacturing process. Lecture with Web support. Prerequisite: 300-level statistics course. Corequisite: UET 417.

UET 484 Internship. (1–3)
selected semesters

UET 485 Digital Testing Techniques. (3)
once a year
Hardware/software aspects of digital testing technology; systems, board, and logic testing and equipment. Lecture, lab. Prerequisites: CET 350; EET 310.

UET 492 Honors Directed Study. (1–3)
selected semesters

UET 493 Honors Thesis. (1–6)
selected semesters

UET 494 Special Topics. (1–4)
selected semesters

UET 498 Pro-Seminar. (1–3)
selected semesters

UET 499 Individualized Instruction. (1–3)
selected semesters

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

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

Department of Information and Management Technology

www.east.asu.edu/ctas/imt
480/727-1781
TECH 102

Thomas E. Schildgen, Chair

Professors: Duff, Hild, Schildgen

Associate Professors: Grossman, Hirata, Humble, Matson, Olson, Peterson

Assistant Professor: Kime

Senior Lecturer: Wilson

Lecturers: Dolin, Harris, Lestar

PURPOSE

The mission of the department is to prepare graduates who are able to develop and communicate technological solutions to industrial problems, to manage systems operations, to improve and evaluate products, to provide customer support, and to facilitate technology transfer in industry and government. Increased complexity and sophistication have created great demand for those individuals who possess a working knowledge of the technical phases of planning, testing, production, and fabrication of consumer and industrial products and equipment. Technology includes the application of science, systematic methods, procedures, machines, communication protocols, and materials control for the development, improvement, and implementation of state-of-the-art solutions to industrial problems.

DEGREES

The faculty in the Department of Information and Management Technology offer the B.S. degree in Industrial Technology, with concentrations in the following areas: environmental technology management, industrial technology management, and graphic information technology.

The Bachelor of Science degree in Industrial Technology—including the environmental technology management, graphic information technology, and industrial technology management concentrations—is fully accredited by the National Association of Industrial Technology (NAIT). For more information, call 734/677-0720, or write

NATIONAL ASSOCIATION OF INDUSTRIAL TECHNOLOGY
3300 WASHTENAW AVENUE
SUITE 220
ANN ARBOR MI 48104-4200

For students holding an A.A.S. degree the department offers the B.A.S. degree in Applied Science, with concentrations in digital media management, digital publishing, emergency management, fire service management, operations management, municipal operations management, and technical graphics.

A Master of Science in Technology degree is offered for graduate study. The department offers four concentrations for the graduate degree: environmental technology management, fire service administration, graphic information technology, and management of technology. For more information about the graduate program, see the *Graduate Catalog.*

INDUSTRIAL TECHNOLOGY—B.S.

The curriculum consists of First-Year Composition, university General Studies, and technical courses. Note that all three General Studies awareness areas are required. Consult with an advisor for an approved list of courses. The technical part of the curriculum includes a required Information and Management core, program concentration course work, and technical electives selected with approval of an advisor.

Information and Management Technology students are required to complete a minimum of 120 semester hours with a 2.00 cumulative GPA, including a minimum of 50 semester hours of upper-division courses to graduate.

Information and Management Core*

ETC	100 Languages of Technology *CS*	4
GIT	233 Digital Publishing	3
IMC	331 Quality Assurance	3
IMC	346 Management Dynamics	3
IMC	396 Professional Orientation	1
IMC	470 Project Management	3
IMC	494 ST: Senior Project	3
Total		20

* These courses are for the industrial technology management and graphic information technology concentrations.

Environmental Technology Management Concentration. The environmental technology management concentration prepares graduates to manage such challenging problems in industry as regulatory compliance, hazardous materials management, pollution prevention, and international environmental standards for manufacturing. The curriculum is designed to provide a unique blend of critical scientific, technical, and management skills; degree requirements encompass the development of a broad background in the natural sciences and mathematics, social and behavioral sciences, management theory, regulatory issues, and applied sciences. The program is purposely structured to facilitate transfer students who are searching for a degree program that builds upon a strong technical background and focuses on the environmental issues faced by industry.

Industrial Technology Management Concentration. The industrial technology management concentration prepares students for supervisory and administrative positions in industry, manufacturing, and public service organizations. Course work includes accounting, data analysis, economics, effective decision making, finance, international business, legal and ethical studies, marketing, operations management, and safety. Emphasis is placed on health and safety within the workplace.

The industrial technology management program may be articulated with a broad range of community college technical courses. Community college specializations in areas such as aeronautics, construction, electronics, fire science, police science, graphic information technology, hazardous materials and waste management, computer graphics, safety and health, human resource management, production management, and manufacturing may form a technical specialty area within the industrial technology management option. Consultation with an advisor is required to coordinate the course selection for transfer to this option.

Graphic Information Technology Concentration. The graphic information technology concentration prepares students for technical and management positions in the diverse graphic communication and information technology industries: digital printing and publishing; technical/digital media production; management of graphic information assets; quality assurance of graphic products; planning and evaluation of print, Internet, multimedia, and computer-based communications. This is an intensive 120-semester-hour graphic technology program of study emphasizing theory and hands-on laboratory practice. Students develop skills to plan and execute graphic solutions using visualization and sketching, engineering graphic standards, technical document design, higher-level graphic programming languages, computer drawing and illustration, multimedia and three-dimensional modeling, project management, quality assurance, and e-commerce practices.

The Graphic Information Technology Facility (GITF), located in the Technology Center, provides internship opportunities and exposes students to current production technology, problem-solving skills, cost analysis, and human resource issues. Graduates are able to present technical solutions using graphics in print and Internet publications, engineering documents, media-rich presentations, interactive training and instruction, models, and animations. Typical career opportunities include graphic operations management, sales and marketing, information technology support in graphics-related industries, graphic systems analysis, digital publishing (both print and online), and computer graphics content planning and creation.

CERTIFICATE PROGRAM IN HAZARDOUS MATERIALS AND WASTE MANAGEMENT

The Certificate Program in Hazardous Materials and Waste Management is designed to provide current and prospective employees of industry and government with a comprehensive and practical curriculum of study in hazardous materials management. The certificate program features instruction by ASU faculty, attorneys, and professionals who work in the specific area in which they teach. Participation in the certificate program is available in three options: a certificate program for nondegree students, a B.S. degree in Industrial Technology with a Certificate in Hazardous Materials and Waste Management, and a Master of Science in Technology degree with a Certificate in Hazardous Materials and Waste Management. Students must complete seven selected courses (five required and two electives) and earn a grade of "C" (2.00) or higher to receive the certificate. Except for the introductory course, ETM 501 Principles of Hazardous Materials and Waste Management, the remainder of the courses may be taken in any sequence.

B.I.S. CONCENTRATION

A concentration in hazardous materials and waste management is available under the Bachelor of Interdisciplinary Studies (B.I.S.) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the B.I.S. program take active roles in creating their educational plans and defining their career goals. For more information, see "Bachelor of Interdisciplinary Studies," page 123.

APPLIED SCIENCE—B.A.S.

The Bachelor of Applied Science degree is a "capstone" degree for the Associate of Applied Science degree. The B.A.S. degree exposes students to advanced concepts and diverse critical thinking skills that prepare them for future career opportunities and professional advancement.

Admission

Admission to the B.A.S. degree program is restricted to students holding an A.A.S. degree from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and a 2.50 for nonresident applicants.

Degree Requirements

The B.A.S. degree in the College of Technology and Applied Sciences consists of 60 semester hours of upper-division (300 level and above) courses, with 30 hours in residence.

A.A.S. degree	60
Assignable credit	6
B.A.S. core	15

General Studies	19
Technical concentration	20
Total	120

General Studies Curriculum

The B.A.S. curriculum builds on the general education content of the A.A.S. degree. Additional General Studies (L, CS, and awareness areas) are met with courses in the core or concentration. General Studies courses focus on contextual learning.

L	3
MA	3
HU	3
HU or SB	3
SB	3
SG	4
Total	19

Assignable Credit

Assignable credit allows space in the curriculum for prerequisite courses needed to succeed in the program. The courses are determined by the student and the advisor.

B.A.S. Core

The area core focuses on management and organization, professional communication, quantitative analysis, and computer competency.

GIT	335	Computer Systems Technology	3
IMC	346	Management Dynamics	3
ITM	452	Industrial Human Resource Management	3
		or IMC 470 Project Management (3)	
MET	401	Quality Assurance	3
		or STP 420 Introductory Applied Statistics *CS* (3)	
TWC	400	Technical Communications *L*	3
Total			15

Technical Concentrations

Operations Management Technology. The purpose of this technical concentration is to prepare supervisors for management functions in industry, manufacturing, and public service organizations. The B.A.S. degree provides the management and supervision content required for industry and governmental agencies.

Digital Media Management. This concentration prepares graduates for technical positions in industries implementing, planning, and producing interactive communications, integrated media, and multimedia for design, training, and marketing. Prospective students with A.A.S. degrees in areas such as multimedia, printing and publishing, commercial graphics, desktop publishing, or computer illustration may be interested in pursuing a digital media management concentration.

Technical Graphics. This concentration prepares graduates for positions in industries implementing technical and engineering graphics in computer-aided design and computer integrated manufacturing. A.A.S. degrees in drafting and design, computer-aided design, computer integrated manufacturing technology, mechanical technology, architectural technology, or construction technology may provide an excellent foundation for a technical graphics concentration.

Digital Publishing. This concentration prepares graduates for lead technical and entry-level management positions in the printing and publishing industry. A.A.S. degrees in multimedia, printing and publishing, commercial art, desktop publishing, or computer illustration may find that this technical concentration provides excellent opportunities.

Emergency Management. The concentration prepares graduates for positions in industry, municipal departments, and government agencies. The curriculum addresses the established Federal Emergency Management Administration (FEMA) guidelines, on-site emergency response contingency planning, first responder scene management, logistical analysis, and communications protocol.

Fire Service Management. This concentration prepares graduates for positions in industry, municipal departments, and governmental agencies. The curriculum addresses services delivered by fire departments, fire service personnel development, zoning, planning, inspections, and arson investigations.

Municipal Operations Management. This concentration prepares students for supervisory and management functions within municipalities, public service organizations, or businesses that provide services to the public sector. The curriculum addresses quality assurance, ethical issues, leadership practices, operations management, project management, marketing, finance, public sector management, and organizational effectiveness.

Senior Project Requirement

All baccalaureate degree students (B.S. and B.A.S.) in the Department of Information and Management Technology are required to complete a senior project for the requirements of graduation. The senior project is a capstone experience that integrates theory and application of the undergraduate curriculum in an effort to address industry-inspired subject matter. The senior project is carried out under faculty supervision in a scheduled class and is related to the student's technical interests, academic goals, and career employment. The senior project is a study or research project involving a written document and oral presentation, which can involve service learning. A bound document and/or electronic copy of the project becomes part of the department's archival collection, available for public review.

GRAPHIC INFORMATION TECHNOLOGY (GIT)

GIT 135 Graphic Communications. (3)
fall and spring
Introduces the technologies involved in the design, image generation, transmission, and industrial production of multiple images for consumer utilization. Integrated lecture/lab, field trips.

GIT 194 Special Topics. (1–4)
selected semesters

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

GIT 210 Creative Thinking and Design Visualization. (3)
fall and spring
Fundamental methods, concepts, and techniques of creative thinking, design visualization, and problem solving. Also includes communication, cultural, and societal influences. Integrated lecture/lab. Prerequisite: ETC 100.

GIT 212 Computer-Aided Design and Drafting (CADD). (3)
fall and spring
CADD for product design, representation, and documentation; includes projection theory, descriptive geometry, graphics analysis, drafting standards, and precision dimensioning techniques. Integrated lecture/lab. Prerequisite: ETC 100 (or its equivalent).
General Studies: CS

GIT 215 Introduction to Graphics Programming. (3)
fall
Introduces analyzing, planning, and executing graphic programs using industry-standard programming tools. Integrated lecture/lab. Prerequisite: ETC 100 (or its equivalent).

GIT 230 Digital Illustration in Publishing. (3)
fall and spring
Raster and vector illustration in publishing. Integrated lecture/lab. Pre- or corequisite: GIT 135.

GIT 233 Digital Publishing. (3)
fall and spring
Introduces software and hardware used for digital publishing and infographics. Integrated lecture/lab. Pre- or corequisites: GIT 135, 210.

GIT 237 Web Content Design. (3)
spring
Introduces design principles for visual content on the World Wide Web; raster, vector, fonts, portable documents, color palettes, file formats. Integrated lecture/lab. Prerequisite: GIT 135 (or its equivalent). Pre- or corequisite: GIT 233.

GIT 312 3-D Computer Graphics Modeling and Representation. (3)
fall
3-D solid modeling applications: concepts, techniques, data structures, modeling strategies, assemblies, geometric representation. Integrated lecture/lab. Prerequisite: GIT 212.
General Studies: CS

GIT 313 Technical Illustration and Photorealistic Rendering. (3)
fall
Computer-generated graphics for technical illustration and design presentation: axonometric and perspective drawing; shading, shadowing, materials and textures; photorealistic rendering for PostScript output. Integrated lecture/lab. Prerequisite: GIT 212.

GIT 314 Multimedia Design, Planning, and Storyboards. (3)
spring
Creative and conceptual process of content selection, planning, designing, flowcharting, storyboarding, proposing, configuring, prototyping, and presenting multimedia projects. Integrated lecture/lab. Prerequisite: GIT 237.

GIT 333 Printing Technology. (3)
spring
Theory and application of sheet and web press technology for offset-lithography, flexography, screen process, and digital printing. Integrated lecture/lab. Pre- or corequisite: GIT 135.

GIT 334 Image Capture and Manipulation. (3)
fall
Theory and application of image capture techniques used for all copy formats and conversion processes required for reproduction or dissemination. Integrated lecture/lab. Prerequisite: GIT 233.

GIT 335 Computer Systems Technology. (3)
selected semesters
Survey of computer-based technology covering hardware, software, storage, networking, internet, telecommunications, and information systems. Integrated lecture/lab. Prerequisite: junior standing.

GIT 337 Web Content Design. (3)
fall and spring
Introduces design principles for visual content on the World Wide Web; raster, vector, fonts, portable documents, color palettes, file formats. Integrated lecture/lab. Pre- or corequisite: GIT 233.

GIT 352 Technical Presentations. (3)
spring
Technologies for planning, creating, and delivering individual and group presentations. Prerequisites: ENG 102; GIT 233.

GIT 384 Commercial Digital Photography. (3)
fall, spring, summer
Digital image, conversion, and output in a commercial studio emphasizing publishing workflow. Integrated lecture and lab. Prerequisite: GIT 334.

GIT 394 Special Topics. (1–4)
selected semesters

GIT 411 Computer Animation. (3)
fall and spring
2-D and 3-D computer animation methods: project planning, scripting, storyboards, advanced modeling, lighting, materials mapping, and motion. Integrated lecture/lab. Prerequisites: GIT 312, 334.

GIT 412 Multimedia Authoring, Scripting, and Production. (3)
fall and spring
Production of multimedia projects using industry-standard authoring applications: project management, client considerations, and project documentation; user interface design, interactivity, media, and databases. Integrated lecture/lab. Prerequisite: GIT 314.

GIT 413 Professional Portfolio Design and Presentation. (3)
spring
Digital media portfolio design and production: planning, audience analysis, media selection, authoring, media formats, production, copyright considerations, marketing, and delivery. Integrated lecture/lab. Prerequisites: GIT 314, 334.

GIT 414 Web Site Design and Internet/Web Technologies. (3)
spring
Web site design, authoring, standards, protocols, tools, and development techniques for commercial client-sided Web-based graphic information systems. Integrated lecture/lab. Prerequisites: GIT 334, 337.

GIT 415 Computer Graphics: Business Planning and Management. (3)
spring
Implementation planning: feasibility and application studies; needs assessment and operational analysis techniques; organization, managerial, and technology considerations; business plan development. Integrated lecture/lab, field trips. Prerequisite: senior standing in Information Technology (graphic information technology concentration).

GIT 417 Advanced Internet Programming. (3)
fall
Uses industry-standard programming languages and techniques to create interactive graphic information Web sites and applications. Integrated lecture/lab. Prerequisite: GIT 414.

GIT 432 Graphic Industry Business Practices. (3)
selected semesters
Business practices related to press/prepress/Web industries; trade customs, cost analysis, marketing and management approaches. Integrated lecture/lab, field trips. Prerequisite: GIT 414.

GIT 435 Web Management and E-commerce. (3)
spring
Internet Web site management, security, online databases, and new e-commerce business models. Integrated lecture/lab. Prerequisite: GIT 414.

GIT 436 Gravure Technology. (3)
spring
In-depth study of the market profile and production sequences related to the gravure method of printing. Prerequisite: GIT 135.

GIT 437 Color Reproduction Systems. (3)
fall
Scientific analysis for the engineering of color reproduction systems and color models used in the graphics industry. Prerequisite: GIT 334.

GIT 441 Graphic Information Systems. (3)
selected semesters
Graphic information systems common to the workplace: graphic user interfaces for online databases, geographic, industrial, architectural, and management applications. Integrated lecture/lab. Prerequisite: senior standing in Information Technology (graphic information technology concentration).

GIT 450 Digital Workflow in Graphic Industries. (3)
fall
Analyzes digital production systems for input, assembly, and output of graphic information to print and Web, including networking and job tracking. Integrated lecture/lab. Prerequisite: GIT 334.

GIT 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Computer Systems Applications. (3)

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

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

ENVIRONMENTAL TECHNOLOGY MANAGEMENT (ETM)

ETM 301 Environmental Management. (3)
fall
Focuses on knowledge and skills necessary to manage environmental programs. Perspectives include regulatory, individual, corporate, and consulting. Pre- or corequisites: CHM 113; MAT 170.

ETM 302 Water and Wastewater Treatment Technology. (3)
selected semesters
Explores the development of treatment technologies. Addresses regulatory standards. Emphasizes theory and practice of system design, laboratory analysis standards and procedures. Pre- or corequisites: CHM 101; MAT 170.

ETM 303 Environmental Regulations. (3)
fall and spring
Explores environmental laws, regulations, and directives. Addresses air, land, and water. Prerequisite: ETM 301.

ETM 360 Introduction to Emergency Management. (3)
fall
Emergency management theories. Comprehensive emergency management. Mitigation, preparedness, response, and recovery. Post-disasters and policy formation. Current FEMA all-hazards approach.

ETM 362 Managing Natural and Technological Disasters. (3)
spring
Federal, state, and local responses to emergencies. Management of mass casualties, evacuation, sheltering, and terrorism; declaration of emergency procedures.

ETM 363 Computer Applications in Emergency Management. (3)
spring
Explores specific computer programs which are currently in use for contingency planning, tracking chemical inventories, and response resources. Cross-listed as FSM 363. Credit is allowed for only ETM 363 or FSM 363.

ETM 364 Toxicology and Biohazards in Emergency Management. (3)
fall
Introduces poisons. Dose response routes of exposure and toxicokinetics. Diseases associated with natural disasters. Clinical presentation of treatments.

ETM 401 Hazardous Waste Management. (3)
fall and spring
Definition of hazardous waste, RCRA classification, and OSHA criteria. Overview of requirements and methods of waste management. Prerequisite: ETM 301.

ETM 402 Unit Treatment Technologies. (3)
spring
Addresses various treatment technologies for contaminated air, water, and soil. Emphasizes design based upon medium, type of contamination, and concentration. Prerequisite: ETM 302.

ETM 406 Environmental Chemistry. (3)
fall and spring
Examines reactions, transport, and fates of hazardous chemicals in water, soil, air, and living organisms. Prerequisites: both CHM 113 and 115 or only CHM 114; MAT 170.

ETM 407 Occupational Hygiene. (3)
spring
Overview of occupational health hazards, including recognition, evaluation, and control. Includes regulatory status and health standards. Prerequisites: CHM 101 (or 113 or 114); MAT 170.

ETM 424 Comprehensive Emergency Management. (3)
summer
Addresses theory and management techniques for emergency preparedness, including mitigation, preparedness, response, and recovery. Pre- or corequisite: ETM 301.

ETM 426 Environmental Issues. (3)
spring
Explores the science and policy implications of contemporary problems that threaten the environment. Pre- or corequisites: CHM 113; MAT 170.

ETM 428 International Environmental Management. (3)
summer
Emphasizes technological and economic pressures experienced by developing countries. Prerequisite: ETM 301.
General Studies: G

ETM 460 Incident Management Systems and Emergency Operations Center. (3)
fall
Covers IMS, terminology, players, and management philosophy. EOC setup, activation, operation, and termination. EOC funding and politics. Cross-listed as FSM 460. Credit is allowed for only ETM 460 or FSM 460.

ETM 461 Contingency Planning. (3)
selected semesters
Provides understanding of techniques for in-house or on-site planning as well as community planning.

ETM 468 Simulation and Exercising. (3)
selected semesters
Requirements, planning, conduct, and critique of exercises related to emergency planning. Emphasizes realism using moulage and props.

ETM 494 Special Topics. (1–4)
spring
Topics may include the following:
- Bioremediation. (3)
  Technical-regulatory and policy issues emanating from minetailing and animal waste. Lecture, case studies.

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

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

FIRE SERVICE ADMINISTRATION (FSA)

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

FIRE SERVICE MANAGEMENT (FSM)

FSM 304 Fire Personnel Management. (3)
fall
Promotion, personnel development, career and incentive systems, validation of physical requirements, managerial and supervisory procedures.

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

FSM 305 Quality Emergency Services. (3)
selected semesters
Covers quality issues relating to services delivered by progressive fire departments. Covers management of personnel and resources during organizational change.

FSM 306 Fire Prevention Organization and Management. (3)
selected semesters
Examines and evaluates the techniques, procedures, programs, and agencies involved in preventing fires.

FSM 363 Computer Applications in Emergency Management. (3)
spring
Explores specific computer programs which are currently in use for contingency planning, tracking chemical inventories, and response resources. Cross-listed as ETM 363. Credit is allowed for only ETM 363 or FSM 363.

FSM 400 Human Behavior and the Fire Threat. (3)
selected semesters
Proper ways of conducting post-fire interviews; emphasizes the psychological effects of communications during emergencies.

FSM 421 Political and Legal Consideration in Fire Science. (3)
spring
Study of legal and political considerations that affect the decision making of fire service managers.

FSM 425 Fire Service Administration. (3)
fall
Presents modern management and planning techniques that apply to organizing a fire department.

FSM 460 Incident Management Systems and Emergency Operations Center. (3)
fall
Covers IMS, terminology, players, and management philosophy. EOC setup, activation, operation, and termination. EOC funding and politics. Cross-listed as ETM 460. Credit is allowed for only ETM 460 or FSM 460.

FSM 494 Special Topics. (1–4)
selected semesters

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

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

INFORMATION AND MANAGEMENT CORE (IMC)

IMC 294 Special Topics. (1–4)
selected semesters

IMC 331 Quality Assurance. (3)
spring
Instrumentation and methodologies for materials testing and quality control in various manufacturing processes. Lecture, field trips.

IMC 346 Management Dynamics. (3)
fall and spring
Management challenges and the leadership skills needed to achieve organizational objectives in the changing industrial and technical environments. Prerequisite: junior standing.

IMC 396 Professional Orientation. (1)
fall and spring
Senior advisement, industry presentations, and career counseling.

IMC 470 Project Management. (3)
spring
Introduces techniques for managing small groups within larger organizations, including team building, motivating, planning, tracking activities, and computer tools. Prerequisites: ECN 111; IMC 346; ITM 344.

IMC 494 Special Topics. (1–4)
selected semesters
Topics may include the following:
- Senior Project. (3)

IMC 498 Pro-Seminar. (1–7)
selected semesters

IMC 499 Individualized Instruction. (1–3)
selected semesters

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

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

INDUSTRIAL TECHNOLOGY MANAGEMENT (ITM)

ITM 343 Occupational Safety and Ergonomics. (3)
fall
Health and safety movement, accident theories and effects, OSHA standards and liability, safeguarding, hazards, workers' compensation, ergonomics, and safety. Prerequisite: junior standing.

ITM 344 Industrial Organization. (3)
spring
Industrial organization concepts. Topics relate to industrial relations, governmental regulations, organizational structure, labor relations, human factors, and current industrial practices. Prerequisite: IMC 346.

ITM 345 Public Sector Management. (3)
fall and spring
Management in government and public agencies. Includes mission, planning and organizing to provide services, human resource issues, conflict resolution, coordination. Prerequisite: junior standing.

ITM 402 Legal Issues for Technologists. (3)
fall
American legal system and impact on technology management issues: contracts, torts, intellectual property, white collar crime, antitrust, environmental, and employment.

ITM 405 Forecasting and Evolution of Technology. (3)
selected semesters
History and evolutionary nature of selected technologies, issues in the management of emerging technologies, and methods of technological forecasting. Prerequisite: IMC 346 (or its equivalent).

ITM 430 Ethical Issues in Technology. (3)
spring
Topics in social responsibility for industrial technology and engineering. Prerequisite: IMC 346.

ITM 440 Introduction to International Business. (3)
spring
International business principles and operations, including partnerships, trade agreements, currency issues, international sales, and cultural differences between countries. Prerequisite: IMC 346.
General Studies: G

ITM 445 Industrial Internship. (1–10)
fall, spring, summer
Work experience assignment in industry commensurate with student's program. Specialized instruction by industry with university supervision. Pass/fail. Prerequisites: advisor approval; junior standing; 2.50 GPA.

ITM 451 Industrial Distribution and Materials Management. (3)
selected semesters
Surveys topics in industrial distribution including, but not limited to, materials handling, purchasing, receiving, warehousing, traffic, inventory control, and shipping. Prerequisite: IMC 346 or ITM 343.

ITM 452 Industrial Human Resource Management. (3)
fall
Concepts and practices of human resource management in a global industrial environment. Prerequisite: IMC 346.

ITM 453 Safety Management. (3)
selected semesters
Development and management of safety programs, education and training, and relationships within an organization. Prerequisite: ITM 343 or instructor approval.

ITM 455 Industrial Marketing Concepts. (3)
selected semesters
Customer and sales strategies for industrial organizations, including current practice and future planning. Prerequisites: ECN 111; IMC 346; junior standing.

ITM 456 Introduction to Organized Labor. (3)
spring
Introduces labor relations, unions, federations, collective bargaining, grievances, and labor legislation. Prerequisites: IMC 346; ITM 344.

ITM 461 Operations Management. (3)
fall
Introduces supervisory principles as applied to production of goods and services. Prerequisites: IMC 346; ITM 344.

ITM 480 Organizational Effectiveness. (3)
spring
Human aspects of supervisory behavior in the industrial setting and how they influence efficiency, morale, and organizational practices. Prerequisite: IMC 346.

ITM 494 Special Topics. (1–4)
selected semesters

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

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

Department of Mechanical and Manufacturing Engineering Technology

www.east.asu.edu/ctas/mmet
480/727-1189
SIM 295

Scott G. Danielson, Chair

Associate Professors: Biekert, Danielson, Nam, Palmgren, Rajadas, Rogers

Assistant Professor: Post

PURPOSE

The Department of Mechanical and Manufacturing Engineering Technology emphasizes applied engineering practice through four-year degree programs in Manufacturing Engineering Technology and Mechanical Engineering Technology. Math and science principles are applied to the solution of technical problems in a lecture/laboratory environment.

The goal of the Manufacturing Engineering Technology program is to prepare students for employment in areas such as manufacturing engineering, manufacturing processes, automation, and quality control. Major emphasis is placed on reducing the amount of time required by industry to make the graduate productive in any area of work. The department actively supports the student chapter of the Society of Manufacturing Engineers.

The mechanical engineering technology program produces graduates with the ability to design, develop, implement, and improve machinery, workstations, and systems. The curriculum prepares graduates for many job opportunities in engineering design, manufacturing, and laboratory environments. Graduates are prepared to design and develop machines and related mechanical equipment. Aircraft and their components, automation as used in manufacturing, machine tools, materials handling systems, and industrial production equipment are just a few examples.

For more information about both programs, access the Web site at www.east.asu.edu/ctas/mmet.

ACCREDITATION

The B.S. degree in Manufacturing Engineering Technology and the B.S. degree in Aeronautical Engineering Technology are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc. (See "Accreditation," page 638, for more information.)

DEGREES

The Department of Mechanical and Manufacturing Engineering Technology offers the B.S. degree in Manufacturing Engineering Technology and the B.S. degree in Mechanical Engineering Technology.

For students holding an A.A.S. degree, the department offers the B.A.S. degree with concentrations in manufacturing technology and management and materials joining and manufacturing technology.

A Master of Science in Technology degree with concentrations in manufacturing engineering technology, mechanical engineering technology, and aeronautical engineering technology is offered for graduate study. See the *Graduate Catalog* for more information.

B.S. Degree Requirements

All degree requirements for programs are shown on curriculum check sheets. Requirements include First-Year Composition, University General Studies (see "General Studies," page 91), and the Engineering Technology Core. Note that all three General Studies awareness areas are required. Consult an advisor for an approved list of courses. To graduate, students are required to complete a minimum of 128 semester hours with a 2.00 cumulative GPA, including at least 50 semester hours of upper-division courses.

Manufacturing Engineering Technology—B.S.

The B.S. degree in Manufacturing Engineering Technology requires 128 semester hours as specified below:

Engineering technology core	14
First-Year Composition	6
General Studies/department requirements	45
Manufacturing Engineering Technology major	54
Selected concentration	9
Total	128

The following courses constitute the Manufacturing Engineering Technology major and are required of all Manufacturing Engineering Technology students. Refer to the specific concentrations for additional requirements.

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

Manufacturing Engineering Technology Major

EET 403 PLCs, Sensors, and Actuators	3
MET 150 Introduction to Engineering Technology	1
MET 230 Introduction to Engineering Materials	2
MET 231 Manufacturing Processes	3
MET 300 Applied Material Science	3
MET 302 Welding Survey	3
MET 309 Nondestructive Testing and Quality Assurance	1
MET 313 Applied Mechanics of Materials	3
MET 314 Applied Mechanics of Materials Laboratory	1
MET 331 Machine Design I	3
MET 341 Manufacturing Analysis	3
MET 344 Casting and Forming Processes	3
MET 345 Advanced Manufacturing Processes	3
MET 396 Manufacturing Professional Orientation	1
MET 401 Quality Assurance	3
MET 416 Applied Computer-Integrated Manufacturing *CS*	3
MET 443 CNC Computer Programming	3
MET 444 Production Tooling	3
MET 451 Introduction to Automation	3
MET 460 Manufacturing Capstone Project I	3
MET 461 Manufacturing Capstone Project II	3
Total	54

A student participating in the Manufacturing Engineering Technology program may select from two concentrations: manufacturing engineering technology or mechanical engineering technology.

Manufacturing Engineering Technology Concentration. This concentration is designed to prepare technologists with both conceptual and practical applications of processes, materials, and products related to manufacturing industries. Accordingly, this concentration provides additional preparation for students to meet the responsibilities in planning the processes of production, developing the tools and machines, and integrating facilities for production or manufacturing.

Required Courses

MET 409 Applied Engineering Economics	3
MET 442 Specialized Production Processes	3
Technical elective	3
Total	9

Mechanical Engineering Technology Concentration. The primary objective of the mechanical engineering technology concentration is to offer manufacturing students an emphasis in mechanics and thermal sciences. Required courses are as follows:

MET 434 Applied Fluid Mechanics	3
MET 438 Machine Design II	3
Approved technical elective	3
Total	9

Mechanical Engineering Technology—B.S.

The B.S. degree in Mechanical Engineering Technology requires 128 semester hours as specified below:

Mechanical Engineering Technology major	63
Engineering technology core	14
First-year composition	6
General Studies/department requirements	45
Total	128

Students interested in the B.S. degree in Mechanical Engineering Technology choose one of the following three concentrations: mechanical, aeronautical, or automation engineering technology. Each concentration includes six courses for a total of 18 semester hours.

The mechanical engineering technology concentration builds a strong "base" of knowledge of the field and is available to students who do not desire a focused specialty area.

The aeronautical engineering technology concentration provides a specialty content area in aircraft airframe, propulsion, and aircraft production and operations. It prepares students for employment in areas such as aircraft design and manufacturing, aerodynamics, propulsion, and wind tunnel testing. However, aeronautical concentration graduates have a good general background in mechanical engineering technology and are not limited to employment opportunities in just the aviation industry.

The automation engineering technology concentration provides specialty content in mechanical automation. Automated assembly and testing are major components of most modern, high volume mechanical systems and manufacturing operations. As a specialty area, this concentration provides students with an opportunity to develop knowledge and skill in the broad area of automation. It also dovetails well with the semiconductor industry where most process tools are highly automated.

The following courses constitute the Mechanical Engineering Technology major and are required of all Mechanical Engineering Technology students.

Mechanical Engineering Technology Major

AET 210 Measurements and Testing	3
AET 312 Applied Engineering Mechanics: Dynamics	3
MET 150 Introduction to Engineering Technology	1
MET 230 Introduction to Engineering Materials	2
MET 231 Manufacturing Processes	3
MET 300 Applied Material Science	3
MET 309 Nondestructive Testing and Quality Assurance	1
MET 313 Applied Mechanics of Materials	3
MET 314 Applied Mechanics of Materials Laboratory	1
MET 331 Machine Design I	3
MET 345 Advanced Manufacturing Processes	3
MET 396 Manufacturing Professional Orientation	1
MET 401 Quality Assurance	3
MET 409 Applied Engineering Economics	3
MET 432 Thermodynamics	3
MET 434 Applied Fluid Mechanics	3
MET 460 Manufacturing Capstone Project I	3
MET 461 Manufacturing Capstone Project II	3
Concentration	18
Total	63

APPLIED SCIENCE—B.A.S.

The Bachelor of Applied Science (B.A.S.) degree is a "capstone" degree for the Associate of Applied Science degree. The B.A.S. degree exposes students to advanced concepts and diverse critical thinking skills that prepare them for additional career opportunities and professional advancement.

Admission

Admission to the B.A.S. degree program is restricted to students holding an A.A.S. degree from a regionally accredited U.S. postsecondary educational institution. A GPA of

2.00 or higher is required for resident applicants and a 2.50 for nonresident applicants.

Degree Requirements

The B.A.S. degree in the College of Technology and Applied Sciences consists of 60 semester hours of upper-division (300 level and above) courses, with 30 hours in residence. A total of 120 semester hours is required for graduation.

A.A.S. degree	60
Assignable credit	6
B.A.S. core	15
General Studies	19
Technical concentration	20
Total	120

General Studies Curriculum

The B.A.S. curriculum builds on the general education content of the A.A.S. degree. Additional General Studies (L, CS and awareness areas) are met with courses in the core or concentration. General Studies courses focus on contextual learning.

L	3
MA	3
HU	3
HU or SB	3
SB	3
SG	4
Total	19

Assignable Credit

Assignable credit allows space in the curriculum for prerequisite courses needed to succeed in the program or additional technical electives. The courses are determined by the student and the advisor.

B.A.S. Core

The area core focuses on management and organization, professional communication, quantitative analysis, and computer competency.

IMC 470 Project Management	3
ITM 344 Industrial Organization	3
MET 401 Quality Assurance	3
MET 416 Applied Computer-Integrated Manufacturing *CS*	3
TWC 400 Technical Communications *L*	3
Total	15

Technical Concentration

Manufacturing Technology and Management. This concentration prepares supervisors and other personnel for technical and management positions in the manufacturing industry. The students increase their knowledge of manufacturing and gain insight into other areas, such as management, that support their professional growth.

MET 300 Applied Material Science	3
MET 302 Welding Survey	3
MET 309 Nondestructive Testing and Quality Assurance	1
MET 341 Manufacturing Analysis	3
MET 344 Casting and Forming Processes	3
MET 345 Advanced Manufacturing Processes	3
MET 396 Manufacturing Professional Orientation	1
MET 444 Production Tooling	3
Total	20

Materials Joining and Manufacturing Technology. This concentration requires students to have a solid welding background, preferably a welding-based A.A.S. degree, with welding certification desirable. The materials joining concentration includes additional study in welding and materials joining plus a series of manufacturing-related courses to provide a broad understanding of the complex world of manufacturing. This background allows transition into positions in process development, direct manufacturing support, quality control and assurance, sales, and management.

MET 300 Applied Material Science	3
MET 309 Nondestructive Testing and Quality Assurance	1
MET 396 Manufacturing Professional Orientation	1
MET 400 Materials and Joining Processes	3
MET 402 Advanced Material Joining	3
MET 409 Applied Engineering Economics	3
MET 437 Design for Materials Joining	3
MET 451 Introduction to Automation	3
Total	20

AERONAUTICAL ENGINEERING TECHNOLOGY (AET)

AET 191 First-Year Seminar. (1–3)
selected semesters

AET 194 Special Topics. (1–4)
selected semesters

AET 210 Measurements and Testing. (3)
fall
Measurement systems, components, system response, and the characteristics of experimental data. Integrated lecture/lab. Prerequisites: MET 230; PHY 112, 114.

AET 215 Mechanics of Aerospace Systems. (3)
spring
Basic physics of flight. Principles and design of aircraft systems and powerplants.

AET 294 Special Topics. (1–4)
selected semesters

AET 300 Aircraft Design I. (3)
fall
Applied aerodynamics, standard atmosphere, speed measurement, infinite and finite wings, airplane performance. Fee. Prerequisites: MAT 260; PHY 112, 114.

AET 310 Instrumentation. (3)
fall
Measurement systems, components, system response, and the characteristics of experimental data. Methods of collecting and analyzing data. Lecture, lab. Prerequisite: MAT 261. Pre- or corequisite: MET 313.

AET 312 Applied Engineering Mechanics: Dynamics. (3)
fall
Masses; motion kinematics; dynamics of machinery. Prerequisites: ETC 211; MAT 261.

AET 394 Special Topics. (1–4)
selected semesters

AET 396 Aerospace Professional Orientation. (1)
fall
Career focus for Aeronautical Engineering Technology students. Familiarization with the aerospace industry. Prerequisite: junior standing.

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

AET 415 Gas Dynamics and Propulsion. (3)
spring
Introduces compressible flow, internal and external flow, and aerothermodynamic analysis of propulsion systems. Prerequisite: MET 434.

AET 417 Aerospace Structures. (3)
fall
Analysis and design of aircraft and aerospace structures. Shear flow. Semimonocoque structures. Effects of dynamic loading. Prerequisites: AET 300, 312; MET 313.

AET 420 Applied Aerodynamics and Wind Tunnel Testing. (3)
fall
Introduces viscous and inviscid flow and their relationship to aircraft lift and drag. Wind tunnel design and testing. Integrated lecture/lab. Prerequisites: AET 300; MET 434.

AET 432 Applied Heat Transfer. (3)
fall
Heat transfer by conduction, convection, and radiation. Applies heat transfer to engineering design problems. Prerequisite: ETC 340. Pre- or corequisite: MET 434 or instructor approval.

AET 484 Internship. (1–12)
selected semesters

AET 487 Aircraft Design II. (3)
spring
Basic aerodynamics and airplane performance analysis methods applied to practical design project. Prerequisite: AET 300.

AET 492 Honors Directed Study. (1–6)
selected semesters

AET 493 Honors Thesis. (1–6)
selected semesters

AET 494 Special Topics. (1–4)
selected semesters

AET 498 Pro-Seminar. (1–7)
selected semesters

AET 499 Individualized Instruction. (1–3)
selected semesters

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

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

MECHANICAL AND MANUFACTURING ENGINEERING TECHNOLOGY (MET)

MET 150 Introduction to Engineering Technology. (1)
fall
Introduces mechanical, manufacturing, and aeronautical engineering technology. Covers aspects of the industries utilizing these majors.

MET 160 CADD and Solid Modeling. (1)
selected semesters
Uses 3-D solid modeling software to model mechanical parts and produce valid engineering drawings, including use of GD and T. Lab.

MET 191 First-Year Seminar. (1–3)
selected semesters

MET 194 Special Topics. (1–4)
selected semesters

MET 230 Introduction to Engineering Materials. (2)
spring
Introduction to materials and their properties, emphasizing basic concepts and structures and how these properties relate to manufacturing and design.

MET 231 Manufacturing Processes. (3)
fall
Design documentation and material processes on plastics, ferrous and nonferrous materials, emphasizing orthographic projection, geometric dimensioning and tolerances. Lecture, lab. Prerequisite: MAT 117 or 170.

MET 294 Special Topics. (1–4)
selected semesters

MET 300 Applied Material Science. (3)
fall
Principles of materials science emphasizing concepts relevant to design, manufacturing, and use. Covers metals, polymers, ceramics, and composites. 2 hours lecture, 1 hour lab. Prerequisite: MET 230 or instructor approval.

MET 302 Welding Survey. (3)
fall
Theory and application of industrial welding processes; introductory welding metallurgy and weldment design; SMAW, GTAW, GMAW, oxyacetylene, and brazing experiences. Lecture, lab. Prerequisite: junior or senior standing.

MET 309 Nondestructive Testing and Quality Assurance. (1)
fall
Part and material inspection using metrology and nondestructive inspection tools and techniques. Theory and application with use of pertinent standards. Lab. Prerequisite: MET 231.

MET 313 Applied Mechanics of Materials. (3)
spring
Stress, strain, stress-strain relations. Axial, shear, bending, torsional and combined loads and deflections. Prerequisite: ETC 211.

MET 314 Applied Mechanics of Materials Laboratory. (1)
spring
Measurements of loads and deformations relating stress and strain in axial, shear, bending, torsional, and combined loading configurations. 3 hours lab. Pre- or corequisite: MET 313.

MET 331 Machine Design I. (3)
fall
Applies mechanics to design of machine elements and structures. Stress analysis, failure modes, tolerances, cylindrical fits, and shaft design. Prerequisite: MET 313.

MET 341 Manufacturing Analysis. (3)
spring
Organizational and functional requirements for effective production. Analysis of industrial specifications, GDT, costs, and group technology. Writing assembly production plans. Prerequisite: MET 231.

MET 344 Casting and Forming Processes. (3)
spring
Analyzes various forming processes to determine load requirements necessary for a particular metal-forming operation. Information used to select equipment and design tooling. Metal casting processes and design of castings. Introduces powder metallurgy. Prerequisite: MET 300.

MET 345 Advanced Manufacturing Processes. (3)
spring
Material removal processes emphasizing advanced turning, milling, and machinability studies using cutting tools. CNC programming for machining and turning centers. Lecture, lab. Prerequisite: MET 231.

MET 394 Special Topics. (1–4)
selected semesters

MET 396 Manufacturing Professional Orientation. (1)
fall
Career focus for Manufacturing Engineering Technology students. Familiarization with the manufacturing industry. Prerequisite: junior standing.

MET 400 Materials and Joining Processes. (3)
fall
Effects of joining processes on metals and composites. Thermal cycle effects on solid-state and liquid-solid material transformations. Prerequisite: MET 300.

MET 401 Quality Assurance. (3)
spring
Introduces statistical quality control methods design of experiments, sampling, gauge requirements, specifications, quality assurance tools emphasizing CNC-CMM programming. Lecture, lab. Prerequisite: junior standing.

MET 402 Advanced Material Joining. (3)
spring
In-depth analysis of common materials-joining processes and their process parameters. Includes automation, soldering, and adhesive bonding. Lecture, lab. Prerequisite: MET 302 (or its equivalent).

MET 409 Applied Engineering Economics. (3)
spring
Fundamentals of engineering economics in a practical, industry-based approach. Includes effects of depreciation, taxes, inflation, and replacement analysis. Lecture, computer lab experiences.

MET 415 Manufacturing Simulation. (3)
spring
Computer simulation of manufacturing operations. Discrete event simulation models range from individual processes to whole factories. Lecture, computer lab experiences. Prerequisite: MET 345.

MET 416 Applied Computer-Integrated Manufacturing. (3)
fall
Techniques and practices of computer-integrated manufacturing, with emphasis on computer-aided design and computer-aided manufacturing. Prerequisite: MET 345.
General Studies: CS

MET 418 Composites Materials Manufacturing. (3)
spring
Introduces composite materials and associated manufacturing issues, including tooling, processes, and quality control. Related issues, including testing and joining. Lecture, lab. Credit is allowed for only MET 418 or 518. Prerequisite: MET 300 or instructor approval.

MET 432 Thermodynamics. (3)
spring
Thermodynamics of mixtures. Combustion process. Applies thermodynamics to power and refrigeration cycles. Prerequisite: ETC 340.

MET 433 Thermal Power Systems. (4)
selected semesters
Analyzes gas power, vapor power, and refrigeration cycles. Components of air conditioning systems. Direct energy conversion. Psychrometry. Analyzes internal combustion engines and fluid machines. Lecture, lab. Prerequisite: MET 432 or instructor approval.

MET 434 Applied Fluid Mechanics. (3)
spring
Fluid statics. Basic fluid flow equations. Viscous flow in pipes and channels. Compressible flow. Applies fluid measurement and flow in conduits. Prerequisite: ETC 340.

MET 435 Alternate Energy Sources. (3)
selected semesters
Alternate energy systems, energy use and its impact on the environment, and demonstrating practical alternative energy sources to fossil fuels. Prerequisite: instructor approval.

MET 436 Turbomachinery Design. (3)
selected semesters
Applies thermodynamics and fluid mechanics to the analysis of machinery design and power cycle performance predictions. Prerequisites: ETC 340; MET 434.

MET 437 Design for Materials Joining. (3)
spring
Uses design principles to analyze structures and determine appropriate weld/braze/solder or adhesive joint size. Uses welding codes. Lecture. Prerequisites: ASC 315, 325.

MET 438 Machine Design II. (3)
spring
Applies mechanics to the design of machine elements and structures. Emphasizes basics of gears, springs, brakes, clutches, and bearings. Prerequisite: AET 312; MET 331.

MET 442 Specialized Production Processes. (3)
fall
Nontraditional manufacturing processes, emphasizing EDM, ECM, ECG, CM, PM, HERF, EBW, and LBW. Prerequisite: MET 231.

MET 443 CNC Computer Programming. (3)
fall
Theory and application of N/C languages using CAM software and CNC machine tools. Lecture, lab. Prerequisite: MET 345 or instructor approval.

MET 444 Production Tooling. (3)
spring
Design and fabrication of jigs, fixtures, and special industrial tooling related to manufacturing methods. Lecture, lab. Prerequisite: MET 345.

MET 451 Introduction to Automation. (3)
spring
Introduces automation. Topics include assembly techniques, fixed and flexible automation systems, robots, material-handling systems, sensors, and controls. Lecture, lab. Prerequisite: MET 345.

MET 452 Implementation of Robots in Manufacturing. (3)
selected semesters
Robotic workcell design, including end effectors, parts presenters, and optimum material flow. Prerequisite: MET 451 or instructor approval.

MET 455 Automation Systems Integration. (3)
fall
Applies sensors and devices and their integration with PLCs and computers into automated devices and systems. Lecture, lab. Prerequisites: EET 403; MET 451.

MET 460 Manufacturing Capstone Project I. (3)
fall
Group project designing, evaluating, and analyzing components, assemblies, and systems. Develop products/manufacturing techniques demonstrating state-of-the-art technology. Lecture, lab. Prerequisites: MET 331, 341; senior standing.

MET 461 Manufacturing Capstone Project II. (3)
spring
Small-group projects applying manufacturing techniques, with emphasis on demonstrating state-of-the-art technology. Lecture, lab. Prerequisite: MET 460 or instructor approval.

MET 484 Internship. (1–12)
selected semesters

MET 492 Honors Directed Study. (1–6)
selected semesters

MET 493 Honors Thesis. (1–6)
selected semesters

MET 494 Special Topics. (1–4)
fall and spring
Topics may include the following:
- Composite Materials Manufacturing. (3)
- Consumer Manufacturing. (1–3)
- Manufacturing Resource Management. (3)
- Packaging Design. (1–3)

MET 498 Pro-Seminar. (1–7)
selected semesters

MET 499 Individualized Instruction. (1–3)
selected semesters

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

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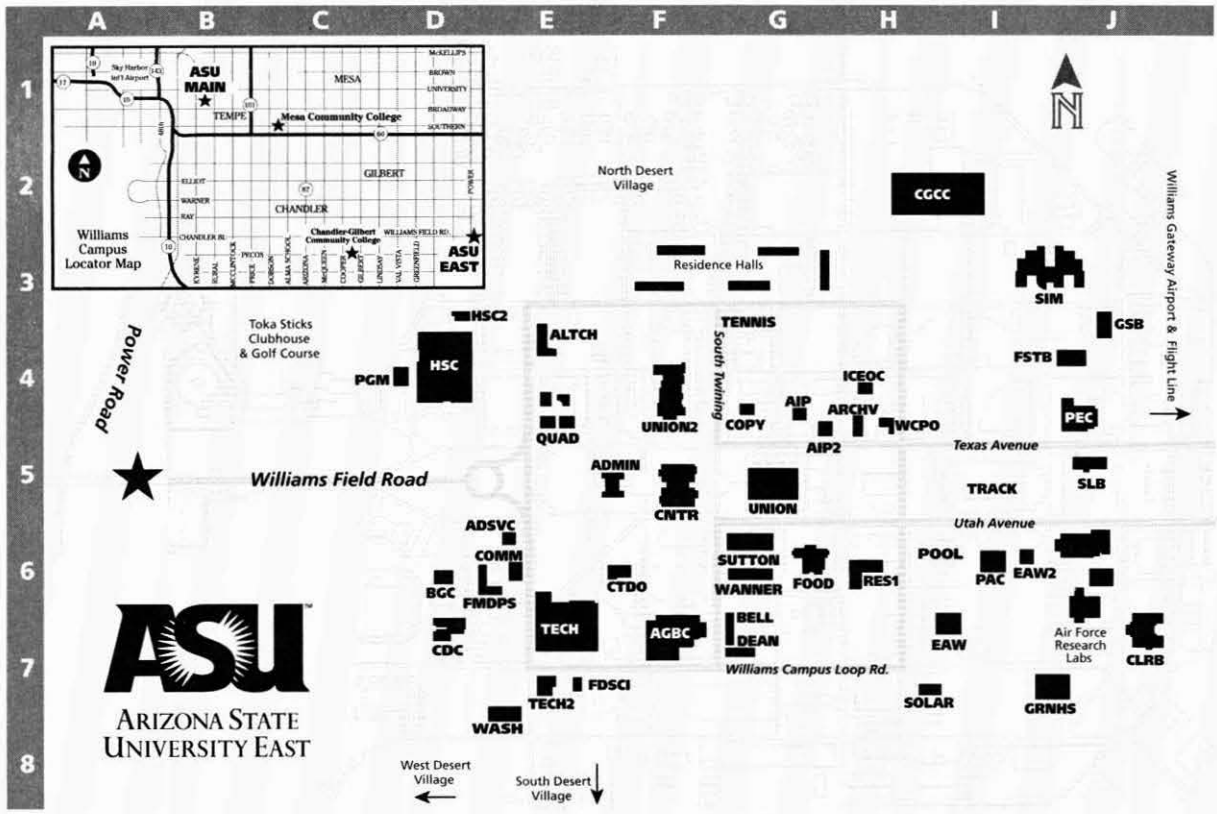
L literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United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



ADMIN	Administration Building (F5)
ADSVC	Administrative Services (E5)
AGBC	Agribusiness Center (F7)
AIP	American Indian Programs (G4)
AIP2	American Indian Programs Annex (G4)
ALTCH	Altitude Chamber (E3)
ARCHV	Library Archives (H4)
BELL	Bell Hall (F7)
BGC	Boys and Girls Club (D6)
CDC	Child Development Center (D7)
CGCC	Chandler-Gilbert Community College (H2)
CLRB	Classroom Building (J7)
CNTR	Academic Center Building (F5)
COMM	Telecommunications (D6)
COPY	Williams Express Copy Services (G4)
CTDO	College of Technology Dean's Office (E6)
DEAN	Dean Hall (F7)
EAW	Exercise and Wellness Center (I7)
EAW2	Exercise Instructional Lab Building (I6)
FDSCI	Agribusiness Food Science Lab (E7)
FMDPS	Facilities Management/DPS (D6)
FOOD	Williams Campus Dining Hall (G6)
FSTB	Fire Science Technology Building (I4)
GRNHS	Greenhouses (I7)
GSB	General Studies Building (J4)
HSC	Health Sciences Center (D4)
HSC2	Health Sciences Center Research (D4)
ICEOC	Incident Command/ Emergency Operations Center (H4)
PAC	Physical Activity Center (I6)
PEC	Physical Education Center (J5)
PGM	Professional Golf Management (D4)
POOL	Swimming Pool (H6)
QUAD	Student Affairs (1,2,4), CERTT Lab (3) (E4)
RES1	Freshman Experience Dorm (H6)
SIM	Flight Simulator Building (I3)
SLB	Science Lab Building (J5)
SOLAR	Photovoltaic Testing Laboratory (H7)
SUTTON	Sutton Hall (G6)
TECH	Technology Center (E7)
TECH2	Technology Center Annex (E7)
TENNIS	Tennis Courts (G4)
UNION	Williams Campus Union (G5)
UNION2	Student Union Annex (F4)
WANNER	Wanner Hall (G6)
WASH	Launderette (D7)
WCPO	Williams Campus Post Office (H4)

ASU East Directory

For the "ASU Main Directory," see page 518. For the "ASU West Directory," see page 680. For the "ASU Extended Campus Directory," see page 701.

Organization	Location	Telephone	Web Address
Agribusiness and Resource Management, Morrison School of	WANNER	480/727-1585	www.east.asu.edu/msabr
Professional Golf Management	PGM	480/727-1017	www.east.asu.edu/msabr/pgm
American Indian Programs	AIP	480/727-1161 480/727-1075	www.east.asu.edu/aip
Bookstore	CNTR 102	480/727-1168	www.asu.edu/east/admin/business.htm
Campus Copy Center, Williams	COPY	480/727-1600	www.asu.edu/east/admin/business.htm
Cashiering Services	QUAD 2	480/727-1081	www.asu.edu/east/admin/business.htm
Computing Commons, ASU East	CNTR 150	480/727-1118	www.east.asu.edu/infotech/labs
East College	SUTTON	480/727-1515	www.east.asu.edu/ecollege
Advising		480/727-1333	—
Applied Biological Sciences, Department of	WANNER	480/727-1444	www.east.asu.edu/ecollege/appliedbiologicalsciences
Applied Psychology, Faculty of	SUTTON	480/727-1515	www.east.asu.edu/ecollege/appliedpsych
Business Administration, Faculty of	SUTTON	480/727-1515	www.east.asu.edu/ecollege/businessadmin
Education, Faculty of	SUTTON	480/727-1103	www.east.asu.edu/ecollege/education
Exercise and Wellness, Department of	EAW	480/727-1945	www.east.asu.edu/ecollege/wellness
Human Health Studies, Faculty of	CLRB 102	480/727-1065	www.east.asu.edu/ecollege/humanhealth
Multimedia Writing and Technical Communication, Faculty of	SUTTON	480/727-1515	www.east.asu.edu/ecollege/multimedia
Nutrition, Department of	HSC 1386	480/727-1728	www.east.asu.edu/ecollege/nutrition
Fitness Center, Williams Campus	WCFC Bldg	480/988-8400	www.asu.edu/east/cls/recreation.htm
General Information	QUAD 2	480/727-3278	www.east.asu.edu
Housing, Williams Campus	BELL	480/727-1700	www.asu.edu/east/cls/housing
Learning Center	CNTR 160	480/727-1452	www.east.asu.edu/learningcenter
Library Services	CNTR 30	480/727-1037	eastlib.east.asu.edu
Parking	QUAD 2	480/727-1081	www.east.asu.edu/admin/pts
Provost, Office of the	ADMIN	480/727-1028	—
Student Health Services	HSC	602/222-6568	www.asu.edu/east/student/stuheal.html
Student Services*	QUAD 2	480/727-3278	www.east.asu.edu/sta/contact1.html
Student Union	UNION	480/727-1098	www.asu.edu/east/cls/union.htm
Technology and Applied Sciences, College of	CTDO	480/727-1874	www.east.asu.edu/ctas
Aeronautical Management Technology, Department of	SIM 201	480/727-1381	eastair.east.asu.edu
Electronics and Computer Engineering Technology, Department of	SUTTON 140	480/727-1976	www.east.asu.edu/ctas/ecet
Information and Management Technology, Department of	TECH 102	480/727-1781	www.east.asu.edu/ctas/imt
Mechanical and Manufacturing Engineering Technology, Department of	SIM 295	480/727-1189	www.east.asu.edu/ctas/mmet

* Student Services includes ASU Sun Cards, Office of the Registrar, Student Business Services, Student Financial Assistance, and Undergraduate Admissions.

ASU East Faculty and Academic Professionals

A

Adams, Troy B. (2002), Assistant Professor of Exercise and Wellness; B.S., M.S., Brigham Young University; Ph.D., University of Texas, Austin

Autore, Donald D. (1959), Professor Emeritus of Technology; B.S.E., University of Michigan; M.S.E., Arizona State University

B

Backus, Charles E. (1968), Professor of Electrical Engineering; Provost, ASU East; Vice President, ASU; B.S.M.E., Ohio University; M.S., Ph.D., University of Arizona

Barchilon, Marian G. (1989), Associate Professor of Technical Communication; B.A., State University of New York, Binghamton; M.S., Northeastern University

Barrett, Thomas W. (1950), Professor Emeritus of Agribusiness and Resource Management; B.S., Brigham Young University; M.S., Ph.D., Cornell University

Baxter, Harry R. (1982), Professor Emeritus of Electronics Engineering Technology; B.A., New York University; M.B.A., Fairleigh Dickinson University; M.Tech., Arizona State University

Bergeron, Bette S. (2000), Professor of Education; Head, Faculty of Education; B.S.Ed., University of Maine, Orono; M.S.Ed., Ph.D., Purdue University

Biekert, Russell G. (2001), Associate Professor of Mechanical and Manufacturing Engineering Technology; B.S., M.S., Southern Illinois University; Ed.D., Arizona State University

Brady, Ward W. (1973), Professor of Applied Biological Sciences; Chair, Department of Applied Biological Sciences; B.S., M.S., Ph.D., Colorado State University

Brock, John H. (1977), Professor of Applied Biological Sciences; Coordinator, Sustainable Technologies, Agribusiness, and Resources Center; B.S., M.S., Fort Hayes State University; Ph.D., Texas A&M University

Brown, Walter C. (1966), Professor Emeritus of Technology; B.S., Northwest Missouri State University; M.Ed., Ed.D., University of Missouri, Columbia

Brownson, Charles W. (1980), Librarian, ASU East Library Services; Director, ASU East Library Services; B.A., South Dakota State University; M.F.A., University of Oregon; M.L.S., University of California, Berkeley

Burdette, Walter E. (1956), Professor Emeritus of Technology; B.S., M.S., Kansas State College of Pittsburg; Ed.D., University of Missouri, Columbia

Burk, Karl W. (1949), Professor Emeritus of Technology; B.A., M.A., Arizona State University; Ed.D., Bradley University

Burkett, Lee N. (1974), Professor of Exercise and Wellness; B.A., M.A., San Diego State University; Ph.D., Washington State University

Busch, Jay S. (2001), Lecturer of General Studies; B.A., Michigan State University; M.A., Arizona State University

C

Carlsen, Paul A. (1978), Professor Emeritus of Technology; B.A.E., M.N.S., Ed.D., Arizona State University

Cavalliere, William A. (1946), Professor Emeritus of Technology; B.A., M.A., Arizona State University

Chalquest, Richard R. (1971), Professor Emeritus of Agribusiness and Resource Management; B.S., D.V.M., Washington State University; M.S., Ph.D., Cornell University

Collins, Donald W. (1989), Professor Emeritus of Mechanical and Manufacturing Engineering Technology; B.Arch., Virginia Polytechnic Institute and State University; M.S., Ph.D., University of Illinois, Chicago

Cooke, Nancy J. (2003), Professor of Applied Psychology; B.A., George Mason University; M.A., Ph.D., New Mexico State University

Corbin, Charles B. (1982), Professor Emeritus of Exercise and Wellness; B.S., University of New Mexico; M.S., University of Illinois; Ph.D., University of New Mexico

Cox, Frank E. (1972), Professor Emeritus of Technology; B.S.M.E., Purdue University; M.S.E., Arizona State University

D

D'Angelo, Barbara J. (2001), Assistant Librarian, ASU East Library Services; B.A., Emmanuel College; M.S., University of Illinois, Urbana-Champaign

Daneke, Gregory A. (1982), Professor of Agribusiness and Resource Management; B.A., M.A., Brigham Young University; Ph.D., University of California, Santa Barbara

Danielson, Scott G. (1999), Associate Professor of Mechanical and Manufacturing Engineering Technology; Chair, Department of Mechanical and Manufacturing Engineering Technology; B.S., M.S., University of Wyoming; Ph.D., North Dakota State University

Dixon, Kathleen S. (2000), Lecturer of Nutrition; B.S., University of Arizona; M.Ed., Northern Arizona University

Dolin, Penny Ann (1998), Lecturer of Information and Management Technology; B.A., Bard College; M.S., Arizona State University

Duff, Jon M. (1997), Professor of Information and Management Technology; B.S., M.S., Purdue University; Ph.D., Ohio State University

E

Eaves, James E. (2003), Assistant Professor of Agribusiness and Resource Management; B.A., University of Connecticut, Storrs; Ph.D., University of California, Davis

Edwards, Mark R. (1978), Professor of Agribusiness and Resource Management; B.S.M.E., United States Naval Academy; M.B.A., D.B.A., Arizona State University

Edwards, Marvin J. (1959), Professor Emeritus of Technology; B.S., M.A., Arizona State University

F

Foley, Dawn (2003), Lecturer of Education; B.A., M.A., Arizona State University

Fordemwalt, James N. (1987), Professor Emeritus of Electronics and Computer Engineering Technology; B.S., M.S., University of Arizona; Ph.D., Iowa State University of Science and Technology

G

Gannod, Barbara D. (1998), Assistant Professor of Electronics and Computer Engineering Technology; B.Sc., Calvin College; M.Sc., Ph.D., Michigan State University

Gesell, Laurence E. (1984), Professor of Aeronautical Management Technology; B.A., Upper Iowa University; M.P.A., University of San Francisco; Ph.D., Arizona State University

Gomez, Conrado L. (2003), Lecturer of Education; B.A., M.Ed., University of Arizona; Ed.D., Northern Arizona University

Gordon, Richard S. (1980), Professor Emeritus of Agribusiness and Resource Management; A.B., University of Rochester; M.A., Harvard University; Ph.D., Massachusetts Institute of Technology

Gray, Robert D. (2001), Assistant Professor of Applied Psychology; B.A., Queen's University (Canada); M.A., Ph.D., York University (Canada)

Green, Douglas M. (1990), Associate Professor of Applied Biological Sciences; B.A., Humbolt State University; B.S., Oregon State University; M.S., North Dakota State University; Ph.D., Oregon State University

Grossman, Gary M. (1994), Associate Professor of Information and Management Technology; Project Director, International Projects Unit; B.A., University of the Pacific; M.S., Ph.D., Purdue University

H

Hall, Richard E. III (2002), Lecturer of Nutrition; B.S., Northern Arizona University; M.S., Arizona State University

Hampl, Jeffrey (1998), Associate Professor of Nutrition; B.S., Liberty University; M.S., University of Massachusetts, Lowell; Ph.D., University of Nebraska

Harris, La Verne Abe (1999), Lecturer of Information and Management Technology; B.A., M.Tech., Arizona State University

Hefner, Stephen P. (1973), Instructional Professional of Agribusiness and Resource Management, Morrison School of Agribusiness and Resource Management; B.S., Illinois State University; M.S., Arizona State University

Hild, Nicholas R. (1983), Professor of Information and Management Technology; B.S.M.E., M.S.Enve., University of Iowa; Ph.D., Union Graduate School

Hirata, Ernest T. (1974), Associate Professor of Information and Management Technology; B.A., San Diego State College; Ed.D., Arizona State University

Hopper, Lee Ann (2001), Lecturer of Education; B.S., Texas Tech University; M.A., Arizona State University

Horowitz, Renee B. (1986), Professor Emerita of Information and Management Technology; B.A., Brooklyn College; M.A., Ph.D., University of Colorado

Hughner, Renee D. (2002), Assistant Professor of Agribusiness and Resource Management; B.S., M.B.A., University of Massachusetts, Amherst; Ph.D., Arizona State University

Humble, Jane E. (1989), Associate Professor of Information and Management Technology; B.S.E., M.S.E., Ph.D., Arizona State University

Hutchins, Andrea M. (2001), Assistant Professor of Nutrition; B.S., Kansas State University; M.S., Ph.D., University of Minnesota

Hutt, Roger W. (1975), Associate Professor of Business Administration; Head, Faculty of Business Administration; B.S., M.B.A., Ohio State University; Ph.D., Michigan State University

I

Irvin, Glenn W. (1997), Professor of English; Dean, East College; B.A., M.A., Ph.D., Arizona State University

J

Johnston, Carol S. (1986), Professor of Nutrition; B.S., University of Michigan; M.S., Ph.D., University of Texas, Austin

K

Kagan, Albert (1992), Professor of Agribusiness and Resource Management; B.S., M.S., Ph.D., Iowa State University of Science and Technology

Karp, Merrill R. (1994), Associate Professor of Aeronautical Management Technology; B.S., Arizona State University; M.A., Central Michigan University; Ph.D., Walden University

Keith, Marlow F. (1946), Professor Emeritus of Technology; B.A., M.A., Arizona State University

Kelley, Donald G. (1980), Professor Emeritus of Manufacturing and Aeronautical Engineering Technology; B.S., M.S., Arizona State University

Kigin, Denis J. (1958–65; 1967), Professor Emeritus of Technology; Dean Emeritus, Continuing Education and Summer Sessions; B.S., Mankato State University; M.S., University of Wisconsin, Stout; Ed.D., University of Missouri

Kime, Charles Henry (2000), Assistant Professor of Information and Management Technology; B.S., Arizona State University; M.B.A., University of Phoenix; Ph.D., Arizona State University

Kisielewski, Robert V. (1978), Professor Emeritus of Technology; B.S.M.E., M.S.M.E., University of Wisconsin, Madison

Kleemann, Gary L. (1979), Administrative Professional, Academic Programs; Director, E-Learning; B.A., M.S., San Jose State University; Ph.D., Arizona State University

Koehnemann, Harry E. (2001), Associate Professor, Electronics and Computer Engineering Technology; B.S., Northern Arizona University; M.S., Ph.D., Arizona State University

L

Lawler, Eugene D. (1967), Professor Emeritus of Technology; B.S., Northern State College; M.A., Arizona State University

Lefler, Scott (2003), Lecturer of Applied Biological Sciences; B.S., California Polytechnic State University, San Luis Obispo; Ph.D., Arizona State University

Lestar, Dot J. (1995), Lecturer of Information and Management Technology; B.S., M.Tech., Arizona State University

Lindley, James (2001), Faculty Associate of Preveterinary Medicine; B.S., D.V.M., University of Missouri, Kansas City

Lindquist, Timothy E. (1985), Professor of Electronics and Computer Engineering Technology; Associate Dean and Director, Computing Studies; Chair, Department of Electronics and Computer Engineering Technology; B.S., Purdue University; M.S., Ph.D., Iowa State University

Lytle, Robert G. (1972), Professor Emeritus of Agribusiness and Resource Management; B.S., Western Kentucky University; M.S., Arizona State University

M

Macia, Narciso F. (1990), Associate Professor of Electronics and Computer Engineering Technology; B.S., M.S., University of Texas, Arlington; Ph.D., Arizona State University

Maddy, Kenneth H. (1980), Professor Emeritus of Agribusiness and Resource Management; B.S., Pennsylvania State University; M.S., University of Wisconsin, Madison; Ph.D., Pennsylvania State University

Maid, Barry M. (2000), Professor of Multimedia Writing and Technical Communication; Head, Faculty of Multimedia Writing and Technical Communication; B.A., University of Wisconsin, Madison; M.A., University of Texas, Austin; Ph.D., University of Massachusetts, Amherst

Maisel, James E. (1985), Professor Emeritus of Electronics and Computer Engineering Technology; B.Eng.Sci., B.E.E., Fenn College; M.S.E.E., Ohio State University

Manfredo, Mark R. (1999), Assistant Professor of Agribusiness and Resource Management; B.S., California State University, Fresno; M.S., New Mexico State University; Ph.D., University of Illinois, Urbana

Manore, Melinda M. (1984), Professor Emerita of Nutrition; B.S., Seattle Pacific University; M.S., University of Oregon; Ph.D., Oregon State University

Marcum, Kenneth (2003), Assistant Professor of Applied Biological Sciences; B.S., Ohio State University; M.S., New Mexico State University; Ph.D., University of Hawaii, Manoa

Marquardt, Raymond A. (1997), Professor of Agribusiness and Resource Management; Dean, Morrison School of Agribusiness and Resource Management; B.S., M.S., Colorado State University; Ph.D., Michigan State University

Martin, Chris A. (1990), Associate Professor of Applied Biological Sciences; B.S., California Polytechnic State University and University of Southern California; M.S., Auburn University; Ph.D., University of Florida

Matson, John H. (1978), Associate Professor of Information and Management Technology; B.S., M.S., Illinois State University

Matthews, James B. (1989), Professor Emeritus of Aeronautical Management Technology; B.S., Rose-Hulman Institute of Technology; M.S., Massachusetts Institute of Technology; Ph.D., University of Arizona

McBrien, Edward F. (1986), Professor Emeritus of Electronic/Computer Technology; B.S.E., Fenn College; M.S.E.E., Cleveland State University

McCurry, William K. (1995), Professor of Aeronautical Management Technology; Chair, Department of Aeronautical Management Technology; B.S., Purdue University; M.S., Troy State University; Ph.D., University of Kansas

McHenry, Albert L. (1978), Professor of Electronics and Computer Engineering Technology; Dean, College of Technology and Applied Sciences; B.S., Southern University and A&M College; M.S., Ph.D., Arizona State University

Mermis, William L. (1995), Professor of Human Health Studies; Head, Faculty of Human Health Studies; B.S., M.S., Saint Louis University; Ph.D., Arizona State University

Millard, Bruce R. (1988), Associate Professor of Electronics and Computer Engineering Technology; B.A., M.S., Washington State University; Ph.D., Arizona State University

Miller, Victor J. (1958), Professor Emeritus of Agribusiness and Resource Management; B.S., M.S., Ph.D., University of Illinois

Miller, William H. (1984), Associate Professor of Applied Biological Sciences; B.S., M.S., Ph.D., Washington State University

Minter, Marshall R. Jr. (1965), Professor Emeritus of Technology; B.S.M.E., Purdue University; M.S.M.E., University of Arizona

Monte, Woodrow (1979), Professor Emeritus of Nutrition; B.S., New Mexico Institute of Mining and Technology; M.S., Ph.D., Colorado State University

Moody, E. Grant (1951), Professor Emeritus of Agribusiness and Resource Management; B.S., University of Arizona; M.S., Kansas State University; Ph.D., Purdue University

Morgan, Owen W. (1968), Professor Emeritus of Nutrition; B.A., Grinnell College; M.A., University of Nebraska, Omaha; Ph.D., University of Nebraska, Lincoln

Munukutla, Lakshmi V. (1987), Professor of Electronics and Computer Engineering Technology; Associate Dean, College of Technology and Applied Sciences; B.S., M.S., Andhra University (India); Ph.D., Ohio University

Mushkatel, Alvin H. (1980), Professor of Applied Biological Sciences; B.A., Ohio State University; M.S., Ph.D., University of Oregon

N

Nam, Changho (1998), Associate Professor of Mechanical and Manufacturing Engineering Technology; B.S., M.S., Seoul National University (South Korea); Ph.D., Purdue University

Newman, Richard L. (2001), Assistant Administrative Professional; Director, Training Services, College of Technology and Applied Sciences; B.S., M.S., Arizona State University

Niemczyk, Mary C. (2003), Assistant Professor of Aeronautical Management Technology; B.A., Benedictine College; M.B.A., Embry-Riddle Aeronautical University; Ph.D., Arizona State University

O

O'Brien, Marc H. (1997), Lecturer of Aeronautical Management Technology; B.A., Boston University; M.S., Indiana State University

Odom, Mary Catherine (2003), Senior Lecturer of Preveterinary Medicine; D.V.M., Iowa State University of Science and Technology

Ohmart, Robert D. (1970), Professor of Applied Biological Sciences; B.S., M.S., New Mexico State University; Ph.D., University of Arizona

Olson, Larry W. (1995), Associate Professor of Information and Management Technology; B.S., Baylor University; Ph.D., University of Pennsylvania

P

Palmgren, Dale E. (1984), Associate Professor of Mechanical and Manufacturing Engineering Technology; Assistant Dean, College of Technology and Applied Sciences; B.S., M.S., Ph.D., University of Wisconsin, Madison

Pardini, Louis J. (1967), Professor Emeritus of Technology; B.A., A.M., Idaho State University; Ed.D., University of Northern Colorado

Patterson, Paul M. (1995), Associate Professor of Agribusiness and Resource Management; B.S., Auburn University; M.S., Ph.D., Purdue University

Pearce, Martha V. (1977), Professor Emerita of Technology; B.S., Columbia University; M.S., Boston University; Ed.D., Arizona State University

Pearson, Michael W. (1998), Assistant Professor of Aeronautical Management Technology; B.A., University of Houston; M.B.A., J.D., Arizona State University

Peterson, Danny M. (1999), Associate Professor of Information and Management Technology; B.S., University of Idaho; M.B.A., California State University, Sacramento; M.S., Ph.D., Arizona State University

Peterson, Edward R. (1977), Professor Emeritus of Electronics and Computer Engineering Technology; B.S.E.E., Fairleigh Dickinson University; M.S.E.E., Arizona State University

Phillips, Wayne T. (1997), Associate Professor of Exercise and Wellness; Cert. Ed., Cardiff College of Education, Cardiff (United Kingdom); M.S., Loughborough University of Technology (United Kingdom); Ph.D., Arizona State University

Post, Alvin (2000), Assistant Professor of Mechanical and Manufacturing Engineering Technology; B.S., University of Arizona; M.S., Stanford University; Ph.D., University of Hawaii

Prest, Alison (2002), Lecturer of Education; B.A., Arizona State University; M.S.Ed., Northern Arizona University

Prust, Zenas A. (1959), Professor Emeritus of Technology; B.S., University of Wisconsin, Stout; M.A., University of Minnesota, Twin Cities; Ed.D., University of Northern Colorado

R

Raccach, Moshe (1980), Associate Professor of Agribusiness and Resource Management; B.Sc., M.Sc., The Hebrew University (Israel); Ph.D., Cornell University

Rajadas, John N. (1996), Associate Professor of Mechanical and Manufacturing Engineering Technology; B.Tech., Indian Institute of Technology (India); M.S., Ph.D., Georgia Institute of Technology

Reed, William H. (1968), Professor Emeritus of Aeronautical Management Technology; B.S., University of Oklahoma; M.S., Arizona State University

Richards, Timothy J. (1994), Associate Professor of Agribusiness and Resource Management; Power Chair Distinguished Professor of Agribusiness; B.Comm., University of British Columbia; M.A., Ph.D., Stanford University

Richardson, Grant L. (1953), Professor Emeritus of Agribusiness and Resource Management; B.S., M.S., University of Arizona; Ph.D., Oregon State University

Robinson, Daniel O. (1950), Professor Emeritus of Agribusiness and Resource Management; A.B., Brigham Young University; M.S., University of Arizona; Ph.D., Ohio State University

Roberts, Chell (2003), Associate Professor of Mathematics; Director, Engineering Program Development; B.A., M.S., University of Utah; Ph.D., Virginia Polytechnic Institute and State University

Robertson, John M. (2001), Professor of Electronics and Computer Engineering Technology; B.S., University of St. Andrews (United Kingdom); M.S., University of Dundee (United Kingdom); Ph.D., University of Edinburgh (United Kingdom)

Roe, Keith B. (1979), Professor Emeritus of Technology; B.S., Wisconsin State College; M.A., University of Michigan

Rogers, Bradley B. (1984), Associate Professor of Mechanical and Manufacturing Engineering Technology; B.S., M.S., Montana State University; Ph.D., Arizona State University

Roper, Devon J. (1966), Professor Emeritus of Aeronautical Management Technology; B.S., Utah State University; M.S., Arizona State University

S

Salmirs, Seymour (1981), Professor Emeritus of Technology; B.A.E., M.S.A.E., Georgia Institute of Technology

Schildgen, Thomas E. (1981), Professor of Information and Management Technology; Chair, Department of Information and Management Technology; B.S., M.S., Illinois State University; Ed.D., Northern Arizona University

Schmidt, Peter A. (1978), Professor Emeritus of Manufacturing and Aeronautical Engineering Technology; B.S., Northern Illinois University; M.A., Ed.D., Arizona State University

Schmitz, Troy G. (1998), Assistant Professor of Agribusiness and Resource Management; B.S., University of Saskatchewan (Canada); M.S., Ph.D., University of California, Berkeley

Schoen, Robert A. (1966), Professor Emeritus of Technology; B.S., M.S., Arizona State University

Schvaneveldt, Roger W. (2000), Professor of Applied Psychology; Head, Faculty of Applied Psychology; B.A., University of Utah; M.S., Ph.D., University of Wisconsin, Madison

Schwalm, David E. (1986), Associate Professor of English; Vice Provost, Academic Programs, ASU East; B.A., Carlton College; M.S., Ph.D., University of Chicago

Seperich, George J. (1976), Professor of Agribusiness and Resource Management; Associate Dean, Morrison School of Agribusiness and Resource Management; B.S., Loyola University, Chicago; M.S., Ph.D., Michigan State University

Shepard, Christina W. (1999), Lecturer of Nutrition; B.S., University of Arizona; M.S., Arizona State University

Shultz, Clifford J. (1992), Professor of Agribusiness and Resource Management; Marley Foundation Chair in Consumer Food Marketing; B.A., DePauw University; M.S., Ph.D., Columbia University

Skilton, Paul F. (2003), Assistant Professor of Business Administration; B.A., University of California; M.B.A., Boston College; Ph.D., Arizona State University

Steele, Kelly P. (2002), Associate Professor of Applied Biological Sciences; B.A., Ph.D., University of California

Stever, Gayle S. (2003), Senior Lecturer of Education; B.M., M.A., Ph.D., Arizona State University

Stiles, Philip G. (1969), Professor Emeritus of Agribusiness and Resource Management; B.S., University of Arkansas; M.S., University of Kentucky; Ph.D., Michigan State University

Stone, William J. (1967), Professor of Exercise and Wellness; Chair, Department of Exercise and Wellness; B.S., Boston University; M.S., Florida State University; Ed.D., University of California, Berkeley

Strawn, Roland S. (1967), Professor Emeritus of Technology; B.S.E.E., M.S.E.E., University of Illinois; Ph.D., Arizona State University

Stutz, Jean C. (1981), Professor of Applied Biological Sciences; B.S., Ursinus College; M.S., University of Delaware; Ph.D., Pennsylvania State University

Sundararajan, Rajeswari (1996), Associate Professor of Electronics and Computer Engineering Technology; B.S., University of Madras (India); M.S., Indian Institute of Science (India); Ph.D., Arizona State University

Swan, Pamela (1994), Associate Professor of Exercise and Wellness; B.A., University of California, Santa Barbara; M.S., University of North Carolina, Greensboro; Ph.D., University of Tennessee

T

Taysom, Elvin D. (1953), Professor Emeritus of Agribusiness and Resource Management; B.S., University of Idaho; M.S., Utah State University; Ph.D., Washington State University

Thomason, Leslie L. (1969), Professor Emeritus of Technology; A.B., M.A., Ed.D., University of Oklahoma

Thor, Eric P. (1990), Professor of Agribusiness and Resource Management; B.S., M.S., Ph.D., University of California, Berkeley

Tripp, Wayne E. (2002), Lecturer of Aeronautical Management Technology; B.S., Liberty University; M.E., Lynchburg College

Tudor-Locke, Catrine (2001), Assistant Professor of Exercise and Wellness; B.A., University of Lethbridge (Canada); M.S., Dalhousie University (Canada); Ph.D., University of Waterloo (Canada)

Turney, Mary Ann (1999), Associate Professor of Aeronautical Management Technology; B.A., LeMoyne College; M.A., Hofstra University; Ed.D., Nova Southeastern University

V

Vaughan, Linda A. (1982), Professor of Nutrition; Chair, Department of Nutrition; B.S., University of California, Davis; M.N.S., Cornell University; Ph.D., University of Arizona

W

Watkins, Thomas B. (1972), Professor Emeritus of Technology; B.S., University of Wyoming; M.S., Arizona State University

Watson, Emma J. (1999), Lecturer of Business Administration; B.A., Sonoma State University; M.Ed., Western Washington University

Welty, Ellen L. (1996), Reference/Instruction Librarian, ASU East Library Services; B.A., University of Wyoming; M.L.S., University of Arizona

Wenhart, James C. (1996), Senior Lecturer of Education; B.S., M.Ed., Arizona State University

White-Taylor, Janel D. (2003), Assistant Professor of Education; B.A., Loyola Marymount University; M.Ed., Ph.D., Arizona State University

Whitehouse, Richard O. (1997), Senior Lecturer of Electronics and Computer Engineering Technology; B.S., Worcester State College; M.S., University of Tennessee

Whysong, Gary L. (1974), Associate Professor of Applied Biological Sciences; B.S., M.S., Montana State University; Ph.D., University of Wyoming

Wilson, Daniel (1978), Senior Lecturer of Information and Management Technology; B.S., Drexel University; M.S.E., Ph.D., Arizona State University

Winham, Donna M. (2002), Assistant Professor of Nutrition; B.S., Keene State College; M.A., University of Arizona; Dr.P.H., University of California, Los Angeles

Wood, Billy G. (1977), Professor Emeritus of Electronics and Computer Engineering Technology; A.B., University of California; B.S., Eastern Illinois University; M.S., University of Arizona

Woodruff, Larry (1998), Lecturer of Exercise and Wellness; B.S., University of Oregon; M.S., Western Oregon University

Woolf, Kathleen (2002), Assistant Professor of Nutrition; B.S., Arizona State University; M.S., University of California, Los Angeles; Ph.D., Arizona State University

Z

Zeng, Guoliang (1991), Associate Professor of Electronics and Computer Engineering Technology; B.S., Chengdu Telecommunication Institute (China); M.S., University of California, San Diego; M.N.S., Ph.D., Arizona State University

ASU East Administrative Personnel

Academic Administration

Provost, ASU East; Vice President, ASU ..... Charles E. Backus
Vice Provost, Academic Programs ..... David E. Schwalm
Dean, Student Affairs ..... Gary L. McGrath
Director, Academic Services ..... C. Vinette Williams
Vice Provost, Administrative Services ..... Terry C. Isaacson
Director, American Indian Programs ..... Phillip J. Huebner
Director, Information Technology ..... Kati L. Weingartner
Director, Public Affairs ..... C. Vinette Williams
Director, Library Services ..... Charles W. Brownson
Vice Provost, Planning and Budget ..... Sheila L. Ainlay
Director, Research and Sponsored Projects ..... Jean N. Humphries

College of Technology and Applied Sciences

Dean, College of Technology and Applied Sciences ..... Albert L. McHenry
Associate Dean, College of Technology and Applied Sciences ..... Lakshmi V. Munukutla
Associate Dean and Director, Computing Studies ..... Timothy E. Lindquist
Assistant Dean, College of Technology and Applied Sciences ..... Dale E. Palmgren
Chair, Department of Aeronautical Management Technology ..... William K. McCurry
Chair, Department of Electronics and Computer Engineering Technology ..... Timothy E. Lindquist
Chair, Department of Information and Management Technology ..... Thomas E. Schildgen
Chair, Department of Mechanical and Manufacturing Engineering Technology ..... Scott G. Danielson
Project Director, International Projects Unit ..... Gary M. Grossman
Director, Engineering Program Development ..... Chell Roberts

East College

Dean, East College ..... Glenn W. Irvin
Chair, Department of Exercise and Wellness ..... William J. Stone
Chair, Department of Nutrition ..... Linda A. Vaughan
Chair, Department of Applied Biological Sciences ..... Ward W. Brady
Head, Faculty of Applied Psychology ..... Roger W. Schvaneveldt
Head, Faculty of Business Administration ..... Roger W. Hutt
Head, Faculty of Education ..... Bette S. Bergeron
Head, Faculty of Human Health Studies ..... William L. Mermis
Head, Faculty of Multimedia Writing and Technical Communication ..... Barry M. Maid

Morrison School of Agribusiness and Resource Management

Dean, Morrison School of Agribusiness and Resource Management ..... Raymond A. Marquardt
Associate Dean, Morrison School of Agribusiness and Resource Management ..... George J. Seperich

ASU West

www.west.asu.edu **Elaine P. Maimon, Ph.D., Provost, ASU West; Vice President, ASU**

ASU West, a community-focused metropolitan campus of Arizona State University located in Phoenix, serves the community and more than 7,100 residential and commuter students of diverse ages, ethnicity, and experience through 29 baccalaureate programs, nine master's programs, and eight certificate programs. ASU West focuses on developing a learning community that addresses the needs of a diverse metropolitan environment. ASU West does this by offering learner-centered academic programs that enhance learning through teaching, service, and enrichment opportunities; promoting discovery and innovation; pursuing new knowledge; introducing insights and creative ideas through instruction; encouraging direct involvement in new fields of inquiry; investigating important community-based issues; and integrating with the community through service.

ASU West's vision is to enhance the intellectual, social, cultural, and economic qualities of a diverse, urban environment through research and creative activity and to provide access to a quality liberal arts education for undergraduates, professional programs grounded in the liberal arts, and an array of graduate programs. To fulfill this vision, the university offers liberal arts and professional programs, engages in discovering and advancing knowledge, and teaches diverse students in a student-centered, interdisciplinary learning environment as the community-focused metropolitan campus of ASU.

ASU West's commitment to integrated learning extends to Las Casas, an apartment-style, living-learning–based housing facility. Las Casas features faculty and academic advisors who live in the residence, faculty mentors, courses taught on site at the community center, and student affinity groups focusing on topics such as global awareness, leadership, and the arts.

Faculty and staff are dedicated to serving the evolving needs of high school graduates, working adults, and returning and continuing students. Expanding campus facilities and programs, along with a diverse student body, faculty, and staff, contribute to a culturally rich academic and social campus environment.

ASU West offers many on-campus services and facilities, including a multimedia resource library, state-of-the-art computer classrooms and labs, housing facilities, tutoring services, bookstore, cafeteria, credit union, fitness center, recreational facilities, child care, and post office, plus many student activities, clubs, and organizations. ASU West facilities are completely accessible for those with disabilities, with academic services provided by a disability resource center. Classes are offered in the day and evening, as well as on weekends, and via television and the Internet.

The architecture and courtyards at ASU West are modeled on those of the University of Oxford in Great Britain, enhanced by a beautifully landscaped natural environment featuring widely acclaimed public art. The campus occupies approximately 300 square acres between 43rd and 51st Avenues on West Thunderbird Road in Phoenix, easily accessed from Interstate 17 and Loop 101.

ACCREDITATION

ASU West is accredited by the Higher Learning Commission and is a member of the North Central Association. For more information, call 312/263-0456, access the Web site at www.ncahigherlearningcommission.org, or write

HIGHER LEARNING COMMISSION
30 N LaSALLE ST
SUITE 2400
CHICAGO IL 60602-2504

Professional programs in various academic areas are also accredited.

The Business and Accountancy degree programs in the School of Management are accredited by AACSB International—The Association to Advance Collegiate Schools of Business. The Accountancy program is also an Endorsed Internal Auditing Program by the Institute of Internal Auditors.

In the College of Human Services, the Department of Recreation and Tourism Management is accredited by the National Recreation and Park Association/American Association for Leisure and Recreation Council on Accreditation, and the Bachelor in Social Work and Master of Social Work programs are accredited by the Council on Social Work Education (CSWE). See the "Academic Accreditation at ASU West" table, page 704.

ACADEMIC ORGANIZATION AND ADMINISTRATION

The provost provides executive leadership for the continuing development and management of the campus and

ASU West Baccalaureate Degrees and Majors

Major	Degree	Concentration*	Administered By
Accountancy	B.S.	—	Department of Accounting and Information Systems Management
American Studies	B.A.	—	Department of American Studies
Applied Science	B.A.S.	Any minor available at ASU West or individualized concentration	College of Arts and Sciences
Communication Studies	B.A., B.S.	—	Department of Communication Studies
Criminal Justice and Criminology	B.S.	—	Department of Criminal Justice and Criminology
Elementary Education	B.A.E.	Optional: bilingual education/English as a second language or early childhood education*	Department of Elementary Education
English	B.A.	—	Department of American Studies
Global Business	B.S.	Financial management, information systems management, international studies, leadership and management, or marketing	School of Management
History	B.A.	—	Department of American Studies
Integrative Studies	B.A.	Any minor available at ASU West or individualized concentration	Department of Integrative Studies
Interdisciplinary Arts and Performance	B.A.	Media, music, performance studies, theater/performance, or visual art	Department of Interdisciplinary Arts and Performance
Life Sciences	B.S.	—	Department of Life Sciences
Nursing	B.S.N.	—	College of Nursing (ASU Main)
Political Science	B.A., B.S.	—	Department of Social and Behavioral Sciences
Psychology	B.A., B.S.	—	Department of Social and Behavioral Sciences
Recreation and Tourism Management	B.S.	—	Department of Recreation and Tourism Management
Secondary Education	B.A.E.	Academic specializations: English, history, mathematics, or social studies	Department of Secondary Education
Social and Behavioral Sciences	B.A., B.S.	—	Department of Social and Behavioral Sciences
Social Work	B.S.W.	—	Department of Social Work
Sociology	B.A., B.S.	—	Department of Social and Behavioral Sciences
Spanish	B.A.	—	Department of American Studies
Special Education	B.A.E.	—	Department of Special Education
Women's Studies	B.A., B.S.	—	Women's Studies Program

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

reports to the executive vice president and provost of ASU. The provost is aided in the administration of the campus by vice provosts, deans, directors, department chairs, faculty, and other officers. There are four schools and colleges at ASU West administered by deans. These academic units develop and implement the teaching, research, and service programs of the institution, aided by the ASU West Library and other services.

The faculty and students of the institution play an important role in campus governance, with the Academic Senate, Associated Students of ASU West, and numerous cross-campus and joint ASU West–ASU Main–ASU East committees serving the needs of a rapidly growing institution.

See "ASU West Faculty and Academic Professionals," page 682, and "ASU West Administrative Personnel," page 688.

ASU West Graduate Degrees and Majors

Major	Degree	Concentration*	Administered By
Business Administration	M.B.A.	—	School of Management
Communication Studies	M.A.	—	Department of Communication Studies
Criminal Justice	M.A.	—	Department of Criminal Justice and Criminology
Educational Administration and Supervision	M.Ed.	—	Department of Graduate Studies and Professional Development
Elementary Education	M.Ed.	Optional: bilingual education, educational technology, ESL education, or reading*	Department of Graduate Studies and Professional Development
Interdisciplinary Studies	M.A.	—	College of Arts and Sciences
Secondary Education	M.Ed.	Optional: educational technology*	Department of Graduate Studies and Professional Development
Social Work	M.S.W.	Advanced generalist practice	Department of Social Work
Special Education	M.Ed.	Infants and young children	Department of Graduate Studies and Professional Development

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

ADMISSION

Nondegree Students

Nondegree students may take courses at ASU West according to the special provisions under "Admission of Undergraduate Nondegree Applicants," page 71.

Degree-Seeking Students

Any student admitted to ASU may take courses at ASU West. To be admitted to an ASU West degree program, the student must meet university admission requirements and the specific admission requirements of the ASU West program. A student who is admitted to an ASU West degree program is defined as an ASU West student. For more information on applying to ASU West degree programs, see the current *ASU West Catalog* or *ASU West Schedule of Classes*. For applications and admission information, call 602/543-8203, or write

ADMISSION SERVICES
UNIVERSITY CENTER BUILDING 120
ARIZONA STATE UNIVERSITY WEST
PO BOX 37100
PHOENIX AZ 85069-7100

Change of Major from ASU Main to ASU West

Currently enrolled ASU Main degree-seeking students who want to relocate to an ASU West degree program should contact Admissions Services at ASU West for the appropriate procedures. Acceptance to an ASU West degree program requires the student to meet the prerequisites for entry to the student's choice of major as stated in the appropriate catalog. Students should be aware that requirements may differ between ASU West and ASU Main for the same major.

Application of Course Credit. The application of transfer course credit to the degree program is determined by the department of the student's major. Because of these constraints, students should seek advice from the appropriate advisor for their major before registering for classes at another university or ASU campus.

ACADEMIC ADVISING

Effective academic advising is an essential aspect of the educational experience at ASU West. Prospective students should contact a general advisor as a first step in the admission process to make an appointment, call 602/543-WCAC, or visit the West Campus Advising Center in UCB 201. A general counselor reviews admission requirements and processes and makes referrals to academic advisors as appropriate. A convenient alternative is to meet with an outreach advisor at an ASU West Transfer Center located on the campuses of local community colleges.

DEGREE PROGRAMS

See the "ASU West Baccalaureate Degrees and Majors" table, page 673, and the "ASU West Graduate Degrees and Majors" table, on this page.

The College of Education offers postbaccalaureate programs for teacher certification in elementary education and secondary education. Students who complete the approved program, including student teaching, are recommended for certification to the Arizona Department of Education.

For more information on ASU West degree requirements, see the *ASU West Catalog* in print or on the Web at westcgi.west.asu.edu/acadaffairs/curriculum/catalog.cfm.

Minors and Certificates

ASU West offers an extensive selection of minors and certificate programs that may be taken in conjunction with a major. Other certificate programs may be taken independently. See the "ASU West Minors" table, page 675, and the "ASU West Certificates" table, page 675.

For information on the university-wide Gerontology Program, see "Gerontology," page 677. For more information,

ASU West Minors

Minor	Administered By
American Studies	Department of American Studies
Communication Studies	Department of Communication Studies
English	Department of American Studies
Ethnic Studies	College of Arts and Sciences
Film and Video Studies	Department of Interdisciplinary Arts and Performance
Gerontology	Gerontology Program
History	Department of American Studies
Interdisciplinary Arts and Performance	Department of Interdisciplinary Arts and Performance
Interdisciplinary Organizational Studies	Department of Social and Behavioral Sciences
Life Sciences	Department of Life Sciences
Mathematics	Department of Integrative Studies
Philosophy	Department of Integrative Studies
Political Science	Department of Social and Behavioral Sciences
Prelaw	College of Human Services
Psychology	Department of Social and Behavioral Sciences
Public Relations and Strategic Communications	Department of Communication Studies
Religious Studies	College of Arts and Sciences
Social and Behavioral Sciences	Department of Social and Behavioral Sciences
Sociocultural Anthropology	Department of Social and Behavioral Sciences
Sociology	Department of Social and Behavioral Sciences
Spanish	Department of American Studies
Special Events Management	Department of Recreation and Tourism Management
Tourism Management	Department of Recreation and Tourism Management
Women's Studies	Women's Studies Program

ASU West Certificates

Certificate	Administered By
Accountancy, Postbaccalaureate Certificate in	Department of Accounting and Information Systems Management
Communication and Human Relations, Postbaccalaureate Certificate in	Department of Communication Studies
Ethnic Studies, Certificate in	College of Arts and Sciences
Film and Video Studies, Certificate in	Department of Interdisciplinary Arts and Performance
Gerontology, Certificate in	Gerontology Program
Professional Accountancy, Postbaccalaureate Certificate in	Department of Accounting and Information Systems Management
Women's Studies, Certificate in	Women's Studies Program
Writing, Certificate in	Department of American Studies

refer to the individual department or college descriptions in the *ASU West Catalog*.

ASU Main Programs Hosted at ASU West

Courses for the Bachelor of Science in Nursing (B.S.N.) degree are offered at ASU West. For specific information on requirements, see "College of Nursing," page 453.

Course Information

For information on ASU West course offerings, see the current *ASU West Schedule of Classes*. For ASU West course descriptions and General Studies courses offered at ASU West, see the *ASU West Catalog* or westcgi.west.asu.edu/acadaffairs/curriculum/catalog.cfm.

LIBRARY SERVICES

The ASU West Library provides resources that support the curricula of ASU West with a collection of 325,000 volumes, 1.4 million microforms, 8,780 videos, 15,000 slides, 240 electronic databases, and full or partial access to over 27,000 print and electronic titles. Approximately 95 percent of electronic databases are available to ASU registered users from home computers.

A wide range of information and research tools are available through the ASU West Library Web site at www.west.asu.edu/library. Knowledgeable staff members are available to provide reference service and instruction in the use of the library's considerable resources. Individual consultations with subject specialist librarians are available by appointment. The Library Instruction Program provides introduction to the tools and resources available for research in academic disciplines, including Internet resources.

For library hours and information, call 602/543-8501.

STUDENT AFFAIRS

Student Affairs is responsible for the delivery of a variety of services and developmental programs to a diverse student population. These services support both the administrative needs and educational pursuits of students and include

1. admission and enrollment services,
2. career services and personal counseling,
3. disability support services,
4. financial aid,
5. testing services,
6. multicultural student services,
7. recruitment and outreach,
8. registration services,
9. residential life,
10. student employment,
11. student health services,
12. student life, and
13. veterans services.

For more information, visit the University Center Building, access the Web site at www.west.asu.edu/sa, call 602/543-8152, or write

STUDENT AFFAIRS
ARIZONA STATE UNIVERSITY WEST
PO BOX 37100
PHOENIX AZ 85069-7100

STUDENT HOUSING

A new 400-bed student housing facility opened at ASU West in August 2003. The project features two three-story buildings of apartment-style residential units with full kitchens, laundry facilities, a community hall with multipurpose rooms and a computer lab, a swimming pool, and convenient parking. Amenities include tutoring services, academic advising, in-room Internet access, coordinated educational and social activities, and dining services close

Las Casas, an apartment-style, living- and learning-based housing facility opened in August 2003. Tim Trumble photo

by on campus. The expense to residents is competitive with the rental costs of nearby apartment complexes. For more information, call 602/543-CASA.

ASU EXTENDED CAMPUS

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

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

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

Gerontology

Interdisciplinary Certificate Program

www.west.asu.edu/chs/grn
602/543-6642
FAB S121

Richard Gitelson, Director

American Studies (ASU West)
Associate Professor: Hattenhauer

Anthropology (ASU Main)
Professor: Carr

Communication Studies (ASU West)
Professor: V. Waldron
Associate Professors: Di Mare, Kelley

Design (ASU Main)
Associate Professor: Cutler

Economics (ASU Main)
Professor: Hogan

Education (ASU West)
Associate Professor: Achilles

English (ASU Main)
Professor: Kehl

Exercise and Wellness (ASU East)
Associate Professors: Phillips, Swan

Geography (ASU Main)
Associate Professor: McHugh

Gerontology (ASU West)
Lecturer: K. Waldron

Health Administration and Policy (ASU Main)
Professor: Schneller

History (ASU Main)
Professor: Gratton

Human Communication (ASU Main)
Professor: Arnold

Kinesiology (ASU Main)
Regents' Professor: Landers
Professor: Stelmach
Assistant Professor: Etnier

Marketing (ASU Main)
Associate Professor: Stephens

Music (ASU Main)
Professor: Crowe
Assistant Professor: Rio

Nursing (ASU Main)
Professor: Komnenich
Associate Professors: Killeen, McCarthy

Nutrition (ASU East)
Professor: Vaughan
Assistant Professor: Woolf

Psychology (ASU Main)
Professors: Karoly, Okun, Reich, Sadalla, Zautra
Associate Professors: Alexander, Leshowitz

Psychology in Education (ASU Main)
Professor: Strom

Recreation and Tourism Management (ASU West)
Professors: Gitelson, Knopf, Searle

Social and Behavioral Sciences (ASU West)
Professors: Burleson, McGovern, Náñez
Assistant Professors: Anastasi, Carter

Social Work (ASU Main)
Assistant Professor: Kang

Social Work (ASU West)
Associate Professor: Fitzpatrick
Assistant Professors: Bushfield, McCabe
Lecturer: Ealy

Sociology (ASU Main)
Professors: Kronenfeld, Kulis
Associate Professors: Keith, Miller-Loessi, Sullivan

The Gerontology Program is a university-wide, interdisciplinary program designed so that students may take course work at any of the four ASU campuses and apply it toward the graduate Certificate in Gerontology or the minor in Gerontology. The program has an affiliated faculty of more than

50 members housed in 25 different departments throughout the university. Courses related to aging are taught by faculty who are active contributors to research, theory, and public policy and practice.

Program activities are designed for students who wish to study the psychological, sociological, biological, and policy-related aspects of aging, as well as for those interested in the health, economic, and social concerns of older people. Students study the aging process from multiple perspectives and develop knowledge and skills to prepare them for careers in an aging society. Students may also gain practical experience in working with older adults through field-based experiences and internships.

Since older Americans are becoming an increasing percentage of the population, there is a growing need for professionals with gerontology expertise. This is especially the case in Arizona due to the large number of retirement communities located here. Careers are available in a broad range of fields, including recreation, social work, nursing, counseling, public policy, and long-term care administration.

Certificate in Gerontology

An interdisciplinary, 21-semester-hour Certificate in Gerontology, administered by the Committee on Gerontology, is open to individuals with a baccalaureate degree. Students enrolled in the certificate program may simultaneously pursue a major in an academic unit offering a graduate degree or may enter the program as nondegree graduate students.

The course work is composed of six semester hours of required courses, a capstone experience, and 12 hours of aging-related elective courses chosen in consultation with an advisor. For more information on program requirements, contact the Gerontology Program office.

Minor in Gerontology

The minor in Gerontology consists of 18 semester hours—six hours of required course work and 12 hours of electives. Undergraduate students may begin taking courses for the minor upon completion of 56 semester hours with a minimum cumulative GPA of 2.00.

The minor may be used to fulfill the B.I.S. concentration requirement. See "Bachelor of Interdisciplinary Studies," page 123.

For more information, call 602/543-6642, or access the program Web site at www.west.asu.edu/chs/grn.

GERONTOLOGY (GRN)
ASU Main and West

W GRN 400 Perspectives on Aging. (3)
selected semesters
Multidisciplinary introduction to the study of aging in individuals, families, and society. Cross-listed as W SOC 400. Credit is allowed for only W GRN 400 or W SOC 400.
General Studies: SB

W GRN 420 Health Aspects of Aging. (3)
spring
Examines biological, social, and behavioral aspects of health in the later years. Considers the organization and delivery of care.
General Studies: SB

M GRN 430 Multidisciplinary Approaches to Gerontology. (3)
selected semesters
Examines literature that each discipline brings to the study of gerontology. Covers both theory and practice. Lecture, discussion.
General Studies: SB

M GRN 431 Caregiving. (3)
selected semesters
Examines theory and practice of caregiving for the senior population. Lecture, discussion.

M GRN 440 Aging and Wellness. (3)
selected semesters
One-on-one service/experiential learning with seniors from the community. May be repeated for credit. Lecture, lab.

M GRN 450 Biology of Aging. (3)
selected semesters
Examines normal biological aging and changes in the functional capabilities in the elderly. Lecture, lab.

M GRN 460 Alzheimer's and Related Dementias. (3)
selected semesters
Familiarization with Alzheimer's disease and related dementias from a caregiver's perspective. Lecture, lab.

W GRN 484 Undergraduate Internship. (3–6)
fall, spring, summer

W GRN 494 Undergraduate Special Topics. (1–4)
fall, spring, summer
Selected topics in gerontology.

W GRN 498 Undergraduate Pro-Seminar. (3)
selected semesters

W GRN 499 Undergraduate Individualized Instruction. (3)
selected semesters

M GRN 530 Multidisciplinary Approaches to Gerontology. (3)
selected semesters
Examines literature that each discipline brings to the study of gerontology. Covers both theory and practice. Lecture, discussion.

M GRN 531 Caregiving. (3)
selected semesters
Examines theory and practice of caregiving for the senior population. Lecture, discussion.

M GRN 540 Aging and Wellness. (3)
selected semesters
One-on-one service/experiential learning with seniors from the community. Lecture, lab. Cross-listed as SWG 517. Credit is allowed for only GRN 540 or SWG 517.

M GRN 550 Biology of Aging. (3)
selected semesters
Examines normal biological aging and changes in the functional capabilities in the elderly. Lecture, lab.

M GRN 560 Alzheimer's and Related Dementias. (3)
selected semesters
Familiarization with Alzheimer's disease and related dementias from a caregiver's perspective. Lecture, lab.

M/W GRN 584 Graduate Internship. (3–6)
fall, spring, summer

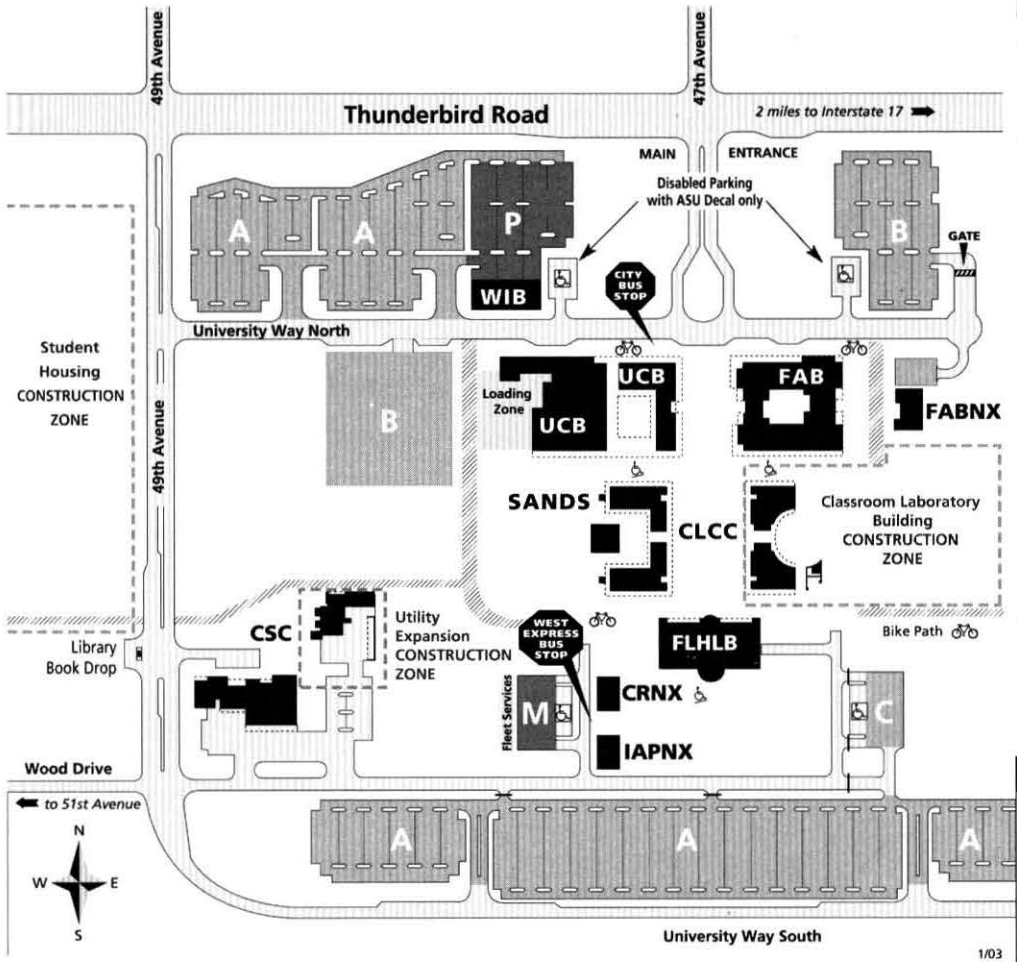
M/W GRN 590 Graduate Reading and Conference. (3)
fall, spring, summer

M/W GRN 591 Graduate Seminar. (1–6)
fall and spring

M/W GRN 598 Special Topics. (3)
selected semesters
Selected topics in gerontology.

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

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



BUILDING LEGEND

Welcome & Information Building (WIB)
- Campus Information Center
- Parking Services Office
- Arizona State Savings & Credit Union

University Center Building (UCB)
- Admission Services
- Bank of America ATM
- Bookstore
- Cafeteria
- Career Services/Personal Counseling Center
- Cashier's Office
- Child Care Center
- Disability Resource Center
- Division of Collaborative Programs
- Financial Aid/Student Employment
- Information Desk
- La Sala A,B,C
- Multicultural Student Services
- Registration Services
- Second Stage West Theatre
- Student Affairs Administration
- Student Health Services
- Student Life
- Student Support Services Program
- University-College Center
- Veteran Student Services
- Wellness/Fitness Center
- West Campus Advising Center
- Women's Studies Resource Center

Sands Classroom Building (SANDS)
- Copy Express
- Kiva Lecture Hall
- Sand Trap snack bar

Faculty/Administration Building (FAB)
- Academic Affairs
- Academic/Faculty Offices
- Basement classrooms
- College of Arts & Sciences
- College of Education
- College of Human Services
- Copy Center
- Information Technology
- Instructional Technology Lab
- Information Desk
- Institutional Advancement
- Office of the Provost
- School of Management

FAB Annex (FABNX)
- Office of the Executive Vice Provost
- Human Resources

Fletcher Library (FLHLB)
- Technopolis
- Learning Enhancement Center

Interdisciplinary Arts Annex (IAPNX)

Classroom Annex (CRNX)

Central Services Complex (CSC)
- DPS/University Police
- Mail Services
- Facilities Development & Management
- Central Plant

Classroom Lab/Computer Classroom Building (CLCC)

Joan De Arc Avenue
to 43rd Avenue

SYMBOLS LEGEND

- Disabled Decal Parking
- A — Decal Parking *(Students, faculty & staff only)*
- M — Metered Parking *(25¢ per 15 minutes)*
- B — Faculty/Staff Decal Parking *(7 a.m. to 5:30 p.m.; Student decal parking allowed after 5:30 p.m)*
- P — Visitor Parking *($1.00 exit fee; 24 hours)*
- C — Faculty/Staff Decal Parking *(24 hours/day)*
- Accessible Ramp
- Bicycle Racks

Parking regulations are enforced at all times. Decals are required on campus from 7am through 11pm. Meters are enforced from 7am until 10pm.

ASU ARIZONA STATE UNIVERSITY WEST

(602) 543–5500 • www.west.asu.edu
Street Address: 4701 West Thunderbird Road • Glendale, AZ 85308-4908
Mailing address: PO Box 37100, Phoenix, AZ 85069-7100

ASU West Directory

For the "ASU Main Directory," see page 518. For the "ASU East Directory," see page 665. For the "ASU Extended Campus Administrative Personnel," see page 701.

Organization	Location	Telephone	Web Address
Academic Affairs	FAB N301	602/543-4500	westcgi.west.asu.edu/acadaffairs
Admission and Enrollment Services	UCB 120	602/543-8203	www.west.asu.edu/admissions
Arts and Sciences, College of	FAB N201	602/543-6000	www.west.asu.edu/coas
American Studies, Department of	FAB N220	602/543-6090	www.west.asu.edu/amerstud
Bachelor of Applied Science Program	FAB N206	602/543-4BAS	www.west.asu.edu/bas
Ethnic Studies Program	FAB N204	602/543-6007	www.west.asu.edu/ethnic
Integrative Studies, Department of	FAB N279	602/543-6003	www.west.asu.edu/iasweb
Interdisciplinary Arts and Performance, Department of	FAB N205	602/543-6057	www.west.asu.edu/iap
Life Sciences, Department of	CLCC 217	602/543-6050	www.west.asu.edu/lifesci
M.A. in Interdisciplinary Studies	FABN 230D	602/543-6241	www.west.asu.edu/mais
Social and Behavioral Sciences, Department of	FAB N250	602/543-6058	www.west.asu.edu/social
Women's Studies Program	FAB N291	602/543-3300	www.west.asu.edu/wsteam
Associated Students of ASU West	UCB 226	602/543-8186	www.west.asu.edu/asasuw
ASU West	—	602/543-5500	www.west.asu.edu
Barrett Honors College	UCB 201	602/543-3410	www.west.asu.edu/honors
Bookstore	UCB 140	602/543-6800	www.west.asu.edu/adaff/auxs/bookstore
Career Services and Personal Counseling Center	UCB 320	602/543-8124	www.west.asu.edu/cspc
Disability Resource Center	UCB 130	602/543-8145	www.west.asu.edu/drc
TDD	—	602/543-4327	—
Education, College of	FAB S210A	602/543-6300	www.west.asu.edu/coe
Elementary Education, Department of	FAB S218	602/543-6315	www.west.asu.edu/coe/elem
Graduate Studies and Professional Development, Department of	FAB S220	602/543-3634	www.west.asu.edu/coe/graduate
Secondary Education, Department of	FAB S251A	602/543-6445	www.west.asu.edu/coe/sed
Special Education, Department of	FAB S252	602/543-6380	www.west.asu.edu/coe/spe
Financial Aid Services	UCB 120	602/543-8178	www.west.asu.edu/financialaid
Freshman Experience Office	UCB 201	602/543-4600	www.west.asu.edu/dcp
Graduate Studies	FAB S301	602/543-4567	westcgi.west.asu.edu/acadaffairs/gradstudies
Human Services, College of	FAB S105A	602/543-6600	www.west.asu.edu/chs
Communication Studies, Department of	FAB S141C	602/543-6606	www.west.asu.edu/chs/comm
Criminal Justice and Criminology, Department of	FAB S270C-1	602/543-6607	www.west.asu.edu/chs/aoj
Gerontology Program	FAB S121	602/543-6642	www.west.asu.edu/chs/GRN
Nursing (ASU Main Program)	FAB N290B	602/543-6605	nursing.asu.edu
Recreation and Tourism Management, Department of	FAB S115A	602/543-6603	www.west.asu.edu/chs/RTM
Social Work, Department of	FAB S126	602/543-6602	www.west.asu.edu/chs/sw
Information Desk	FAB Lobby	602/543-5500	www.west.asu.edu/adaff/auxs/info
Learning Enhancement Center	FLHLB LL2	602/543-6151	www.west.asu.edu/lec
Library	FLHLB	602/543-8501	www.west.asu.edu/library

Organization	Location	Telephone	Web Address
Management, School of	FAB N101	602/543-6200	www.west.asu.edu/som
Accounting and Information Systems Management, Department of	FAB S190-1	602/543-6275	www.west.asu.edu/som/acct
Economics, Finance, Marketing and Quantitative Business Analysis, Department of	FAB N120A	602/543-6101	www.west.asu.edu/som
Management, Department of	FAB N120D	602/543-6204	www.west.asu.edu/som
Master of Business Administration Program	FAB N151	602/543-6201	www.west.asu.edu/som/MBA
Multicultural Student Services	UCB 220	602/543-8148	www.west.asu.edu/multicultural
Native American Support Services Programs	UCB 220	602/543-8138	www.west.asu.edu/nativeamerican
Parking Services (Decals, Appeals)	WIB 101	602/543-7275	www.west.asu.edu/adaff/auxs/parking
Provost, Office of the	FAB N303	602/543-7000	westcgi.west.asu.edu/acadaffairs/provost
Recruitment and Outreach	UCB 105	602/543-8550	www.west.asu.edu/recruitment
Research Consulting Center	FAB S303	602/543-3411	www.west.asu.edu/rcc
Residency Classification	UCB 120	480/965-7712	www.west.asu.edu/admissions
Residential Life	LCR	622/543-2272	www.west.asu.edu/reslife
Student Employment	UCB 120	602/543-8178	www.west.asu.edu/financialaid
Student Health Services	UCB 170	602/543-8019	www.west.asu.edu/studenthealth
Student Life	UCB 221	602/543-8200	www.west.asu.edu/studentlife
Student Support Services Program (TRiO)	UCB 220	602/543-8121	www.west.asu.edu/trio
Testing Services	WIB 102	602/543-8136	www.west.asu.edu/testing
University-College Center	UCB 201	602/543-4222	www.west.asu.edu/ucc
Veteran Student Services	UCB 120	602/543-8220	www.west.asu.edu/veteran/vetinfo.htm
West Campus Advising Center	UCB 201	602/543-WCAC	www.west.asu.edu/wcac
Women's Studies Resource Center	UCB 323	602/543-3426	www.west.asu.edu/wsteam/resource.htm

ASU West Faculty and Academic Professionals

A

Achilles, Elayne R. (1986), Professor Emerita of Education; B.M.Ed., Temple University; M.M., Ed.D., Arizona State University

Ackroyd, William S. (2000), Lecturer of Social and Behavioral Sciences; B.A., M.A., M.S., Portland State University; Ph.D., University of Arizona

Aleshire, Peter (1993), Senior Lecturer of Professional Writing; B.A., M.A., Stanford University

Allgood, Tammy (2002), Assistant Librarian; B.A., University of Arizona; M.S., University of North Carolina

Amobi, Olufunmilanyo A. (2001), Assistant Professor of Secondary Education; B.A., University of Ibadan (Nigeria); M.Ed., Ed.D., Arizona State University

Anastasi, Jeffery S. (2001), Assistant Professor of Cognitive Psychology; B.A., M.A., Ph.D., State University of New York, Binghamton

Andereck, Kathleen L. (1993), Associate Professor of Recreation and Tourism Management; B.S., University of Wisconsin, Stevens Point; M.S., Texas A&M University; Ph.D., Clemson University

Anders, Gary C. (1989), Professor of Economics; Director, Institute for International Business, School of Management; B.S., West Texas State University; M.A., Ph.D., University of Notre Dame

Anders, Kathleen K. (2003), Lecturer of Management; B.A., University of Notre Dame; M.B.A., University of Alaska; Ph.D., Arizona State University

Anderson, Laurel A. (1989), Associate Professor of Marketing; B.S.N., University of Minnesota, Twin Cities; M.N., University of Washington; Ph.D., Arizona State University

Anokye, A. Duku (1999), Associate Professor of American Studies; Cochair, Department of American Studies; B.A., Michigan State University; M.A., Federal City College, District of Columbia; M.A., Ph.D., City University of New York Graduate School and University Center

Armstrong, Gaylene S. (2000), Assistant Professor of Criminal Justice and Criminology; B.A., University of Manitoba (Canada); M.A., Ph.D., University of Maryland

Armstrong, Todd A. (1999), Assistant Professor of Criminal Justice and Criminology; B.A., M.A., Ph.D., University of Maryland, College Park

Atwater, Leanne E. (1993), Professor of Management; Chair, Department of Management; B.A., M.A., San Diego State University; Ph.D., Claremont Graduate School

Ávalos, Manuel (1990), Associate Professor of Political Science; Associate Vice Provost, Research and Faculty Development; B.A., M.A., University of Arizona; Ph.D., University of New Mexico

Awender, Michael A. (2000), Professor of Education; Dean, College of Education; B.A., M.A., University of Windsor (Canada); M.Ed., University of Toronto (Canada); Ph.D., Claremont Graduate School

B

Baldwin, Bruce A. (1989), Professor Emeritus of Accountancy; B.A., M.B.A., Michigan State University; Ph.D., Arizona State University

Balthazard, Pierre (1999), Associate Professor of Information Systems Management; B.S., McGill University (Canada); M.S., Ph.D., University of Arizona

Bartle, Elizabeth E. (2003), Assistant Professor of Social Work; B.S.W., University of Nebraska, Lincoln; M.S.W., University of Nebraska, Omaha; Ph.D., University of Kansas

Beckett, E. Carol (1996), Assistant Professor of Bilingual Education; B.A., M.Ed., Ed.D., Arizona State University

Bellizzi, Joseph A. (1988), Professor of Marketing; Chair, Department of Economics, Finance, Marketing and Quantitative Business Analysis; B.S., M.A., Ph.D., University of Nebraska, Lincoln

Bernat, Frances P. (1993), Associate Professor of Criminal Justice and Criminology; B.S., M.A., J.D., State University of New York, Buffalo; Ph.D., Washington State University

Brawley, E. Allan (1992), Professor Emeritus of Human Services; Certificate of Social Work, University of Strathclyde (United Kingdom); D.S.W., University of Pennsylvania

Bredbenner, Candice D. (1990), Associate Professor of American Studies; Associate Dean, College of Arts and Sciences; B.A., Russell Sage College; M.A., Ph.D., University of Virginia

Brett, Joan F. (1999), Associate Professor of Management; B.A., B.S., Ohio State University; Ph.D., New York University

Bristol, Terry (2000), Assistant Professor of Marketing; B.S., M.S., San Diego State University; Ph.D., Virginia Polytechnic Institute

Britt, Chester L. III (1999), Associate Professor of Criminal Justice and Criminology; Chair, Department of Criminal Justice and Criminology; B.S., University of Iowa; M.A., Washington State University; Ph.D., University of Arizona

Broaddus, Dorothy C. (1990), Associate Professor of English; B.A., Eastern Kentucky University; M.Ed., Ph.D., University of Louisville

Brown, Lee H. (2001), Assistant Professor of Secondary Education; B.A., Union College; M.A., Ed.D., State University of New York, Albany

Buenker, Joe (2000), Assistant Librarian; B.A., University of Wisconsin, Parkside; M.S., University of Illinois, Urbana

Burleson, Mary H. (1997), Associate Professor of Psychology; B.A., M.S., New Mexico State University; Ph.D., Arizona State University

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Bushfield, Suzanne Y. (2002), Assistant Professor of Social Work; B.M., Southern Methodist University; M.S.W., University of Southern Mississippi; Ph.D., University of Idaho

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Associate Dean, College of Arts and Sciences ..... Candice D. Bredbenner
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Cochair, Department of American Studies ..... John S. Gilkeson
Chair, Department of Integrative Studies ..... Shari C. Collins-Chobanian
Chair, Department of Interdisciplinary Arts and Performance ..... Robert D. Taylor
Chair, Department of Life Sciences ..... Douglas Dennis
Chair, Department of Social and Behavioral Sciences ..... Paul A. Miller
Chair, Women's Studies Program ..... Astair G. M. Mengesha

College of Education

Dean, College of Education ..... Michael A. Awender
Assistant Dean, College of Education ..... Ray R. Buss
Chair, Department of Elementary Education ..... Michael F. Kelley
Chair, Department of Graduate Studies and Professional Development ..... Alice A. Christie
Chair, Department of Secondary Education ..... Nancy S. Haas
Chair, Department of Special Education ..... Ida M. Malian

College of Human Services

Interim Dean, College of Human Services ..... Lesley Di Mare
Chair, Department of Communication Studies ..... John Macgregor Wise
Chair, Department of Criminal Justice and Criminology ..... Chester L. Britt III
Chair, Department of Recreation and Tourism Management ..... Wendy Hultsman
Chair, Department of Social Work ..... *To Be Appointed*
Director, Gerontology Program ..... Richard Gitelson
Director, Partnership for Community Development ..... John T. Hultsman
Liaison, Nursing (ASU Main Program) ..... Brenda Morris

School of Management

Dean, School of Management ..... Bruce A. Forster
Chair, Department of Accounting and Information Systems Management ..... William A. Duncan
Chair, Department of Economics, Finance, Marketing, and Quantitative Business Analysis ..... Joseph A. Bellizzi
Chair, Department of Management ..... Leanne E. Atwater

ASU Extended Campus

www.asu.edu/xed **Bette F. DeGraw, Ph.D., Dean, College of Extended Education**

PURPOSE

The need for higher education is growing every day, and yet balancing work, family, and learning can be challenging. To help students fit higher education into their busy schedules, the university provides additional access to quality education beyond ASU physical campuses through the ASU Extended Campus. The Extended Campus is a combination of flexible scheduling, innovative technologies, and a vast network of off-campus sites that makes it more convenient for students to pursue their education. Programming includes credit classes, degree programs, certificates, and continuing education. Classes are taught by a faculty of full-time professors and experienced professionals.

For more information about the Extended Campus, access the Web site at www.asu.edu/xed, or call 480/965-3986.

ORGANIZATION

The College of Extended Education is a university-wide college that oversees the delivery of the Extended Campus courses. The college forms partnerships with other ASU colleges and community resources to implement quality programs. It is composed of the following departments: Academic and Professional Programs, American English and Culture Program, Communications and Marketing, Distance Learning and Technology, Downtown Center and Property Administration, Extended Campus Programs, and Planning and Business Services.

Schedule Options

Through the Extended Campus, students have many opportunities to pursue their educational goals. A variety of scheduling options are available for credit courses offered by the university's academic departments. Convenient times, locations, and innovative technologies make it easier for students to earn degrees.

As a convenience to students, courses are conducted off campus in locations throughout the state, on campus in the evening, via the Internet and television, and during Winter Session. Academic credits earned off campus are equivalent in all considerations with those credits earned on campus, and the credits are recorded on students' permanent records. Courses are published each fall and spring semester in the *ASU Schedule of Classes* and on the Web at www.asu.edu/xed and asuonline.asu.edu.

Evening Classes

Evening study is perfect for students with busy schedules. The Extended Campus offers several program options.

Evening classes in English as a second language are offered at night at ASU Main. For details, see "English as a Second Language," page 697.

The Undergraduate Evening Degree Completion Programs are designed for the working student seeking a bachelor's degree. Students enrolled in these programs typically have completed 60 lower-division semester hours. For more information about these credit programs, see "Undergraduate Evening Degree Completion Programs," page 690.

The Bachelor of Interdisciplinary Studies is offered at the ASU Downtown Center. Students may earn their entire degree in downtown Phoenix. For more information, see "Bachelor of Interdisciplinary Studies—B.I.S.," page 692.

The W. P. Carey M.B.A. Evening Program offers working professionals a solid managerial degree from two locations: the ASU Downtown Center in Phoenix and ASU Main in Tempe. For more information, see "Master of Business Administration—M.B.A.," page 693.

The Master of Public Administration offers several interdisciplinary courses during the evening at various locations, and the full program is available at the ASU Downtown Center. For more information, see "Master of Public Administration—M.P.A.," page 694.

Weekend Courses

Each semester, ASU offers weekend courses that often are in a compressed format and involve meeting for several hours on select weekends. Some course work may be required outside of the regular course sessions. For a listing of the current weekend courses offered, refer to the searchable online course schedule at www.asu.edu/xed. A student choosing to enroll in a weekend course should contact the department offering the course for details, including specific dates and requirements.

Winter Session

This is an intensive, condensed session offered between the fall and spring semesters. Students may enroll in one course and earn up to three semester hours of credit, which are recorded on fall transcripts. Courses are offered on ASU Main campus. Registration begins October 1 and courses start December 30. The College of Extended Education schedules the Winter Session courses in collaboration with ASU Main academic departments.

For more information, call 480/965-9797.

Distance Learning

ASU offers more than 200 courses each semester through the Internet, television, and independent learning. Distance learning students complete the course work and exams for the same academic credit as students on campuses. However, they experience the added value and flexibility of earning credit at home or work. Distance learning students keep in touch with instructors and classmates through teleconferencing, e-mail, and discussion boards.

Independent Learning

Independent learning provides an option for students to earn university credit any time, any place. These courses are appropriate for students seeking flexibility in progressing through their ASU program of study or to fulfill degree requirements. Others might enroll in these courses to enhance their occupational, professional, and intellectual skills.

Anyone with a high school diploma or GED may enroll; however, enrollment in independent learning is not the same as admission to ASU. ASU degree-seeking students must obtain their advisors' and deans' approvals before enrolling. Students may register for courses at any time during the year and have one year in which to complete course work. Some courses are offered on the Internet while most of them are offered in a mail-based format.

For more information, call 480/965-6563, or access the program Web site at www.dlt.asu.edu.

Internet

Online courses offer students a great level of scheduling flexibility to participate in ASU courses. Various university departments offer Internet classes. Through the Web, students can access lectures, participate in class assignments, interact with the instructor, collaborate with other students, and earn ASU credit at convenient times and locations. A computer, Internet access, e-mail, and a Web browser are necessary to participate in Web-based courses; however, specific equipment and software requirements may vary by course. Students register for Internet courses through the normal university admissions and registration process.

For more information, visit ASUonline, the university's gateway to an "online campus," at asuonline.asu.edu. Interested individuals may also write to distance@asu.edu, or call 480/965-6738.

Television

Televised courses make it possible for students to earn course credits by viewing class sessions and completing work assignments at home or work. Courses are available throughout the Phoenix area via public and cable television providers. Televised courses are also available in university residence halls at ASU Main and ASU East. Most televised courses are available for viewing through University Libraries. Televised courses are listed each fall and spring in the *ASU Schedule of Classes* and online at www.dlt.asu.edu/info/cable.html.

For more information about televised courses, send e-mail to asutv@asu.edu, or call 480/965-6738.

Interactive Instructional Television Program. Students employed by companies participating in this program may take courses for credit at their work sites. The teleconferencing system enables students to interact with other students and instructors in the classroom on campus. Interactive instructional television sites are available at several locations in the Phoenix area. Each site has a coordinator to assist with registration, provide information, and proctor exams, which typically are held at the site. A daily courier service circulates course materials between faculty on campus and their students at remote sites.

Public Sites. Certain sites provide the public with access to interactive television courses. Students can participate in most televised courses at locations such as the ASU Downtown Center, ASU East, ASU West, Cactus Shadows High School, and the Gila River Indian Community.

Off-Campus Locations

Extended Campus classes are held at approximately 250 off-campus sites throughout metropolitan Phoenix, the state, and beyond. Many neighborhood sites, such as community colleges, schools, churches, and businesses, serve as hosts to Extended Campus courses.

The anchor off-campus site is the ASU Downtown Center, located in downtown Phoenix. The center is the educational hub for downtown workers, organizations, and residents, and serves as a meeting site for conferences and seminars.

For more information, see "Locations," page 699.

DEGREE PROGRAMS

Convenient times and locations, as well as innovative technologies, make it easier for working adults and other nontraditional students to earn a degree. Some of the degrees may be offered in different subject areas or concentrations, at various locations, or through technology. The College of Extended Education facilitates delivery of the courses offered by the university's academic departments. Course listings are published each fall and spring semester in the *ASU Schedule of Classes*. All degree programs offered through the college are shown in the "Baccalaureate Degrees and Majors Offered in Collaboration with the College of Extended Education" table, page 691, and the "Graduate Degrees and Majors Offered in Collaboration with the College of Extended Education" table, page 694.

Undergraduate Evening Degree Completion Programs

These programs are designed for the working student seeking a bachelor's degree, offering a variety of courses and access to faculty and advisors at night. Most classes are

Baccalaureate Degrees and Majors Offered in Collaboration with the College of Extended Education

Major	Degree	Concentration*	Administered By
Applied Science	B.A.S.	Aviation maintenance management technology, aviation management technology, computer systems administration, consumer products technology, digital media management, digital publishing, emergency management, fire service management, food retailing, food service management, instrumentation, manufacturing technology and management, materials joining and manufacturing technology, microcomputer systems, multimedia writing and technical communication, municipal operations management, operations management, resource team specialist, semiconductor technology, software technology applications, technical graphics, or wellness	Bachelor of Applied Science Advisory Committee (ASU East)
		Any minor available at ASU West or individualized concentration	College of Arts and Sciences (ASU West)
Communication	B.A., B.S.	—	Hugh Downs School of Human Communication
Elementary Education	B.A.E.	Optional: multilingual/multicultural education*	Division of Curriculum and Instruction
English	B.A.	Linguistics or literature	Department of English
History	B.A.	—	Department of History
Housing and Urban Development	B.S.D.	—	School of Planning and Landscape Architecture
Interdisciplinary Studies	B.I.S.	See the "B.I.S. Concentrations" table, page 125.	Bachelor of Interdisciplinary Studies Advisory Committee
Nursing	B.S.N.	—	College of Nursing
Political Science	B.A.	—	Department of Political Science
	B.S.	Optional: public policy advocacy and lobbying or public policy analysis*	
Psychology	B.A., B.S.	—	Department of Psychology
Religious Studies	B.A.	—	Department of Religious Studies
Social Work	B.S.W.	—	School of Social Work
Sociology	B.A.	—	Department of Sociology

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

held on the ASU Main Campus. Students enrolled in the program typically have completed 60 lower-division semester hours. Degrees offered are from the College of Liberal Arts and Sciences and the College of Public Programs, and students can earn a bachelor's degree in any of these disciplines: communication, English, history, political science, psychology, religious studies, and sociology. The Undergraduate Evening Degree Completion Programs are offered in partnership with the Maricopa Community Colleges.

For more information, contact the evening degree advisor at 480/965-6506, or e-mail app.info@asu.edu.

Undergraduate Degrees

BACHELOR OF ARTS—B.A.

Communication

Employers have ranked interpersonal, analytical, teamwork, computer, and verbal communication skills as the top five attributes desired of employees. The program's curriculum is designed to ensure graduates will be proficient in each of these areas. The program is offered at night on the ASU Main Campus and is one of the Undergraduate Evening Degree Programs.

For more information, call the evening degree advisor at 480/965-6506.

English

Students have the opportunity to earn their English degree in the evening. This program is offered with a concentration in linguistics or literature. It is one of the Undergraduate Evening Degree Programs.

For more information, call the evening degree advisor at 480/965-6506.

History

Upper-division courses for a Bachelor of Arts in History are available via interactive television, the Internet, and in

the evening through the Undergraduate Evening Degree Completion Program at ASU Main. While students can complete most of the degree program through distance learning, two required courses must be taken on campus and are available in the evening.

For more information, call the evening degree advisor at 480/965-6506.

Political Science

Political science degrees prepare students for responsibilities as citizens, leaders, and professionals in a democratic society and an interdependent world. Students can earn their Bachelor of Arts in Political Science at night on the ASU Main Campus. This program is one of the Undergraduate Evening Degree Programs.

For more information, call the evening degree advisor at 480/965-6506.

Psychology

Students with a bachelor's degree in Psychology may find rewarding careers using the strong social, analytical, writing, and research skills they developed through their studies. This degree program accommodates a student's busy schedule and is one of the Undergraduate Evening Degree Programs.

For more information, call the evening degree advisor at 480/965-6506.

Religious Studies

The religious studies major is for students wishing to explore such areas as African or African American studies; Islamic studies; myths, rituals, and the arts; Native American studies; and religion and politics. Students may obtain their bachelor of arts through this degree completion program offered at night on the ASU Main Campus. Students in the program typically have completed 60 lower-division credit hours.

For more information, call the evening degree advisor at 480/965-6506.

Sociology

Sociology provides distinctive perspectives of the world, generating new ideas and analyzing the old. Students can earn a bachelor of arts in this discipline at night on the ASU Main Campus, through the undergraduate degree completion program.

To learn more about this degree, call the evening degree advisor at 480/965-6506.

BACHELOR OF APPLIED SCIENCE—B.A.S.

ASU East

This is a practical and flexible degree designed specifically for students holding an associate of applied science degree from a regionally accredited community college. This is a "capstone" degree, which leverages the credits earned in community college with 60 semester hours of upper-division course work completed through ASU East. The goal of the program is to provide students with management, leadership, critical thinking, and community skills—along with significant work in a professional specialization—that will broaden career horizons, promote lifelong learning, and enrich personal and civic life. ASU East faculty and advisors work with students to match a program of study to their individual interests and career goals, or students may select one of the concentrations shown in the "Baccalaureate Degrees and Majors Offered in Collaboration with the College of Extended Education" table, page 691.

For more information, call 480/727-1874.

ASU West

Students who have completed an associate of applied science degree may enroll in the B.A.S. degree program at ASU West.

This program emphasizes focused study in critical thinking, communication, and leadership skills and includes individual and team problem-solving experiences; core curriculum is focused on the arts, computer literacy, writing, ethics and career development. Courses are designed to refresh students' academic skills and to develop the resources to succeed in their educational pursuits. Concentration areas are developed by the advisor and student based on educational goals and interests.

For more information, call 602/543-4227, or visit www.west.asu.edu/bas.

BACHELOR OF ARTS IN EDUCATION—B.A.E.

Elementary Education

The College of Education offers this off-campus degree program in elementary education to targeted school district audiences.

For more information, call 480/965-1644.

BACHELOR OF INTERDISCIPLINARY STUDIES—B.I.S.

The B.I.S. degree program in organizational studies provides students with a unique opportunity to learn about the dynamics of today's organizations by combining courses from a number of academic disciplines. Lower- and upper-division course work from multiple subject-area concentrations are integrated into a program of study. This concentration allows students to study contemporary issues like social processes and human interaction, information management and organizational theory, organizational contexts, diversity, ethics, and more. The B.I.S. degree is offered at the ASU Downtown Center. It also can be customized for employers and delivered on site.

For more information, call 480/965-9797, or write

COLLEGE OF EXTENDED EDUCATION
ACADEMIC AND PROFESSIONAL PROGRAMS
ARIZONA STATE UNIVERSITY
PO BOX 874001
TEMPE AZ 85287-4001

BACHELOR OF SCIENCE—B.S.

Communication

The curriculum of this degree is designed to ensure graduates will be proficient in each of the areas employers rank as the top five skills they desire in employees: interpersonal, analytical, teamwork, computer, and verbal communication skills. This program, offered at night on the ASU Main campus, is one of the Undergraduate Evening Degree Programs.

For more information, call the evening degree advisor at 480/965-6506.

Political Science

Students can earn their Bachelor of Science in Political Science at night on the ASU Main campus, through the Undergraduate Evening Degree Program. Political science degrees prepare students for responsibilities as citizens, leaders, and professionals in a democratic society and an interdependent world.

For more information, call the evening degree advisor at 480/965-6506.

Psychology

This degree program accommodates a student's busy schedule and is one of the Undergraduate Evening Degree Programs. Students in this program learn strong social, analytical, and writing and research skills and may find rewarding careers in marketing, consulting, or technical writing.

For more information, call the evening degree advisor at 480/965-6506.

BACHELOR OF SCIENCE IN DESIGN—B.S.D.

Housing and Urban Development

This B.S.D. degree with a major in Housing and Urban Development affords graduates the ability to pursue careers in the private home development industry, in publicly sponsored housing and community redevelopment, with nonprofit housing agencies, or in postgraduate housing and urban development research and education. This degree is offered primarily at the ASU Downtown Center, although some courses may be available at other locations and via cable television.

For more information, call 480/965-7167, or write

SCHOOL OF PLANNING AND LANDSCAPE ARCHITECTURE
ARIZONA STATE UNIVERSITY
PO BOX 872005
TEMPE AZ 85287-2005

BACHELOR OF SCIENCE IN NURSING—B.S.N.

The College of Nursing has two opportunities for the professional registered nurse to expand his or her knowledge by obtaining either a B.S.N. degree or a B.S.N. leading to an M.S. degree in Nursing.

The two program tracks available for RNs include the RN-B.S.N. *only* and the RN-B.S.N.-M.S. They are structured to provide an accessible, accelerated, and predictable pathway through the professional program. (See "RN-B.S.N. Only," page 456, and "RN-B.S.N.-M.S.," page 456.)

These alternative program tracks are offered to RNs who have completed all prerequisite courses and have been admitted to the university (see "RN-B.S.N. Degree Requirements," page 457). The program is designed to enable the completion of all the professional nursing courses in a 12-month period. Convenient times and locations, including on-site classes for various agencies in the local area as well as today's innovative technologies, make it easier for RNs to earn a degree.

For more information, call the Office of Student Services in the College of Nursing at 480/965-2987.

BACHELOR OF SOCIAL WORK—B.S.W.

This program serves students living and working in southern Arizona who are pursuing an undergraduate degree in Social Work. It is designed to increase the number of trained child welfare social workers in rural areas of Arizona. Students can complete all required upper-division social work courses and electives at a centrally located site near downtown Tucson, while completing general studies and other degree requirements through area community colleges and the state's three universities.

For more information, call the Tucson Component at 520/884-5507.

Graduate Degrees

All graduate degree programs offered through the college are shown in the "Graduate Degrees and Majors Offered in Collaboration with the College of Extended Education" table, page 694.

D.E.L.T.A. DOCTORATE—ED.D.

This doctorate in educational administration and supervision responds to the increased demand for enhanced educational leadership in Arizona and addresses these critical areas of school instruction and administration: school law, computer applications, school finance, research techniques, and instructional improvement. The program is designed for qualified public school administrators and recognizes the unique needs of full-time employees; it is available as an off-campus degree program.

For applications and more information, call 480/965-7224.

MASTER OF BUSINESS ADMINISTRATION—M.B.A.

connectMBA

The ASU West connectMBA option allows working professionals to complete a quality, AACSB International–accredited M.B.A. without weekly attendance on campus. Course delivery combines classroom instruction (every seventh weekend) with self-paced, computer-assisted learning. The two-year program consists of 15 three-semester-hour courses.

For more information, access the Web site at www.west.asu.edu/som/mba.

W. P. Carey M.B.A. Evening Program

This program offers working professionals a solid managerial degree from two locations: the ASU Downtown Center in Phoenix and the ASU Main campus in Tempe. The program combines theoretical concepts with practical applications. Students at both locations receive the same high-quality instruction and a complete range of student services.

For more information, call 480/965-3332.

Graduate Degrees and Majors Offered in Collaboration with the College of Extended Education

Major	Degree	Concentration*	Administered By
Business Administration	M.B.A.	—	School of Management (ASU West) W. P. Carey School of Business (ASU Main)
Curriculum and Instruction	M.Ed.	Secondary education	Division of Curriculum and Instruction
Educational Administration and Supervision	Ed.D.	—	Division of Educational Leadership and Policy Studies
Electrical Engineering	M.S.E.	—	Department of Electrical Engineering
Engineering	M.Eng.	—	Ira A. Fulton School of Engineering
Engineering Science	M.S.E.	Optional: executive embedded systems*	Ira A. Fulton School of Engineering
Nursing	M.S.	—	College of Nursing
Public Administration	M.P.A.	Optional: nonprofit administration*	School of Public Affairs
Social Work	M.S.W.	Advanced direct practice or planning, administration, and community practice	School of Social Work
Technology	M.S.Tech.	Environmental technology management	Department of Information and Management Technology (ASU East)

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

W. P. Carey M.B.A. in Technology

ASU Main offers this evening program that is designed specifically for technology professionals. Case studies, applications, and examples emphasize technology, global competition, and rapid organizational change. The program is offered at the ASU Research Park.

For more information, call 480/965-3332.

W. P. Carey M.B.A. Online Program

This is an ASU Main program that uses computer and communications technologies to offer the highly ranked W. P. Carey M.B.A. degree to managers and professionals who do not wish to attend a traditional, on-campus program. The program consists of on-site sessions, asynchronous technology-based materials, and electronic communication among faculty and students. This two-year program consists of 12 four-semester-hour courses.

For more information, call 480/965-3332.

ScottsdaleMBA

The ASU West ScottsdaleMBA option meets in the Scottsdale Airpark in north Scottsdale. Classes emphasize the development of critical learning skills with practical application in analyzing local industries. Students, faculty, and industry experts work together on projects for local companies. The integrated curriculum provides a comprehensive understanding of interrelated business issues.

For more information, call 602/543-6201.

MASTER OF EDUCATION—M.ED.

Curriculum and Instruction

The major in Curriculum and Instruction is offered with a concentration in secondary education. This off-campus degree program is designed for school district audiences.

For more information, call 480/965-1644.

MASTER OF ENGINEERING—M.ENG.

The tri-university M.Eng. program is intended to meet the educational needs of Arizona's practicing engineers. With industry input, Arizona's three state universities offer courses through a variety of distance-delivery methods in flexible formats at any of the three universities. Course work will enhance the skills, knowledge, and understanding that are critical to today's practicing engineers.

The M.Eng. degree offers the practicing engineer opportunities to design, in conjunction with an advisory committee, a program of study that reflects the increasingly interdisciplinary nature of engineering practice. The degree requires the completion of 30 semester hours of course work; students must complete a minimum of three semester hours in applied engineering mathematics as well as three semester hours of engineering management/business. Up to six semester hours from a practice-oriented project may be applied. A final examination is also required.

For more information about the program, access the Ira A. Fulton School of Engineering Center for Professional Development Web site at cpd.asu.edu.

MASTER OF PUBLIC ADMINISTRATION—M.P.A.

This interdisciplinary program provides professional training for careers in public administration and management. The M.P.A. program is available evenings at the ASU Downtown Center in its entirety. Opportunities to complete course work leading to the M.P.A. degree are also offered during evening hours at ASU Main and various off-campus sites.

For more information, call 480/965-3926, or write

SCHOOL OF PUBLIC AFFAIRS
ARIZONA STATE UNIVERSITY
PO BOX 870603
TEMPE AZ 85287-0603

MASTER OF SCIENCE IN ENGINEERING—M.S.E.

Electrical Engineering

This is a professional degree with no thesis requirement. The M.S.E. program is offered to off-campus students through distance learning and designed for engineering and technical professionals who require flexible scheduling. The online program offers specialty areas in solid-state electronics, mixed-signal integrated circuit design, signal processing, and communications. A number of courses are offered online each semester.

For more information about the program, access the Ira A. Fulton School of Engineering Center for Professional Development's Web site at cpd.asu.edu/online.

Executives Embedded Systems Program

This degree program provides an interdisciplinary engineering curriculum and strategically aligns a core business curriculum to prepare engineers for management and leadership positions within technical organizations. The program is designed for engineers on the fast track of leadership advancement and, for their convenience, is delivered via distance learning.

The program is administered as a cohort-based two-year program of study consisting of 42 semester hours and a value-added capstone project. Twelve semester hours of business curriculum are offered in this program. The engineering curriculum is on an accelerated trimester of 10-week sessions, and the business curriculum is delivered with five-week course sessions. Successful students graduate with an M.S.E. degree in Engineering Science with a concentration in executive embedded systems.

For more information, access the Web site at cpd.asu.edu/online.

MASTER OF SCIENCE IN NURSING—M.S.

The M.S. degree in Nursing and the certificate program offered by the graduate program in the College of Nursing provides access to quality academic credit and degree concentrations for working RNs through flexible schedules; a vast network of sites; classes scheduled days, evenings, and weekends; and innovative delivery technologies, including television and the Internet.

Concentrations available include adult health nursing with options in primary care of chronically ill adults or acute care; community health nursing; psychiatric/mental health nursing; family health nursing; parent-child nursing with options in nursing of children (acute or primary focus), children with special needs, and neonatal nursing; and women's health nursing.

For more information, call the Office of Student Services in the College of Nursing at 480/965-2987.

MASTER OF SCIENCE IN TECHNOLOGY—M.S.TECH.

ASU East offers this program with a concentration in environmental technology management through a Web-based distance learning format. Three areas of study are available: environmental management, international environmental management, and emergency management. Students in this program are part of a cohort group that begins each January and graduates 24 months later at a December ceremony.

Students in the distance learning cohort are expected to be working professionals in fields such as environmental safety and health; environmental engineering; emergency management; national or local regulatory and permitting activities; environmental law; and environmental laboratories. Students should have completed at least one course in inorganic chemistry and one course in organic chemistry as part of their undergraduate degree preparation.

For more information, access the Web site at www.east.asu.edu/ctas/imt/etm/html/dmasters.html.

MASTER OF SOCIAL WORK—M.S.W.

This program prepares social workers to respond effectively to the needs of the state and other populations of the Southwest. The program is offered in Tucson and Flagstaff.

For more information about the Tucson component, call 520/884-5507, or for more information about the Flagstaff component, call 480/965-3304.

Graduate Certificates

All certificates offered by or in collaboration with the College of Extended Education are shown in the "ASU Extended Campus Certificates" table, page 696.

ASIAN STUDIES

A Graduate Certificate in Asian Studies is offered through the ASU Center for Asian Studies and is designed for graduate students in any department or discipline who wish to earn a transcript credential for an academic specialization in Asian Studies. All graduate students—including those engaged in master's, doctoral, or nondegree studies—are eligible to apply for the certificate.

The certificate requires 18 semester hours of course work made up of classes with Asian studies content. This includes six hours of advanced language study in one of the following languages: Chinese, Japanese, Korean, Indonesian, Thai, or Vietnamese. In addition to the course work, students must complete a capstone paper; thesis, dissertation, an internship, or overseas experience. Students should make this decision in consultation with the advisor in the Center for Asian Studies.

For more information, call 480/965-7179, send e-mail to asian.studies@asu.edu, or access the Web site at www.asu.edu/asian.

GERONTOLOGY

The Gerontology Certificate Program brings together faculty from several disciplines to teach courses related to adult development and aging, to collaborate on gerontological research projects, and to participate in projects of service for older adults and the community.

The graduate certificate in Gerontology requires 21 semester hours of course work. Students must complete two of the three gerontology core courses, a capstone experience of at least three semester hours (internship, individualized instruction, reading and conference, or applied research), and four additional aging-related courses approved as electives.

ASU Extended Campus Certificates

Certificate Program	Administered By
Asian Studies, Graduate Certificate in	Center for Asian Studies
Business English Certificate	College of Extended Education
Gerontology, Certificate in	Gerontology Program
Human Performance Improvement Certificate*	College of Extended Education and American Society of Training and Development
Maintenance Management Certificate*	College of Extended Education
Multimedia Writing and Technical Communication, Postbaccalaureate Certificate in	East College
Professional Purchasing Certificate*	College of Extended Education
Supervisory and Management Skills Certificate*	College of Extended Education
Transportation Systems Certificate	Committee on Transportation Systems and the Graduate College

* This certificate is not for academic credit.

For more information, see "Certificate in Gerontology," page 678, call 602/543-6642, or access the program Web site at www.west.asu.edu/chs/grn.

MULTIMEDIA WRITING AND TECHNICAL COMMUNICATION

A postbaccalaureate certificate in Multimedia Writing and Technical Communication requires 18 semester hours. Students learn the principles of technical communication, writing with technology, technical editing, and visual communication.

For more information, call 480/727-1515, or access the Web site at www.east.asu.edu/ecollege/multimedia.

TRANSPORTATION SYSTEMS

This interdisciplinary studies certificate program offers current ASU graduate students and transportation professionals the opportunity to pursue a wide range of transportation-related issues from multi-modal and interdisciplinary perspectives. The certificate is intended to be either a specialization within an existing master's degree program or a stand-alone 15-credit nondegree program.

For more information, access the Web site at www.asu.edu/caed/transportation, or call 480/965-6693.

Professional Development Certificates

All certificates offered by or in collaboration with the College of Extended Education are shown in the "ASU Extended Campus Certificates" table, on this page.

Certificate programs provide opportunities to those seeking to advance their careers, begin a new career, reenter the workplace, or develop new knowledge. Certificates are a practical choice for career development; in addition, employers recognize them as evidence of professional skill or accomplishment. Some programs may offer academic credit and others may offer continuing education units through professional associations.

BUSINESS ENGLISH (ESL)

This certificate program is designed to help professionals who speak English as a second language to succeed in business. It offers five courses that use reading, writing, and discussion and presentation exercises designed to offer practical knowledge and confidence in American and international business practices. Once students successfully complete three certificate courses, they earn a business English certificate. If students wish to continue, and successfully complete five courses, they earn an advanced business English certificate. Most classes are ongoing and meet three hours a week for eight weeks.

For more information, call 480/965-2376, or access the Web site at www.asu.edu/xed.

HUMAN PERFORMANCE IMPROVEMENT

This six-course certificate program provides a well-rounded understanding of the human performance field by capturing the latest information on analyzing, evaluating, and implementing human performance improvement programs. New certificate cohorts begin each fall semester.

For more information, access the Web site at www.asu.edu/xed, or call 480/965-9200.

MAINTENANCE MANAGEMENT

This program offers participants the opportunity to explore the latest technical, profit-making and cost-cutting ideas in the industry. This is a four-part, results-oriented seminar series offered at the ASU Downtown Center. Course topics include improving maintenance planning, scheduling, managing maintenance for results, designing and implementing a superior professional purchasing management program, and improving program management skills for supervisors.

For more information, call 480/965-9200 or visit www.asu.edu/xed.

PROFESSIONAL PURCHASING

Enroll in one seminar to fine-tune skills or all four purchasing seminars to earn a professional purchasing certificate. Each seminar is held at the ASU Downtown Center

and covers the latest technical, profit-making, and cost-cutting ideas to improve purchasing management.

For more information, access the Web site at www.asu.edu/xed, or call 480/965-9200.

SUPERVISORY AND MANAGEMENT SKILLS

This certificate is a 56-semester-hour program that provides supervisors the opportunity to enhance their skills in a number of areas. The program is divided into seven core areas: interviewing and hiring, principles and practices of supervision, motivating employees, coaching for improved performance, effective conflict management, problem-solving techniques, and cultural diversity in the workplace.

For more information, call 480/965-9200.

Continuing Education

Ongoing continuing education programs address current issues and trends and are intended to increase competence in the topics. These programs are offered throughout the metropolitan Phoenix area.

Elderhostel

Elderhostel is an academic experience for older adults looking for a different kind of educational travel. Individuals 55 and older participate in week-long courses that include stimulating lectures and field trips. ASU Elderhostels are held throughout the valley and focus on Southwest history, computer technology, and the arts.

For more information, call 480/965-9200.

English as a Second Language

This program offers specially designed intensive English language programs for international students and local residents who wish to improve their English proficiency.

The intensive noncredit course of study is designed to help students become proficient in English as a second language. Beginning, intermediate, and advanced courses, divided into six language levels, provide instruction in listening, speaking, reading, and writing. Language-related computer skills, academic advising, and orientation to ASU, Arizona, and the United States are also integral elements of the program.

Most of the classes are offered during the day, but several evening classes also are available; these include American pronunciation, accent reduction, guided conversation, and business writing.

Some courses are offered that are specifically targeted to business professionals who speak English as a second language. These courses may lead to a certificate (see "Professional Development Certificates," page 696).

The fall and spring semesters are divided into two eight-week cycles. Students may enroll for one or more cycles. An eight-week summer session also is offered. Four-week sessions are also offered throughout the year.

While in the program, students have access to master's-level teachers, a student advisor, social and cultural activities, campus clubs, recreation facilities, credit classes, a graduate program, TOEFL and TOEIC testing, e-mail and the Internet, ASU facilities, and university housing and meals. Admission to the program does not constitute admission to ASU. Advanced-level students may be permitted to enroll concurrently in up to two ASU credit classes with the approval of the director. Several special classes are offered through the program: business English, pronunciation, conversation, TOEFL and TOEIC preparation, grammar, and idioms.

For more information, call 480/965-2376, or access the Web site at www.asu.edu/xed.

Hispanic Leadership Institute

This institute's goal is to promote the participation of Hispanics in leadership roles. It serves as a resource for expertise and advocacy on leadership issues affecting the Latino community. It is a 17-week program with evening sessions once a week at the ASU Downtown Center. The program format is a combination of lectures, panel discussions, and individual and group discussions. Leadership topics include cultural identity, communication skills, activism, ethics, diversity and multicultural issues, resource development, research and development, and public administration and policy.

To apply or request more information, access the Web site at www.asu.edu/xed/hli, or call 480/965-9200.

Income Tax Practitioners' Workshop

Each January, the College of Extended Education offers a two-day workshop for tax preparers, CPAs, and other income tax professionals. These professionals learn the latest information about federal tax legislation and new tax provisions, tax credits, capital gains, and technology changes that affect business and profitability. Participants also may be eligible for 15 CPE hours from the Arizona Board of Accountancy. This program is presented by the three state universities in cooperation with the U.S. Internal Revenue Service and the Arizona Department of Revenue.

For more information, call 480/965-9200, or access the Web site at www.asu.edu/xed/tax.

Information Technology

This program features KnowledgeNet's cutting-edge, Web-based training for students seeking to improve their computer skills. The program is uniquely designed to accommodate different learning styles by providing options such as live, instructor-led sessions delivered via the Internet and self-paced online sessions. Courses include such topics as beginning MS Office and advanced Cisco programming.

To find more information or to register online, access the Web site at www.asu.edu/xed/knowledgenet.

Real Estate Continuing Education

Arizona real estate agents and brokers, even in the most rural communities of the state, can obtain the 24 hours of continuing education credits they need for license renewal through a series of Web-based, continuing education courses. Courses are offered in the following categories: commissioner's standards, contract law, agency law, fair housing, real estate legal issues, and disclosure.

For more information and to register online, access the Web site at www.asu.edu/xed/renewal.

TraveLearn®

TraveLearn® educational tours are designed to challenge an individual's mind and offer learning opportunities. These

programs for adult learners have no exams, grades, or attendance requirements. Participants may attend any number of the scheduled learning experiences. TraveLearn® students must be between the ages of 30 and 80.

For more information, call 800/235-9114.

Wealth Management

This program is a series of six evening classes that help personal investors manage their investments like a business. The program offers a comprehensive study of the major advancements and practical application in portfolio theory and provides proven strategies in issues such as asset allocation, risk management, international markets, taxation, estate planning and performance measurement. The classes are held throughout the valley and at other locations in the state.

For more information, call 480/965-9200, or access the Web site at www.asu.edu/xed/wealth.

Lectures

The ASU Extended Campus offers a variety of special programs of academic and cultural interest, as well as personal enrichment, to the general community. These lectures cover an array of topics and are offered at the ASU Downtown Center in central Phoenix.

For more information about these programs, access the Web site at www.asu.edu/xed/lectures, or call 480/965-3046.

ASU Community Fellows Lecture Program

This program, offered each spring, is a catalyst in fostering partnerships among neighborhood, university, and business interests seeking to improve the quality of life valleywide. It also facilitates mutual learning experiences.

Brown Bag Lunch Lectures

These lectures feature topics of interest to the general public and cover areas such as fine arts, urban issues, history, and culture. While many are stand-alone lectures, some also are part of a series of topics in a particular interest area. Examples of topics include Analyze This..., Matters of the Mind, Health Matters, Here's to Your Job, Hispanic Heritage Month, Native American Recognition Month, Meet the Authors, Out to Lunch and Into the Arts, Substance Abuse Awareness, and You and Your Money.

Downtown and Gown

These lectures are designed to give central Phoenix residents and the business community a greater awareness of the rich array of talent and resources available at the university. ASU faculty and deans from each of the campuses present the lectures each fall and spring semester.

John F. Roatch Global Lectures in Social Policy and Practice

This lecture series is an annual event that brings an internationally known scholar to Arizona to lecture on a topic of global reach and social significance to the community. The John F. and Mary Roatch Endowment supports the lectures and occasionally sponsors additional events. A publication of each lecture is disseminated by the College of Extended Education and is deposited at University Libraries.

Linda Haskell Memorial Master Class on Current Social Events

This annual event invites an internationally known expert to lead an interactive forum to discuss current topics of concern to human services practitioners in Arizona.

Urban Issues Lecture Series

These lectures encourage discussions of national public policy and its impact on local policy and economic development. The series is offered in partnership with the Phoenix Community Alliance, the ASU College of Public Programs, and the Morrison Institute for Public Policy.

Downtown Partnerships

The university provides several services to the downtown Phoenix community.

Advanced Public Executive Program

This program is committed to enhancing the effectiveness of government services and operations. The program provides high-quality professional development and interventions tailored to the specific needs of public managers, executives, and elected officials.

For more information, call 480/965-4006.

Arizona Prevention Resource Center

This library and distribution center serves as a centralized source for individuals, schools, and communities throughout Arizona to support, enhance, and initiate prevention efforts. Planning, mobilizing, training, and evaluating community prevention efforts can be coordinated through this center.

For more information, call 480/727-2772.

Joint Urban Design Studio

The studio is the Joint Urban Design Program's physical location at the ASU Downtown Center. It is a place where facilitated discussions among community, civic, and private sector interests can be held. The studio displays ideas and disseminates information on urban issues through models, the Web, and publications of local, regional, and national importance.

For more information, call 480/727-5146.

Office of Youth Preparation

This nationally recognized program is committed to increasing the flow of college-eligible minority students into higher education. The program provides academic support to Arizona youth through classroom, university, community, and research programs. The program's position within the university system allows for the development of diverse partnerships in order to maintain its commitment to positively impact Arizona's youth.

For more information, call 480/965-8510.

Urban Data Center

This center serves as a resource for analysis and implementation of public policy in metropolitan Phoenix and works closely with ASU researchers and organizations, as well as local governments, state agencies, and other independent organizations.

For more information, call 480/965-3046.

Locations

Approximately 250 off-campus sites throughout metropolitan Phoenix, the state, and beyond are used to make classes more accessible to students. In addition, various technologies are used to deliver degree programs and credit courses to the workplace and home. Partnerships have been created with public and private organizations to deliver ASU courses off campus. Many neighborhood sites, such as community colleges, schools, churches, and businesses, serve as hosts to many Extended Campus courses.

For more information about off-campus sites, call 480/965-9797. For information about Internet, televised, and independent learning courses, call 480/965-6738.

ASU Downtown Center

The ASU Downtown Center, located in central Phoenix, is the Extended Campus's anchor location. The center is an educational, applied research, and community service facility. It is host to traditional and interdisciplinary undergraduate and graduate credit classes, professional and continuing education programs, and lectures and community forums. It is the educational hub for downtown workers, organizations, and residents, and serves as a meeting site for conferences and seminars.

Each classroom is equipped with a sound system, video projection system, and Ethernet connections, and has the ability to receive satellite downlinks. The center has three rooms equipped with a teleconferencing system that allows students at corporate and community receiving sites, such as the center, to interact with instructors during televised class sessions. ASU students, faculty, and staff may take advantage of the center's two state-of-the-art computer labs, as well as Web stations throughout the facility and wireless networking. A lab assistant is available during posted hours. Students, faculty, and staff may also access the ASU University Libraries' online catalog, information, and resources. Students may order and return library books and order copied materials. Textbooks for all courses held at the center are available during the first week of classes each spring and fall semester.

The center provides attractive accommodations for meetings and conferences. Room rentals may include advice in logistics planning, professional equipment, technical support (including two computer classrooms), and food and beverage service. Break-out areas are conveniently located throughout the facility. Rooms are also available to non-university organizations, in accordance with university policies and procedures.

The center's art gallery, the Galleria, features works by ASU faculty, staff, students, and local artists. Exhibits rotate monthly. The Galleria participates in monthly and annual art tours, including First Friday and Art Detour, sponsored by ArtLink, a local artists' group.

Convenient parking is available in the Heritage and Science Park garage on the corner of Fifth and Monroe Streets.

For more information about the programs and services provided at the center, call 480/965-3046, or write

ASU DOWNTOWN CENTER
502 E MONROE ST
PHOENIX AZ 85004-4442

Several ASU programs and partnerships are located at the center.

The *Advanced Public Executive Program* provides quality professional development and interventions tailored to the specific needs of public organizations.

The *Arizona Prevention Resource Center* is a library and distribution center designed to be a centralized reference and assistance source for individuals, schools, and communities throughout Arizona.

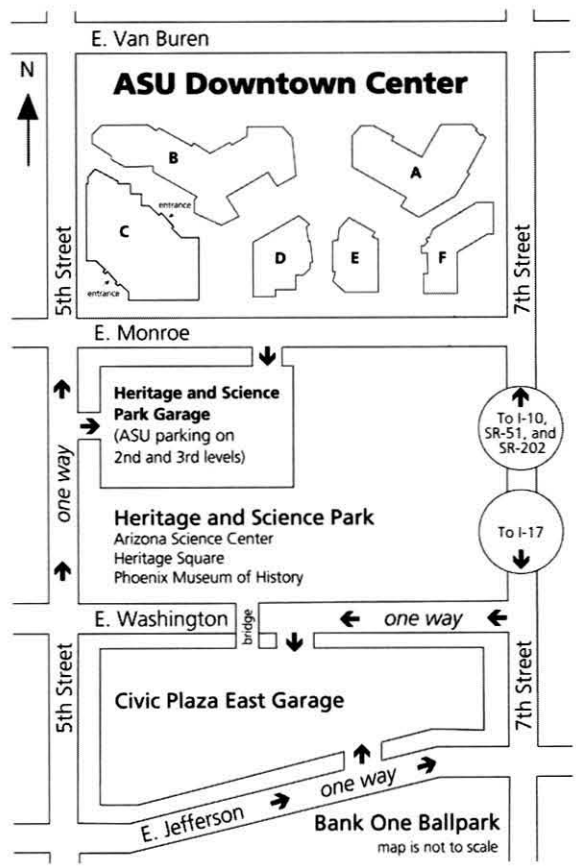
The *Center for the Future of Arizona* works with civic and political leaders to develop a statewide agenda to expand educational opportunities, encourage strategic investments, and achieve a sustainable quality of life for residents.

The *College of Extended Education* has several administrative offices located at the center, including the dean's office.

The *Joint Urban Design Studio* is the Joint Urban Design Program's physical location at the ASU Downtown Center.

The *Office of Youth Preparation* is a nationally recognized program committed to increasing the flow of college-eligible minority students into higher education.

The *Urban Data Center* serves as a resource for analysis and implementation of public policy in metropolitan Phoenix.



ASU Extended Campus Faculty and Academic Professionals

A

Alvarado, Ronald H. (1974), Professor Emeritus of Life Sciences; Dean Emeritus, College of Extended Education; B.A., University of California, Riverside; M.S., Ph.D., Washington State University

B

Backer, Linda R. (1997), Assistant Instructional Professional, College of Extended Education; Manager, Interdisciplinary Programs, Academic and Professional Programs, College of Extended Education; B.A., University of Colorado; M.S., Colorado State University

C

Cole, Tom (1981), Lecturer, College of Extended Education; Associate Director, American English and Culture Program, College of Extended Education; B.S., Northern Arizona University; M.A., Arizona State University

Craft, Elizabeth H. (1982), Administrative Professional Emerita, College of Extended Education; Director, Distance Learning and Technology; B.F.A., Ohio University; M.A., Arizona State University

D

DeGraw, Bette F. (1986), Administrative Professional, College of Extended Education; Associate Professor of Public Affairs; Dean, College of Extended Education; Director, Downtown Center; B.A., Thiel College; M.S.W., Rutgers, The State University of New Jersey; Ph.D., Arizona State University

Dehghanpisheh, Elaine (1983), Lecturer, College of Extended Education; B.A., M.A., Pahlavi University (Iran)

F

Feldman, Patricia A. (1990), Associate Administrative Professional, College of Extended Education; Director, Academic and Professional Programs, College of Extended Education; B.S., M.Ed., Colorado State University

Fountaine, Steven (1990), Lecturer, College of Extended Education; B.A., Shepherd College; M.A., Temple University; Ph.D., Arizona State University

H

Hestrin, Michelle (2003), Instructional Specialist, College of Extended Education; International Student Advisor, American English and Culture Program, College of Extended Education; B.A., University of Minnesota; M.A., Arizona State University

Honker, Andrew M. (2001), Academic Associate of Academic and Professional Programs, College of Extended Education; Academic Advisor, Bachelor of Interdisciplinary Studies, College of Extended Education; B.A., Dartmouth College; M.A., Utah State University; Ph.D., Arizona State University

K

Kegelman, Jan (1978), Lecturer, College of Extended Education; Coordinator, International Teaching Assistants Program, American English and Culture Program; B.S., University of Massachusetts; M.A., Arizona State University

Kyselka, Christine K. (1990), Associate Administrative Professional, College of Extended Education; Assistant Director, Extended Campus Programs, College of Extended Education; B.S., M.P.A., Arizona State University

L

Lindeman, Mary (1988), Lecturer, College of Extended Education; B.A., St. Mary's University; M.A., University of Houston

Livingston, Mary (1978), Lecturer, College of Extended Education; B.A., M.A., Arizona State University

M

Mitchell, Marie (1980), Lecturer, College of Extended Education; B.A., Fort Hays State University; M.A., School for International Training

N

Navarrete, Carol (1994), Lecturer, College of Extended Education; B.A., M.A., University of Colorado

R

Rentz, Mark D. (1984), Lecturer, College of Extended Education; Director, American English and Culture Program, College of Extended Education; B.A., Bethel College; M.A., William Carey International University

Robinson, Antoniette (1994), Instructor, College of Extended Education; B.A., M.A., State University of New York

S

Schlather, Erica (1993), Instructional Specialist, College of Extended Education; Marketing Coordinator, American English and Culture Program, College of Extended Education; B.A., M.A., Northern Arizona University

T

Thursby, Gayle (1994), Lecturer, College of Extended Education; B.A., University of Colorado; M.A., University of California, Los Angeles

V

Verdini, William A. (1976), Associate Professor of Supply Chain Management; Acting Director, Distance Learning and Technology; Associate Dean, College of Extended Education; B.S., Case Western Reserve University; M.B.A., D.B.A., Kent State University

Vicens, Wendy (1977), Senior Lecturer, College of Extended Education; B.A., M.A., Northern Arizona University

W

Wagy, Scott (2001), Instructional Specialist, College of Extended Education; Coordinator for Cultural Activities and Programs, American English and Culture Program, College of Extended Education; B.A., M.A., West Virginia University

ASU Extended Campus Administrative Personnel

Dean, College of Extended Education ..... Bette F. DeGraw
Associate Dean ..... William A. Verdini
Assistant Dean ..... Elaine Sweet
Director, Academic and Professional Programs ..... Patricia A. Feldman
Director, American English and Culture Program ..... Mark D. Rentz
Director, ASU Downtown Center and Property Administration ..... Cathie Fox
Director, Communications and Marketing ..... Randy Bailey
Acting Director, Distance Learning and Technology ..... William A. Verdini
Director, Extended Campus Programs ..... Jim Patzer

ASU Extended Campus Directory

For the "ASU Main Directory," see page 518. For the "ASU East Directory," see page 665. For the "ASU West Directory," see page 680.

Organization	Location	Telephone	Web Address
Extended Education, College of	ASUDC C319	480/965-3046	www.asu.edu/xed
Academic and Professional Programs	RITT B132	480/965-9797	—
	ASUDC	480/965-9200	—
American English and Culture Program	MARIP	480/965-2376	www.asu.edu/esl
ASU Downtown Center and Property Administration	ASUDC	480/965-3046	www.asu.edu/xed/dtc
Communications and Marketing	ASUDC C319	480/965-9696	—
Distance Learning and Technology	RITT A129	480/965-6738	www.dlt.asu.edu
Extended Campus Programs	ASUDC C250	480/965-3046	—
Independent Learning	RITT B132	480/965-6563 or 1-800-533-4806	www.dlt.asu.edu/courses/independent/programinfo.cfm
Planning and Business Services	ASUDC C319	480/965-3046	—
Property Administration	ASUDC C319	480/965-3046	—
Winter Session	RITT B132	480/965-9797	www.asu.edu/xed/winter

Accreditation and Affiliation

ASU Main and ASU East. Arizona State University Main is accredited by the Higher Learning Commission and is a member of the North Central Association. For more information, call 312/263-0456, access the Web site at www.ncahigherlearningcommission.org, or write

HIGHER LEARNING COMMISSION
30 N LaSALLE ST
SUITE 2400
CHICAGO IL 60602-2504

Arizona State University East is recognized by the Higher Learning Commission as a full-service campus and is accredited under the ASU Main umbrella. Programs in the various colleges, schools, divisions, and departments are accredited by, affiliated with, or members of national bodies as described in the "Academic Accreditation at ASU Main" table below; the "Academic Accreditation at ASU East" table, page 703; the "Academic Affiliation and Membership at ASU Main" table, page 704; and the "Academic Affiliation and Membership at ASU East" table, page 708. Some programs in the College of Education are approved by the State Board of Education (Arizona) and the National Association of School Psychologists.

ASU West. ASU West is separately accredited by the Higher Learning Commission. Professional programs in the various academic areas are accredited by national bodies as described in the "Academic Accreditation at ASU West" table, page 704.

Academic Accreditation at ASU Main

Unit or Program	Accredited By
College of Architecture and Environmental Design	
B.S.D., Graphic Design, Industrial Design	National Association of Schools of Art and Design
B.S.D., Interior Design	Foundation for Interior Design Education Research
B.S.L.A.	Landscape Architectural Accreditation Board
B.S.P., M.E.P.	Planning Accreditation Board
M.Arch.	National Architectural Accrediting Board
M.S.D., Design, with concentrations in graphic design and industrial design	National Association of Schools of Art and Design
College of Education	
All programs	North Central Association of Colleges and Schools
M.C., Counseling	Council for Accreditation of Counseling and Related Educational Programs
Ph.D., Counseling Psychology; Educational Psychology, with a concentration in school psychology	American Psychological Association
College of Law	
J.D.	American Bar Association
College of Liberal Arts and Sciences	
B.S., Clinical Laboratory Sciences	National Accrediting Agency for Clinical Laboratory Sciences
M.S., Communication Disorders	American Speech-Language-Hearing Association
M.S., Family and Human Development, with a focus in marriage and family therapy under the family studies concentration	Commission on Accreditation for Marriage and Family Therapy Education—Candidacy Status
Ph.D., Psychology, with a concentration in clinical psychology	American Psychological Association
College of Nursing	
B.S.N., M.S., Nursing	Arizona State Board of Nursing Commission on Collegiate Nursing Education, initial approval
College of Public Programs	
B.S., Recreation	Council on Accreditation of the National Recreation and Park Association

Academic Accreditation at ASU Main (continued)

Unit or Program	Accredited By
College of Public Programs (continued)	
B.S.W., M.S.W., School of Social Work	Council on Social Work Education
M.P.A.	National Association of Schools of Public Affairs and Administration
Walter Cronkite School of Journalism and Mass Communication	Accrediting Council on Education in Journalism and Mass Communications
Ira A. Fulton School of Engineering	
B.S., Computer Science	Computer Science Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc.
B.S., Construction	American Council for Construction Education
B.S.E., Aerospace Engineering; Bioengineering; Chemical Engineering; Civil Engineering; Computer Systems Engineering; Electrical Engineering; Industrial Engineering; Materials Science and Engineering; Mechanical Engineering	Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc.
Katherine K. Herberger College of Fine Arts	
School of Music	National Association of Schools of Music
W. P. Carey School of Business	
All programs	AACSB International, the Association to Advance Collegiate Schools of Business
M.H.S.A., School of Health Administration and Policy	Accrediting Commission on Education for Health Services Administration
School of Accountancy	AACSB International, the Association to Advance Collegiate Schools of Business

Academic Accreditation at ASU East

Unit or Program	Accredited By
College of Technology and Applied Sciences	
B.S., Aeronautical Management Technology, with concentrations in professional flight and air transportation management	Council on Aviation Accreditation
B.S., Aeronautical Engineering Technology; Electronics Engineering Technology; Manufacturing Engineering Technology	Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc.
B.S., Industrial Technology, with concentrations in environmental technology management, graphic information technology, and industrial technology management	National Association of Industrial Technology
East College	
B.S., Business Administration*	AACSB International, the Association to Advance Collegiate Schools of Business
B.S., Nutrition (didactic program in dietetics); M.S., Nutrition (dietetic internship)	American Dietetic Association
Morrison School of Agribusiness and Resource Management	
B.S., Agribusiness with a concentration in professional golf management	Professional Golfer's Association of America

* This program is accredited through the ASU Main W. P. Carey School of Business.

Academic Accreditation at ASU West

Unit or Program	Accredited By
College of Human Services	
B.S.W., M.S.W., Department of Social Work	Council on Social Work Education
Department of Recreation and Tourism Management	National Recreation and Park Association/American Association for Leisure and Recreation Council on Accreditation
School of Management	
All programs	AACSB International, the Association to Advance Collegiate Schools of Business

Academic Affiliation and Membership at ASU Main

Unit or Program	Affiliation or Membership With
Barrett Honors College	National Collegiate Honors Council
College of Architecture and Environmental Design	
School of Architecture	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
	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
College of Education	American Association of Colleges for Teacher Education
	American Educational Research Association
	University Council for Educational Administration
M.C., Counseling	Council for Accreditation of Counseling and Related Educational Programs
Ph.D., Counseling Psychology; Educational Psychology, with a concentration in school psychology	American Psychological Association
	National Association of School Psychologists
College of Law	Association of American Law Schools
College of Liberal Arts and Sciences	
Department of Anthropology	American Anthropological Association
	Council for Museum Anthropology
Department of Chemistry and Biochemistry	American Association for the Advancement of Science
	American Chemical Society
	American Society for Advancement of Science
Department of Geography	Association of American Geographers
Department of Geological Sciences	American Association of Petroleum Geologists
	American Geophysical Union
	American Institute of Professional Geologists
	Geological Society of America
	Mineralogical Society of America
	Society of Economic Paleontologists and Mineralogists

Academic Affiliation and Membership at ASU Main (continued)

Unit or Program	Affiliation or Membership With
Department of History	American Association for State and Local History American Association of Museums American Historical Association Coordinating Committee for History in Arizona Institute of Historical Research National Council on Public History Western History Association
Department of Kinesiology	American Academy of Kinesiology and Physical Education American Alliance for Health, Physical Education, Recreation, and Dance American College of Sports Medicine American Society of Biomechanics Committee on Allied Health Education Council on Physical Education for Children International Society of Biomechanics National Association for Physical Education in Higher Education North American Society for Sports Psychology and Physical Activity Physiological Society Society for Experimental Biology Society for Neuroscience
Department of Languages and Literatures	American Council on Teaching Foreign Language International Studies Association Modern Language Association
Department of Mathematics and Statistics	American Mathematical Society Mathematical Association of America Rocky Mountain Mathematics Consortium Society for Industrial and Applied Mathematics
Department of Military Science	Association of U.S. Army
Department of Philosophy	American Philosophical Association
Department of Physics and Astronomy	Acoustical Society of America American Association of Physicists in Medicine American Association of Physics Teachers American Astronomical Society American Crystallographic Association American Physical Society American Vacuum Society International Astronomical Union Materials Research Society Optical Society of America
Department of Political Science	American Political Science Association Inter-university Consortium for Political and Social Research
Department of Psychology	American Society of Clinical Psychologists
Department of Sociology	American Sociological Association
School of Life Sciences	American Association of Immunologists American Association of Immunology American Chemical Society American Institute of Biological Sciences American Society for Biochemistry and Molecular Biology American Society for Microbiology

Academic Affiliation and Membership at ASU Main (continued)

Unit or Program	Affiliation or Membership With
School of Life Sciences (continued)	American Society for Photobiology American Society for Virology American Society of Cell Biology American Society of Horticultural Science American Society of Medical Technology American Society of Naturalists American Society of Plant Physiologists American Society of Plant Taxonomy American Society of Zoologists Animal Behavior Society Arizona-Nevada Academy of Science Botanical Society of America Botanical Society of Japan California Botanical Society Ecological Society of America International Association for Study of Plant Succulents International Association of Landscape Ecology International Association of Plant Taxonomy International Association of Wood Anatomists International Organization of Paleobotany International Photosynthesis Society International Phycological Society International Society of Arboriculture International Society of Ecological Modeling International Society of Plant Molecular Biology International Society of Plant Propagators International Union of Woody Plant Physiologists Microscopy Society of America Mycological Society of America Phycological Society of America Phytochemical Society of North America Sigma Psi Sigma Xi Society for Economic Botany Society for Neuroscience Society of Ecological Restoration Society of Wetlands Scientists Soil Science Society of America Southwestern Association of Naturalists
Women's Studies Program	Association for Women in Science National Women's Studies Association
College of Nursing	American Association of Colleges of Nursing National Organization of Nurse Practitioner Faculties Western Institute of Nursing
Continuing and Extended Education Programs	Arizona Nurses Association (American Nurses Credentialing Center's Commission on Accreditation)
College of Public Programs	
Department of Recreation Management and Tourism	American Humanics, Inc. Arizona American Indian Tourism Association Arizona Heritage Alliance Arizona Park and Recreation Association Arizona State Therapeutic Recreation Association Association for Research on Nonprofit Organizations and Voluntary Action Association for Volunteer Administration

Academic Affiliation and Membership at ASU Main (continued)

Unit or Program	Affiliation or Membership With
Department of Recreation Management and Tourism (continued)	Learning Institute National Center for Nonprofit Boards National Park and Recreation Association National Society of Fund Raising Executives Nonprofit Academic Centers Council Peter F. Drucker Foundation for Nonprofit Management Society for Nonprofit Organizations Travel Tourism Research Association
Hugh Downs School of Human Communication	National Communication Association Western States Communication Association
School of Justice Studies	American Society of Criminology Arizona Justice Educators Association of Criminal Justice Doctoral Programs Consortium for Graduate Law and Society Programs Justice Studies Association Law and Society Association National Academic Advising Onati International Institute for the Sociology of Law Society for the Study of Social Problems
School of Public Affairs	National Association of Schools of Public Affairs and Administration
School of Social Work	Baccalaureate Program Directors Association Council on Social Work Education Group for the Advancement of Doctoral Education National Association of Deans and Directors of Social Work National Association of Social Workers
Walter Cronkite School of Journalism and Mass Communication	Association of Schools of Journalism and Mass Communication Broadcast Education Association
Graduate College	Council of Graduate Schools
Ira A. Fulton School of Engineering	
Department of Chemical and Materials Engineering	American Association for the Advancement of Science American Association of Aerosol Research American Association of University Women American Chemical Society American Geological Union American Institute of Chemical Engineers American Physical Society American Society for Engineering Education American Society for Microbiology American Vacuum Society ASM International Association of Environmental Engineering and Science Professors Böhmische Physical Society Electrochemical Society Institute of Electrical and Electronic Engineers Iron and Steel Society Materials Research Society Metal Powders Industry Federation Microscopy Society of America Minerals, Metals and Materials Society National Academy of Engineers

Academic Affiliation and Membership at ASU Main (continued)

Unit or Program	Affiliation or Membership With
Department of Chemical and Materials Engineering (continued)	National Association of Corrosion Engineers National Society of Black Engineers
Katherine K. Herberger College of Fine Arts	
Department of Theatre	American Alliance for Theatre and Education Association for Theatre in Higher Education United States Institute of Theatre Technology
School of Music	American Music Therapy Association

Academic Affiliation and Membership at ASU East

Unit or Program	Affiliation or Membership With
East College	
Department of Applied Biological Sciences	Society for Range Management
Department of Exercise and Wellness	American Academy of Kinesiology and Physical Education American Alliance for Health, Physical Education, Recreation and Dance American Association of Health Education American College of Sports Medicine Association of Worksite Health Promotion Committee on Allied Health Education Council on Physical Education for Children National Association for Physical Education in Higher Education National Strength and Conditioning Association National Wellness Association North American Society for Sports Psychology and Physical Activity North American Society for the Study of Obesity
Department of Nutrition	American Dietetic Association

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Building Abbreviations

For building abbreviations used in the *General Catalog*, *Graduate Catalog*, *Schedule of Classes*, and *Summer Sessions Bulletin*, see the "Building Abbreviations" table below. ASU Main map coordinates are provided. For the ASU Main map, see the inside back cover. For other locations, see the "ASU East" map, page 664; "ASU West" map, page 679; and "ASU Downtown Center" map, page 699. For the locations of campuses, see the "ASU Campus Locations" map, page 27.

Building Abbreviations

Abbreviation	Name	Wings	Location (Coordinate)
ADM	Administration	A, B	Main (F-3)
ADMIN	Administration	—	East
ADPCM	Adelphi Commons	—	Main (G-8)
AED	College of Architecture and Environmental Design/North	—	Main (D-2)
AG	Agriculture Building	—	Main (F-3)
AGBC	Agribusiness Center	—	East
AIP	American Indian Programs	—	East
ALTCH	Altitude Chamber	—	East
ANTH	Anthropology Building	—	Main (D-3)
ANX	Visual Arts Annex	—	Main (B-3)
AQUAT	Mona Plummer Aquatics Center	A, B	Main (B-4)
ARCH	College of Architecture and Environmental Design/South	—	Main (D-2)
ARCV	University Archives	—	Main (D-4)
ART	Art Building	—	Main (D-2)
ARWH	Art Warehouse	—	Main (D-2)
ASUDC	Downtown Center	—	502 E. Monroe St., Phoenix
BA	Business Administration Building	—	Main (F-4)
BAC	Business Administration C-Wing	—	Main (F-4)
BELL	Bell Hall	—	East
BKSTR	ASU Bookstore	—	Main: 525 E. Orange St., Tempe (F-5)
BYAC	Brickyard Artisan Court	—	Main: 30 E. Seventh St., Tempe (B-1)
BYENG	Brickyard Engineering	—	Main: 699 S. Mill Ave., Tempe (B-1)
CDC	Child Development Center	—	East: 6110 S. Sagewood, Mesa
CERA	Ceramics Annex	A, B	Main (D-8)
CFS	Center for Family Studies	—	Main (D-3)
CHAPL	Danforth Chapel	—	Main (E-3)
CHOLA	Cholla Apartments	A–G	Main (E-9)
CLCC	Classroom Laboratory/Computer Classroom Building	—	West
CLRB	Classroom Building	—	East: 6113 S. Avery, Mesa
CNTR	Academic Center Building	—	East
COOR	Lattie F. Coor Mediated Classroom Building	—	Main (E-2)
COWDN	Cowden Family Resources Building	—	Main (D-3)
CP	Central Plant	—	Main (E-4)
CPCOM	Computing Commons Building	—	Main (F-5)
CRI	Cancer Research Institute	—	Main (D-5)
CRNX	Classroom Annex	—	West

Building Abbreviations (continued)

Abbreviation	Name	Wings	Location (Coordinate)
CSAC	Nadine and Ed Carson Student Athlete Center	—	Main (A-4)
CSB	Community Services Building	—	200 E. Curry Road, Tempe
CSC	Central Services Complex	—	West
DEAN	Dean Hall	—	East
DPSMN	Department of Public Safety	—	Main (G-7)
EAW	Exercise and Wellness Center	—	East: 7350 E. Unity Ave., Mesa
EAW2	Exercise Instructional Lab Building	—	East: 7429 E. Utah Ave., Mesa
ECA	Engineering Center A-Wing	—	Main (E-5)
ECANX	Engineering Center Annex	—	Main (E-5)
ECB	Engineering Center B-Wing	—	Main (E-5)
ECC	Engineering Center C-Wing	—	Main (E-5)
ECD	Engineering Center D-Wing	—	Main (E-5)
ECE	Engineering Center E-Wing	—	Main (E-5)
ECF	Engineering Center F-Wing	—	Main (E-5)
ECG	Engineering Center G-Wing	—	Main (E-5)
ED	Hiram B. Farmer Education Building	—	Main (F-2)
EDB	Ira D. Payne Education Hall	—	Main (E-2)
EDC	Education Lecture Hall	—	Main (F-2)
ELAB	Electronics Laboratory Building	—	West
ENGRC	Engineering Research Center	—	Main (E-5)
FAB	Faculty and Administration Building	—	West
FABNX	Faculty and Administration Building Annex	—	West
FAC	Nelson Fine Arts Center	—	Main (E-1)
FDSC1	Agribusiness Food Science Lab	—	East
FLHLB	Fletcher Library	—	West
FOUND	ASU Foundation	—	Main (C-4)
GGMA	Grady Gammage Memorial Auditorium	—	Main (F-2)
GHALL	Dixie Gammage Hall	—	Main (E-3)
GRNHS	Greenhouses	—	East: 7412 E. Unity Ave., Mesa
GWC	Barry M. Goldwater Center for Science and Engineering Research	—	Main (D-6)
HAYDN	Hayden Hall	—	Main (G-3)
HSC	Health Sciences Center	—	East: 6950 E. Williams Field Road, Mesa
HSC2	Health Sciences Center Research	—	East: 6950 E. Williams Field Road, Mesa
IAPNX	Interdisciplinary Arts and Performance Annex	—	West
ICEOC	Incident Command/Emergency Operations Center	—	East
IRISH	Frederick M. Irish Hall	A–C	Main (G-3)
LAW	John S. Armstrong Hall	—	Main (F-6)
LAWLB	John J. Ross–William C. Blakley Law Library	—	Main (F-6)
LCR	Las Casas Residences	—	West
LIB	Charles T. Hayden Library	—	Main (E-4)
LL	G. Homer Durham Language and Literature Building	—	Main (D-4)
LSA	Life Sciences A-Wing	—	Main (E-4)
LSC	Life Sciences C-Wing	—	Main (E-4)
LSE	Life Sciences E-Wing	—	Main (E-4)
LYC	Lyceum Theatre	—	Main (D-3)

Building Abbreviations (continued)

Abbreviation	Name	Wings	Location (Coordinate)
MAIN	Old Main	—	Main (D-4)
MANZH	Manzanita Hall	—	Main (C-6)
MARIP	Mariposa Hall	A–C	Main (G-6)
MB	M.O. Best Hall	A–C	Main (G-3)
MCENT	A.J. Matthews Center	—	Main (E-3)
MCL	James H. McClintock Hall	—	Main (E-3)
MHALL	Carrie Matthews Hall	—	Main (E-3)
MOEUR	B.B. Moeur Administration	—	Main (F-3)
MTCHL	Mitchell School	—	900 S. Mitchell St., Tempe
MU	Memorial Union	—	Main (F-4)
MUR	John Murdock Lecture Hall	—	Main (E-4)
MUSIC	Music Building	E, W	Main (F-1)
NEEB	L.S. Neeb Hall	—	Main (D-2)
NOBLE	Daniel E. Noble Science and Engineering Library	—	Main (E-6)
NUR	Nursing Building	—	Main (D-3)
OCOT	Ocotillo Hall	A–E	Main (G-6)
PABLO	San Pablo Residence Hall	—	Main (C-5)
PAC	Physical Activity Center	—	East: 7411 E. Utah Ave., Mesa
PBS	Packard Baseball Stadium	—	Main (A-7)
PEBE	Physical Education Building East	—	Main (F-6)
PEBW	Physical Education Building West	—	Main (F-4)
PGM	Professional Golf Management	—	East: 5935 S. Edgewater, Mesa
PS	George M. Bateman Physical Sciences Center	A–G	Main (D-5)
PSA	Wexler Hall	—	Main (D-5)
PSH	Physical Sciences H-Wing	—	Main (D-5)
PSY	Psychology Building	—	Main (E-6)
PSYN	Psychology Building North	—	Main (D-6)
PVE	Palo Verde East Hall	—	Main (C-5)
PVM	Palo Verde Main Hall	A–E	Main (C-5)
PVW	Palo Verde West Hall	—	Main (C-5)
QUAD 1, 2, 4	Student Affairs Quads 1, 2, 4	—	East
QUAD 3	CERIT Lab	—	East
RITT	Ritter Building	A, B	Main (E-8)
SAHU	Sahuaro Hall	A–D	Main (H-7)
SANDS	Sands Classroom Building	—	West
SCOB	John W. Schwada Classroom Office Building	—	Main (E-6)
SCRED	Sonora Center Residence Education Center	—	Main (H-8)
SDF	Solar Demonstration Facility	—	Main (C-7)
SHS	Student Health Service	A, B	Main (D-4)
SIM	Flight Simulator Building	—	East: 7442 E. Tillman Ave., Mesa
SOLAR	Photovoltaics Testing Laboratory	—	East: 7349 E. Unity Ave., Mesa
SRC	Student Recreation Complex	—	Main (G-5)
SS	Social Sciences Building	—	Main (E-4)
SSV	Student Services Building	—	Main (F-3)
STAD	Sun Devil Stadium	—	Main (A-4)
STAUF	Charles Stauffer Communication Arts Building	A, B	Main (E-2)

Building Abbreviations (continued)

Abbreviation	Name	Wings	Location (Coordinate)
SUTTON	Sutton Hall	—	East
TECH	Technology Center	—	East
TECH2	Technology Center Annex	—	East
TENNIS	Tennis Courts	—	East
TMPCT	Tempe Center	—	Main: 929 (Suite 150) and 951 (Suite 190) S. Mill Ave., Tempe (E-1)
TOWER	Tower Center*	A, B	Main (D-2)
TRACK	Joe Selleh Track	—	Main (A-7)
UASB	Undergraduate Academic Services Building	—	Main (E-4)
UCB	University Center Building	—	West
UCLUB	University Club	—	Main (D-4)
UNION	Student Union	—	East
UNION2	Student Union Annex	—	East
USB	University Services Building	—	Main: 1551 S. Rural Road, Tempe (H-9)
USE	Urban Systems Engineering	—	Main (D-6)
UVCMN	University Commons	—	Main: 215 E. Seventh St., Tempe (C-2)
UWT	Unsteady Wind Tunnel	—	Main (E-7)
VISIT	ASU Visitor's Information Center	—	Main (G-8)
WANNER	Wanner Hall	—	East
WFA	Wells Fargo Arena	—	Main (B-5)
WFLD	ASU West Alternate Locations	—	West
WHALL	West Hall	—	Main (E-3)
WIC	Welcome and Information Center	—	West
WILSN	George W. Wilson Hall	—	Main (E-3)
WTC	Whiteman Tennis Center	—	Main (B-7)

* The Tower Center is different from University Towers, 525 S. Forest Ave., Tempe (B-3), which has no official building abbreviation.

WELCOME TO ARIZONA STATE UNIVERSITY

ASU™

N
W E
S

RIO SALADO PARKWAY
LOT 59
LOT 59N
LOT 59NE
SUN DEVIL STADIUM
FRANK KUSH FIELD
STAD
CSAC
PACKARD DR
PBS
PARKING STRUCTURE #7 (U.C.)
TRACK
RURAL ROAD (SCOTTSDALE ROAD)
HOBBS VARSITY GOLF FACILITY
KARSTEN GOLF COURSE
SUN ANGEL CLUBHOUSE
LOT 59E
WFA
WTC
STADIUM DR
ALPHA DRIVE
TO RED MOUNTAIN FREEWAY (LOOP 202)
ATHLETES LOOP
TO LOOP 101
SDF
5TH ST.
6TH ST.
7TH ST.
MITCHELL GOVERNMENT CENTER (CITY HALL)
PARKING STRUCTURE #6
UNIVERSITY TOWERS
MILL AVENUE
MYRTLE AVE
FOREST AVE
COLLEGE AVE
BYAC
BYENG
DOWNTOWN Tempe
UVCMN
TO SKY HARBOR AIRPORT
ANX
AQUAT
PARKING STRUCTURE #5
ASU FOUNDATION (U.C.)
FOUND
(U.C.)
PVM
PVW
PVE
PABLO
MANZH
UNIVERSITY DRIVE
9TH ST.
10TH ST.
11TH ST.
12TH ST.
13TH ST.
TEMPE CENTER REDEVELOPMENT (U.C.)
TMPCT
PARKING STRUCTURE #3
AED
TOWER
ARCH
AFWL
ART
NEEB
CFS
COWDN
NUR
LYC
ANTH
LL
UCLUB
SHS
ARCV
MAIN
PSH
PS
PSA
USE
CRI
GWC
PSYN
CERA
PARKING STRUCTURE #2
MOTOR POOL
EIGHTH ST.
TYLER MALL
TYLER ST.
NOBLE
PSY
UWT
RITT
LOT 44
ARIZONA BIODESIGN INSTITUTE (U.C.)
TERRACE RD.
CHOLA
STAUF
MHALL
MCENT
MCL
COOR
EDB
FAC
SC
SS
LSA
LSE
ECG
ECF
ECE
ECD
ECC
ECB
ECAN
ECA
ENGR
ISCOB
LOT 26
LIB ENTRANCE
CP
UASB
MUR
ORANGE ST.
WILSN
ORANGE MALL
CHAND
MUSIC
EDC
ED
MOEUR
ADM A
ADM B
SSV
AG
MU
BA
BAC
PEBW
CPCOM
BKSTR
PEBE
LAW
LAWLB
PARKING STRUCTURE #4
LOT 42
LEMON ST.
LOT 3
GGMA
MB
IRISH
HAYDN
PARKING STRUCTURE #1
SRC
(U.C.)
LOT 40
DPSMN
McALLISTER ACADEMIC VILLAGE (U.C.)
VISIT
TO SUPERSTITION FREEWAY (US 60)
APACHE BOULEVARD
LOT 17
OCOT
MARIP
ADPCM
SUNSET DRIVE
McALLISTER AVE
ADELPHI DR.
SAHU
SCRED
CENTRAL PLANT SOUTH
SPENCE AVE.
USB
JENTILLY LN.

LEGEND

- ? = Information
- = Metered Parking (quarters only, $1/hour)
- P = Visitor Parking ($1/hour; $5/day max.)
- P = ASU Police
- (U.C.) = Under Construction

Buildings on this map are referred to in the catalog text by abbreviations, shown on pages 741–744.

Front Cover
(Clockwise from left)

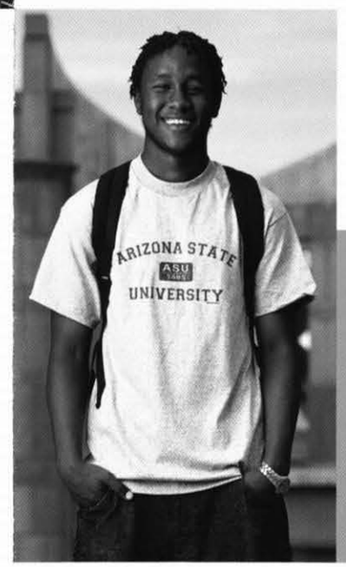
- Lattie F. Coor Hall is the university's newest and largest building. Named in honor of the 15th ASU president, it opened in January 2004. *(photo by Al Sanft)*
- Students atop "A" Mountain enjoy the view overlooking ASU Main campus. *(photo by Dave Tevis)*
- The bridge across University Drive connects scenic Palm Walk with Palo Verde East Residence Hall and other nearby dorms. *(photo by Kevin Harris)*
- "ASU has offered me a place where I can truly be who I am." — Krystina, Nursing junior *(photo by Dave Tevis)*

Back Cover
(From left)

- "The environment is the best. Besides working on campus, I'm on the ASU club soccer team and spend my free time with friends in the student union." — Joel, business sophomore *(photo by Jeff Noble)*
- ASU education students gather for a quick break between classes. *(photo by Dave Tevis)*
- The student-run *State Press* provides real-world work experience and daily news to the ASU community. *(photo by Dave Tevis)*

Inside Flap
(From left)

- Students enjoy meeting their friends and listening to live music at one of several cafés at ASU. *(photo by Dave Tevis)*
- Computer terminals throughout ASU make accessing the Web convenient. *(photo by Dave Tevis)*



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